BNP PARIBAS WEALTH MANAGEMENT

The bank for a changing world

GLOBAL ASSET ALLOCATION ADVISORY

# Asset Allocation Series N°3
# #U.S. 10-Year Treasuries

# Why consider US government bonds in a balanced portfolio ?

## INTRODUCTION

**Welcome to our Asset Allocation Series, where we provide clear insights into multi-asset investment, asset allocation analysis and quantitative research.**

After having highlighted the benefits of adding Japan equities and Gold as an asset class in a balanced portfolio in the previous editions, this paper focuses on US long-dated government bonds.

In our view, considering US government bonds and US inflation-linked bonds (TIPS) tend to:

- Increase the expected return over the medium to long term,
- Increase the diversification, and ultimately reduce the investment risks and expected drawdowns,
- Improve the overall risk-return profile of a diversified multi-assets portfolio as a result.

This paper explains why and helps to understand the risk-return characteristics and their impact on investment success, based on a clear vision of long-term historical trends and expected behaviors.

Our Chief Investment Office has recently upgraded US Government Bonds from Neutral to Overweight. We will explain why we believe this should be considered as new buying opportunities, rather than being avoided.

## Recent CIO view: new buying opportunities in US Treasuries

The recent rise in US Treasury yields was driven by resilient growth in the US, Japan loosening yield curve control, and increased Treasury issuance. US long-term rates are expected to have peaked or close to peak as the central bank probably reached the end of its rate hike cycle and economic activity is expected to slow. As a result, **we upgrade US government bonds to overweight on a 12-month basis**, including maturities up to 10 years and have a preference for inflation-linked bonds.

The US economy has just begun to slow with unemployment rate rising and inflation falling. We believe the Federal Reserve medicine is starting to work with the normal lags in monetary policy. We expect a **slowing economy and moderate recession in 2024**.

In our view, it is likely that the Fed has reached its terminal rate and will hold its target rate steady at 5.5%. We expect a **series of rate cuts from Q2 2024 onwards** with a cumulative 225 bps until mid-2025. In the Eurozone, a terminal rate of 4.0% (deposit rate) probably has already reached. **We do not expect any more rate hike**, and we believe rate cuts in the Eurozone may start from 3Q 2024 with a cumulative 100 bps by mid-2025.

**Furthermore, we remain positive on European and US quality investment grade corporate bonds. We also continue to like Emerging Markets' sovereign bonds (both local and hard currency).**

*Additional market insights from our CIO team, asset allocation recommendations, and high conviction ideas are available in our Investment Navigator (September 2023)*

## Recent surge in longer dated treasury yield

We saw the **US 10-year treasury yield surge to a 16-year high** at the current level around 4.5% (See: Figure 1).

Similarly, US 10-year treasury inflation protected bonds have reached their highest yields since 2009, currently close to 2% and standing far above its 10-year average of 0.5%.

### FIGURE 1: US 10-YEAR TREASURY YIELD


*Source: Bloomberg, BNP Paribas Wealth Management, as of September 2023*

Past performances and trends are no guarantee of future results, but when yields are relatively elevated due to the recent tightening of monetary policy (higher interest rates), especially in US, the hurdle for exceeding expectations and further yield increases appears daunting.

Central banks are now close to their terminal rate and the Fed is probably done in rate hikes. We expect rate cuts from 2Q 2024, and **bonds have traditionally done well after the Federal Reserve stops raising the US Federal Reserve (Fed) funds rate**.

## Unseen consecutive negative returns in a century

Since 1928, **US 10-year treasuries have never posted three consecutive negative annual performances** in recorded history (See: Figure 2). The 10-year note is still negative since the beginning of this year after posting its worst loss ever, 17.8%, in 2022. The 30-year note lost a massive 39.2%, also a record low performance for US bonds.

However, **US 10-year treasuries can post up to two-digits positive returns after rate peaked** in the past US rate hike cycle.

### FIGURE 2: US 10-YEAR TREASURY BOND: TOTAL RETURN (1928-2023)

| Year | Return | Year | Return | Year | Return | Year | Return | Year | Return | Year | Return |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1939 | 4.4% | 1956 | -2.3% | 1973 | 3.7% | 1990 | 6.2% | 2007 | 10.2% |
| | | 1940 | 6.4% | 1957 | 6.6% | 1974 | 2.0% | 1991 | 15.0% | 2008 | 20.1% |
| | | 1941 | -2.0% | 1958 | -2.1% | 1975 | 3.6% | 1992 | 9.4% | 2009 | -11.1% |
| | | 1942 | 2.3% | 1959 | -2.6% | 1976 | 16.0% | 1993 | 14.2% | 2010 | 8.5% |
| | | 1943 | 2.5% | 1960 | 11.6% | 1977 | 1.3% | 1994 | -8.0% | 2011 | 15.0% |
| | | 1944 | 2.6% | 1961 | 2.1% | 1978 | -0.8% | 1995 | 23.5% | 2012 | 3.0% |
| 1928 | 0.8% | 1945 | 3.8% | 1962 | 5.7% | 1979 | 0.7% | 1996 | 1.4% | 2013 | -9.1% |
| 1929 | 4.2% | 1946 | 3.1% | 1963 | 1.7% | 1980 | -3.0% | 1997 | 9.9% | 2014 | 10.7% |
| 1930 | 4.5% | 1947 | 0.9% | 1964 | 3.7% | 1981 | 8.2% | 1998 | 14.9% | 2015 | 1.3% |
| 1931 | -2.6% | 1948 | 2.0% | 1965 | 0.7% | 1982 | 32.8% | 1999 | -8.3% | 2016 | 0.7% |
| 1932 | 8.8% | 1949 | 4.7% | 1966 | 2.9% | 1983 | 3.2% | 2000 | 16.7% | 2017 | 2.8% |
| 1933 | 1.9% | 1950 | 0.4% | 1967 | -1.6% | 1984 | 13.7% | 2001 | 5.5% | 2018 | -0.1% |
| 1934 | 8.0% | 1951 | -0.3% | 1968 | 3.3% | 1985 | 25.7% | 2002 | 15.1% | 2019 | 9.6% |
| 1935 | 4.5% | 1952 | 2.3% | 1969 | -5.0% | 1986 | 24.3% | 2003 | 0.4% | 2020 | 11.3% |
| 1936 | 5.0% | 1953 | 4.1% | 1970 | 16.0% | 1987 | -6.0% | 2004 | 4.5% | 2021 | -4.4% |
| 1937 | 1.4% | 1954 | 3.3% | 1971 | 9.8% | 1988 | 8.2% | 2005 | 2.8% | 2022 | -17.8% |
| 1938 | 4.2% | 1955 | -1.3% | 1972 | 2.8% | 1989 | 17.7% | 2006 | 2.0% | YTD | -0.2% |

