White Paper
Fixed Income

June 2024

Optimizing A Global Credit Portfolio

Clive Maguchu, CFA
Senior Strategist
APAC Investment Strategy and Research Team

STATE STREET GLOBAL ADVISORS

Contents

Introduction

- **By using a "building block" approach, investors may be able to improve diversification, boost risk-adjusted returns and reduce implementation costs. However, the implementation of a building block approach, in which active and passive styles are combined, should be performed with careful consideration of each investor's risk tolerance and goals.**
- **Our data shows that within investment grade (IG) credit, higher tracking error does not necessarily equal higher risk-adjusted returns. Higher-risk strategies can become significant detractors of portfolio returns, particularly after accounting for higher fees.**
- **In this piece, we present an example of how investors can implement the active/hybrid approach within global investment grade credit, and we use a specific hypothetical active risk budget to optimize the portfolio for risk-adjusted returns.**

Building Blocks: From Theory to Action

Data shows that fixed income investors may benefit from a "building block" approach, in which various fixed income sectors and styles — active and passive — are combined to create a bespoke fixed income exposure. We previously showed how this approach may allow investors to tilt to a higher-returning allocation without increasing tracking errors or drawdowns (see Active and Index: Fixed Income Building Blocks). In this piece, we tackle the implementation of the building block approach.

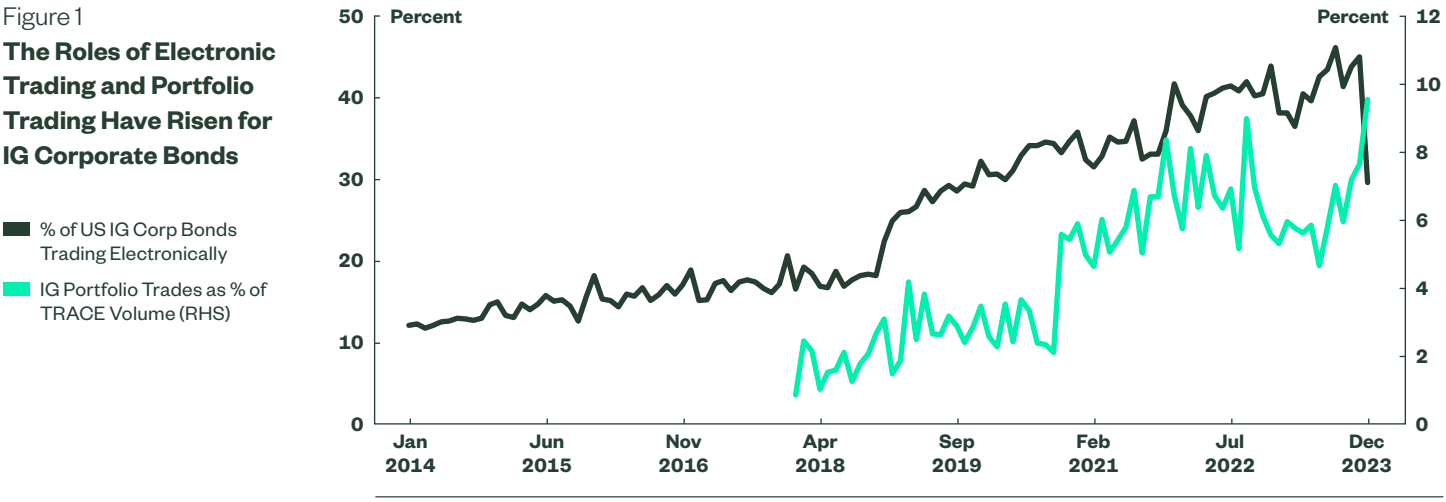
How do clients most effectively implement building blocks in practice? Like so many questions related to strategic asset allocation, there is no one-size-fits-all answer. In practice, the mix of fixed income strategies should be suited to each investor's specific goals and risk tolerances. In this piece, we focus on the investment grade credit segment and analyze how various building blocks — active, passive, and systematic — may be combined to optimize investors' portfolios at specific risk budgets.

The portfolio modelling example we present shows that, depending on the investor's risk budget, there is value in allocating to passive *and* systematic credit strategies. These help diversify the active allocations and make the most efficient use of the risk budget, resulting in better risk-adjusted returns. An additional benefit relative to a purely active approach is a reduced cost of implementation.

