Vanguard’s distinct approach to active taxable fixed income

Fixed income plays a crucial role in many investors’ portfolios. And whether you’re looking to control equity risk, generate income in retirement, or achieve and maintain targeted funded status in your pension plan, many investors have found actively managed fixed income strategies a desirable way to maintain their exposure to fixed income.

With more than $140 billion in active taxable bond strategies and more than $200 billion in taxable money market assets, Vanguard is one of the largest providers of actively managed taxable bond strategies. Our portfolios seek to generate a return advantage compared with peers. Our investors also can benefit from several factors, including our unique ownership structure and large scale, experienced team of investment specialists, investment philosophy, and disciplined, collaborative investment process.
Our firm

Any mention of Vanguard and investment success begins with a discussion of Vanguard’s unique corporate ownership structure. Most investment firms are either publicly traded or owned by private owners. Vanguard is owned by the Vanguard funds, which, in turn, are owned by their shareholders.

With no conflicting interests, Vanguard makes decisions with the needs of Vanguard shareholders in mind. We never have to weigh what’s best for clients against what’s best for the company’s owners, because they are one and the same.

Our unique structure allows us to return profits to our fund shareholders in the form of lower expenses, which help our clients keep more of their returns and which can help them earn more money over time. In addition, low costs mean that Vanguard’s portfolio managers don’t have to take on greater investment risk and overcome the performance drag suffered by funds with higher expense ratios.

Investors worldwide also can benefit from the stability, transparency, long-term perspective, rigorous risk management, and bedrock commitment to their best interests, all of which are part of our client-owned corporate structure’s DNA.

In addition, with more than $950 billion in total fixed income assets under management, Vanguard Fixed Income Group (FIG) has a strong presence in the market, which has allowed us to establish strong relations with issuers and trading counterparties. These relationships give us unique insights into the market that can help with portfolio strategy and trading efficiency.

Figure 1: Vanguard’s active taxable fund lineup

<table>
<thead>
<tr>
<th>Money market</th>
<th>Broad investment-grade market</th>
<th>Specialty</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treasury Money Market</strong></td>
<td><strong>Core Bond</strong></td>
<td><strong>Ultra-Short-Term Bond</strong></td>
</tr>
<tr>
<td><strong>Federal Money Market</strong></td>
<td><strong>Short-Term Treasury</strong></td>
<td><strong>Inflation-Protected Securities</strong></td>
</tr>
<tr>
<td><strong>Prime Money Market</strong></td>
<td><strong>Intermediate-Term Treasury</strong></td>
<td><strong>GNMA</strong></td>
</tr>
<tr>
<td><strong>Credit</strong></td>
<td><strong>Long-Term Treasury</strong></td>
<td><strong>High-Yield Corporate</strong></td>
</tr>
<tr>
<td><strong>Short-Term Investment-Grade</strong></td>
<td><strong>Intermediate-Term Investment-Grade</strong></td>
<td><strong>Long-Term Investment-Grade</strong></td>
</tr>
</tbody>
</table>

Source: Vanguard.
* Managed by Wellington Management Company LLP.
** Managed by both Vanguard Fixed Income Group and Wellington Management Company LLP.
Our people

Our global fixed income group includes nearly 145 seasoned investment professionals in the United States, United Kingdom, and Australia. Our presence throughout the world lets us share local insights from a bottom-up perspective.

Our fixed income team is highly credentialed, with more than one-third of our investment professionals holding the CFA® designation and more than half having earned an M.B.A. or other master’s degree. Our senior leaders on average have more than 20 years of investing experience, and all have been at Vanguard for at least 15 years.

Of the nearly 145 investment professionals in FIG, more than 75 are focused primarily on the management of actively managed taxable fixed income assets.

