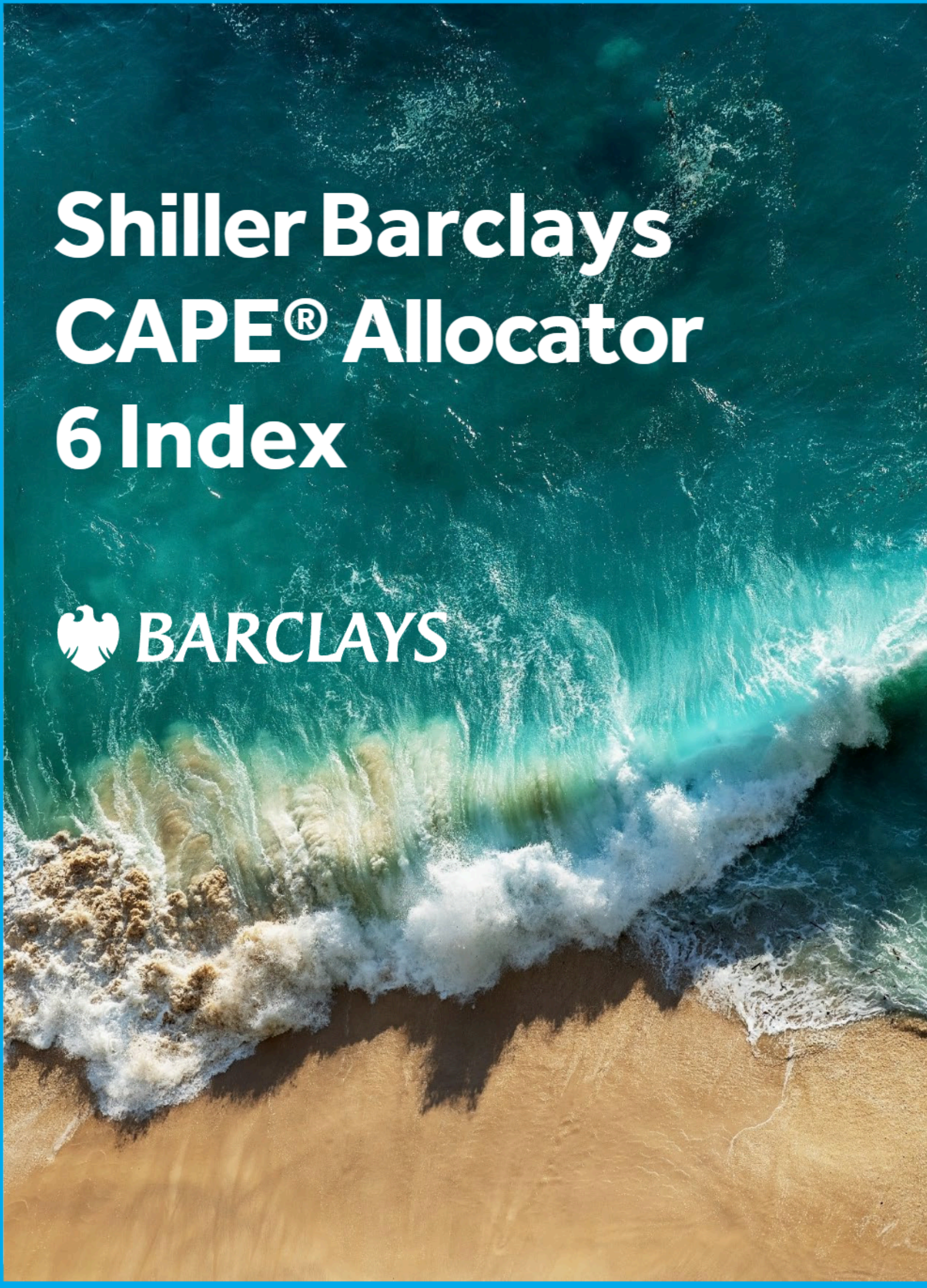
Shiller Barclays CAPE® Allocator 6 Index



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The Shiller Barclays CAPE® Allocator 6 Index aims to provide investors exposure to a dynamic combination of equity and fixed income assets.