Background: Innovation and Competition Have Spawned Greater Investor Choice

The menu of options for fixed income investors is long and made even more complex by the rise of fixed income exchange-traded funds (ETF) and systematic trading. Historically, systematic and index investing strategies have been much more widely adopted in equity markets than in credit markets because equities are far more liquid and standardized. Systematic and indexed strategies thrive on more data, transparency and breadth. However, recent innovations in fixed income markets have made it possible to overcome this liquidity barrier. As we discussed in The Modernization of Bond Market Trading and Its Implications, the "electronification" of fixed income trading has allowed passive fixed income strategies to become a more viable option for investors. In turn, systematic active fixed income and ETF strategies have received more inflows as the liquidity of underlying bonds in the cash market has improved (Figure 1).

Figure 1
The Roles of Electronic Trading and Portfolio Trading Have Risen for IG Corporate Bonds



Sources: Greenwich MarketView, Barclays, as of November 30, 2023. Used with permission. Data from January 2016 to November 2023. Latest available data.

Alongside this innovation, regulatory and competitive pressures have increased for institutional investors. This increased focus on fees and benchmark-relative performance has led to investors questioning their active management appetite. Fixed income markets are not immune to these forces. To date, the proportion of fixed income indexing strategies is estimated to have grown to 30%. As passive strategies continue to grow in market share, we encourage investors to examine how their own portfolios could be restructured.

Our research shows that passive and active fixed income portfolios have performed differently over time, and certain fixed income sectors are more suited to one style versus the other. We take a data-driven look at how investors can use both styles to their advantage.

The Potential Benefits of a Modular Approach

Fixed income market segments differ by their breadth, liquidity, and geopolitical sensitivity, as well as their compatibility with active management. The optimal combination of passive, systematic, and active fixed income strategies depends on these characteristics.

In Active and Index: Fixed Income Building Blocks, we discussed how institutional investors are now taking a more modular approach to their fixed income mandates, and they may be able to garner risk/return benefits from including both active and indexed investments in their fixed income exposure. More granularly, our data showed that, on the basis of excess returns and performance persistency, an indexed approach may be preferable for the global government and emerging market debt (EMD) hard currency segments, while an active or a hybrid approach may work better for global IG credit, global high yield credit, and EMD local currency segments. Figure 2 provides insights into why different fixed income segments may be more suited to one style versus the other.

Figure 2

Fixed Income Segment Characteristics and Recommended Implementation Approach

	Market Efficiency	Indexing Costs	Active Manager Performance versus Benchmark	Active Manager Drawdowns During Down Markets	Recommended Style of Implementation
Sovereign Bonds	High	Low	In Line	Worse	Index
Emerging Market (Hard Currency)	Low	Medium	Worse	Worse	Index
Investment Grade Credit	Medium	Low	Better	Worse	Active/Hybrid
High Yield Corporate	Medium	Low	Better	Worse	Active/Hybrid
Emerging Market (Local Currency)	Low	High	Better	Better	Active/Hybrid

Source: State Street Global Advisors, as of June 17, 2024.

Portfolio Construction Considerations for Investment Grade Credit

How do investors go about implementing this active/hybrid approach in their IG credit allocation? In this section, we explore the considerations investors have to take into account as they implement this approach for their global IG credit portfolios.

Within IG credit, performance data from eVestment indicates that higher tracking error active strategies do not, on average, generate higher excess returns (before fees). In addition, they do not generate higher information ratios. In fact, within the global IG universe, lower tracking error (TE) active and systematic strategies have historically achieved notably higher information ratios on average. We illustrate this in Figures 3 and 4, by separating the eVestment active global IG credit managers into three groups — Low TE (0.25%–1% TE), Medium TE (1%–3%) and High TE (3%+).

Figure 3

Higher Tracking Error Has Not Historically Meant Higher Risk-Adjusted Returns

Source: State Street Global Advisors, as of March 31, 2024.

