PIMCO

PIMCO's Capital Market Assumptions

A positive outlook for bond returns

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Executive Summary

The post-pandemic inflation shock and subsequent rate-hiking cycle pushed bond yields to their highest levels in a decade. Now, as inflation recedes and central banks have begun cutting rates, high quality fixed income may positively reprice. Meanwhile, risks have risen in other markets: Equities and lower-quality corporate bonds have become more expensive, offering investors little cushion in the event of a correction. Our capital market assumptions (CMAs) suggest that a diversified bond allocation could offer equity-like returns with a more favorable risk profile than an equity allocation.

Five-year forecasts in our latest semiannual capital market assumptions include:

- An average cash rate of 3.5%, the same as in the fourth quarter of 2023, reflecting our view of normalizing rates with a five-year terminal cash rate of 2.75%
- An estimated annualized return of 6.8% for U.S. large cap equities, based on the S&P 500 – about 3.3% above the average U.S. cash rate
- An estimated annualized U.S. government bond return of 5.1%, higher than our expected inflation rate of 2.4%, implying positive real returns
- Expected risk premia of between 130 basis points (bps) and 310 bps over cash on a foreign-exchange-hedged basis for other developed market sovereign bonds and corporate bonds

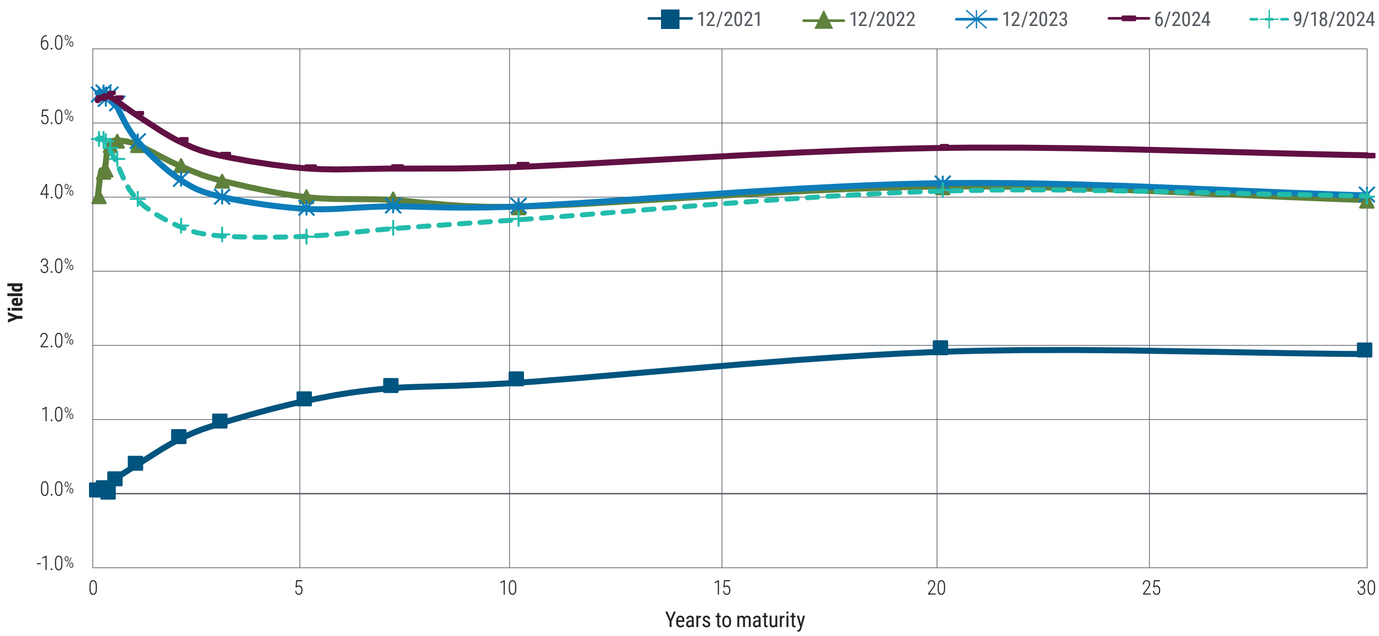
We believe the repricing of yields since 2022 has led to some of the most compelling return estimates for fixed income since the global financial crisis.

