Charting new paths

Seeking a systematic edge in treasury markets

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Summary

Challenging conventional wisdom

A common misconception among investors is that there are minimal opportunities to generate alpha within a U.S. Treasury benchmark without taking large interest rate bets or out-of-benchmark exposures. However, a systematic approach can offer an alternative by identifying alpha opportunities through "within-benchmark" security selection.

A systematic approach

A systematic approach to Treasury investments involves identifying daily mispricing across all bonds in the investible universe. This approach uses proprietary yield curves to compute a fair value price for each treasury bond. The difference between the fair value price and the market price presents opportunities to generate alpha without taking out-of-benchmark exposures.

Finding the alpha opportunity in yield differences

In our research, three main factors contribute to the difference between fair value price and market price: the cost of leverage, bond specific idiosyncratic situations, and episodic market technicals. These factors create opportunities for investors to generate incremental alpha over time by exploiting relative value dislocations.

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Uncovering the hidden alpha in treasuries

The U.S. Treasury market is the largest and most liquid bond market on the planet, with an estimated $30 trillion USD in global capital and an average of $900 billion USD in daily transactions.[1] It also has a notably diverse investor base across U.S. and non-U.S. pensions, insurance companies, official institutions (including central banks), and retail buyers.

Many investors adhering to the efficient markets hypothesis believe there are minimal opportunities to generate alpha within a U.S. Treasury benchmark unless managers take significant interest rate bets or out-of-benchmark exposures. This belief often contradicts the intended purpose of U.S. Treasury allocations in client portfolios, where consistent interest rate exposure is sought to act as ballast against adverse shocks to equity holdings or to hedge pension liabilities.

For many clients, U.S. Treasury allocations are meant to provide liquidity, making it counterintuitive to tilt into less liquid and lower-quality sectors for extra carry. Consequently, many clients opt for an index tracking strategy for their U.S. Treasury allocations, offering consistent interest rate exposure, robust liquidity, and lower implementation cost. However, this approach can significantly limit alpha potential.

For investors seeking higher returns, a systematic, data-driven approach offers an alternative. This approach aims to generate consistent, risk-adjusted alpha within government bond allocations without taking "out-of-benchmark" exposures or "risky" bets.

Over the past decade, the bond market has gone through significant modernization. The alpha opportunity for bottom-up security selection within fixed income has notably increased as the bond market has shifted away from traditional voice trading to electronic trading. This transition toward electronic trading and portfolio trading is unlocking a broader universe of securities that can be traded on a systematic basis. Consequently, systematic fixed income investors can leverage technology to capitalize on faster moving markets with greater breadth of tradeable issues.

Identifying overlooked opportunities in yield differences

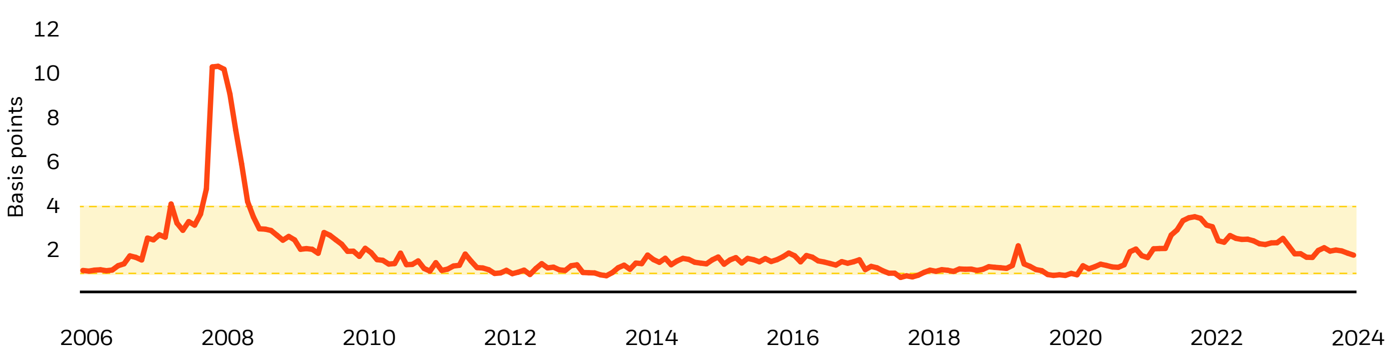
Our alternative approach to investing in treasuries involves a systematic thought process and disciplined risk taking. After adjusting for common duration and curve exposures, we identified daily mispricing across all bonds in the relevant benchmark. Then, we constructed a proprietary yield curve to discount every cash flow for every treasury bond, aiming to compute a fair value price for each bond in the client's preferred benchmark.