Years following rate peaked in the past US rate hike cycles

*Source: Bloomberg, BNP Paribas Wealth Management, as of September 2023. YTD refers to the period starting from 01/01/2023 until 01/09/2023*

## Why did a 60/40 portfolio not succeed to mitigate losses in 2022 ? Why does the current environment present a good opportunity ? Answer lies in the **yield-return relationship.**

The idea behind a standard 60/40 portfolio asset allocation is that in periods of market meltdown, US treasuries, while being subject to credit risk of US government and interest rate risk, usually stand as a "safe haven" asset. Historically, when stocks declined, the value of US treasuries usually went up, lowering the portfolio's overall volatility. This is what happened in 2008; stocks plunged 37% during the Great Financial Crisis, while the return of 10-year US treasuries was positive 20.1% (Highlighted in green in the table – Figure 3 ▶), leading to a 14.2% decline for a 60/40 portfolio.

However, long-dated US treasuries came into 2022 at historically low yields, with the 10-year treasury bond yield entering the year at just 1.52%. (Highlighted in red in the table – Figure 3▶).

As a result of last year's inflation burst, 10-year rates raised throughout 2022, and ended the year at 3.88%. This resulted in **the most important yield increase in a single year (annual increase of 236 bps).**

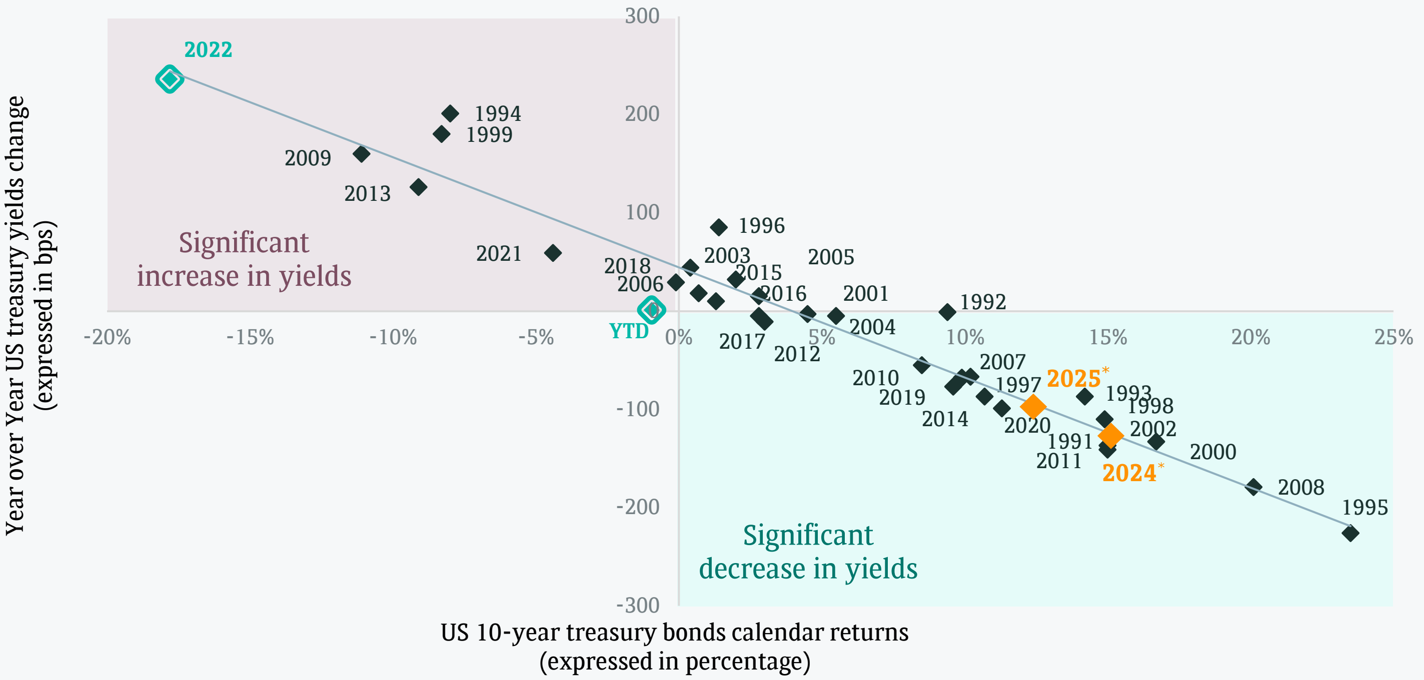
With price and yield being inversely related, **we expect rate cuts together with positive returns from 2Q 2024 for US treasury bonds** that can be estimated assuming a linear relationship (See: Figure 4▼).