After a surprisingly resilient 2023, we anticipate a slowdown in major economies this year, including the U.S., albeit at different rates and from different starting points. Given that recent data releases indicate inflation is moderating, the U.S. Federal Reserve and some other developed market (DM) central banks have begun cutting rates, and market pricing (at the time of this writing) suggests the Fed will cut rates multiple times by year-end.

We expect high quality bonds will provide attractive returns and risk diversification in this environment. The bond market rally toward the end of 2023 illustrated the potential for high quality, intermediate-duration bonds to provide both high carry and price appreciation when the yield curve normalizes.

Figure 1 compares the U.S. Treasury yield curves for our past semiannual CMA updates, dating back to December 2021. In June 2022, bond yields increased significantly compared with six months prior, followed by a year of continued Fed rate hikes and intensified yield curve inversion, resulting in the most inverted two-year versus 10-year U.S. Treasury bond yield slope in the past four decades. Since our June snapshot of market levels for the CMA survey, both the Fed and the market have moved in line with our expectations. We anticipate that the curve will eventually normalize, which could benefit many fixed income assets.

Figure 1: The U.S. Treasury yield curve remains inverted or flat



Source: Bloomberg as of September 2024

Painful economic, financial, and geopolitical disruptions over the past few years have resulted in massive fiscal and monetary policy interventions that likely will not be repeated in the next five years due to the fear of inflation and surging sovereign debt. With policymakers having limited options, the global economy will likely face increased volatility and potential aftershocks over the secular horizon. The divergence in growth, inflation, and central bank policies also implies the importance of global diversification. (For more, please read our latest *Secular Outlook*, "Yield Advantage.")

PIMCO's capital market assumptions

Figure 2 shows PIMCO's five-year CMAs for key benchmarks as of June 2024. Our CMAs are updated semiannually and generally evolve gradually. Consequently, while changes versus December 2021 are significant, those since December 2023 are relatively minor, with all semiannual CMA updates indicating attractive fixed income returns over a five-year horizon.

Figure 2: Five-year capital market assumptions for select benchmarks

		UNHEDGED			USD-HEDGED (for global indices)		
	Index	5-year nominal return[1]	Volatility[2]	Sharpe ratio[3]	5-year nominal return[1]	Volatility[2]	Sharpe ratio[3]
EQUITIES	S&P 500 Index	6.8%	15.4%	0.22			
	Russell 2000 Index	6.6%	21.1%	0.14			
	MSCI World Index	6.8%	15.2%	0.22	6.8%	14.2%	0.23
	MSCI EAFE Index	6.7%	15.7%	0.20	6.7%	12.1%	0.26
	MSCI Emerging Markets Index	7.6%	18.6%	0.22	6.7%	15.5%	0.21
	MSCI All Country World Index	6.9%	15.2%	0.22	6.8%	14.1%	0.23

	Index	5-year nominal return[1]	Volatility[2]	Sharpe ratio[3]	5-year nominal return[1]	Volatility[2]	Sharpe ratio[3]
FIXED INCOME	Bloomberg Global Aggregate Bond Index	5.3%	6.5%	0.28	5.2%	4.2%	0.41
	Bloomberg US Aggregate Bond Index	5.5%	5.1%	0.39			
	Bloomberg Euro Aggregate Bond Index	4.1%	10.5%	0.06	5.0%	5.6%	0.26
	Bloomberg US Government Bond Index	5.1%	4.8%	0.33			
	Bloomberg US Credit Index	5.8%	6.6%	0.34			
	Bloomberg US Long Treasury Index	7.3%	12.4%	0.30			
	Bloomberg US Long Credit Index	6.8%	12.8%	0.25			
	Bloomberg US Long Government/ Credit Index	7.0%	11.3%	0.31			
	Bloomberg US High Yield Index	5.7%	7.6%	0.28			
	Bloomberg US TIPS Index	5.2%	5.5%	0.32			
	Bloomberg Municipal Bond Index	6.9%	5.4%	0.62			
	Bloomberg HY Municipal Bond Index	8.1%	9.1%	0.50			
	Bloomberg Fixed-Rate MBS Index	5.9%	5.5%	0.43			
	JPMorgan EMBI Global Index	6.6%	9.2%	0.34			
	JPMorgan GBI-EM Global Div Index	7.2%	10.1%	0.37	5.4%	3.9%	0.49