Figure 4
Medium Tracking Error Portfolios Have Posted Strong Risk-Adjusted Returns, Historically

Group	Tracking Error (% p.a.)	Average Gross Excess Returns (% p.a.)	Average Information Ratio
Low TE	0.25–1	0.65	0.76
Medium TE	1–3	1.05	0.55
High TE	>3	0.20	0.04
Systematic	0.5–1.5	0.80	0.73

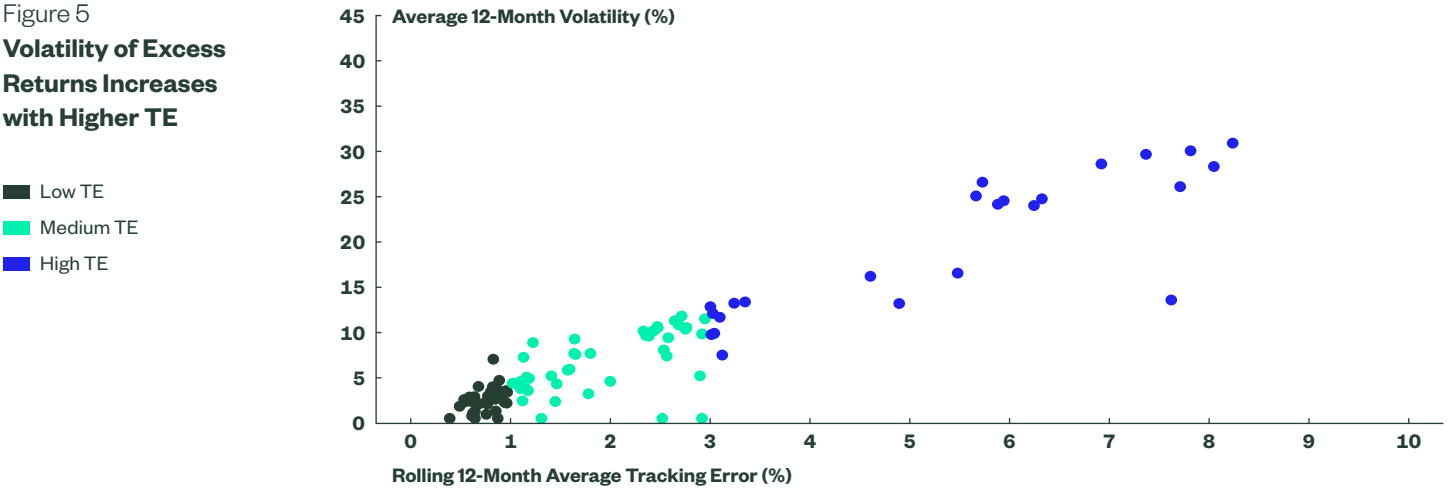
Source: State Street Global Advisors, eVestment as of March 31, 2024. Due to limited data availability and survivorship bias, we have only included eVestment data from January 2012 to March 2024 for the active strategies and January 2015 to March 2024 for systematic strategies. Past performance is not a reliable indicator of future performance.

Why the Volatility of Excess Returns Matters

For many investors, the volatility of excess returns is a key consideration when appointing managers because it directly impacts their ability to generate alpha and ultimately, it impacts the risk-adjusted return of their portfolios. While a manager operating with higher TE constraints has the potential to deliver higher returns during upswings, they also face a greater risk of losses during downswings.

To measure this effectively, the information ratio (IR) is important as it considers both excess return and risk, as measured by TE. A higher IR indicates the manager is delivering excess returns with less volatility compared to the benchmark. In other words, they are delivering excess returns in a more consistent manner. Figure 5 highlights that, as expected for investment grade credit managers, the volatility of excess returns increases as the tracking error increases. Given the data displayed in Figure 4, we would advocate allocating to a manager who focuses on managing to a moderate TE budget or to systematic managers. Combining active managers with index and systematic managers can dampen periods of under performance, allowing capital to compound more consistently.

Figure 5
Volatility of Excess Returns Increases with Higher TE



Source: State Street Global Advisors, as of March 31, 2024.

Management fees are an increasingly important consideration for investors. Unlike excess returns, fees are fully known up front. Public disclosure of fees and costs, and awareness of them, has placed asset allocators under extra pressure to demonstrate they are getting good value from their investment managers. Strategies that deliver consistent excess returns with a relatively low fee have become more attractive. Figure 6 compares median fees from eVestment for a global investment grade credit portfolio for different management styles and account sizes.

Figure 6
By Combining Styles, Investors May Incur Lower Fees
Median Fees by Style and Separate Account Mandate Size

	Mandate Size	
Style	**US$100 Million**	**US$500 Million**
Active	28 bps	21 bps
Systematic	18 bps	15 bps
Passive	10 bps	8 bps

Source: State Street Global Advisors, eVestment as of March 31, 2024.

Actual fees may vary greatly depending on mandate size, customization and competitive pressure. However, Figure 6 (unsurprisingly) shows that passive strategies are significantly cheaper than systematic strategies which are, in turn, cheaper than those charged for active strategies.