The Shiller Barclays CAPE® Allocator 6 Index (the Index) is a member of the Barclays family of Shiller Barclays CAPE® indices, which are based on principles of long-term investing distilled by Professor Robert Shiller and expressed through the Cyclically Adjusted Price to Earnings (or CAPE®) ratio, as described below.

The Index aims to provide stabilized exposure to US equities. It does this by identifying sectors that appear to be undervalued according to their CAPE® ratio. It incorporates a basket of US Treasuries by systematically adjusting its asset allocation on a bi-weekly basis, using techniques from Modern Portfolio Theory and trend investing.

Tofurther control risk, the Index aims to limit its annual volatility to a 6% target using a procedure called volatility control.

About Robert Shiller

Professor Robert Shiller is an American economist and Sterling Professor of Economics at Yale University. He has been the Co-Director of the Behavioral Finance Workshop at the National Bureau of Economic Research since 1991.

He is well known for jointly developing the Standard & Poor's/Case-Shiller Home Price Indices and is best-selling author of several economics books. Professor Shiller also developed the widely known CAPE® Ratio.

The CAPE® Ratio

The CAPE® ratio was introduced in 1988 by economists Professor Robert Shiller and John Y. Campbell as an improvement upon the traditional Price/Earnings (P/E) ratio.

The traditional P/E ratio is equal to price divided by the most recent 1-year earnings. Since a company's earnings can be volatile from year to year during the ups and downs in each business cycle, the traditional P/E ratio can add short-term noise to the long-term value signal

The CAPE® ratio uses the 10-year average of inflation-adjusted earnings instead of single year earnings. Since the 10-year horizon is longer than most business cycles, taking such a long-term average helps to smooth out the short-term noise.

$$\text{CAPE}^{®} = \frac{\text{Sector Price}}{\text{10-Year Average of } \textbf{Inflation Adjusted} \text{ Sector Earnings}}$$

The Relative CAPE® Ratio

The Index uses a modified version of the CAPE® Ratio - the Relative CAPE® ratio - to standardize comparison across sectors.

On an unadjusted basis, some sectors may appear overvalued while others seem undervalued, leading to persistent biases in sector CAPE® ratios. These biases are driven by inherent long- term underlying differences between sectors, such as level of industry maturity, growth prospects, and regulations. By using the Relative CAPE® ratio to select sectors, the Index aims to pick sectors that are potentially undervalued based on the historical performance of the relevant sector.

$$\text{Relative CAPE}^{®} = \frac{\text{Current Sector CAPE}^{®}\text{ ratio}}{\text{20-Year Rolling Average of Sector CAPE}^{®}\text{ ratio}}$$

Building Blocks of the Index

The Index is composed of two building blocks: an Equity Component, (the Shiller Barclays CAPE® US Sectors Index), and a Treasury Component (an equally weighted basket of indices tracking the 2, 5, 10, and 30-year US Treasury futures). The two components are combined using a process known as mean-variance optimization to determine the optimal combination.

Step 1: Determine the 4 Equity Sectors Each Month

11 US Sectors (as per table to the right)

Examine 30 years worth of prices and earnings for 11 US sectors

Relative CAPE® Ratio for Each Sector

Select the 5 most undervalued sectors based on their Relative CAPE® ratio

Momentum

Of the selected sectors, remove the sector with the lowest 12-month price momentum

Ranking

Equally weight the 4 selected, undervalued sectors with the most positive price momentum

Shiller Barclays CAPE® US Sectors
Utilities
Consumer Staples
Financials
Technology
Healthcare
Energy
Consumer Discretionary
Industrial
Real Estate
Communications Services
Materials

Each market sector is represented by an exchange-traded fund.

The Index uses an excess return methodology. Dividends are reinvested, and the Index includes a deduction equal to the 1-month US dollar LIBOR rate (before April 26, 2022) or SOFR plus 0.11450% (April 26, 2022 onwards) for the Equity Component.

