

The future of fixed income: From income to engineered outcomes

How technology, ETFs, and systematic strategies
are reshaping bond portfolios

Your bond bucket isn't boring anymore

Fixed income has changed dramatically over the past few decades. Advances in technology and access to new and more complex credit exposures have unlocked new ways to use the asset class. The result: fixed income is much more than just an equity hedge or source of income; it's increasingly a strategic allocation for building targeted exposures and solutions.

Fixed income has traditionally served certain predictable roles in portfolios: preserving capital, generating income, and diversifying equity risk. Historically, these roles were supported by low default rates in high-quality fixed income (such as the Bloomberg Aggregate Index) and by the tendency for bonds to be less correlated with equities. Today, however, technology and market structure changes have broadened the types of fixed income assets available to investors well beyond traditional fixed income, and beyond assets that play a purely risk-management function. Fixed income can also be used to seek alpha, gain access to complex geographies or sectors, enter private credit markets, lean into factor-based systematic implementation, and many other use cases.

Fixed income is therefore now more strategic. It offers investors a flexible toolkit for building targeted exposures and playing new, dynamic, customized roles within portfolios. This is especially important because investors can no longer assume a persistent negative correlation with equities.

Engineered Outcomes

As fixed income becomes a lever of strategic intent that enables more precise exposures, the future of fixed income will favor asset managers who can translate fixed income allocations into tailored strategies that are designed, adjusted, and optimized around specific portfolio outcomes, rather than broad market proxies. Engineered outcomes refer to the intentional construction of fixed income portfolios to deliver predefined results such as:

- Targeted income
- Specific cash-flow patterns
- Liability matching
- Delivery of sustainability objectives

“ With engineered outcomes, the desired outcome, constraints, and risk trade-offs are explicitly specified upfront, rather than emerging indirectly from exposure to a broad market benchmark.”

What's driving fixed income into a new chapter

Technological advancements and product innovation are two of the largest forces that are setting the stage for a new fixed income landscape in coming years. First, improvements in fixed income liquidity and transparency are well-telegraphed, and they are allowing investors to take on various levels of risk and management styles. Second, exchange-traded funds (ETFs) are democratizing access to complex credit exposures.

Technological advancements have enabled new investment approaches

The fixed income markets' historically opaque, dealer-centric structure presented investors with a variety of challenges, including asymmetrical information, episodic illiquidity, and pricing and execution that were contingent on entrenched dealer relationships. The

widespread adoption of electronic trading platforms such as Tradeweb, MarketAxess, and Bloomberg has disrupted this model (Figure 1). E-trading platforms introduce real-time pricing and “all-to-all” trading environments with access to diverse networks of counterparties. E-trading has helped drive:

- Scalability and speed
- Lower transaction costs
- Transparency

Dealers can source the other side of their trades via electronic markets, with little or no holding period in between. The buy-side asset management firms have stepped in as well, evolving into a price maker via the new trading venues while actively shaping trading protocols and often providing liquidity in all-to-all platforms for anonymous (no market impact) trading.

These and other innovations—including portfolio trading, AI-based composite pricing algorithms (see “Focus on AI” section below), and use of automated execution tools for more-liquid and smaller tickets—are allowing investors new systematic options for fixed income exposure. See glossary of trading tools for more details.

Figure 1: Percentage along the evolutionary curve

Manual	Pre-inflection	Post-inflection	Highly electronic
Municipals (12 - 15%)	IG Corp (US/EUR 50%)	US Treasuries (65 - 70%)	UST Futures (90%)
EMD (about 10%)	HY Corp (US: 30%, EUR: 40%)	European Govt (75 - 80%)	CDX Indices (80 - 90%)
Leveraged loans (<10%)	Convertible Bonds (30%)	FX Forwards (50 - 60%)	

Source: Barclays Research, Flow Traders, Coalition Greenwich, FT, Tradeweb, State Street Investment Management Estimates. As of 30 June 2025. The information contained above is for illustrative purposes only.