Figure 2: A closer look at Vanguard’s active taxable fixed income team

<table>
<thead>
<tr>
<th>Title</th>
<th>Investment professionals</th>
<th>Average Vanguard tenure</th>
<th>Average investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior strategy group (the Hub)</td>
<td>6</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Portfolio managers</td>
<td>13</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>Assistant portfolio managers</td>
<td>5</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Traders</td>
<td>24</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Credit research analysts</td>
<td>16</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td>Credit research associates</td>
<td>13</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: Vanguard.

The active taxable team also periodically takes advantage of the expertise and experience of more than 25 portfolio managers and traders focused on managing Vanguard’s taxable index mandates, as well as about 40 portfolio managers, traders, and credit research analysts and associates within FIG’s municipal bond team.

Our active team relies extensively on two other groups—Vanguard Risk Management Group (RMG) and Vanguard Investment Strategy Group (ISG).

Worldwide, RMG is composed of more than 50 risk professionals, quantitative researchers, data analysts, and portfolio analysts. As a partner to FIG, RMG focuses on:

- Evaluating, measuring, and controlling investment risk.
- Proactively managing operational risks to ensure that our people, process, and technology function as intended and control counterparty risk, derivatives, and other exposures.
- Conducting quantitative research in support of the portfolio management process.

RMG also conducts detailed performance attribution, produces reports to assess a fund’s liquidity, and creates tools used by portfolio managers to understand the risk factors present in the funds.

Consisting of approximately 60 professionals in four global sites, ISG is made up of researchers and economists who support FIG’s investment process by providing research and insights into a variety of topics related to the global markets and the economy. ISG’s research on macroeconomic and policy issues is used extensively by both FIG’s senior strategy group and the various specialist teams in the day-to-day management of our fixed income funds.
Our philosophy

The primary objective of our actively managed taxable fixed income strategies is to generate a return advantage compared with peers by pairing low costs with our multiple specialized and collaborative teams in a risk-controlled fashion. We seek to add value consistent with a risk level that will help maintain the expense ratio advantage of our funds. As such, risk management is a cornerstone of our portfolio management process.

The size and complexity of fixed income markets makes specialization an imperative in the management of our portfolios. For this reason, our investment professionals are aligned with specific sectors. This helps produce in-depth expertise that we rely on in the management of all our portfolios.

Our team seeks to add value through a diversified set of sources, including risk premium exposures and security selection strategies. We actively manage the exposures our portfolios have to the key risk premiums in the fixed income markets, such as term and credit risk. We seek to add value from security selection by leveraging our deep credit research and portfolio management teams.

Our process

Our approach leverages the capabilities of multiple teams and is designed to maximize the collective and specialized expertise of our portfolio managers, traders, credit analysts and associates, and quantitative strategists. Investors can benefit from this approach as they are supported by diversified sets of teams that add value. This protects our portfolios from being too dependent on a single person for portfolio decisions. On our teams, there are no “star” managers or individuals who make all the key investment decisions. As a result, our approach produces a wide range of insights within our decision-making process and there’s no one person whose potential departure could leave investors vulnerable.

Our approach balances top-down and bottom-up portfolio construction, with our senior strategy group (the Hub) and our specialist teams (the satellites) interacting and collaborating to make investment decisions.

Figure 3: Each mandate is influenced by our entire team

<table>
<thead>
<tr>
<th>Hub: Senior group</th>
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<tbody>
<tr>
<td>Establishes investment policy and strategic outlook</td>
</tr>
<tr>
<td>Develops overall, credit, and rates risk budgets</td>
</tr>
<tr>
<td>Oversees investment process and monitors risk budgets</td>
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</table>

<table>
<thead>
<tr>
<th>Credit team</th>
<th>Rates team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocates and monitors risk across credit teams</td>
<td></td>
</tr>
<tr>
<td>Allocates and monitors risk across rates teams</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Satellite: Specialist teams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Execute subsector portfolio construction and research</td>
</tr>
<tr>
<td>Identify and invest in attractive subsectors, issuers, and individual securities</td>
</tr>
</tbody>
</table>

Source: Vanguard.
Senior strategy group

Composed of senior leaders in FIG, RMG, and ISG, our senior strategy group sets the investment policies and strategic outlook for our actively managed fixed income portfolios. This group develops and allocates risk budgets for all of Vanguard’s actively managed funds with input from the economic and specialist teams.