### FIGURE 3: US TREASURY YIELDS (2002-2023)

| | 1Mo | 6Mo | 1Yr | 2Yr | 5Yr | 10Yr | 10Yr-2Yr | 10Yr YoY (bps) | 10Yr UST return | *Estimate return(*)* |
|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | | | | | | 2.05* | | -100(*) | ? | *12.9%* |
| 2024 | | | | | | 3.05* | | -125(*) | ? | *15.2%* |
| YTD | 5.38 | 5.54 | 5.43 | 4.96 | 4.37 | 4.30 | -0.66 | 42 | -1.0% | *3.8%* |
| 2022 | 4.12 | 4.76 | 4.73 | 4.41 | 3.99 | 3.88 | -0.53 | 236 | -17.8% | *-17.1%* |
| 2021 | 0.06 | 0.19 | 0.39 | 0.73 | 1.26 | 1.52 | 0.79 | 59 | -4.4% | *-1.3%* |
| 2020 | 0.08 | 0.09 | 0.10 | 0.13 | 0.36 | 0.93 | 0.80 | -99 | 11.3% | *12.8%* |
| 2019 | 1.48 | 1.60 | 1.59 | 1.58 | 1.69 | 1.92 | 0.34 | -77 | 9.6% | *10.8%* |
| 2018 | 2.44 | 2.56 | 2.63 | 2.48 | 2.51 | 2.69 | 0.21 | 29 | -0.1% | *1.3%* |
| 2017 | 1.28 | 1.53 | 1.76 | 1.89 | 2.20 | 2.40 | 0.51 | -05 | 2.8% | *4.4%* |
| 2016 | 0.44 | 0.62 | 0.85 | 1.20 | 1.93 | 2.45 | 1.25 | 18 | 0.7% | *2.3%* |
| 2015 | 0.14 | 0.49 | 0.65 | 1.06 | 1.76 | 2.27 | 1.21 | 10 | 1.3% | *3.0%* |
| 2014 | 0.03 | 0.12 | 0.25 | 0.67 | 1.65 | 2.17 | 1.50 | -87 | 10.7% | *11.7%* |
| 2013 | 0.01 | 0.10 | 0.13 | 0.38 | 1.75 | 3.04 | 2.66 | 126 | -9.1% | *-7.3%* |
| 2012 | 0.02 | 0.11 | 0.16 | 0.25 | 0.72 | 1.78 | 1.53 | -11 | 3.0% | *4.9%* |
| 2011 | 0.01 | 0.06 | 0.12 | 0.25 | 0.83 | 1.89 | 1.64 | -141 | 15.0% | *16.5%* |
| 2010 | 0.07 | 0.19 | 0.29 | 0.61 | 2.01 | 3.30 | 2.69 | -55 | 8.5% | *8.8%* |
| 2009 | 0.04 | 0.20 | 0.47 | 1.14 | 2.69 | 3.85 | 2.71 | 160 | -11.1% | *-10.4%* |
| 2008 | 0.11 | 0.27 | 0.37 | 0.76 | 1.55 | 2.25 | 1.49 | -179 | 20.1% | *19.9%* |
| 2007 | 2.76 | 3.49 | 3.34 | 3.05 | 3.45 | 4.04 | 0.99 | -67 | 10.2% | *9.9%* |
| 2006 | 4.75 | 5.09 | 5.00 | 4.82 | 4.70 | 4.71 | -0.11 | 32 | 2.0% | *1.1%* |
| 2005 | 4.01 | 4.37 | 4.38 | 4.41 | 4.35 | 4.39 | -0.02 | 15 | 2.8% | *2.6%* |
| 2004 | 1.89 | 2.59 | 2.75 | 3.08 | 3.63 | 4.24 | 1.16 | -03 | 4.5% | *4.2%* |
| 2003 | 0.90 | 1.02 | 1.26 | 1.84 | 3.25 | 4.27 | 2.43 | 44 | 0.4% | *0.0%* |
| 2002 | 1.20 | 1.23 | 1.32 | 1.61 | 2.78 | 3.83 | 2.22 | -124 | 15.1% | *15.0%* |

*(*): Estimate yield change of 125 bps and 100 bps in 2024 and 2025 are based on BNPP WM forecasts. Estimated returns are based on a linear regression analysis between bond yields and returns since 2002. $R^2$ value of 0.95 (1 meaning a total correlation). Source: Bloomberg, BNP Paribas Wealth Management, as of September 2023. YTD refers to the period starting from 01/01/2023 until 01/09/2023.*

### Figure 4: Historical linear yield-return relationship of US 10-year treasuries (2002-2023)



## What happens next ?

When both stocks and bonds declined (which happened only four times since 1928 based on S&P 500 index and 10-year average treasuries), returns in the subsequent year tend to be positive.

FIGURE 5: FOLLOWING YEAR RETURNS

| Year | S&P 500 | 10-UST | S&P 500 following Yr. return | 10-UST following Yr. return |
|---|---|---|---|---|
| **1931** | -43.8% | -2.6% | -8.6% | 8.8% |
| **1941** | -12.8% | -2% | 19.2% | 2.3% |
| **1969** | -8.2% | -5% | 3.6% | 16.8% |
| **2018** | -4.4% | -0% | 31.5% | 9.6% |
| **2022** | -18.1% | -17.8% | ? | ? |

*Source: Bloomberg, BNP Paribas Wealth Management, as of September 2023*

## Our long-term expected returns and capital market assumptions: **higher yields should lead to higher expected returns** in fixed income (FI)

Estimating long-term expected returns is all about looking beyond the current economic environment, and thus the ability of central banks to stabilise inflation around their target and estimating long-term economic growth. Regarding inflation, we expect a gradual move lower towards the long-term target of 2% during 2024.