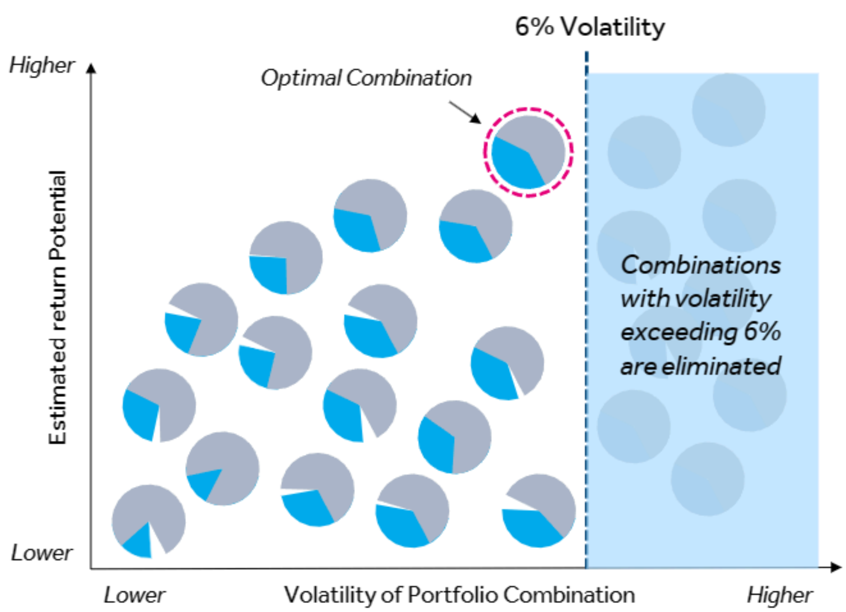
Step 2: Portfolio Construction Based on Modern Portfolio Theory

The Index then runs a process called mean- variance optimization, which aims to determine the optimal weights to be allocated between the Equity Component and the Treasury Component. This process occurs on a bi-weekly basis.

The mean-variance optimization is based on Harry Markowitz's Modern Portfolio Theory, which states that investors can maximize their expected return at any given risk level through diversification. Forthe ShillerBarclaysCAPE® Allocator 6 Index, the process works as follows:

1. Every two weeks, the process considers all combinations of the Equity Component and the Treasury Component, provided that the combined weight of these components does not exceed 100%.
2. The volatility of each combination is calculated, based on how volatile the two components have been and how they have moved relative to each other.
3. All the combinations where the annual volatility exceeds 6% are eliminated.
4. The Index then selects the remaining combination with the highest estimated return potential by assuming a direct relationship between risk and return. The weights for Equity Component and Treasury Component in this combination are deemed to be the optimal weights.

Illustration of the mean-variance optimization process



Hypothetical examples are provided for illustrative purposes only and may not reflect actual weights or allocations.

Step 2: Portfolio Construction Based on Modern Portfolio Theory

After the optimization process, on a bi-weekly basis, the Treasury Component allocation may be further adjusted with the goal of mitigating the impact of increasing interest rates.

To achieve this, the Index calculates a trend signal for the Treasury basket to determine whether the recent performance of the underlying Treasuries in the portfolio has been on a positive or negative trajectory.

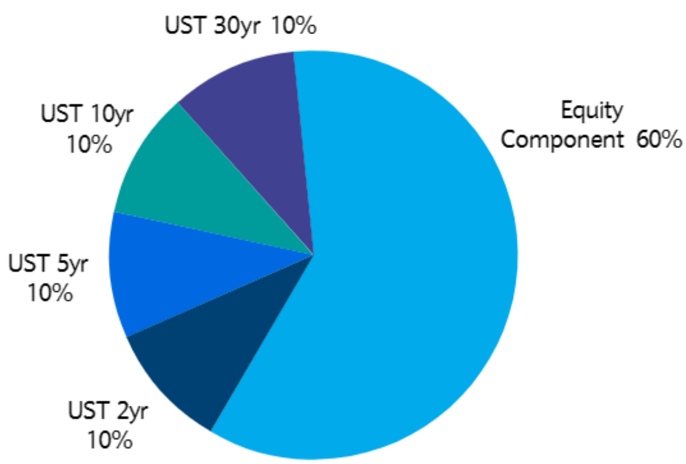
How is the trend signal calculated?

The trend signal is equal to the weighted average of the basket's historical daily returns, where significantly more weight is given to more recent historical returns than to older data so that more up-to-date performance has a greater effect on the signal. Specifically, the most recent 6 months of performance is given approximately the same weight as all previous years.

