

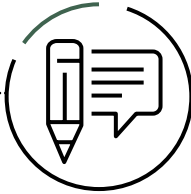
For professional investors -
Marketing communication - May 2026



Long-term asset allocation — A resilient world



BNP PARIBAS
ASSET MANAGEMENT



Koye Somefun

**Head of Multi Asset & Solutions
Quantitative Research Group**
koye.somefun@bnpparibas.com



Daniel Morris

Chief Market Strategist
daniel.m.morris@bnpparibas.com



Mehdi-Vincent Hacini

**Quantitative Analyst,
Quantitative Research Group**
mehdivincent.hacini@bnpparibas.com

INTRODUCTION

For all the shocks over the last year following the inauguration of Donald Trump as US president, the word most often used when discussing the economic outlook has been “resilience”. Neither tariffs nor war have been able to derail global growth. Forecasts by the International Monetary Fund for economic growth over the next five years are largely unchanged.

That is not to suggest there is a lack of risks and challenges. US tariffs continue to hinder exports, particularly for European companies. China, by contrast, has managed to increase its exports over the last year, but this poses its own problems for the industrial base of recipient countries. The inflationary shock from the Iran war may turn out to be transitory, but even prior to the start of the conflict, core inflation in the US remained well above target. The outlook for US monetary policy is even more uncertain than is usual as there will soon be a new chair of the Federal Reserve in.

We nonetheless see an environment that is supportive for risk assets over the medium term, but where elevated valuations imply only modest risk-adjusted returns for equities, making credit and rates relatively more attractive sources of return.

RECOMMENDATIONS

Our expectations for risk-adjusted returns for a euro-based investor over the next 10 years are relatively modest for equity. Of the equity sharp ratios shown in Exhibit 1 only Emerging equity, European equity and Listed Real Estate have a Sharpe ratio greater than 0.3. Within core assets, we are more positive on credit and rates than on equity; within government bonds, we are more positive on nominal bonds than inflation-linked bonds. Finally, we are most negative on the risk-adjusted return of US equities.

In the appendix (Exhibit 21) you will find a table with expected returns and risks across a broad range of assets and different long-term investment horizons.

Private assets offer the potential to further diversify the risks in an investment portfolio; they exploit the ‘illiquidity premium’ as they require a long-term commitment of capital. One should be cautious, however, about making simple like-for-like comparisons with public markets as private markets have highly specific characteristics.

Exhibit 1: Asset allocation recommendations

Sharpe ratios for a 10-year investment horizon and euro-based investor*

BONDS			EQUITY			
0.57			0.23			
Sovereign	Investment Grade Corp	High Yield Corp	US	Europe	Japan	Emerging
0.57	0.55	0.46	0.17	0.32	0.28	0.38
Euro Sovereign		Euro Inflation-linked	Equity		Listed Real Estate	
0.55		0.42	0.23		0.33	
High yield	EMD USD Sovereign	EMD LC Sovereign				
0.46	0.31	0.36				

*Hedging currency returns except for local currency emerging market debt and equity (in USD).

Source: BNP Paribas Asset Management, March 2026

GOVERNMENT BONDS

For many of our clients, assets and liabilities both play a key role in their strategic asset allocation decisions. Liabilities are client-specific and therefore typically do not resemble the cash flow pattern of any standard bond index. To incorporate these liabilities into an asset allocation requires a view of the entire yield curve so that the present value and sensitivities to interest rates and inflation shocks of any liability pattern can be calculated. In other words, we must create a 'customized bond index' that closely mimics the interest-rate sensitivities of a client's liabilities and corresponding matching assets. This approach has the additional benefit of being able to deal with a customized bond index of an asset-only client. Focusing on the term-structure of interest rates provides flexibility in terms of customising our expected returns for fixed-income assets.

More flexibility comes at the price of increased complexity, however. To keep complexity to a minimum, we use a parsimonious yield curve model that only needs a limited number of input parameters to generate the yield curve. A key input for this approach is the 10-year yield. Exhibit 2 gives the expected equilibrium inflation, 10-year nominal and real yield for different currencies. At the moment inflation is still a touch above the target level of most central banks. Our base case scenario is that the economic environment will again 'normalise' over the coming years and we will revert back to a situation of under-consumption and under-investment, pushing inflation back to central bank target levels (US and UK) or lower (Japan and eurozone). However, we expect this convergence to take longer; as a consequence of the war in the middle east we expect inflation to first pick up, over the next few years.