Comparing the fees from Figure 6 with the median excess returns in Figure 5 highlights the importance of manager selection. Given the greater variability in excess returns, higher risk strategies can become significant detractors of portfolio returns, particularly after accounting for higher fees.

Hence, the higher the fee, the more important it is for the investor to be certain they are getting value for money.

Investment Grade Credit Building Blocks in Practice: A Case Study

In this section we present an example of how investors can implement the active/hybrid approach within global investment grade credit. This involves using a worked example which combines different strategies — active, passive and, systematic — in a portfolio. An additional layer in this example is incorporating the differing risk (tracking error) appetites that investors have to illustrate how an investor can run an optimization to make the most efficient use of their active risk budget when constructing a credit portfolio.

Given the limitless number of possible combinations, the case study shows a generalized case that illustrates some of the key tradeoffs. This exercise is aimed at helping investors understand the impact of the assumptions used and how they can replicate this case study for their specific portfolio or desired outcome.

For the case study, we used 10 years of global IG credit manager universe returns data from external sources including eVestment and Morningstar, as well as internal data from State Street Global Advisors-managed passive, active, and systematic strategies (assumptions are shown in Figure 7). This data was used to collect different perspectives on the outcomes that investors could expect from a diversified selection of managers for global IG credit allocations. We then performed optimizations based on the tracking error, excess return, and manager correlation assumptions detailed in Figure 6. For active managers, we separated the universe into the three categories (used in Figures 3 and 4 above): Low TE (0.25%–1% TE), Medium TE (1%–3%) and High TE (3%+).[1]

Figure 7

Assumptions for Optimization Are Based on 10 Years of Data

Tracking Error and Excess Return Assumptions by Manager Type

	Tracking Error (%)	Excess Return (%)	IR
Passive	0.15	0.01	0.07
Systematic	1.10	0.75	0.68
Low TE	0.85	0.65	0.76
Medium TE	1.90	1.05	0.55
High TE	5.10	0.20	0.04

Source: State Street Global Advisors, eVestment as of March 31, 2024. Past performance is not a reliable indicator of future performance.

Manager Style Type Correlations

	Passive	Systematic	Low TE	Medium TE	High TE
Passive	1.00	0.00	0.09	0.00	0.00
Systematic	0.00	1.00	0.35	0.41	0.27
Low TE	0.09	0.35	1.00	0.73	0.28
Medium TE	0.00	0.41	0.73	1.00	0.76
High TE	0.00	0.27	0.28	0.76	1.00

Source: State Street Global Advisors, eVestment as of March 31, 2024.

With these inputs, a portfolio optimization to maximize the information ratio (IR) was then performed. The optimization was based on an IG credit portfolio constrained by a tracking error budget ranging from 50 bps to 300 bps. While not exhaustive, this tracking error budget range is generalized enough to provide a useful guideline, given the diversity of the tracking error budgets that we have observed. Figure 8 shows the results.

Figure 8

Case Study Outcome: Optimization Results by Hypothetical Tracking Error Budget

	TE 0.5%	TE 1%	TE 1.5%	TE 2%	TE 2.5%	TE 3%	Unconstrained
Passive	35.80	0.00	0.00	0.00	0.00	0.00	26.80
Systematic	25.20	48.80	29.30	0.00	0.00	0.00	28.50
Low TE	39.00	25.90	0.00	0.00	0.00	0.00	44.70
Medium TE	0.00	25.20	70.80	95.30	76.20	60.00	0.00
High TE	0.00	0.00	0.00	4.70	23.80	40.00	0.00
Total Active	38.90	51.20	70.70	100.00	100.00	100.00	44.70
Excess	0.45	0.80	0.96	1.01	0.85	0.71	0.51
TE	0.50	1.00	1.50	2.00	2.50	3.00	0.57
IR	0.89	0.8	0.64	0.5	0.34	0.24	0.89
Max Drawdown	-0.44	-1.01	-1.88	-3.48	-5.80	-8.40	-0.51
Estimated Fees	19 bps	23 bps	25 bps	28 bps	28 bps	28 bps	20 bps

Source: State Street Global Advisors, eVestment, as of March 31, 2024. The results shown represent current results generated by our optimization model. The results do not reflect actual trading and do not reflect the impact that material economic and market factors may have had on SSGA's decision-making. The results shown were achieved by means of a mathematical formula, and are not indicative of actual performance which could differ substantially. The performance reflects management fees, transaction costs, and other fees expenses a client would have to pay.