We estimate the expected return for Government bonds to be 3.5% for the US. This estimate does not consider expected capital gains or losses depending on the timing of the purchase, which currently presents opportunities at prevailing yield of around 4.5%.

The expected return of 10-year government bonds can be simply estimated by **the average yield to maturity of a Government bond with a 10-year maturity**, the risk being that such measure can fluctuate quite a bit in the short term. For the eurozone, we use an average yield to maturity (YTM) of a Government bond index including most member countries (with an average maturity close to 10 years).

Compared with our estimates last year, this is a +0.50% revision for the eurozone and the US respectively.

| Asset classes | Expected return | Volatility |
|---|---|---|
| Gov. Bonds US - Treasuries 10Y | 3.5% | 6.5% |
| Gov. Bonds Infl.-linked US - TIPS | 3.7% | 9.0% |
| Gov. Bonds France - OAT 10Y | 3.4% | 7.9% |
| Gov. Bonds Germany - Bunds 10Y | 2.8% | 7.0% |
| Gov. Bonds Switz. - 10Y | 3.0% | 8.5% |
| Gov. Bonds UK - Gilt 10Y | 3.1% | 10.2% |
| Gov. Bonds Japan - 10Y | 2.9% | 11.8% |
| Gov. Bonds EU 3-5Y | 2.5% | 3.4% |
| Gov. Bonds EU 7-10Y | 2.5% | 5.1% |
| EM Bonds Europe | 4.1% | 11.8% |
| EM Bonds LatAm | 3.5% | 10.6% |
| EM Bonds Asia (hard Ccy.) | 3.2% | 9.5% |
| EM Bonds (USD) | 5.5% | 10.5% |
| Corp. Bonds US IG | 4.0% | 9.2% |
| Corp. Bonds EU IG | 3.0% | 8.2% |

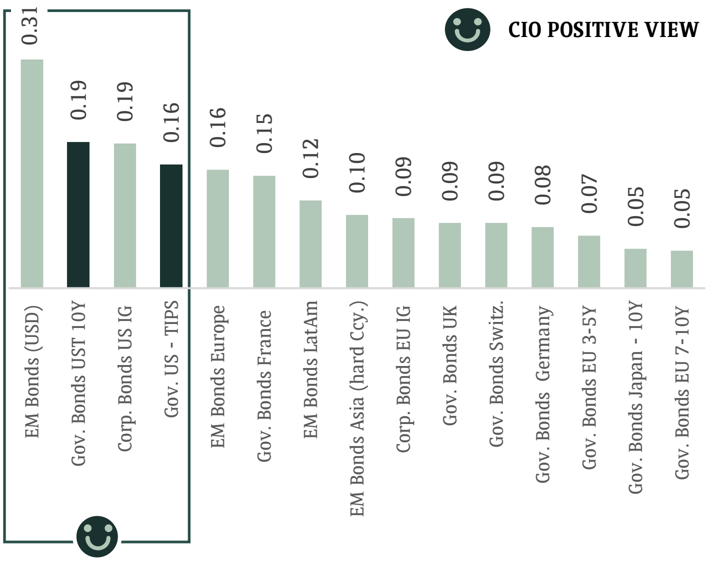
*Source: BNP Paribas Wealth Management, Strategic-A, as of July 2023.*

## US Government bonds and Treasury Inflation-Protected Securities among the best expected risk-return asset classes among the FI market

With an expected Sharpe ratio of 0.19 (See: Figure 6) for 10-year treasuries, it appears to be currently **the second-best optimal expected risk return ratio** over the next 5 to 10 years, reaching the same level as US investment grade bonds while having a lower volatility.

US inflation-linked bonds complete the podium while offering additional protection in case of prolonged inflation.

FIGURE 6: EXPECTED RISK-RETURN PROFILE




*Source: BNP Paribas Wealth Management, Strategic-A, as of July 2023*
*Assuming a risk-free rate of 2.25% corresponding to our estimated long-term return for cash and deposit in USD*

## Potential capital gains thanks to a **greater sensitivity to fall in rate**

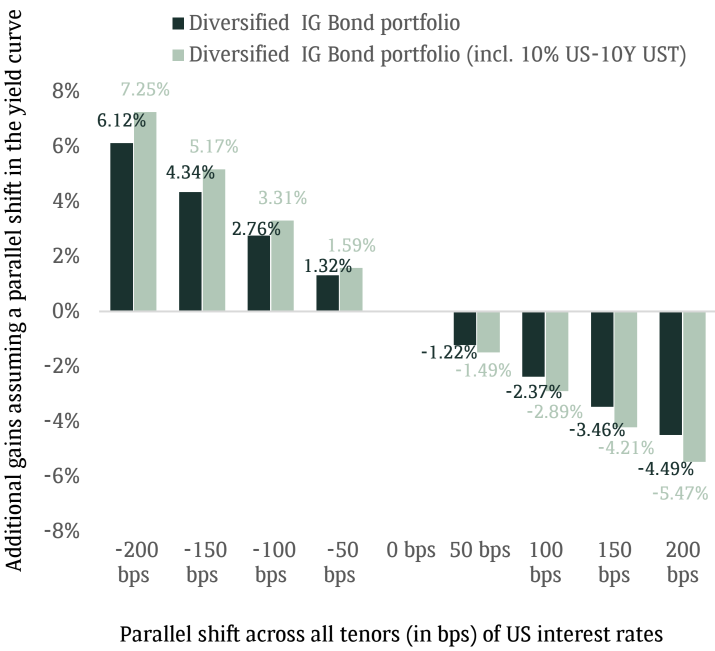
Figure: 7 ▶ highlights the benefits of adding a 10% of 10-year US treasury bonds in a diversified investment grade bonds portfolio. In our scenario where interest rates would decrease in 2024 and 2025, the **portfolio which includes government bonds would have higher returns** (additional gains up to 2% depending on the scenario and magnitude of the cuts in interest rates). On the opposite, further increase in interest rates would increase potential losses.