Systematic

Due to changes in the trading environment, factor-based, quantitative strategies—which thrive on the availability of data and market transparency—are compelling complements to traditional fundamental active fixed income. Systematic active fixed income (SAFI) strategies generate alpha through exposure to quantitative signals that may improve alpha, according to data showing the potential return benefits of certain factors over time. SAFI strategies cast a wide net because they rapidly evaluate the entire security universe when considering opportunities versus the more focused fundamental strategies. The innovations in trading, and associated decline in trading costs, also play a key role in the success of quantitative strategies, which can have higher levels of trading.

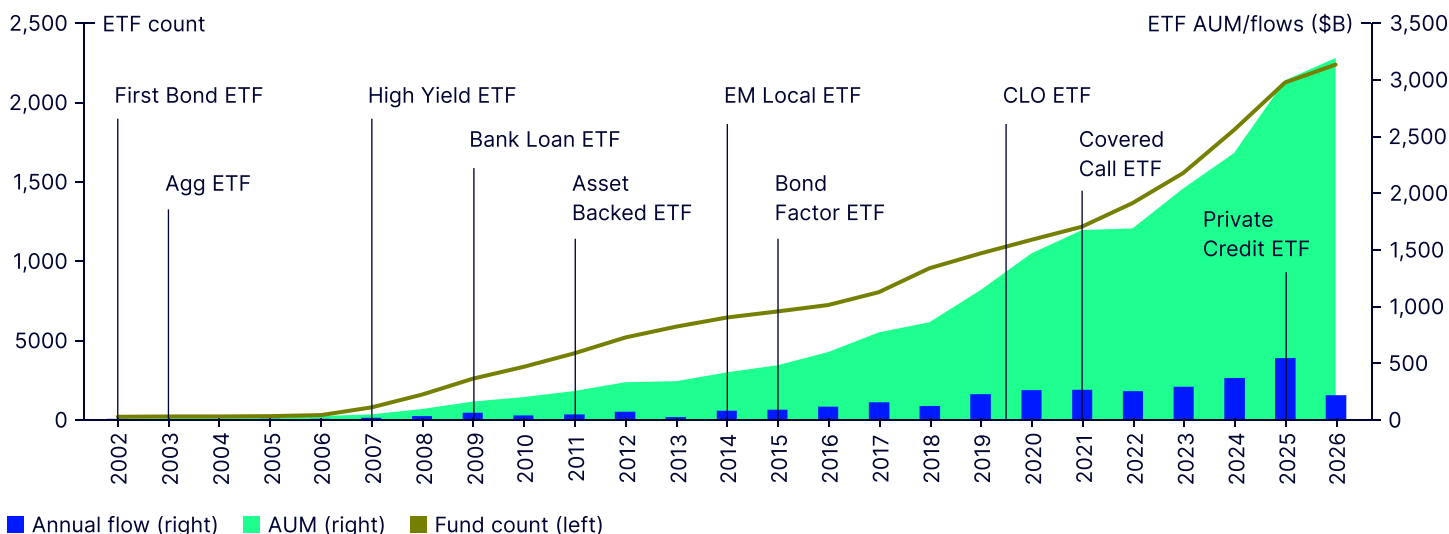
SAFI strategies can offer several benefits to investors, including consistent alpha with low tracking risk, downside mitigation, and manager diversification given their low correlation with traditional, active fundamental credit strategies.

ETFs are increasing access to illiquid markets

Beyond e-trading, the exponential growth of fixed income ETFs and index-oriented strategies has increased market access. While ETFs don't eliminate the fundamental liquidity characteristics of the assets held,¹ ETF liquidity reflects a combination of secondary-market trading, and the underlying bond market's capacity to absorb creations and redemptions. ETFs offer real-time pricing, cost-effective execution, and exposure to previously hard-to-access market segments (Figure 2). Fixed income ETFs now serve as reference points for less liquid securities, and large institutional allocators increasingly use them to manage their exposures.

Institutional allocators now routinely blend index exposures with tactical and/or strategic overlays, using ETFs not just for beta, but as precision instruments for tactical rotation, to maintain exposure during transitions, and for efficient access to complex market betas. By modularizing portfolio construction using a core/satellite or building block approach, ETFs offer investors a way to efficiently customize their exposures. Given their daily liquidity, ETFs can also provide a means to assess pricing and quickly shift exposures in market events.