If the trend signal is **positive** - all four Treasury indices will receive an equal weight.

Bond prices are rising (positive trend)

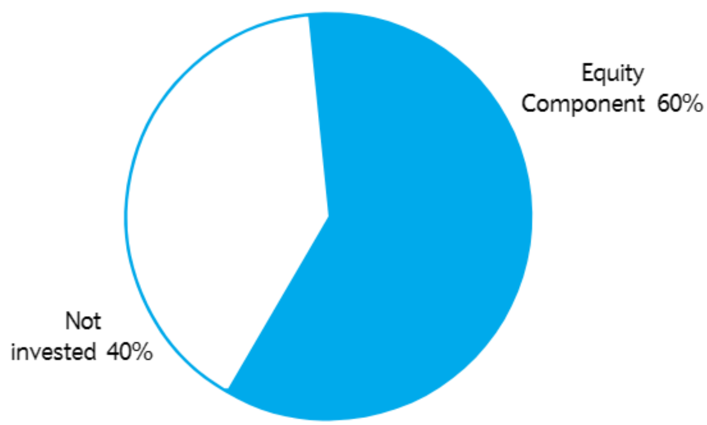
Equal allocation to Treasuries



If the trend signal is **negative** - the Index will forego any exposure to Treasuries.

Bond prices are falling (negative trend)

No allocation to Treasuries



Move away from bonds if/when interest rates rise, based on trend signal

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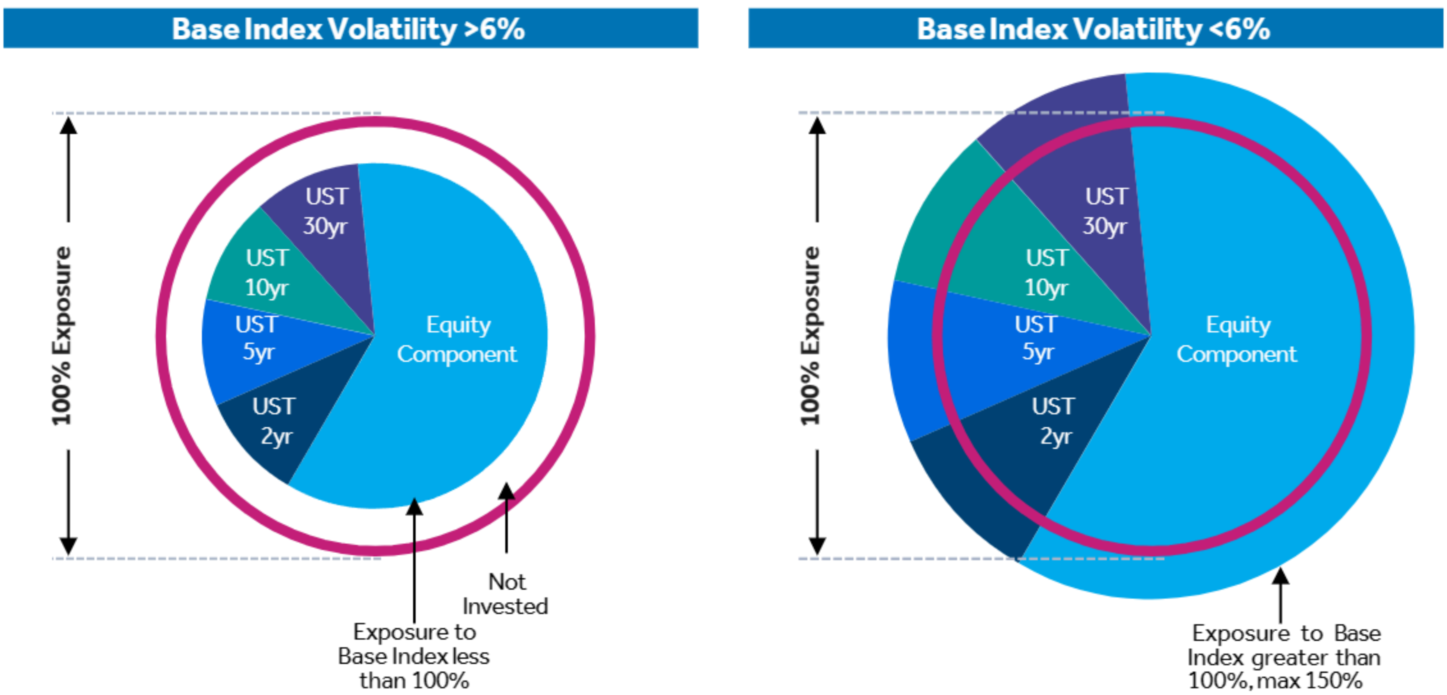
Steps 1, 2 and 3 will determine the "Base" Index, with the optimal weight between the Equity Component's selected sectors and US Treasuries (if any).