ALTERNATIVES	Index	5-year nominal return[1]	Volatility[2]	Sharpe ratio[3]	5-year nominal return[1]	Volatility[2]	Sharpe ratio[3]
	Bloomberg Commodity Index	6.5%	16.5%	0.18			
	Dow Jones Credit Suisse Hedge Fund Index	5.9%	7.6%	0.32			
	Private Equity Model[4]	9.9%	26.5%	0.24			
	Private Credit Model[4]	8.4%	12.1%	0.41			
	Private Infrastructure Model[4]	9.8%	18.8%	0.34			

FX	Index	5-year nominal return[1]	Volatility[2]	Sharpe ratio[3]	5-year nominal return[1]	Volatility[2]	Sharpe ratio[3]
	US Dollar Index (DXY)	-1.4%	7.3%	-0.67			

Source: PIMCO as of June 2024

For illustrative purposes only. Figure is not indicative of the past or future results of any PIMCO product or strategy. There is no assurance that the stated results will be achieved. Returns for the Bloomberg Municipal Bond Index and the Bloomberg HY Municipal Bond Index are reported on a tax-equivalent basis using a 37% federal tax rate plus a 3.8% Medicare tax. Income from municipal bonds for U.S. domiciled investors is exempt from federal income tax and may be subject to state and local taxes and at times the alternative minimum tax. Income from municipal bonds for investors domiciled outside of the U.S. may be taxable. PIMCO does not provide legal or tax advice. Please consult your tax and/or legal counsel for specific tax or legal questions and concerns.

1 For indices and asset class models, return estimates are based on the product of risk factor exposures and projected risk factor premia that rely on historical data valuation metrics, and qualitative inputs from senior PIMCO investment professionals.

2 PIMCO's estimate of volatility over the secular horizon

3 The Sharpe ratio calculation is as follows: (estimated asset return − estimated cash return)/estimated asset volatility. Estimated cash return = 3.5%.

4 Model risk factor exposures are based on analysis of historical index data, third party academic research and/or qualitative inputs from senior PIMCO investment professionals.

We expect the **U.S. cash rate** to average 3.5% over the five-year horizon, which reflects a migration of the cash rate toward 2.75% in five years from about 5.3% in June 2024. A cash rate of 2.75% is consistent with our long-term view that inflation will be contained and indicates a modest real return for investors who hold short-term U.S. government bonds.

Our annualized five-year CMA for **large cap U.S. equities**, as measured by the S&P 500, remains 6.8%, representing an equity risk premium over cash of about 3.3 percentage points. Compared with December 2023, we have revised our U.S. real GDP growth forecast to 1.7% from 1.5%, but there are increased pressures on equity valuations. Overall, our estimated five-year Sharpe ratios for other developed market equity markets on a foreign-exchange (FX)-hedged basis are about 0.25.

Developed market sovereign and corporate bonds are seen earning a risk premium of between 150 bps and 230 bps over cash on an FX-hedged basis, depending on the index. This results in fixed income Sharpe ratios higher than those of equities on an FX-hedged basis. Importantly, estimated fixed income returns exceed our five-year expected inflation rate of 2.4%, implying positive real returns. **U.S. agency mortgage-backed securities (MBS)** are estimated to earn a risk premium of 2.4% over cash, with an estimated Sharpe ratio close to 0.43. **Treasury Inflation-Protected Securities (TIPS)** appear attractively valued relative to nominal bonds and are estimated to earn a risk premium of 1.7%, with a Sharpe ratio of 0.32.

Emerging market (EM) local (unhedged) and external bonds are estimated to earn a risk premium between 3.7% and 3.1% over cash. Municipal bond returns continue to look highly attractive on a long-term basis for those in the highest marginal federal tax brackets, with estimated tax-equivalent total returns of 6.9% and 8.1% for the Bloomberg Municipal Bond and Bloomberg High Yield Municipal Bond indices, respectively.