Figure 4: Our senior strategy group

The senior strategy group is composed of the following six investment leaders:

**Gregory Davis, CFA.** is a principal and global head of Vanguard Fixed Income Group. He is responsible for the Fixed Income Group's portfolio management, strategy, credit research, trading, and planning functions. In his previous role, Mr. Davis was the company’s Asia Pacific chief investment officer and a director of Vanguard Investments Australia. Mr. Davis has more than 15 years of investment management experience. Mr. Davis earned a B.S. in insurance from The Pennsylvania State University and an M.B.A. in finance from the Wharton School of the University of Pennsylvania.

**Christopher W. Alwine, CFA.** is a principal and head of the Municipal Bond Group at Vanguard. Mr. Alwine joined Vanguard in 1990 and has more than 20 years of investment experience. Mr. Alwine leads a team of 30 investment professionals. His team manages 13 municipal bond funds. Mr. Alwine has served in multiple roles throughout his career in Vanguard Fixed Income Group. His experience includes trading, portfolio management, and credit research. His portfolio management experience spans both taxable and municipal markets, as well as active and index funds. Mr. Alwine earned a bachelor’s degree in business administration from Temple University and an M.S. in finance from Drexel University.

**Joseph H. Davis, Ph.D.** is a Vanguard principal and the global head of the Investment Strategy Group, whose research and client-facing team develops asset allocation strategies and conducts research on the capital markets, the global economy, portfolio construction, and related investment topics. As Vanguard’s global chief economist, Mr. Davis is also a key member of the senior portfolio management team for Vanguard Fixed Income Group. Mr. Davis earned his B.A. summa cum laude from Saint Joseph’s University and his M.A. and Ph.D. in economics from Duke University.

**John W. Hollyer, CFA.** is a principal at Vanguard. Since 2003, he has led the Risk Management Group, which focuses on investment and operational risk issues and conducts quantitative research for Vanguard Fixed Income Group and Vanguard Equity Investment Group. Before taking on his current responsibilities, he was portfolio manager for a number of Vanguard’s bond and money market funds. Mr. Hollyer, who has more than 20 years of fixed income management experience, has a B.S. in economics from the Wharton School of the University of Pennsylvania.

**Paul Jakubowski** is a principal and global head of credit in Vanguard Fixed Income Group. He has oversight responsibility for investment activities in the credit-related sectors of the taxable fixed income market as well as for taxable credit research. Mr. Jakubowski has worked in investment management since joining Vanguard in 2000. He earned his B.S. from the University of Richmond and his M.B.A. from Villanova University.

**Ronald Reardon** is a principal and global head of rates in Vanguard Fixed Income Group. He oversees investment activities in the rates-related sectors of the taxable fixed income market, including foreign exchange. Mr. Reardon has worked in investment management for Vanguard since 2001. He earned his B.S. from The College of New Jersey and his M.B.A. from the University of Rochester.

Source: Vanguard.
Rates and credit teams

Our rates and the credit teams—which are led by global heads who are also members of the senior strategy group—are responsible for allocating the risk budget across the various rate and credit sectors of the market.

The rates team includes the heads of the rates specialist teams, such as Treasuries, TIPS, agencies, and agency mortgage-backed securities. They’re responsible for allocating the risk budgets within the different rates sectors. They also develop the overall interest rate strategies and outlook (e.g., duration*** and yield-curve positioning) and make recommendations to the senior strategy group based on the research of its specialist team members. To determine its outlook, the team considers three primary factors—the market, the economy, and policy.