The target 10-year real yield is simply the difference between the 10-year nominal yield and inflation. The lower growth potential in Japan and the eurozone, partly due to ageing populations, in combination with expected under-investment and consumption due to excess savings will likely result, in equilibrium, in small negative real yields for these two regions.

Exhibit 2: Equilibrium expectations nominal and real 10-year yield plus equilibrium inflation assumptions. The 10-year real yield is obtained by subtracting inflation from the nominal yield.

	USD	EUR Core	GBP	JPY
10Y Nominal	2.8%	1.3%	2.7%	0.9%
Inflation	2.3%	1.8%	2.0%	1.0%
10Y Real Yield	0.6%	-0.4%	0.7%	-0.1%

Source: BNP Paribas Asset Management, March 2026

Our framework requires a view on how 10-year nominal and real yields (for inflation-linked bonds) converge from current levels to equilibrium levels. We then use BNPP AM's proprietary Monte Carlo (MC) simulation framework to transform the expected convergence path of the (nominal and real) yields into expected return and risk figures.

“Our base case scenario is that monetary policy will continue to ease over the coming years.”

Exhibit 3 gives the resulting expected returns for the various investment horizons. Our base case scenario is that monetary policy will continue to ease over the coming years, after which yield curves will converge back to lower equilibrium levels. However current uncertainty around the inflationary impact of the war in the middle east might at least initially slow the convergence as central bankers need to assess the impact on inflation and growth. For government bonds and cash this means that for all investment horizons expected returns lie above equilibrium levels. The dislocation for cash is especially high as the current short end of the yield curves lies significantly above the equilibrium rate for all major regions.

Exhibit 3: Average expected total return for nominal government bonds and cash in local currency over various horizons

	First 5 Years	First 10 Years	First 20 Years	Equilibrium
Bond EUR Sovereign Germany	4.5%	3.8%	2.8%	1.7%
Bond EUR Sovereign	5.0%	4.3%	3.1%	1.9%
Bond USD Sovereign	5.7%	4.7%	3.8%	3.0%
Bond GBP Sovereign	7.8%	6.2%	4.8%	3.3%
Bond JPY Sovereign	4.0%	3.7%	2.6%	1.4%
Cash EUR	2.1%	1.6%	1.1%	0.6%
Cash USD	3.3%	2.7%	2.3%	1.9%
Cash GBP	3.5%	2.8%	2.3%	1.8%

Source: BNP Paribas Asset Management, March 2026

INFLATION-LINKED BONDS

Expected returns of inflation-linked government bonds (in local currency) are detailed in Exhibit 4. Equilibrium returns are slightly higher than nominal bonds for the US and the UK. In the UK, this is mainly caused by the significantly longer maturity of UK inflation-linked bonds.

In the US, inflation-linked bonds are significantly more risky than nominal bonds (consequently pushing up the arithmetic mean in our MC simulation framework used to transform the expected convergence paths of the nominal and real yields into expected return and risk figures).

It is the Sharpe ratio which determines the allocation, and, in equilibrium, it is marginally lower for inflation-linked bonds than for comparable nominal bonds. This is something you would expect as inflation-linked bonds neutralise part of the inflation risk.

For euro, sterling and US dollar-denominated inflation-linked bonds, the expected returns for the different investment horizons are higher than the equilibrium returns. This is caused by higher current inflation and a real yield curve that is expected to decrease from its current levels, having a positive effect on the price of the current bond portfolio (positive duration effect).

Exhibit 4: Average expected total return for inflation-linked bonds in local currency over various horizons

	First 5 Years	First 10 Years	First 20 Years	Equilibrium
Bond EUR Inflation Linked	4.8%	4.1%	3.0%	1.7%
Bond USD Inflation Linked	6.4%	5.3%	4.4%	3.4%
Bond GBP Inflation Linked	5.1%	5.1%	4.4%	3.6%

Source: BNP Paribas Asset Management, March 2026

INVESTMENT-GRADE CREDIT AND HIGH YIELD

The modelling approach taken for credit distinguishes between the duration and credit risk components. The return from the duration component simply mirrors the corresponding government bond return. The cash flow pattern of the credit index in combination with the corresponding government bond term-structure is used to calculate the expected return and risk coming from the duration exposure.