## US Government bonds: a **great diversification tool** within a multi-asset and diversified portfolio

When looking at historical correlations across the main asset classes (including equities, commodities, alternatives and private assets), long-dated US treasuries are almost always the most decorrelated assets. (See: Figure 8 ▼)

As such, **adding US treasuries would help a portfolio to reduce its systematic risk and therefore mitigate drawdowns during market meltdown**.

### FIGURE 7: ADDITIONAL CAPITAL GAINS




*Source: BNP Paribas Wealth Management, as of September 2023. Based on a full repricing modeling of each individual bonds that constitute the modeled portfolios.*

### FIGURE 8: CORRELATIONS BETWEEN MAIN ASSET CLASSES

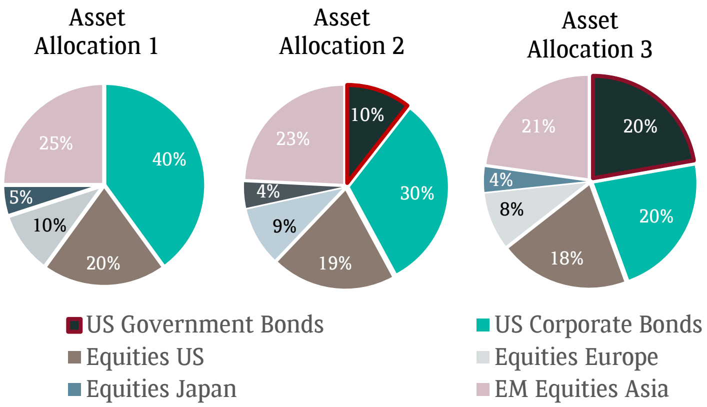
| | U.S. Treasury 5-10 Yr USD | U.S. Corp. IG Bonds | U.S. Corp. HY Bonds | Euro 5-10 Yr. Gov. Bonds | Euro Corp. IG Bonds | Euro Corp HY Bonds | Asian Pacific Gov. Bonds | Asian Pacific Corp Bonds | E.M. Sovereign Bonds | Equities US | Equities Europe | Equities Japan | Equities Asia Pac. (ex. Jpn) | Gold | Real Estate | Alternative Strat. | Private Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **U.S. Treasury 5-10 Yr USD** | 1.00 | 0.71 | 0.28 | 0.68 | 0.53 | 0.33 | 0.63 | 0.63 | 0.55 | 0.08 | 0.16 | 0.18 | 0.13 | 0.47 | 0.21 | 0.10 | 0.21 |
| U.S. Corp. IG Bonds | | 1.00 | 0.79 | 0.73 | 0.74 | 0.74 | 0.63 | 0.70 | 0.70 | 0.46 | 0.54 | 0.48 | 0.52 | 0.43 | 0.57 | 0.55 | 0.61 |
| U.S. Corp. HY Bonds | | | 1.00 | 0.56 | 0.68 | 0.81 | 0.46 | 0.55 | 0.57 | 0.64 | 0.64 | 0.53 | 0.63 | 0.26 | 0.68 | 0.65 | 0.72 |
| Euro 5-10 Yr. Gov. Bonds | | | | 1.00 | 0.94 | 0.80 | 0.73 | 0.80 | 0.59 | 0.37 | 0.57 | 0.50 | 0.48 | 0.53 | 0.49 | 0.43 | 0.58 |
| Euro Corp. IG Bonds | | | | | 1.00 | 0.92 | 0.71 | 0.80 | 0.60 | 0.46 | 0.65 | 0.56 | 0.58 | 0.49 | 0.57 | 0.54 | 0.67 |
| Euro Corp HY Bonds | | | | | | 1.00 | 0.64 | 0.68 | 0.57 | 0.59 | 0.79 | 0.66 | 0.71 | 0.46 | 0.68 | 0.71 | 0.80 |
| Asian Pacific Gov. Bonds | | | | | | | 1.00 | 0.94 | 0.63 | 0.16 | 0.26 | 0.26 | 0.31 | 0.41 | 0.30 | 0.26 | 0.33 |
| Asian Pacific Corp Bonds | | | | | | | | 1.00 | 0.60 | 0.29 | 0.41 | 0.41 | 0.42 | 0.45 | 0.42 | 0.37 | 0.46 |
| E.M. Sovereign Bonds | | | | | | | | | 1.00 | 0.26 | 0.37 | 0.32 | 0.33 | 0.30 | 0.38 | 0.39 | 0.40 |
| Equities US | | | | | | | | | | 1.00 | 0.76 | 0.63 | 0.65 | 0.24 | 0.83 | 0.53 | 0.87 |
| Equities Europe | | | | | | | | | | | 1.00 | 0.76 | 0.71 | 0.40 | 0.76 | 0.67 | 0.88 |
| Equities Japan | | | | | | | | | | | | 1.00 | 0.75 | 0.26 | 0.60 | 0.55 | 0.75 |
| Equities Asia Pac. (ex. Jpn) | | | | | | | | | | | | | 1.00 | 0.33 | 0.63 | 0.58 | 0.78 |
| Gold | | | | | | | | | | | | | | 1.00 | 0.36 | 0.21 | 0.37 |
| Real Estate | | | | | | | | | | | | | | | 1.00 | 0.59 | 0.82 |
| Alternative Strat. | | | | | | | | | | | | | | | | 1.00 | 0.67 |
| Private Equity | | | | | | | | | | | | | | | | | 1.00 |

Lowest correlation among the asset classes

*Source: BNP Paribas Wealth Management, as of September 2023. Correlations are based on weekly prices for a period of 3.5 years exponentially weighted with a half-life of approximately 13 weeks.*

# Adding US Government bonds into a balanced portfolio today **improves its expected risk-return behavior**

We have simulated three different portfolios and associated asset allocations in which we have progressively increased the allocation in US treasuries from nil to 20%.