These modeled results suggest the following:

- The best information ratio for lower tracking error budgets is achieved by combining active with passive and systematic allocations. As the tracking error budget increases, the allocation to passive quickly falls to zero.

- Meanwhile, the allocation to systematic increases significantly from low to high TE budgets, reaching roughly half the allocation at a budget of roughly 100 bps. This rising allocation to systematic occurs alongside a boost to excess returns increase and a continuation of high information ratios.

- As the tracking error increases beyond 100 bps, active allocations jump significantly higher. It is worth noting that in our analysis, higher active risk budgets would achieve higher excess returns, but less consistently (i.e., lower IR). For very high TE budgets — above 200 bps — the rise in increase in excess returns then reverses, which is in line with our earlier observations (Figure 3).

Interestingly, when the tracking error constraint is removed and the optimizer is allowed to seek the highest information ratio (the far right column in Figure 8), the resulting allocation settles to a tracking error of just under 60 bps, with a portfolio that includes roughly 25% in passive, 25% in systematic, and 50% in active strategies. This finding highlights the key insight that in IG credit, while active allocations may be preferred for the core allocation, adopting a hybrid approach with passive and systematic strategies could result in a more optimal portfolio in terms of risk-adjusted returns.

This analysis can be further enhanced by using the investor's specific active risk budget, their preferred list of managers, or their current starting point. Additionally, the asset owner will need to take scale, manager capacity, and trading costs into consideration.

Benefits of Including Passive Strategies

Index or passive investing in fixed income has been increasing in recent years for the cost and structural reasons outlined earlier in this paper. The cost benefits are demonstrated by the reduction in fees at the portfolio level achieved by the lower TE portfolios.

There are also some non-quantifiable factors that have been driving this trend to passive. Allocations to passive increase the liquidity with which to manage the overall credit portfolio. This is especially important for investors who have to deal with regular inflows and outflows. These can be managed through the passive strategy to avoid large scale flows to/from active managers which would inhibit their ability to generate excess returns. Passive managers are generally more liquid given their broader, less concentrated portfolios.

Additionally, best of breed index managers are now able to deliver significantly higher and consistent excess returns in the region of 5-10 bps through their implementation processes. These incremental improvements include harvesting new issue premia in the primary market; security selection in the sampling process; and cost savings from turnover reduction and trading effectiveness.

Why Systematic Strategies Make Sense

The results above show that investors can implement a number of different portfolio combinations, depending on their risk budgets. This increased pricing frequency and transparency has opened the door for a data-driven, rules-based approach to credit selection. In this environment, systematic strategies now provide an attractive opportunity for investors. A systematic approach can play a complementary role in an active portfolio. Systematic strategies tend to have a competitive level of excess returns while also having low correlation with fundamental active manager excess returns. The key differences between fundamental (traditional) active and systematic strategies are summarized in Figure 9.

Figure 9
Systematic Strategies Differ from Traditional Active

	Traditional Active	Systematic Active
Investment Process	• Driven by fundamental research (analysts) • Subjective, slower, and prone to bias	• Driven by quantitative research Rules based, scale at speed
Portfolio Construction	• High manager discretion • Conviction levels, macro, sector, issuer • Variable exposures across these	• Low discretion, structural alignment to benchmark • Process driven through portfolio optimization • Max issuer scores, min benchmark structural deviations
Alpha Generation	• Multiple sources with variable impact: duration, curve, sector, country, currency, issuer	• Predominantly security selection • Factor-driven scores
Role of PMs /Analysts	• Fundamental research • Determine macro calls on allocations: sector, country, issuer, etc.	• Factor definition — inputs and output • Data validation and integrity • Optimization and implementation

Closing Content

The optimization process we describe for building block implementation mirrors the approach an investor may take in practice to build a multi-manager credit portfolio. Investors building multi-manager active credit portfolios typically try to combine managers with different styles and tracking errors who can be expected to outperform under different market environments. In theory, this should result in portfolios that are well diversified; however, this may not be the outcome achieved, as correlations between active managers can be quite high (Figure 7). In fact, the average pairwise correlations between active managers has been found to be 0.83, according to Barclays Research. As a result, investors may benefit from looking closely at how to use building blocks to gain diversification and risk/return advantages. Our analysis and case study illustrate how an investor can make the most efficient use of their active risk budget when constructing a global IG credit portfolio. Our previous work had suggested that the optimal allocation framework is an active or hybrid approach. In this paper, our analysis goes a step further, and suggests that investors can achieve better credit portfolio outcomes via a hybrid approach that allocates the risk budget to both passive and systematic strategies.