Separately, the credit model determines the expected spread return (and risk). Total expected return is simply the sum of the expected return on exposure to duration and credit risk. This is a slight simplification as these components are not exactly linearly separable. It typically provides, however, a good approximation and leads to a more intuitive understanding of the build-up of credit returns.

To determine the spread return, current spreads, equilibrium spreads and the probabilities of rating migrations play a key role. For corporate bonds, we believe a focus on default probabilities is too narrow. Especially for investment-grade corporate bonds, a rating downgrade is a bigger risk. The case when a bond downgrades from investment-grade to high yield has even a specific name; investors call such a bond a 'fallen angel'. To take this downgrade risk into account, we include Moody's long-term and forecasted rating migration matrices in our approach.

Exhibit 5 shows the average transition matrix for a global corporate bond portfolio from 1920-2025. The rows represent the rating at which a particular corporate issue starts the year; the columns represent the rating at which the issue ends the year. The numbers in the table represent the probability of transitioning from the 'row-state' to the 'column-state'.

For example, the matrix tells us there is a 7.6% probability of any given Aaa bond being downgraded to Aa within a year. Consequently, the expected return in any given month on, for example, a 10-year AAA bond is given by combining the yield (or roll-down) effect and the risk of ratings transition or default.

“For corporate bonds, we believe a focus on default probabilities is too narrow; a rating downgrade is a bigger risk.”

Exhibit 5: Average one-year ahead rating migration rates 1920-2025

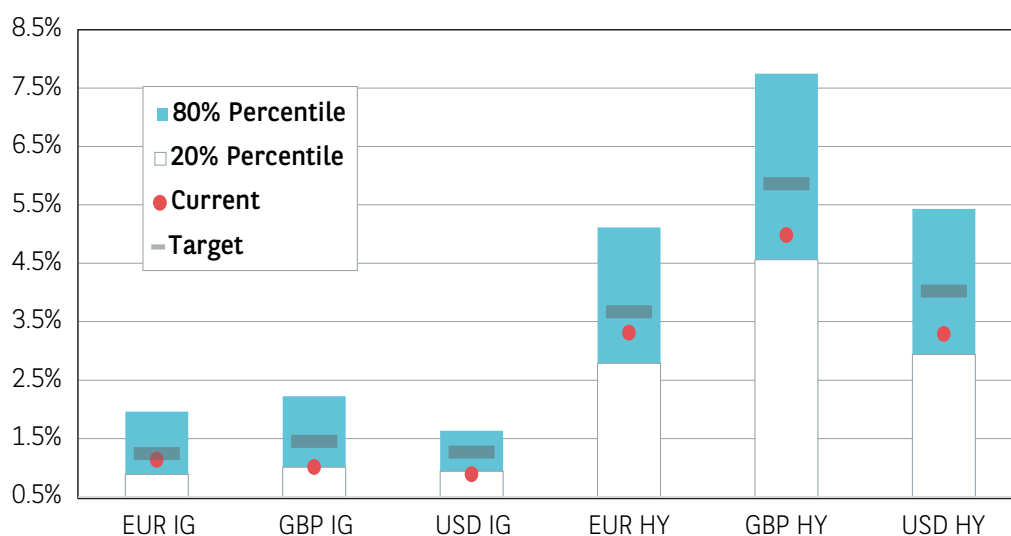
From\To	Aaa	Aa	A	Baa	Ba	B	Caa	Ca_C	WR	Def
Aaa	87.1%	7.6%	0.8%	0.2%	0.0%	0.0%	0.0%	0.0%	4.4%	0.0%
Aa	1.0%	84.8%	7.6%	0.7%	0.1%	0.0%	0.0%	0.0%	5.8%	0.1%
A	0.1%	2.6%	86.3%	5.0%	0.5%	0.1%	0.0%	0.0%	5.4%	0.1%
Baa	0.0%	0.2%	3.8%	84.6%	3.9%	0.6%	0.1%	0.0%	6.6%	0.2%
Ba	0.0%	0.1%	0.4%	5.9%	75.1%	6.5%	0.7%	0.1%	10.2%	1.1%
B	0.0%	0.0%	0.1%	0.5%	5.5%	72.5%	6.3%	0.4%	11.7%	2.9%
Caa	0.0%	0.0%	0.0%	0.1%	0.3%	5.6%	71.2%	3.0%	13.3%	6.5%
Ca_C	0.0%	0.0%	0.1%	0.1%	0.4%	2.2%	9.9%	44.9%	13.6%	28.9%