Private assets are estimated to earn a risk premium of between 4.9% and 6.4% over cash. Private credit stands out with a Sharpe ratio of 0.41 and an estimated total return of 8.4%, which is attractive versus the 9.9% for private equity, considering the difference in risk.

Finally, our CMA for the U.S. Dollar Index (DXY) is -1.4%, reflecting our general view of a slightly overvalued U.S. currency against other major DM currencies.

Focus on fixed income

As discussed above, our base case is that inflation is likely to be reasonably contained over a five-year horizon. As a result, we expect terminal cash rates will be below today's levels as the nominal cash rate adjusts to a more normalized inflationary regime.

Figure 3 shows the starting (June 2024) levels and estimated terminal levels in five years for U.S. nominal and real yields for various tenors. The path of modestly declining yields should produce favorable returns for U.S. government bonds. As the figure shows, our base case rate path results in an estimated Sharpe ratio of 0.32 for a hypothetical 10-year (monthly rebalanced) U.S. government bond. For comparison, our estimated Sharpe ratio for this same bond was a mere 0.03 at the end of 2021, indicating our expectation for meager returns to U.S. sovereign debt at that time. We are slightly more constructive on TIPS relative to nominal bonds, given a relatively optimistic market view of inflation as measured by breakeven inflation (the difference between nominal and real bond yields) and the upside tail risks to the inflation rate at present that would likely lead to a materially higher return on TIPS should such risks materialize.

Figure 3 also shows that starting U.S. investment grade (IG) and high yield (HY) credit spreads (June 2024) remained below their long-term estimated terminal levels. For example, the U.S. IG spread is estimated to migrate from 0.84% in June 2024 to 1.39% in five years. This still produces a positive risk premium for duration-hedged credit, although nowhere near as high as it was in, say, the depths of the COVID-19 crisis. Therefore, we believe that investors in both IG and HY fixed income will be rewarded over the secular horizon, with estimated Sharpe ratios for duration-hedged credit of 0.08 and 0.13, respectively, for IG and HY.

Figure 3: Five-year forecasts for U.S. nominal and real rates

	2Q 2024		
Risk factors	**Current level**	**Level at 5-year horizon**	**Sharpe ratio[1]**
U.S. Treasury 3M yield	5.3%	2.8%	
U.S. Treasury 2Y yield	4.8%	2.9%	
U.S. Treasury 10Y yield	4.4%	3.4%	0.32
U.S. Treasury 30Y yield	4.5%	3.7%	
Bloomberg US Credit Index: spread level (OAS)	0.8%	1.4%	0.08
Bloomberg US High Yield: spread level (OAS)	2.8%	4.3%	0.13

	Q2 2024		
Risk factors	**Current level**	**Level at 5-year horizon**	**Sharpe ratio[1]**
U.S. TIPS 2Y real yield	2.6%	0.8%	
U.S. TIPS 10Y real yield	2.1%	1.3%	0.34
U.S. TIPS 30Y real yield	2.2%	1.7%	

Source: Bloomberg as of June 2024. **For illustrative purposes only. Figure is not indicative of the past or future results of any PIMCO product or strategy. There is no assurance that the stated results will be achieved.**

For indices and asset class models, return estimates are based on the product of risk factor exposures and projected risk factor premia that rely on historical data, valuation metrics, and qualitative inputs from PIMCO.

1 To estimate the Sharpe ratios, we map nominal or real yields to the corresponding par-coupon bonds and map spreads to the corresponding duration-hedged credit indices. The formula is Sharpe ratio = (estimated asset return − estimated cash return)/estimated asset volatility. Estimated cash return = 3.5%.

Conclusion

PIMCO's latest capital market assumptions indicate that we are witnessing some of the most appealing fixed income returns for the medium to long term in recent times. This positive outlook is based on our belief that central banks will effectively manage to align inflation and inflation expectations with long-term targets. However, we anticipate that the average inflation rate over the long term will be somewhat higher than it was prior to the pandemic, suggesting that the final stages of the inflation battle may be challenging. In a post-peak economy marked by ongoing disruptions and interest rate cuts this year, the current yields and the expectation of contained inflation imply that high quality fixed income investments could provide both attractive returns and a ballast to equity risk.