Endnote

1 Given the large variance present in the empirical data we analyzed, the figures used in the analysis are not simple averages across the manager universe; rather, we have used stylized numbers that are *representative* of the data but more closely aligned with reasonable ex-ante expectations that an investor may have for the managers they appoint. This is particularly the case for expected excess returns, where investors are unlikely to appoint managers that are expected to generate negative excess returns.

About State Street Global Advisors

For four decades, State Street Global Advisors has served the world's governments, institutions and financial advisors. With a rigorous, risk-aware approach built on research, analysis and market-tested experience, we build from a breadth of index and active strategies to create cost-effective solutions. As pioneers in index and ETF investing, we are always inventing new ways to invest. As a result, we have become the world's fourth-largest asset manager* with US $4.34 trillion† under our care.

* Pensions & Investments Research Center, as of December 31, 2022.
† This figure is presented as of March 31, 2024 and includes ETF AUM of $1,360.89 billion USD of which approximately $65.87 billion USD is in gold assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated. Please note all AUM is unaudited.

ssga.com

Information Classification: General

Marketing communication.
Investment professional use only.

Australia: State Street Global Advisors, Australia, Limited (ABN 42 003 914 225) is the holder of an Australian Financial Services Licence (AFSL Number 238276). Registered office: Level 14, 420 George Street, Sydney, NSW 2000, Australia T: +612 9240-7600. F: +612 9240-7611.
Belgium: State Street Global Advisors Belgium, Chaussée de La Hulpe 185, 1170 Brussels, Belgium. T: +32 2 663 2036. State Street Global Advisors Belgium is a branch office of State Street Global Advisors Europe Limited, registered in Ireland with company number 49934, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2.
Canada: State Street Global Advisors, Ltd., 1981 McGill College Avenue, Suite 500, Montreal, Qc, H3A 3A8, T: +514 282 2400 and 30 Adelaide Street East Suite 1100, Toronto, Ontario M5C 3G6. T: +647 775 5900.
Dubai: State Street Global Advisors Limited, DIFC branch is regulated by the Dubai Financial Services Authority (DFSA). This document is intended for Professional Clients or Market Counterparties only as defined by the DFSA and no other person should act upon it. State Street Global Advisors Limited, DIFC Branch, OT 01-39, 1st Floor, Central Park Towers, DIFC, P.O Box 507448, Dubai, United Arab Emirates. Regulated by the DFSA. Telephone: +971 4 871 9100.
France: State Street Global Advisors Europe Limited, France Branch ("State Street Global Advisors France") is a branch of State Street Global Advisors Europe Limited, registered in Ireland with company number 49934, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2. State Street Global Advisors France is registered in France with company number RCS Nanterre 899 183 289, and its office is located at Coeur Défense — Tour A — La Défense 4, 33e étage, 100, Esplanade du Général de Gaulle, 92 931 Paris La Défense Cedex, France. T: +33 1 44 45 40 00. F: +33 1 44 45 41 92.
Germany: State Street Global Advisors Europe Limited, Branch in Germany, Brienner Strasse 59, D-80333 Munich, Germany ("State Street Global Advisors Germany"). T +49 (0)89 55878 400. State Street Global Advisors Germany is a branch of State Street Global Advisors Europe Limited, registered in Ireland with company number 49934, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2.
Hong Kong: State Street Global Advisors Asia Limited, 68/F, Two International Finance Centre, 8 Finance Street, Central, Hong Kong. T: +852 2103-0288. F: +852 2103-0200.
Ireland: State Street Global Advisors Europe Limited is regulated by the Central Bank of Ireland. Registered office address 78 Sir John Rogerson's Quay, Dublin 2. Registered Number: 49934. T: +353 (0)1 776 3000. F: +353 (0)1 776 3300.
Italy: State Street Global Advisors Europe Limited, Italy Branch ("State Street Global Advisors Italy") is a branch of State Street Global Advisors Europe Limited, registered in Ireland with company number 49934, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2. State Street Global Advisors Italy is registered in Italy with company number 11871450968 — REA: 2628603 and VAT number 11871450968, and its office is located at Via Ferrante Aporti, 10 - 20125 Milan, Italy. T: +39 02 32066 100. F: +39 02 32066 155.