Source: Moody's 2025

To calculate the yield (or roll-down) effect requires for each region a consideration of the underlying credit curves. For all these credit curves, we construct a current and equilibrium curve in a similar way to the one we constructed for government bonds. The current spread curve moves in future years to the equilibrium curve. As an anchor point of each equilibrium spread curve, we use the median spread for each rating since February 2003. We take the 7-year point as the reference for Investment Grade ratings and the 4-year point for High-Yield ratings.

Exhibit 6 shows the current spread and equilibrium spreads for the target durations. A complicating factor is the rating migration. For example, an AA-rated bond today will not necessarily be an AA-rated bond tomorrow due to default, downgrade or upgrade. Therefore, we use Moody's current one-year-ahead migration matrix and long-run migration matrix to assess the impact of defaults and rating migrations. In year one, we start with the current one-year-ahead migration matrix and converge in a linear fashion in 10 years to the long-run migration matrix, using from the tenth year onwards the long-run migration matrix.

Exhibit 6: Current & long-term target spreads – Q1 2026—assuming fixed weights to underlying letter rating buckets to facilitate inter period comparison



Source: Bloomberg and BNP Paribas Asset Management, March 2026

Exhibit 7 and Exhibit 8 show the total return in local currency, and the excess return over local cash of credit over various investment horizons for the standard Bloomberg Barclays Aggregate corporate indices.

For all regions expectations lie above the equilibrium numbers. This is mainly because of higher expectations for the underlying government bonds. The absolute returns for the US and the UK are significantly higher than for their eurozone counterparts. These differences are partly driven by the underlying local cash rates (as can be seen from the numbers in excess over local cash in Exhibit 8). In excess return (and for hedged return) terms, we have a regional preference for UK IG credit partly due to higher return expectations for the underlying government bonds (over local cash).

Exhibit 7: Expected total return in local currency of developed market credit over various horizons.

	First 5 Years	First 10 Years	First 20 Years	Equilibrium
Bond GBP Investment Grade	7.7%	6.6%	5.5%	4.2%
Bond GBP High Yield	7.3%	6.8%	6.3%	6.0%
Bond EUR Investment Grade	4.8%	4.3%	3.4%	2.5%
Bond EUR High Yield	5.6%	5.1%	4.3%	3.8%
Bond USD Investment Grade	6.8%	6.0%	5.2%	4.3%
Bond USD High Yield	6.5%	6.0%	5.4%	5.1%

Source: BNP Paribas Asset Management, March 2026

Exhibit 8: Expected excess return in local currency of developed market credit over various horizons.

	First 5 Years	First 10 Years	First 20 Years	Equilibrium
Bond GBP Investment Grade	4.0%	3.7%	3.1%	2.3%
Bond GBP High Yield	3.7%	3.9%	3.9%	4.1%
Bond EUR Investment Grade	2.6%	2.7%	2.3%	1.9%
Bond EUR High Yield	3.4%	3.5%	3.2%	3.2%
Bond USD Investment Grade	3.4%	3.2%	2.8%	2.3%
Bond USD High Yield	3.1%	3.2%	3.0%	3.1%

Source: BNP Paribas Asset Management, March 2026

EMERGING MARKET DEBT

For emerging market debt (EMD) we distinguish between emerging market corporate and sovereign debt. Sovereign and supranational debt is comprised of hard currency (HC) and local currency (LC) sovereign global bonds. Hard currency emerging market debt are denominated in foreign currencies, predominantly in US dollars, but with denomination in euros being more common for Eastern European countries.

Typically, a country can default on its hard currency debt whereas for local currencies a credit event is generally channelled through a strong depreciation/devaluation of the currency (as a country can typically print more money to pay for its debts in local currencies).

“For local currency EMD, a credit event is generally channelled through a strong devaluation of the currency.”

Emerging market debt – hard currency

As with credit, the expected return for EMD HC consists of a US Treasury or underlying yield and a spread component. Partly due to the limited availability of data, we opt for a more stylised approach than the curve approach used for developed credit by estimating the historical relationship between the spread over US treasuries for EMD HC and key explanatory variables: (expected) GDP growth, the average rating for the EMD HC index, and the weighted average US corporate debt spread.