Daily volatility control

Thefinalstep inassemblingtheShiller Barclays CAPE® Allocator 6 Index is applying volatility control to the Base Index. Simply stated, the Index increases or decreases its exposure in order to try and maintain volatility at a constant 6% annualized level.

While the sector selection is performed monthly, and the mean-variance optimization and the Treasury trend signal are applied bi-weekly, the volatility control adjustment may occur as often as daily.

The Index seeks to achieve a target volatility of 6% by reducing or increasing its exposure to the Base Index. The maximum exposure to the Base Index is 150%.



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Comparative Statistics as of 12/29/2023

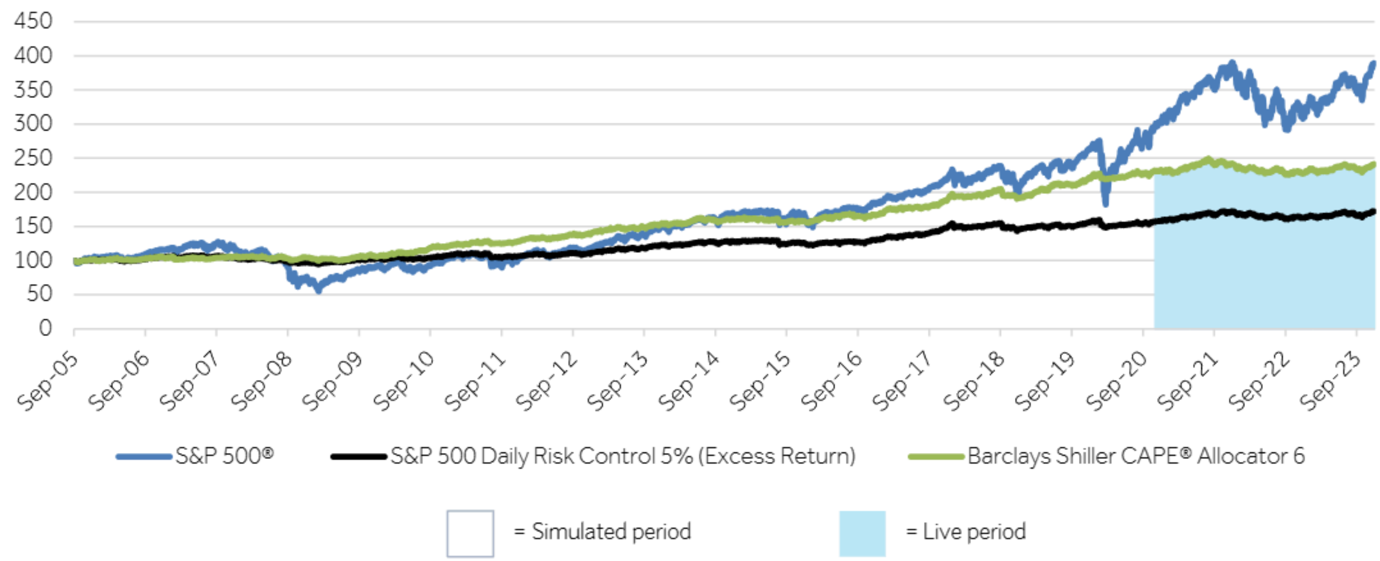
Overview			
Index	BXIISC6E Excess Return	SPXT5UE Excess Return	SPX Price Return
Target Volatility	6%	NA	NA
Start Date	Sep-30-2005	Sep-30-2005	Sep-30-2005
End Date	Dec -29-2023	Dec-29-2023	Dec-29-2023