Japan: State Street Global Advisors (Japan) Co., Ltd., Toranomon Hills Mori Tower 25F 1-23-1 Toranomon, Minato-ku, Tokyo 105-6325 Japan. T: +81-3-4530-7380. Financial Instruments Business Operator, Kanto Local Financial Bureau (Kinsho #345), Membership: Japan Investment Advisers Association, The Investment Trust Association, Japan, Japan Securities Dealers' Association.
Netherlands: State Street Global Advisors Netherlands, Apollo Building 7th floor, Herikerbergweg 29, 1101 CN Amsterdam, Netherlands. T: +31 20 7181 000. State Street Global Advisors Netherlands is a branch office of State Street Global Advisors Europe Limited, registered in Ireland with company number 49934, authorised and regulated by the Central Bank of Ireland, and whose registered office is at 78 Sir John Rogerson's Quay, Dublin 2.
Singapore: State Street Global Advisors Singapore Limited, 168, Robinson Road, #33-01 Capital Tower, Singapore 068912 (Company Reg. No: 200002719D, regulated by the Monetary Authority of Singapore). T: +65 6826-7555. F: +65 6826-7501.
South Africa: State Street Global Advisors Limited is regulated by the Financial Sector Conduct Authority in South Africa under license number 42670.
Switzerland: State Street Global Advisors AG, Beethovenstr. 19, CH-8027 Zurich. Registered with the Register of Commerce Zurich CHE-105.078.458. T: +41 (0)44 245 70 00. F: +41 (0)44 245 70 16.
United Kingdom: State Street Global Advisors Limited. Authorised and regulated by the Financial Conduct Authority. Registered in England. Registered No. 2509928. VAT No. 5776591 81. Registered office: 20 Churchill Place, Canary Wharf, London, E14 5HJ. T: 020 3395 6000. F: 020 3395 6350.
United States: State Street Global Advisors, 1 Iron Street, Boston, MA 02210-1641.
Investing involves risk including the risk of loss of principal.
All information is from SSGA unless otherwise noted and has been obtained from sources believed to be reliable, but its accuracy is not guaranteed. There is no representation or warranty as to the current accuracy, reliability or completeness of, nor liability for, decisions based on such information and it should not be relied on as such.
The whole or any part of this work may not be reproduced, copied or transmitted or any of its contents disclosed to third parties without SSGA's express written consent.
The views expressed are the views of our FICC team through June 30 2024, and are subject to change based on market and other conditions. This document contains certain statements that may be deemed forward- looking statements. Please note that any such statements are not guarantees of any future performance, and actual results or developments may differ materially from those projected.
Diversification does not ensure a profit or guarantee against loss.
Bonds generally present less short-term risk and volatility than stocks, but contain interest rate risk (as interest rates raise, bond prices usually fall); issuer default risk; issuer credit risk; liquidity risk; and inflation risk. These effects are usually pronounced for longer-term securities. Any fixed income security sold or redeemed prior to maturity may be subject to a substantial gain or loss.
The information provided does not constitute investment advice and it should not be relied on as such. It should not be considered a solicitation to buy or an offer to sell a security. It does not take into account any investor's particular investment objectives, strategies, tax status or investment horizon. You should consult your tax and financial advisor.
The information contained in this communication is not a research recommendation or 'investment research' and is classified as a 'Marketing Communication' in accordance with the Markets in Financial Instruments Directive (2014/65/EU) or applicable Swiss regulation. This means that this marketing communication (a) has not been prepared in accordance with legal requirements designed to promote the independence of investment research (b) is not subject to any prohibition on dealing ahead of the dissemination of investment research.
This communication is directed at professional clients (this includes eligible counterparties as defined by the appropriate EU regulator) who are deemed both knowledgeable and experienced in matters relating to investments. The products and services to which this communication relates are only available to such persons and persons of any other description (including retail clients) should not rely on this communication.
Past performance is not a reliable indicator of future performance.
The trademarks and service marks referenced herein are the property of their respective owners. Third party data providers make no warranties or representations of any kind relating to the accuracy, completeness or timeliness of the data and have no liability for damages of any kind relating to the use of such data.

ID2223402-6727300.1.2.GBL.INST 0624
Exp. Date: 06/30/2025