The credit team includes the leaders of the credit specialist team, investment-grade corporate, emerging markets, and structured products teams. Taking into consideration valuations, fundamentals, and technical factors, they’re responsible for relative value across the credit sectors and develop the outlook for the global credit market.

Specialist teams

Our specialist teams, composed of portfolio managers, traders, credit research analysts and associates, and quantitative analysts, play a critical role in executing the top-down positioning and risk-budgeting process established by the senior strategy group. They add value through credit quality allocations, subsector allocations, security selection, and tactical trading. These specialist teams are distinctly focused on particular segments of the market as shown below.

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Figure 5: Factors that help determine our interest rate outlook

![Diagram showing factors that help determine interest rate outlook](source: Vanguard)

Figure 6: Our specialist teams focus on the following segments of the market

<table>
<thead>
<tr>
<th>Rates satellites</th>
<th>Treasury/TIPS</th>
<th>MBS/Agency/Volatility</th>
</tr>
</thead>
</table>
| Coverage universe | • U.S. Treasury
|                  | • U.S. Treasury Inflation-Protected Securities | • U.S. government mortgage-backed
|                  | • U.S. agency | • U.S. agency
|                  | • Volatility | • Volatility |

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*** Duration is a measure of the sensitivity of the price of a fixed income investment to a change in interest rates.
Credit research and trading
Credit research is one of the key priorities of our fixed income process. Our stable, tenured team of more than 25 taxable credit analysts and associates identifies opportunities and potential problems among any bonds or issuers we own or are considering owning. Before selecting securities for our portfolios, our credit analysts perform an objective, thorough, and independent analysis of an issuer’s creditworthiness and assign each an internal credit rating.

The type of analysis and factors on which our credit analysts focus are based on the type of security being analyzed within the sectors they cover. Our corporate credit analysts focus on reviewing the industry in which the company operates as well as the issuer’s projected, current, and historical financial situation. Our emerging markets and sovereign analysts base their analysis on macroeconomic measures such as gross domestic product, inflation, as well as monetary and fiscal policy. The different sets of skills and knowledge required to effectively research these distinct sectors and markets is crucial and contributes significantly to the specialization and experience of our fixed income team.

Our credit research team collaborates with our traders and portfolio managers to make relative value assessments of securities and issuers. Working closely together, these groups are responsible for selecting securities for our portfolios. Once decisions are made, our specialized team of traders work to achieve best execution in trading to implement the portfolio.
The right balance of collaboration and independent thinking

Vanguard’s thorough and collaborative approach to fixed income investing has made us an industry leader in actively managed taxable fixed income strategies.

Our Fixed Income Group seeks to invest shareholders’ assets in a disciplined and risk-controlled manner that leverages our experienced and highly skilled, multidisciplined teams of portfolio managers, traders, and credit analysts. Our seasoned, stable team of more than 75 investment professionals is focused exclusively on the management of active taxable mandates and is further supported by the full depth of Vanguard’s resources both within FIG and through other departments at Vanguard, including ISG and RMG.

Vanguard’s multidisciplined and multiteam approach to managing our active taxable portfolios helps produce the right balance of diversification of risk premiums and alpha sources through collaboration and independent thinking. Our emphasis on collaboration across multiple teams allows us to maximize both the breadth and depth of our research coverage and trading acumen for our entire suite of fixed income funds. Our team-based approach helps us make the best decisions in our portfolios for our investors and leverages the resources and capabilities of our entire organization.

We believe our approach is well-designed to give our investors the best chance for investment success.
Appendix

Vanguard’s liquidity management practices

Vanguard’s approach to active taxable fixed income provides an example of the multifaceted nature of best practices in liquidity risk management. We tailor a specific method to each portfolio that considers a number of different factors:

- **The construction of the portfolio.** We evaluate all of a fund’s holdings and calculate the portion of the portfolio that’s likely to remain highly liquid even in times of market stress. This may include cash and cash equivalents, highly rated investment-grade sovereign bonds, and bonds from supranational issuers, such as the World Bank.