Performance Stats (Annualized)			
1y Return	5.30%	5.66%	23.91%
1y Volatility	4.44%	4.47%	13.06%
1y Sharpe Ratio	1.19	1.27	1.83
3y Return	1.22%	2.85%	18.57%
3y Volatility	4.96%	4.89%	17.60%
3y Sharpe Ratio	0.25	0.58	0.49
5y Return	4.60%	3.46%	13.92%
5y Volatility	4.82%	4.89%	21.40%
5y Sharpe	0.95	0.71	0.65
Return Since Base	4.92%	3.01%	7.71%
Volatility Since Base	5.22%	5.06%	19.79%
Sharpe Ratio Since Base	0.94	0.60	0.39

Source: Barclays, as of Dec 29, 2023. Simulated period: Index Base Date is Sept 2005, Index Live Date is Dec 2020. Past and/or simulated past performance are not reliable indicators of future performance. See information on the performance data in the Index Performance Disclaimer at end for further information.

Tickers in the above chart above are BXIISC6E which is the Shiller Barclays CAPE® Allocator 6 Index, SPXT5UE which is the S&P 500® Daily Risk Control 5% Excess Return Index, and SPX which is the S&P 500®.

Historical and Simulated/Live Index Performance



Source: Barclays, as of December 29, 2023. Simulated period: Index Base Date is Sept 2005, Index Live Date is Dec 2020. Past and/or simulated past performance are not reliable indicators of future performance. See information on the performance data in the Index Performance Disclaimer at end for further information.

Considerations

To recap, the Index aims to provide stable exposure to US equities. It does this by incorporating a basket of US Treasuries, and both adjusting the asset allocation systematically using techniques from Modern Portfolio Theory and trend investing, and applying a mechanism that seeks to maintain volatility at a constant 6% annualized level.

When comparing performance of the Index with indices like the S&P 500® or S&P® 500 Daily Risk Control 5% Excess Return Index there are a couple of points to consider:

Because the Index is exposed to Treasuries, it may underperform in a rapidly rising interest rate environment

Because the index includes a volatility control mechanism, it may underperform during an equity market rally that occurs immediately after a period of elevated volatility when the Index would have reduced its exposure

Because the Index is an excess return index, the performance of the index tracks the performance in excess of the risk free rate.

Shiller Barclays CAPE® Allocator 6 Index Risk Factors

An investment based on the performance of the Index also involves fees, costs and risks. The following is a summary of these fees and costs and certain risks associated with the Index. You should consider the following, and consult with your financial professional and read any product documentation carefully, before purchasing a financial product based on the performance of the Index.