Figure 2: ETFs have increased investor access to more complex fixed income subsectors



Source: Morningstar, State Street Investment Management ETF Research calculations as of April 30, 2026. Period 2002–2007 is representative of US fixed income ETF data only. Figures beginning 2008 are inclusive of all global fixed income ETFs.

What's ahead: An outcomes-based approach that harnesses the new fixed income opportunity set

The future landscape of fixed income will be defined by a solutions mindset. The trends above—all of which widen the opportunity set for fixed income exposures—are paving the way for asset managers to provide more precise fixed income solutions that match each institution's unique mandates, time horizons, cash flow profiles, liquidity requirements, sensitivity exposures, capital preservation functions, regulatory requirements, and other considerations.

“ The future landscape of fixed income will be defined by a solutions mindset.”

This outcome-oriented approach will manifest in a variety of ways, including increasing demand for customization at scale; a broader role for asset managers (beyond security selection); innovation in performance measurement; and the rise of the core-satellite approach in portfolios.

Customization at scale

Investors want customized solutions that can target specific return, cash flow, diversification, and/or risk objectives across increasingly large asset bases. Fast-improving technologies are enabling more precise customization, at scale, and we expect demands for scalable customization to only grow.

One approach to customization is to disaggregate fixed income exposures into underlying building blocks, such as developed government bonds, investment grade, high yield, emerging market, leveraged loans, and private credit. Those building blocks can be blended or optimized in various ways to efficiently target specific client objectives or portfolio outcomes.

This building block approach enables a specific set of outcomes that may not be available from a single fixed income category. In addition, managers have developed modular portfolio frameworks—using ETFs, model portfolios, and systematic overlays—to construct individualized fixed income solutions at scale.

The role of technology

Technology is helping to make targeted customization possible. E-trading platforms can improve liquidity and reduce investors' transaction costs, facilitating the execution of large, complex trades, and enabling the customization of portfolios that more closely align with investors' desired outcomes—at scale. This might mean efficiently optimizing a portfolio based on specific yield and duration targets, while avoiding client-specified exclusions and maintaining desired portfolio turnover. Traders can undertake more complex transactions, execute higher volumes, and improve prices on clients' behalf. Technology will continue to play a key role via the following:

- **More cost-effective, targeted selection of securities to match client constraints.**

Managers can now integrate real-time liquidity, value, and risk metrics at the individual security level, and analyze multiple risk dimensions simultaneously. This facilitates efficient security selection risk-matched to client constraints, while controlling factors such as liquidity, idiosyncratic risk, and trading costs.

And, managers simply have more bonds to choose from. More security information and more frequent trading across a broader swath of the bond market creates more datapoints investors can use to more tightly align portfolios with specific constraints, fiduciary mandates, and regulatory frameworks.

- **Greater ability to optimize portfolios across multiple constraints.**

Managers can now more efficiently meet investors' demands for constraints such as cash flow matching, regulatory capital efficiency, sector or issuer exposure limits, or other restrictions. These custom solutions can be deployed across client segments including model delivery platforms, portfolio management as a service, and outsourced chief investment officer (OCIO) mandates.

- **More in-depth reporting.**

New technology also enables more robust performance analytics and client reporting across a range of dimensions, including factor exposures, liquidity scores, and return drivers.