Asset Inclusion Test

CMAs are a key input to strategic asset allocations. Instead of conducting a full optimization, investors can also consider incremental changes to an existing portfolio to boost the risk-adjusted return (i.e., the Sharpe ratio), by adding one asset at a time. This can be done with the so-called asset inclusion test.

Using SR_P and SR_i to denote the Sharpe ratio of the existing portfolio and the new asset i being considered, we can show that the addition of the asset improves the portfolio Sharpe ratio if the following condition holds:[1]

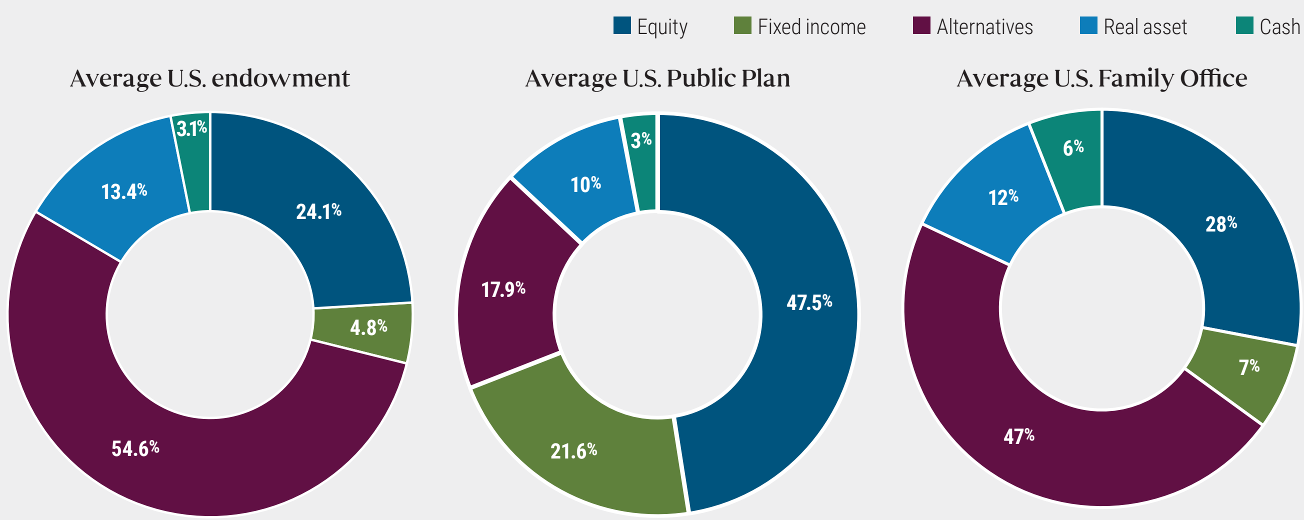
$$\frac{SR_i}{SR_p} > \rho_{i,P}$$

$\rho_{i,P}$ denotes the correlation of the new asset with the existing portfolio.

To evaluate relative attractiveness among assets, we can compute the marginal Sharpe ratio for each asset. We calculate the derivative of the portfolio Sharpe ratio with respect to a small addition to the asset, which allows us to determine which asset has the most positive impact. The marginal Sharpe ratio (MSR) takes the form

$$Marginal\ Sharpe\ ratio = \frac{\sigma_P\, r_i - \sigma_i\, \rho_{i,P}\, r_P}{\sigma_P^2}$$

In the equation above, r_i and r_P denote the excess returns, σ_i and σ_P denote volatilities, and $\rho_{i,P}$ denotes the correlation of the asset and the portfolio. To take an example, a marginal Sharpe ratio of 1 would indicate that a 10% increase in allocation to the asset would result in a 0.1 increase to the portfolio Sharpe ratio. We take the asset inclusion test for a spin in three sample portfolios below.



1 See appendix for full proof of the asset inclusion test. For simplicity, we assume that the existing portfolio has a positive Sharpe ratio (i.e., $SR_P>0$).

We use PIMCO's latest capital market assumptions (CMAs) as forward estimated returns and PIMCO's proprietary risk engine to estimate volatilities and equity betas. We then compute the MSR for a broad selection of asset classes for each of the three sample portfolios. Figure 5 shows the five assets with the highest marginal Sharpe ratios.