Figure 1 shows the difference between the fair value price and the observed market prices across the U.S. Treasury universe. If all bonds were traded at the fair value level in-line with efficient markets theory, the average would be consistently zero across time. Contrary to such a perfect pricing scenario, we found that the fair value difference oscillated between one and four basis points of yield through time (excluding the global financial crisis in 2008).

This figure also visualizes the opportunity set available to long-only mandates, assuming the differences between the fair value price and market price converge to zero over a 12-month horizon. We observed that such a portfolio may outperform its benchmark by 10-20 basis points annually.

Figure 1: Fair value difference assuming bonds were priced equally

Average distance to fair value across U.S. Treasury curve (yield, bps)



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1 U.S. Department of the Treasury. "Remarks by Under Secretary for Domestic Finance Nellie Liang "Strengthening Treasury Market Resilience and the Expansion of Central Clearing" at the Financial Markets Group Fall Conference, hosted by the Federal Reserve Bank of Chicago." Press release, February 13, 2025.

Drivers of dislocation

Why does the difference between fair value price and market price exist? Our research shows that the underlying drivers of these relative value dislocations can be bucketed into three main categories:

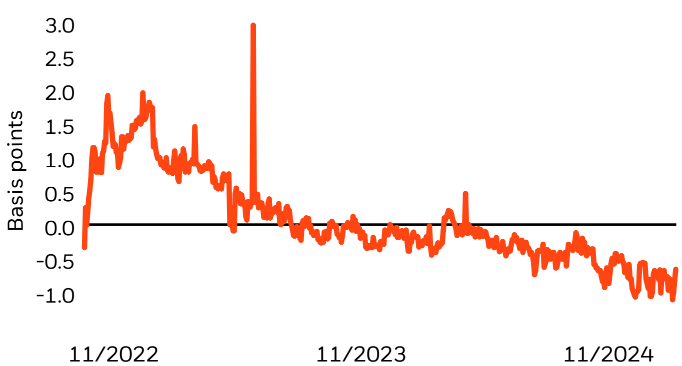
1 Cost of leverage

Market participants focused on relative value opportunities will often demand access to leverage and/or balance sheets to capitalize on opportunities in a capital efficient manner. These investors often have higher return thresholds and therefore require the use of leverage. However, the financing cost that banks charge for access to that leverage often makes the trade unprofitable, allowing the relative value opportunity to persist. Our research suggests that the cost of a balance sheet for an average bond is approximately one basis point in yield. Therefore, many market participants may not transact on a relative value dislocation unless the bond has richened or cheapened by more than one basis point in comparison to the fair value price.

Figure 2 illustrates this dynamic by showing the time-series difference between fair value yield and market traded yield for a new 10-year bond (T 4.125% 11/2032) from its issuance on November 15, 2022, until today. In this example, the bond's yield generally stayed within a one basis point range. Our strategy does not require leverage; therefore, we were able to exploit the fair value dislocations within that range while other market participants might overlook this opportunity.

Figure 2: Fair value yield vs. market traded yield for a 10-year bond

10-yr U.S. Treasury, distance to fair value (yield, bps)



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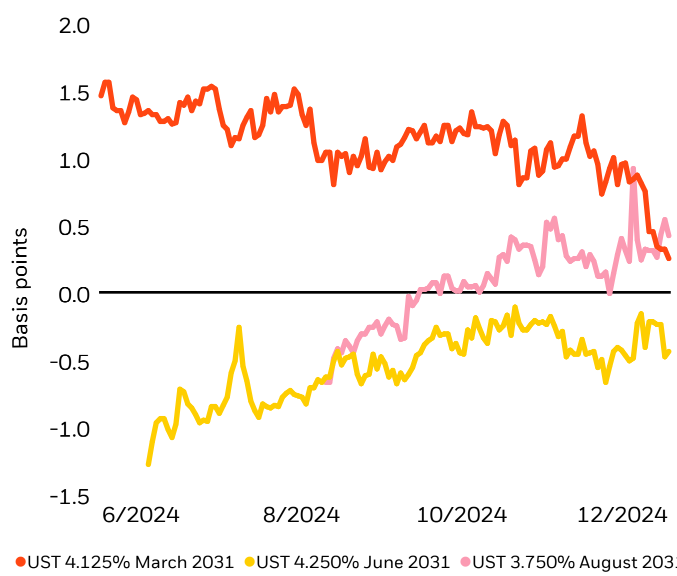
2 Idiosyncratic bond-specific situations

We observed these situations playing out across multiple different themes such as cheapest to deliver ("CTD") dynamics in the U.S. Treasury futures market, U.S. Treasury principal and coupon stripping activity and repurchase agreement ("repo") specialness. To illustrate this factor, we examined the CTD dynamics for the expiry of the Treasury yield futures contract taking place in September 2024. We found that the fair value difference across the bonds that compose the cheapest to deliver basket could be higher than one basis point as we approach the expiry of the futures contract. The pricing volatility of bonds in the CTD basket results from the market's constant re-assessment of which bond will be deliverable into the futures contract at time of expiration. Our systematic process evaluates volatility daily and will engage in overweight or underweight positions in securities as they deviate from fair value.