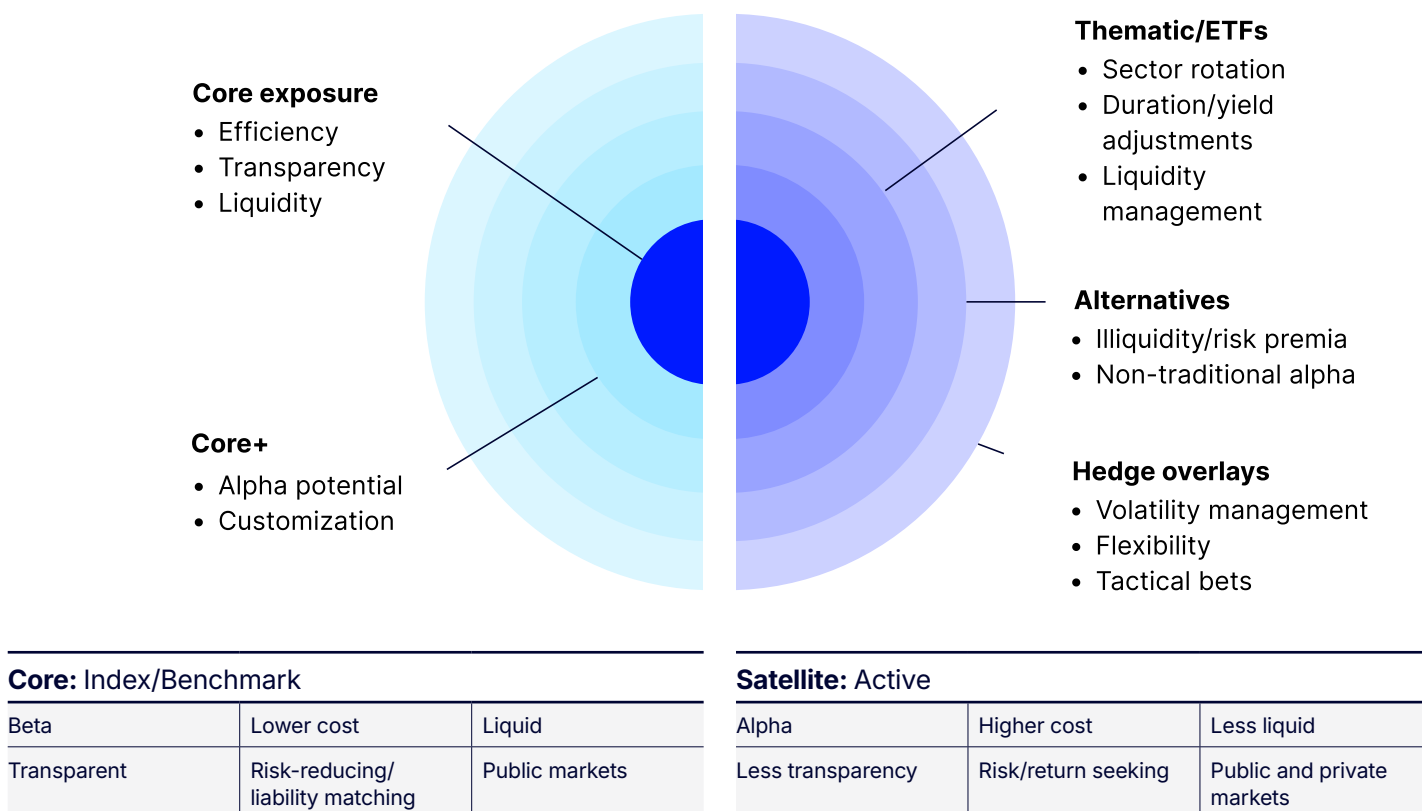
In general, a renewed focus on outcome-based investing opens the door to innovation in performance measurement and attribution. With technological improvements, investors can now track fixed income's contribution to goals, regulatory mandates, and broader societal outcomes such as decarbonization and infrastructure finance.

A broader role for managers

In the future, asset managers will be looking more holistically at a client's fixed income allocation. This could include determining strategic asset allocation targets, choosing benchmarks, and deciding how and how often to apply tactical asset allocations.

In cases like this, managers will, more and more, change the benchmark used so that clients have a truer representation of the beta of a market. Investor demand for tailored exposures will catalyze a greater proliferation of custom indices. These bespoke benchmarks will help align portfolios precisely with criteria including credit quality thresholds, duration targets, and environmental, social, and governance (ESG) preferences. Asset managers will develop unique portfolio construction frameworks aligned with these proprietary benchmarks, redefining their value propositions in the process.

Figure 3: The core-satellite approach can help investors effectively diversify across fixed income categories



Source: State Street Investment Management. The information contained above is for illustrative purposes only.