Figure 5: Top 5 asset classes with the highest marginal Sharpe ratio (MSR)

U.S. endowment portfolio		U.S. public plan		U.S. family office	
Asset	**MSR**	**Asset**	**MSR**	**Asset**	**MSR**
Risk mitigation strategies	0.27	Risk mitigation strategies	0.34	Risk mitigation strategies	0.27
Private credit	0.26	Private credit	0.20	Private credit	0.16
EM local	0.14	U.S. securitized	0.16	EM local	0.14
U.S. securitized	0.13	EM local	0.15	U.S. securitized	0.13
Private real estate	0.13	Private real estate	0.13	Private real estate	0.13

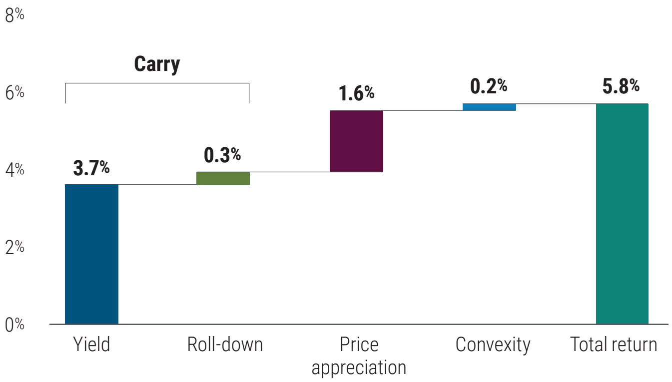
As of June 2024. **For illustrative purposes only. Figure is not indicative of the past or future results of any PIMCO product or strategy. There is no assurance that the stated results will be achieved.** The U.S. endowment portfolio reflects the largest NACUBO portfolio. The U.S. public plan is based on the RVK average public plan asset allocation survey as of 30 June 2023. The U.S. family office is based on the UBS/Campden Wealth Global Family Office Report 2022. Risk mitigation strategies are proxied by equally weighted long Treasuries, trend-following strategies, and alternative risk premium models.

We see that adding risk mitigation strategies, private credit, securitized credit, EM local bonds, and private real estate tends to have the biggest potential to improve the sample portfolios' Sharpe ratios. Different portfolios and/or assumptions would provide different results.

Appendix

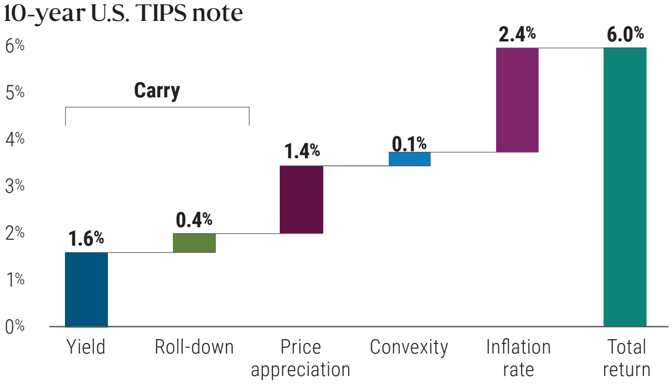
Estimated return decompositions for key asset classes (5-year horizon)

10-year U.S. Treasury note



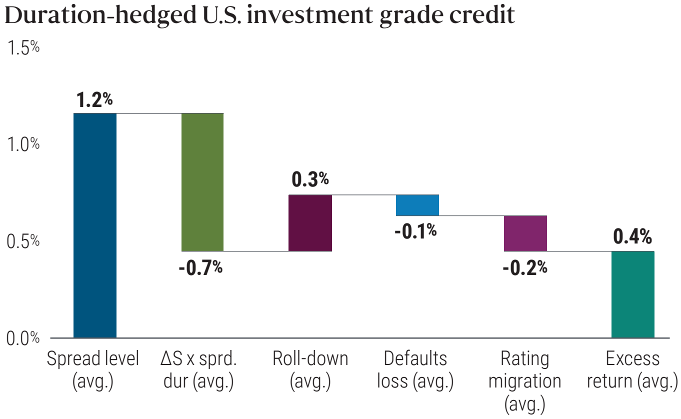
Source: PIMCO as of June 2024. **For illustrative purposes only. Figure is not indicative of the past or future results of any PIMCO product or strategy. There is no assurance that the stated results will be achieved**. Total return estimate represents 10-year U.S. government bond return decomposed into carry (average yield plus roll-down) and price appreciation/losses due to yield changes.