Up to this point, we have in this report:

- Highlighted the specific **risk-return benefits** associated with US government bonds and TIPS,
- Underlined the **higher gains** assuming a decrease of interest rates within an IG-based portfolio,
- Demonstrated how it **brings diversification** thanks to lower correlations with other markets.

The latest objective is to assess whether adding US treasuries into an existing portfolio would improve or not its overall performance (See: Figure 9).

## FIGURE 9: MODELING SCENARIOS

| | Asset Allocation 1 | Asset Allocation 2 | Asset Allocation 3 |
|---|---|---|---|
| US Government Bonds | 0% | 10% | 20% |
| US Corporate IG Bonds | 40% | 35% | 30% |
| Equities US | 20% | 19% | 18% |
| Equities Europe | 10% | 9% | 8% |
| Equities Japan | 5% | 4% | 4% |
| EM Equities Asia | 25% | 23% | 21% |
| | | | |
| Expected return | 6.2% | 6.0% | 5.8% |
| Yield | 3.1% | 3.1% | 3.0% |
| Volatility | 10.6% | 9.7% | 8.9% |
| Diversification | 4.8% | 6.0% | 6.8% |
| Maximum potential loss | 24.1% | 23.4% | 22.7% |
| **Sharpe ratio** | **0.36** | **0.38** | **0.40** |

*Source: BNP Paribas, 2023. Proprietary methodology is based on benchmark indices of the relevant markets. The example is hypothetical and for illustration purpose only. It is not indicative of actual or future performance.*

In line with the expected benefits, adding US treasuries into a balanced portfolio under the current market environment tends to:

- **Decrease the overall portfolio's risk** (decrease of volatility),
- **Improve the portfolio diversification,**
- **Reduce the maximum potential losses,**
- While adding more protection, does not substantially weaken the expected return and yield,
- As a result, **improve the overall risk-return profile** of the portfolio (increase of Sharpe ratio).

## OUR PHILOSOPHY

We believe in a disciplined approach for investment decision-making process to liberate yourself from compulsive and emotional reactions negatively affecting your global wealth. An efficient strategic asset allocation is a critical source of portfolio performance stabilization in the long-run.

## How to get exposures in US treasuries and lock in attractive yields prior to a fall in rate ? Through **bond-linked structures on US treasuries...**

Bond-linked structures on US treasuries is a popular FI structured solution. It is a defensive play to enhance return on money market instrument when investors have a stable or positive view on the underlying US treasuries.

Instead of outright buying of US treasuries, bond-linked structures offer **much higher coupon and have shorter tenor** (usually 3 months to 12 months). If bond prices stay above strike, issuer is likely to redeem the structure at PAR value, but if bond prices fall to below strike price (usually set at a lower price to provide buffer), investors may be delivered with US treasuries instead of cash redemption.

The beauty of bond-linked structures is that **investors can buy US treasuries at a price lower than the prevailing market price. Together with the enhanced coupon from the structure, the breakeven price will be even lower**. However, in the case of cash redemption, investors might miss the upside if US treasuries rally significantly.


With US treasury yields overshooting to a level that is well above our target yield, we are comfortable to use bond-linked structures as a defensive way to participate in the government bond market.

Moreover, the recent spike in interest rate volatility provides a rare opportunity for investors.

Investors have to note that they may have to buy UST at strike yield and unwind cost may incur if they want to sell before note's maturity.

## Why would **US IG corporate bonds** also benefit from US treasuries recovery ?

While this paper focuses on US treasuries, we also remain positive on US quality investment grade (IG) corporate bonds which should also benefit from a fall in rates.

Indeed, **US IG corporate bonds remain sensitive to the same financial and economic factors** (See: Figure 10). On average, long dated US treasury yields and prices contribute to more than 50% of the IG bond market's volatility.

### FIGURE 10: FACTOR-BASED RISK ATTRIBUTION OF BLOOMBERG BARCLAYS U.S. CORPORATE INVESTMENT GRADE INDEX

| | Independent Contribution to Volatility | Independent Beta | Percentage of Volatility Explained |
|---|---|---|---|
| US Credit Spread | 0.24 | 0.03 | 2.7% |
| US Long Rate - Price | 3.84 | 0.95 | 43.4% |
| US Long Rate - Yield | 1.37 | -0.06 | 15.5% |
| US Medium Rate - Price | 2.75 | 1.16 | 31.1% |
| US Medium Rate - Yield | 1.10 | -0.05 | 12.4% |
| US Short Rate - Price | 1.33 | 1.70 | 15.0% |
| US Short Rate - Yield | 0.57 | -0.05 | 6.4% |
| US Tbill - Price | 0.03 | -2.45 | 0.3% |
| US Tbill - Yield | 0.28 | 0.04 | 3.1% |
| USD Treasury (1 Yr) - Price | 0.55 | 2.33 | 6.2% |
| USD Treasury (1 Yr) - Yield | 0.55 | -0.02 | 6.2% |
| USD Treasury (5 Yr) – Price | 3.78 | 1.21 | 42.7% |
| USD Treasury (5 Yr) – Yield | 3.78 | -0.05 | 42.7% |
| USD Treasury (10 Yr) – Price | 4.52 | 0.66 | 51.1% |
| USD Treasury (10 Yr) – Yield | 4.52 | -0.05 | 51.1% |
| USD Treasury (30 Yr) – Price | 4.02 | 0.51 | 45.5% |
| USD Treasury (30 Yr) - Yield | 4.09 | -0.27 | 46.2% |
| USD Shift | 2.56 | 0.66 | 28.9% |
| USD Butterfly | 0.60 | -0.32 | 6.8% |
| USD Twist | 0.49 | 0.29 | 5.5% |
| US CPI Current Prices SA | 0.31 | -0.81 | 3.5% |
| US GDP Current Prices SA | 0.05 | 0.31 | 0.5% |
| US, Unemployment rate | 0.95 | -0.15 | 10.7% |
| US, Employment, Nonfarm payroll | 0.10 | 0.54 | 1.1% |