The core-satellite approach

One approach gaining traction is a core-satellite structure consisting of reliable, cost-effective index strategies as the “core” allocation, complemented by high-alpha or niche satellite components as the “satellite” (Figure 3). Efficient exposure management can occur across a wide range of dimensions, such as those in Figure 4.

Figure 4: Investors can fit a “core-satellite” framework for their specific objectives

Core-Satellite approach Fixed income exposure management	
Core: Passive/benchmark	Satellite: Active
Beta	Alpha
Transparent	Less transparent
Lower cost	Higher cost
Risk reducing/liability matching	Risk/return seeking
Liquid	Less liquid
Public markets	Private markets

Changes driven by innovation

Technology

Tokenization and distributed ledger technologies

The emergence of blockchain-enabled issuance and settlement platforms will reshape how both the primary and secondary markets function, reducing friction, lowering operational costs, and increasing transparency. These platforms pave the way for fractional securities and reduce settlement timing and risks.

Focus on AI

Enhanced integration of AI and machine learning will expand the frontiers of portfolio modeling, scenario analysis, and optimization of portfolio exposures. Potential use cases for AI technologies for fixed income managers include:

- **Adaptive signal generation.** Machine learning (ML) models can create and continually update “signals” (predictive indicators) as new data arrives and market conditions change—rather than relying on fixed signals. Signal generation can allow portfolio managers to map inputs such as duration, rating, or other security characteristics to actionable scores.

For example, our systematic active fixed income portfolios are based on signals related to 3 factors that have exhibited strong portfolio outcomes: value, momentum and sentiment. At the same time, ML models introduce well-known model risks: because they are trained on historical data, they can overfit to narrow patterns and perform less reliably when applied to broader or changing fixed income markets.

- **Sentiment-based foreign-exchange hedging.** Managers can use a currency-hedging approach in which the currency hedge ratio (how much

foreign-currency exposure you hedge back to base currency) is adjusted dynamically based on “sentiment” signals about currencies and/or risk appetite. For example, sentiment signals may show that retail investors favor a specific EM currency or positioning is overextended.

- **AI-based composite pricing algorithms.** These models estimate a security’s “fair” or executable price by combining multiple pricing inputs.
- **Anomaly detection in bond pricing.** AI can help identify bond pricing that is different from fair value or has moved in a highly unpredictable trajectory. ML models can help use information on pricing to adjust security weighting in real time.
- **Tokenization.** Digital cash is already changing the money market and payments systems, with innovation allowing investors to take on-chain yield or sweep stablecoin into yield-bearing tokenized accounts.

However, tokenization in fixed income is still in early innings. Tokenized money market instruments assets and bonds haven’t grown at scale, limiting near-term implications for broader market structure.

As AI makes its mark, there are also meaningful governance and operational risks associated with reduced human oversight. Research² from Federal Reserve economists suggests that banking organizations with higher AI investment may face greater operational risk exposure, including higher operational losses relative to total assets. These risks appear most acute in areas such as external fraud, client-related issues, and system failures. Given the speed and scale at which automated systems operate, even modest errors can escalate quickly if controls are weak or monitoring is inadequate.

Infrastructure constraints also merit attention, particularly as the market evolves from generative AI applications toward more complex agentic systems. Demands on compute capacity, memory, and system architecture could become a practical bottleneck, affecting both scalability and implementation costs.

Learn how State Street Investment management is using [ML methods](#) such as Random Forest to help look at security similarities in bond portfolios and estimate risks.

Market structure

Fusion of active and index approaches in ETF structures

Active ETFs that blend active and indexed components will become the dominant vehicles for the delivery of sophisticated strategies, as investors capitalize on their ability to combine cost-effectiveness with strategic agility and regulatory transparency. Managers will increasingly leverage the ETF wrapper for liquidity management, capital efficiency, and cross-channel distribution.

Integration of public and private credit markets

Allocators' desire for holistic yield solutions and the explosive growth in private credit will drive asset managers to blend liquid and illiquid credit exposures with hybrid structures, new valuation frameworks, and enhanced liquidity. This convergence may also lead to new reporting standards and valuation tools that bridge public and private markets.