- **The liquidity of the underlying market.** We consider a variety of metrics such as market trading volume statistics, transaction costs, and the quality and breadth of diversification in the market. We also rely on qualitative information, such as the market structure, derivatives and financing, and securities-lending markets. The result is an overall assessment of the liquidity of various market segments.

- **Historical levels of peak redemptions.** We review historical cash-flow data for each Vanguard fund and comparable funds in the industry to evaluate redemption activity during times of stress such as the bond bear market of 1987, the global financial crisis, and the Taper Tantrum of 2013. We determine the potential impact of worst-case scenarios based on the construction of the portfolio, liquidity in the underlying market, and the composition of the investor base.

- **The composition of the investor base.** The shareholder base for most Vanguard funds is well-diversified, encompassing individuals of various ages and investment objectives. It includes both institutions and financial advisors. If a large portion of a fund is held by a small number of big investors (as is sometimes the case in new funds), we consider that fund to be more vulnerable to liquidity risk and manage it appropriately. Vanguard funds that offer an exchange-traded fund share class are assigned a lower liquidity risk. Because these shares are redeemed largely in-kind (the redeemer receives securities rather than cash), the need to transact in the bond market is reduced.

This approach yields a dashboard of measures that allow portfolio managers to gauge market liquidity as they put new cash to work or meet any net redemptions. If a fund can’t meet redemptions with new cash flows, the portfolio manager typically sells a cross-section of the fund’s holdings.

Our funds benefit from additional policies and resources designed to help us meet requests for redemptions and maintain the funds’ investment and liquidity profiles in all market environments, including:

- **Frequent-trading policies.** Clients are subject to frequent-trading policies that discourage high levels of potentially disruptive and costly trading in fund shares.

- **Redemption fees.** Vanguard assesses fees on redemptions to ensure that the redeeming investors bear the costs of these transactions.

- **In-kind redemptions.** We work with larger clients to redeem their shares in a way that minimizes disruption to the portfolio. Many large clients prefer to redeem their investment “in-kind” (as a cross-section of the fund’s securities) rather than in cash. This approach can minimize costs when moving assets to a new manager or implementing a new strategy. In-kind redemptions reduce or eliminate Vanguard’s need to transact and incur trading costs in the bond market.

- **Interfund lending and lines of credit.** In the event of significant net redemptions and unusually unsettled markets, Vanguard funds can rely on an exemptive order from the Securities and Exchange Commission that allows for loans from one fund to another. The funds also have access to a committed line of credit from a syndicated group of banks.
Important information

All data is as of March 10, 2016.

1 You could lose money by investing in the Fund. Although the Fund seeks to preserve the value of your investment at $1.00 per share, it cannot guarantee it will do so. An investment in the Fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. The Fund’s sponsor has no legal obligation to provide financial support to the Fund, and you should not expect that the sponsor will provide financial support to the Fund at any time.

2 You could lose money by investing in the Fund. Although the Fund seeks to preserve the value of your investment at $1.00 per share, it cannot guarantee it will do so. The Fund may impose a fee upon the sale of your shares or may temporarily suspend your ability to sell shares if the Fund’s liquidity falls below required minimums because of market conditions or other factors. An investment in the Fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. The Fund’s sponsor has no legal obligation to provide financial support to the Fund, and you should not expect that the sponsor will provide financial support to the Fund at any time.

For more information about Vanguard funds, visit institutional.vanguard.com or call 800-523-1036 to obtain a prospectus or, if available, a summary prospectus. Investment objectives, risks, charges, expenses, and other important information about a fund are contained in the prospectus; read and consider it carefully before investing.

All investing is subject to risk, including the possible loss of the money you invest. Diversification does not ensure a profit or protect against a loss.

Past performance is no guarantee of future results.

Investments in bonds are subject to interest rate, credit, and inflation risk. Investments in securities issued by non-U.S. companies are subject to risks including country/regional risk and currency risk.