10-year U.S. TIPS note



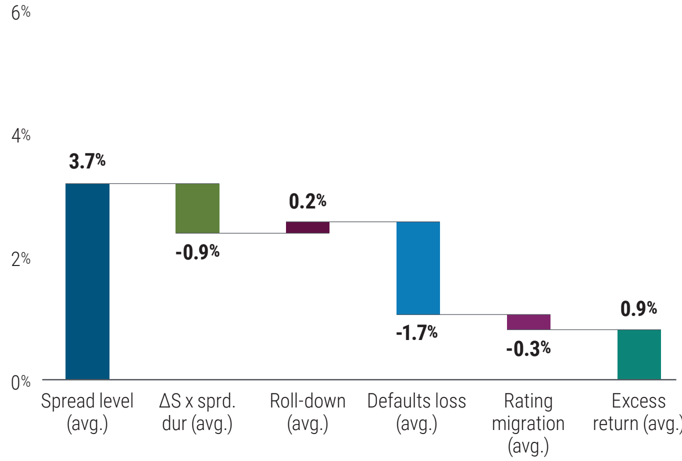
Source: PIMCO as of June 2024. **For illustrative purposes only. Figure is not indicative of the past or future results of any PIMCO product or strategy. There is no assurance that the stated results will be achieved**. Total return estimate represents 10-year U.S. real government bond return decomposed into carry (average yield plus roll-down) and price appreciation/losses due to yield changes.

Duration-hedged U.S. investment grade credit



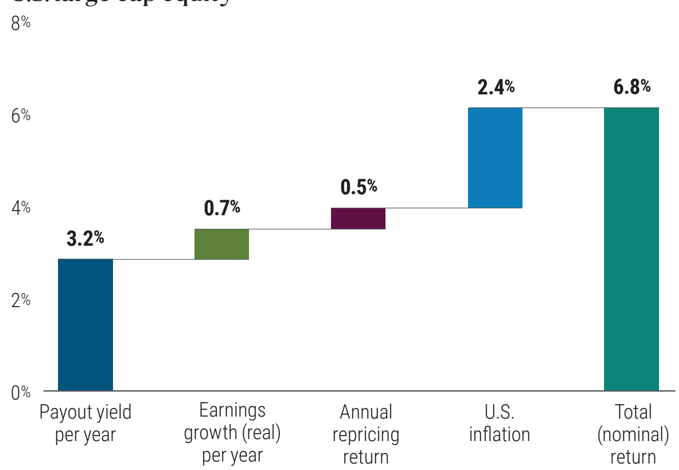
Source: PIMCO as of June 2024. **For illustrative purposes only. Figure is not indicative of the past or future results of any PIMCO product or strategy. There is no assurance that the stated results will be achieved.** Estimate of U.S. IG credit spread excess return (over duration-matched governments) decomposed into carry (average spread level adjusted for losses due to defaults), roll-down, and price appreciation/losses due to spread changes adjusted for losses due to downgrades.

Duration-hedged U.S. high yield bonds



Source: PIMCO as of June 2024. **For illustrative purposes only. Figure is not indicative of the past or future results of any PIMCO product or strategy. There is no assurance that the stated results will be achieved**. Estimate of U.S. HY spread excess return (over duration-matched governments) decomposed into carry (average spread level adjusted for losses due to defaults) and price appreciation/losses due to spread changes.

U.S. large cap equity[1]



Source: PIMCO as of June 2024. **For illustrative purposes only. Figure is not indicative of the past or future results of any PIMCO product or strategy. There is no assurance that the stated results will be achieved.**

1 Decomposition based on the S&P 500. Dividend yield includes buybacks.

PIMCO client solutions and analytics provides unbiased intelligence across asset classes to help our clients make optimal investment decisions.

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