Private credit remains under a microscope. Tighter financial conditions and heightened investor sensitivity have reduced liquidity in parts of the market and contributed to a higher risk premium in certain direct-lending segments, including within the software sector. Private credit assets remain relatively illiquid, increasing redemption risk during periods of stress. Even so, we do not view this as a systemic challenge for fixed income overall.

For additional context, we discussed this in our [Q2 2026 Credit Research Outlook](#).

Scale, skill and experience

Investors can benefit from seeking managers best positioned to take advantage of the trends that will define fixed income markets in coming years.

Scale:

Scale helps to improve the strength of counterparty relationships; the breadth of building block offerings; trading volumes and efficiencies; and the ability to continuously invest in people and technology. In ETFs and systematic investing, scale also provides access to the data that drives efficient management.

Skill:

Skilled managers can harness data and trading insights to generate highly precise, transparent, and efficient exposures. In addition, they have the knowledge base to trade and manage illiquid asset classes more efficiently.

Client focus:

Managers can translate data, transparency, and efficiency into custom solutions only in the context of trusted partnerships with clients. These relationships take time to develop and mature. For their part, clients want to partner with an asset manager who has shown stability through various economic cycles and investment regimes.

The bottom line

Fixed income is entering a new era—one where portfolios are built less around broad benchmarks, and more around clearly defined outcomes. Greater transparency and liquidity, the rapid evolution of ETFs, and the rise of systematic approaches are expanding what investors can access and how precisely they can express views, manage risk, and comply with constraints.

In this environment, the advantage will accrue to managers who can combine scale, technology, and trading expertise with deep client partnerships to translate a widening opportunity set into engineered solutions that provide reliable income, fit clients' holistic portfolio objectives, and adapt with the market.

Glossary

All-to-all platform. An electronic trading venue where multiple participant types (dealers, asset managers, principal trading firms, and other liquidity providers) can trade with one another, expanding the pool of potential counterparties beyond the traditional dealer-to-client model and potentially improving price discovery and liquidity.

Core-Satellite approach. A portfolio construction framework that pairs a large, liquid, cost-efficient “core” (often indexed funds or ETFs) with smaller “satellite” allocations designed to seek alpha, enhance income, manage specific risks, or access less efficient market segments.

Exchange-traded funds (ETFs). Investment vehicles that hold a basket of securities and trade on an exchange throughout the day like a stock. In fixed income, ETFs can provide diversified exposure, intraday price discovery, and an additional liquidity and implementation tool for managing allocations.

Machine learning (ML). A branch of artificial intelligence in which models learn patterns from data to make predictions, classifications, or decisions. In investing, ML is often used to build and update signals, improve forecasting and risk models, and support portfolio construction and trading.

MarketAxess. A leading electronic trading platform for credit and other fixed income markets that helps participants access liquidity and pricing electronically, including via all-to-all protocols (e.g., Open Trading) that broaden counterparty access beyond traditional dealer relationships.

Outcomes-based solution. A portfolio or strategy designed around a clearly defined objective—such as liability or cash-flow matching, drawdown control, income targets, capital preservation, or specific risk constraints—rather than simply tracking a broad benchmark.

Portfolio trading. An electronic execution method that bundles multiple bonds into a single list or basket and trades them together to one or more counterparties. It can help improve execution efficiency, reduce transaction costs, and source liquidity for less-liquid bonds by packaging them with more-liquid issues.

Systematic Active Fixed Income (SAFI). An active, rules-based approach that uses quantitative models and factor signals (e.g., value, momentum, and sentiment) to select and weight bonds, while keeping key risk characteristics aligned with a reference benchmark through explicit constraints.

Tradeweb. A major electronic trading platform that provides institutional access to pricing and execution across rates, credit, and other fixed income markets, supporting a range of electronic trading protocols to help improve efficiency and liquidity access.

Endnotes

- 1 During periods of stress, ETF prices may diverge from model-based NAVs, reflecting real-time supply and demand rather than executable prices for every underlying security.
- 2 McLemore, Ping and Mihov, Atanas. "AI and Operational Losses: Evidence from U.S. Bank Holding Companies." Federal Reserve Bank of Richmond, September 3, 2025.

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