Figure 3: Fair value difference across bonds within cheapest to deliver category

Bonds deliverable into U.S. Treasury futures contract, distance to fair value (yield, bps)



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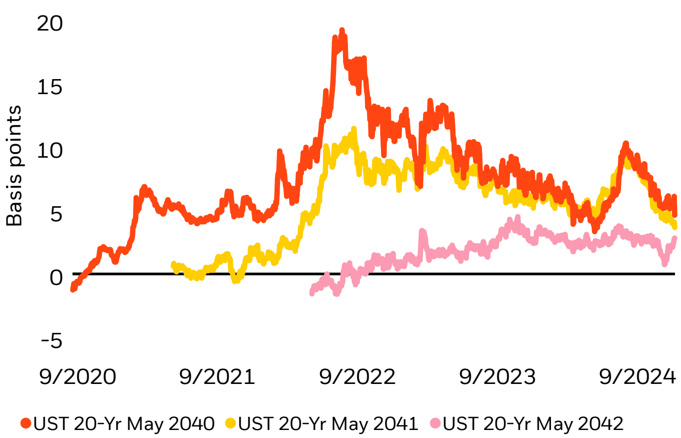
3 Episodic market technicals

Some technicals we consider in our analysis include supply and demand imbalances, high coupon versus low coupon bonds, and liquidity impact on size and age. Take the reintroduction of the new 20-year bond, for example. In May 2020, the U.S. Treasury announced its plans to reissue the 20-year bond for the first time since 1986 after a nearly three-decade hiatus.[2] In this instance, supply outstripped demand until the summer of 2022. Figure 4 visualizes these dynamics using the yield difference between the fair value and market price for three different 20-year bonds: T 1.125% 05/2040, T 2.25% 05/2041 and T 3.25% 05/2042. The supply and demand imbalance created fair value differences above two basis points in yield, this impacted all new 20-year bonds (2040, 2041). By the summer of 2022, supply and demand found a balance and this 20-year issue began trading more closely to fair value, as demonstrated by the 2042 bond in pink. Around the same time, the legacy 20-year issues, represented by the yellow and red lines, began converging towards fair value as well.

Figure 4: Fair value yield vs. market traded yield for select 20-year bonds

Select 20-yr U.S. Treasury bonds, distance to fair value (yield, bps)



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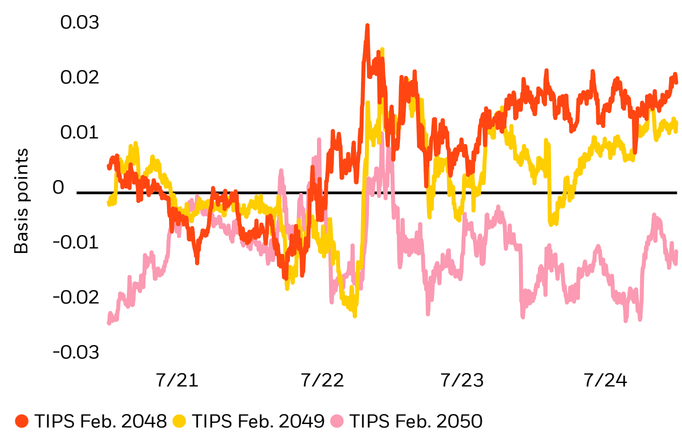
The Treasury achieved this balance by reducing the supply of 20-year offerings. As illustrated in the table, the U.S. Treasury progressively cut-down the amount issued until it bottomed with the April 2043 20-year issue.

20-year bond	Amount issued (MM)
T Apr-2040	60,357
T Aug-2040	76,518
T Nov-2040	85,641
T Feb-2041	89,742
T Apr-2041	86,182
T Aug-2041	83,723
T Nov-2041	70,626
T Feb-2042	59,440
T Apr-2042	49,836
T Aug-2042	40,940
T Nov-2042	40,605
T Feb-2043	43,560
T Apr-2043	14,653
T Aug-2043	43,651
T Nov-2043	42,178
T Feb-2044	42,722
T Apr-2044	44,115

Using the same framework, we identified similar opportunities in the Treasury Inflation-Protected Securities (TIPS) market. Figure 5 illustrates the relative value difference between three long-dated TIPS: TII 1% 02/48, TII 1% 02/49, TII 0.25% 02/50. Between 2021 and 2024, these bonds oscillated between two basis points cheaper and two basis points richer than fair value.