*Source: BNP Paribas, 2023. All risk computation are based on a proprietary methodology using a global multi-asset risk factor model*

To note that US IG bonds overall volatility would also be materially impacted by a parallel shift of the USD curve which contributes to almost 30%. In comparison, US treasuries would be even more impacted (with a contribution of USD yield curve shift reaching 80%). This can be explained by a more linear relationship between bond yields and prices for US treasuries while IG bonds tend to be more convex leading to longer durations on average.

Lastly, unemployment rate in US is also a material macro economic factor of risk-return to be considered given its contribution above 10%.

*(*): Average coupon rate is based on recent bond-linked structure transactions within BNPP WM HK and SG recorded from June 2023 to September 2023 across different tenors (3 to 12months) and strike yield/price levels. Past performance is not indicative of current or future performance. Please refer to the product brochure, indicative term sheet, prospectus, and/or any other relevant documents for detailed explanation on the product and associated risks.*

# KEY TAKEAWAYS

## US TREASURIES: CURRENT ENVIRONMENT

**US long-term rates are expected to be nearing a peak in coming months**. At the same time, US 10-year treasury yield surged to a 16-year high with a current level around 4.5%. Since 1928, US 10-year treasuries have never posted three consecutive negative annual performances in recorded history.

## MARKET OUTLOOK & EXPECTED RISK-RETURNS

- We expect a **series of rate cuts from Q2 2024 onwards with a cumulative 225 bps** in US until mid-2025. As a result, price and yield being inversely related, **we expect positive returns in 2024 and 2025 for US treasury bonds where potentially high single digit or low double digit is possible.**
- Over the long-term, we estimate the **expected return for US government bonds to be 3.5%.** With an annual volatility around 6.5%, US treasuries are ranked within the **best risk-return profile among the FI market.**

## KEY BENEFITS OF LONG-DATED US TREASURIES

- Fixed income portfolios including US treasuries generally outperform portfolios holding only investment grade bonds during a falling rate environment thanks to **a greater sensitivity to fall in rate** (relative additional capital gain up to 2% depending on the scenario).
- US Government bonds are a great diversification solution within a multi-asset and diversified portfolio. Indeed, **long-dated US treasuries are almost always the most decorrelated assets** among the main asset classes.
- Also, adding US treasuries into a balanced portfolio tends to:
    - **Decrease the overall portfolio's risk** (decrease of volatility),
    - **Improve the portfolio diversification,**
    - **Reduce the maximum potential losses,**
    - While adding protection, does not substantially weaken the expected return and yield,
    - As a result, **improve the overall risk-return profile** (increase of Sharpe ratio).

## HOW TO GET EXPOSURE

- **Bond-linked structures on US treasuries** allow investors to buy US treasuries at a **price lower than the prevailing market price**. Together with an **enhanced coupon**, the breakeven price is even lower though investors must be aware of additional counterparty risks.
- **US IG corporate bonds would also benefit from the US treasuries recovery and a fall in rate** thanks to similar financial and economic drivers while being more exposed to credit risks.

# GENERAL RISKS (1/3)

Full principal is at risk

Bonds are subject to various risks, including but not limited to: Credit risk - bonds are subject to the risk of the issuer defaulting on its obligations. It should also be noted that credit ratings assigned by credit rating agencies do not guarantee the creditworthiness of the issuer; Liquidity risk - some bonds may not have active secondary markets and it would be difficult or impossible for investors to sell the bond before its maturity; and Interest rate risk – bonds are more susceptible to fluctuations in interest rates and generally prices of bonds will fall when interest rates rise. Early termination/exit – bonds may subject to risk of early termination and/or penalty for early exit, please refer to the termsheet / product documentation for details.

Additional Risk of Investing in High-Yield Bonds

In addition to the generic risks listed above, investments in high-yield bonds are subject to risks such as:

Higher credit risk - since they are typically rated below investment grade or are unrated and as such are often subject to a higher risk of issuer default; Vulnerability to economic cycles - during economic downturns such bonds typically fall more in value than investment grade bonds as (i) investors become more risk averse and (ii) default risk rises.

Investors Should be Aware of Bonds with Special Features

Furthermore, some bonds may contain special features and risks that warrant special attention. These include bonds:

Perpetual - That are perpetual in nature and interest pay-out depends on the viability of the issuer in the very long term;

Subordinated - That have subordinated ranking and in case of liquidation of the issuer, investors can only get back the principal after other senior creditors are paid; Issuer's Call - That are callable and investors face reinvestment risk when the issuer exercises its right to redeem the bond before it matures;

Discretionary Coupon - That have variable and/or deferral of interest payment terms and investors would face uncertainty over the amount and time of the interest payments to be received;

Extendible - That have extendable maturity dates and investors would not have a definite schedule of principal repayment;

Convertible Bond - That are convertible or exchangeable in nature and investors are subject to both equity and bond investment risk; and/or