- The equity component reinvests all dividends paid on the ETFs that make up the Index. The index makes the following deductions from the Index level: (1) a fee of 0.50% per year on the equity exposure and 0.20% per year on the treasury exposure, each of which is deducted from the index level on a daily basis , and (2) a financing cost equal to the 1-month US dollar LIBOR rate (before April 26, 2022) or SOFR plus 0.1145% (April 26, 2022 onwards) on the notional exposure of the Index to the equity component which may be increased or decreased in the aggregate by the volatility control mechanism. These deductions will be reflected in the calculation of the daily Index level and will reduce Index performance, and the Index will underperform similar portfolios from which these fees and costs are not deducted.
- The strategy reflected in the Index may be unsuccessful. The allocation between the components reflected in the Index at any time may not be optimized and may underperform a different allocation between the included asset classes. Historical volatility may prove to be a poor measure of predicting future returns and future volatility and, if it is, the Index portfolio may not be optimized and may perform poorly. In addition, the allocation between stocks and Treasury futures reflected in the Index at any time may not be optimized and may underperform a different allocation between the two asset classes.
- The ETFs that make up the Shiller index track sector indices and may have different performance results due to factors such as deduction of management fees.
- The Index methodology may be ineffective in allocating exposure to the best performing sectors. There can be no assurance that sectors with lower Relative CAPE® ratios and higher 12-month price momentum will outperform sectors with higher Relative CAPE® ratios and/or lower 12-month price momentum.
- Because the Index portfolio will be equally weighted among the four chosen sectors, the predefined weightings among the sectors may not be the most optimal allocations even if the Index is successful in selecting the four best performing sectors.
- Because the Index will at any time only be allocated to four sectors, it may produce lower returns than an investment in a more diversified pool of assets.
- The trend signal feature used by the Index to determine price momentum in treasury indices, may not be successful. The signal may indicate that exposure to treasury components should be eliminated at times when they are outperforming the equity component or may fail to indicate that exposure to treasury components should be eliminated at times when they are underperforming the equity component. In addition, even if the trend signal accurately indicates price momentum in U.S. treasury future markets, exposure to treasury components may be eliminated only at the bi-weekly optimization process and no assurance can be given that the Index will adjust its exposure to treasury components quickly enough to benefit from that accurate indication. The Index may underperform a comparable investment portfolio that does not reference a similar signal to adjust its exposure to treasury assets.
- The volatility control mechanism included in the Index may not achieve its intended goal, and the Index may not be successful in maintaining its volatility at or below 6%. In addition, when the Index's exposure to its portfolio is greater than 100%, any negative performance of the portfolio will be magnified and the level of the Index may decrease significantly. In addition, if the volatility control mechanism causes exposure to the Index portfolio to be less than 100%, the difference will not be invested and will earn no return.
- The Index is subject to risks associated with rolling futures contracts, including the risk that its underlying indices will replace expiring contracts with higher-priced contracts, which may cause the index values to fall even if the spot levels of the bonds underlying the relevant futures contracts are stable or increasing in value.
- The Index may produce negative returns if the US equity market and/or the US treasury market have negative performance.
- The Index has a limited performance history, and any hypothetical back-tested data relating to the Index does not represent actual historical data and is subject to inherent limitations.

Index Performance Disclaimer

This communication includes past performance data related to select indices developed and published by Barclays Bank PLC ("Barclays"). This disclaimer is intended to highlight the risks inherent in assessing such performance data.

Index performance data included in this communication are accompanied by a footnote specifying the relevant Index Base Date and Index Live Date. The Index Base Date is defined as the first date for which the level of the index has been calculated. The Index Live Date is defined as the date on which the index rules were established and the index was first published. In assessing past performance, it is important to distinguish Past simulated index performance from Past index performance:

Past simulated index performance

Past simulated index performance refers to the period from the Index Base Date to the Index Live Date. This performance is hypothetical and back-tested using criteria applied retroactively. It benefits from hindsight and knowledge of factors that may have favorably affected the performance and cannot account for all financial risk that may affect the actual performance of the index. It is in Barclays' interest to demonstrate favorable simulated index performance. The actual performance of the index may vary significantly from the past simulated performance. Past simulated index performance is not a reliable indicator of future performance.

Past index performance

Past index performance refers to the period from the Index Live Date to the date of this presentation. This performance is actual past performance of the index. Past index performance is not a reliable indicator of future performance.

Past index performance is usually highlighted in blue and designated as "Live". Past simulated index performance is usually not highlighted.

Past and / or Past simulated index performance is provided for a period of at least 10 years, unless the instruments underlying the index were only available or sufficiently liquid for a lesser period. In that case, Past and Past simulated index performance is provided from the time when the instruments underlying the index were available or sufficiently liquid. Unless stated otherwise, performance, volatility, Sharpe ratio and correlation data are calculated using monthly returns and maximum drawdown data are calculated using daily returns. For the purpose of regulatory compliance and to facilitate comparison, performance data include returns calculated for each of the five consecutive 12 month periods extending back from month-end of last month. However, Barclays has provided additional information to supplement statutory and/or regulatory requirements.

The index methodology is available for review upon request, subject to the execution of a non-disclosure agreement.

The performance data reflect all costs, charges and fees that are incorporated into the index formula (if any). Depending on the transaction/product terms, additional charges may apply as part of the transaction/product; such charges are not reflected in the performance statistics.

Barclays or an affiliate of Barclays prepared the provided performance information (including the simulated performance information), may be the index sponsor and potentially is the counterparty to a transaction referencing the index.

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