Figure 5: Relative value difference between three TIPS

Select TIPS securities, distance to fair value (yield, bps)



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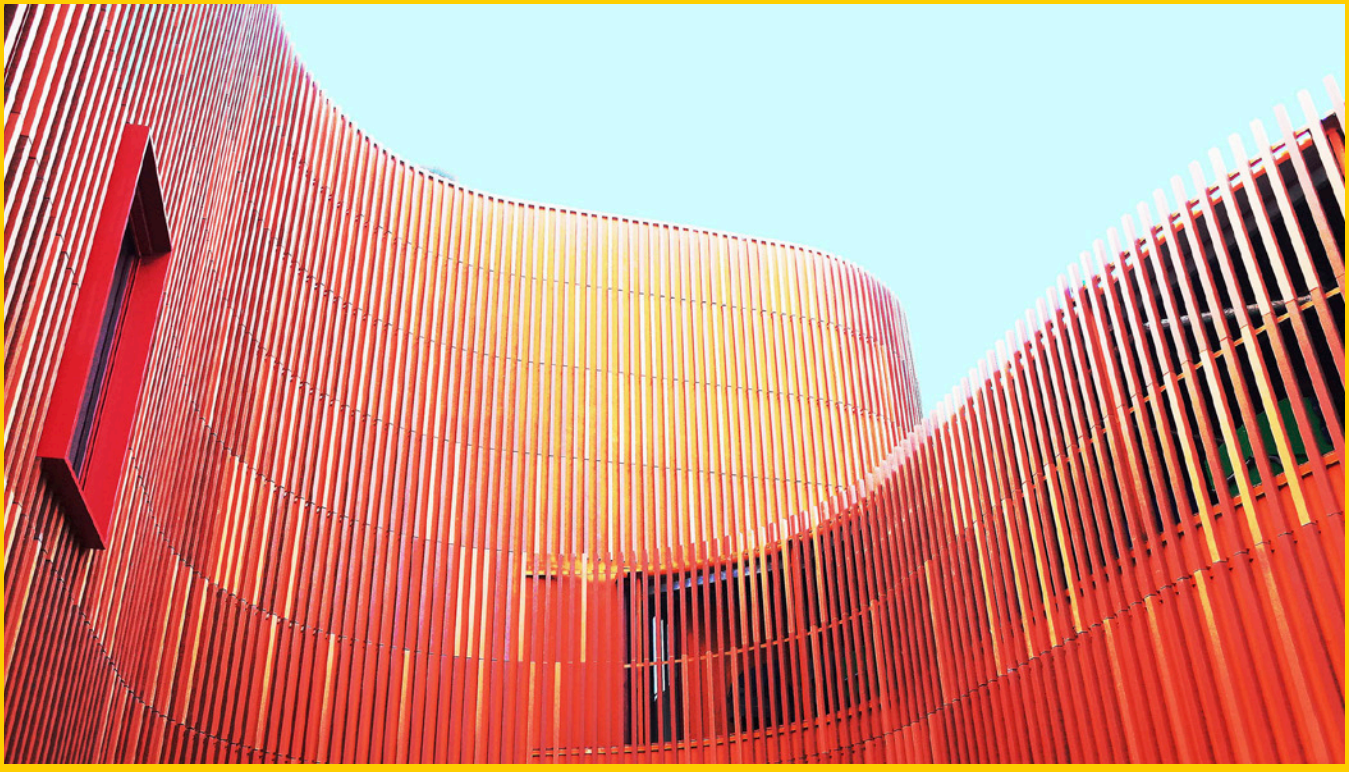
2 U.S. Department of the Treasury. "Treasury to Issue New 20-Year Bond in First Half of 2020." Press release, February 13, 2025.

Seeking consistent, uncorrelated alpha over time

BlackRock Systematic has over four decades of experience that have culminated in an investment approach which seeks to generate consistent, high-quality alpha in both U.S. and non-U.S. government bond markets by exploiting relative value dislocations within the three categories analyzed above. Modelling and understanding relative value opportunities in government bonds, including nominal treasuries and Treasury Inflation-Protected Securities (TIPS), informs how we seek to refine and improve portfolio outcomes. We aim to minimize factor tilts into macro factors such as duration and curve exposures, avoiding any out of benchmark exposures. We believe this approach can lead to a portfolio that may more consistently meet the expectations that clients have for their government bond allocations, including government credit quality, consistent interest rate risk (for portfolio ballast or to hedge liabilities), and liquidity.

Many clients may feel obligated to choose between indexing their government bonds or hiring an active manager who may introduce bets that run counter to the objective of computing a fair value price within preferred benchmarks. However, a systematic approach may deliver alpha while still allowing the allocation to play its desired role in the broader portfolio. This approach may provide an investment edge as market dynamics shift with recent advances in electronic trading. With greater market breadth, we believe there may be even more opportunities to seek to deliver consistent risk-adjusted returns through a systematic approach going forward.



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