Contingent Convertible Bond (COCO) - That have contingent write down or loss absorption feature and the bond may be written-off fully or partially or converted to common stock on the occurrence of a trigger event. Loss absorption on PONV - Some financial bonds (including subordinated or even senior bonds), though are not classified by market as Contingent Convertible (Coco) with explicit capital trigger for loss absorption, may also have loss absorption features, including but not limited to 1. those with contractual loss absorption at point of non-viability (PONV), 2. those in countries with statutory bail-in or 3. those in countries that are likely to have statutory bail-in before the maturities of these bonds. Bonds with loss absorption features are subject to the risk of being written down or converted to ordinary shares (as the case may be). For Tier 1/Tier 2/Tier 3 bonds, the loss absorption mechanism is triggered at the point of non-viability (PONV), whereas for Coco bonds, the loss absorption mechanism is triggered with a mechanical trigger as specified in the prospectus or at PONV. Regardless of the triggering mechanism, it may potentially result in substantial losses to your investment. Please note that the priority of claims for reimbursement depends on the subordination hierarchy of the various capital and financing buffers, at which for example, the holders of subordinated debts are only repaid after the holders of senior debts have been fully reimbursed. Please take note that investing in bonds with loss absorption features may potentially result in substantial losses. Accordingly, such products are high risk and complex, as the circumstances in which such products may be required to bear losses are difficult to predict and ex ante assessments of the quantum of losses will be highly uncertain. Such products are generally not suitable for retail investors.

# GENERAL RISKS (2/3)

Keepwell - Also known as Bonds with special feature of "multiple credit support providers and structures". It covers structures such as a bond having multiple guarantors. Such bonds are considered as complex products given that some of these bonds may have multiple credit support providers with no material operations, or may involve complex structures which subordinate the bondholders' rights to those of the multiple credit support providers.

**Credit risk**

Investments in debt and debt-related securities are exposed to credit risk. Credit risk is the risk of default on a debt that a borrower (bond issuer) fails to meet its obligations (pay principal and/or interest on redemption date). The issuer's credit quality and security values may be adversely affected by factors which include, but are not limited to, changes in economic and political conditions or the issuer's (and/or the guarantor's) financial conditions. It should also be noted that credit ratings assigned by credit rating agencies do not guarantee the creditworthiness of the issuer.

**Credit ratings**

Investors should review the issuer's credit ratings including ratings assigned by two of the major credit rating agencies (Moody's and S&P), if available. These ratings broadly gauge perceptions of the issuer's creditworthiness and its ability to meet its financial obligations, in response to which the product's value fluctuates. However, such ratings are only the opinions of the rating agencies and are not absolute guarantees as to credit quality. Such ratings may be subject to revision, suspension or withdrawal at any time and from time to time by the assigning rating agencies, which would have a negative consequential impact on the price of the bonds in the market. The value of a bond is likely to decline in the case of a downgrade of the issuer's credit rating(s). In any event, investors must make their own independent determination of the suitability of the investment.

**Country risk**

Political developments, changes in government policies, taxation, restrictions on foreign investments and other developments in the laws and regulations of the country of issuance can affect the price and liquidity of an issue. Major political instability can result in events such as civil war or a shutdown in industry. International debt (emerging market or non-emerging market) extends over one or many countries, and there are economic and political considerations affecting the decision to purchase these bonds securities (e.g., exchange rates, devaluation of currency, inflation, restrictive or changes to monetary policy, and interest rates of a specific country). In addition, since the issuer or its related companies may be domiciled or does business in a foreign country, legal remedies to investors, in the event of default, are or could be significantly restricted. Emerging market bonds may be exposed to a higher risk of political, economic and regulatory changes. Such products may be more volatile and less liquid than those issued by non-emerging market borrowers.

**Interest rate risk**

Bonds are more susceptible to fluctuations in interest rates and generally prices of bonds will fall when interest rates rise. Changes in interest rates will impact the performance of the investors' investments. As long term interest rates rise, the capital value will likely to decrease. In general, securities with longer maturities and higher interest rate sensitivity involve higher degree of risk.

**Currency risk**

Bonds are offered in a variety of currencies. Some of these currencies may not be freely convertible. Currency repatriation or wide fluctuations in the value of the currency may impact liquidity or cause severe price movements in the value of the debt security. Generally, fluctuations in exchange rates may have an adverse impact on investment return on bonds.

**Price transparency**

Unlike other listed securities, bonds are primarily traded over-the-counter (OTC) in a dealer to dealer market, making price discovery (i.e. transparency) relatively challenging.

## GENERAL RISKS (3/3)

**Secondary market and liquidity risk**

Some investments may not have active secondary markets. Investors should be prepared to invest in bonds until maturity as it may be difficult or impossible to sell these investments before maturity. Even where the bonds are listed, there is no assurance that an active trading market can be developed or sustained. An illiquid market for bonds may have an adverse impact on the price. Investors should be willing to expect that the bond market may be highly illiquid for an indefinite period. Unwinding of unlisted investment products before maturity can be expensive and may result in significant loss before maturity.

**Mark-to-market risk**

The market value of a bond is expected to fluctuate significantly according to various factors including but not limited to the financial, political, economic and other events as well as level of the performance of the issuer, interest rates and time remaining to maturity. Investors seeking to sell the bond prior to maturity may be subject to the prevailing market value which may be substantially less than the original purchase price.

**Bonds callable by the issuer**

Callable bonds are callable and investors face reinvestment risk when the issuer exercises its right to redeem the bond before it matures.

**Conflicts of interest**

Various potential and actual conflicts of interest may arise from the overall investment activities or the roles of the parties involved in any investment product or transaction, their investment professionals and/or their affiliates. In particular, the counterparty / issuer / provider or its related entities or affiliates can offer or manage other investments which interests may be different to the interest of your investments in that investment product or transaction; or for cases where the product counterparty or issuer is BNP Paribas or its related entity or affiliate, BNP Paribas may also act as distributor, guarantor, calculation agent and/or arranger of the same product.

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