Exhibit 10 illustrates the historical fit of this relationship. The actual spread and the modelled spread show a closer relationship between 2010 and 2020. We believe this more recent history is most representative of the future as emerging markets have become more mature and intertwined with the global economy (this view assumes the impact of the current deglobalisation trend and the impact of tariffs will be limited). At the same time, we see a bit more divergence between predicted and modelled spread in the last couple of years. However this gap is closing again. The simple spread model, derived from this relationship, allows for the calculation of target spreads conditional on the expected value of the three explanatory variables.

**“Emerging markets have become more intertwined
with the global economy, assuming the current
deglobalisation trend is limited.”**

This target spread changes during the first 10 years as the three explanatory variables change. After 10 years, the spread represents the equilibrium spread and does not change further as the explanatory variables become static. The current actual spread typically differs from this target spread.

We assume that this difference between target spread and actual spread disappears in a linear fashion over a 10-year horizon. Combining this target spread and the difference gives the actual (predicted) spread in the next 10 years. This spread is translated into a spread return by simply using the spread duration: i.e.,

$$R_t = s_{t-1} + Duration_{t-1} \cdot (s_t - s_{t-1}) - default\ impact_t \quad (1)$$

where R_t and $Duration_t$ denote the spread return and duration, while s_t denotes the index spread. As with developed credit, we assess the impact of defaults and rating migrations using Moody's long-run sovereign migration matrix. We combine the spread return with the US Treasury returns.

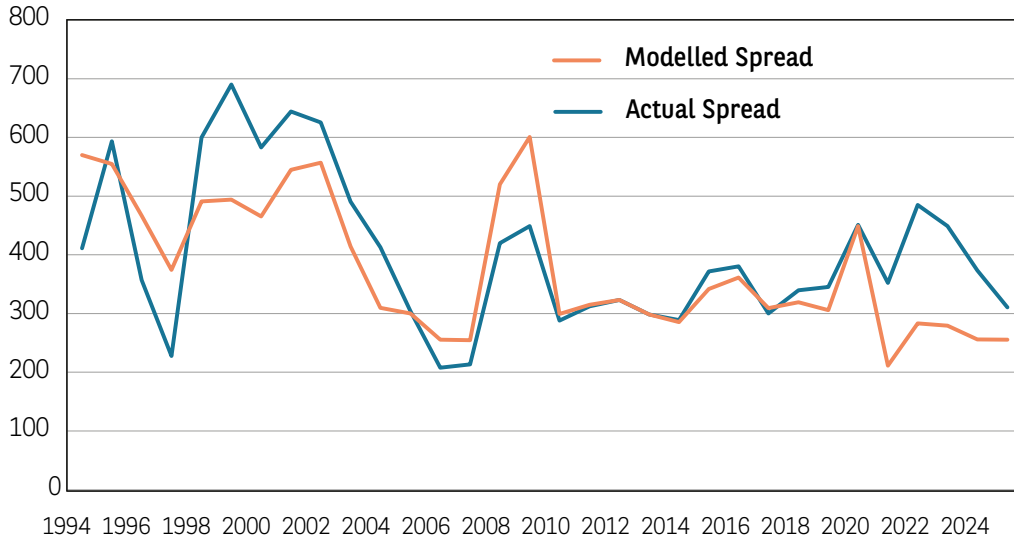
Exhibit 9 gives the expected average spread return, US Treasury return and total return at different investment horizons. For the shorter investment horizon, the expected return of underlying treasuries and spreads returns lie above and below equilibrium, respectively, as a net results total return for EMD HC lies a touch below the equilibrium level for all investment horizons: i.e., EMD HC looks marginally 'overvalued.'

Exhibit 9: Expected return - Emerging market debt, hard currency.

	First 5 Years	First 10 Years	First 20 Years	Equilibrium
Spread return	-1.0%	0.3%	1.3%	2.2%
US Treasury return	5.7%	4.7%	3.8%	3.0%
Total return	4.7%	4.9%	5.1%	5.2%

Source: BNP Paribas Asset Management, March 2026

Exhibit 10: Actual and modelled hard currency emerging market debt spreads (in bp).



Source: Bloomberg, Moody's and BNP Paribas Asset Management, March 2026

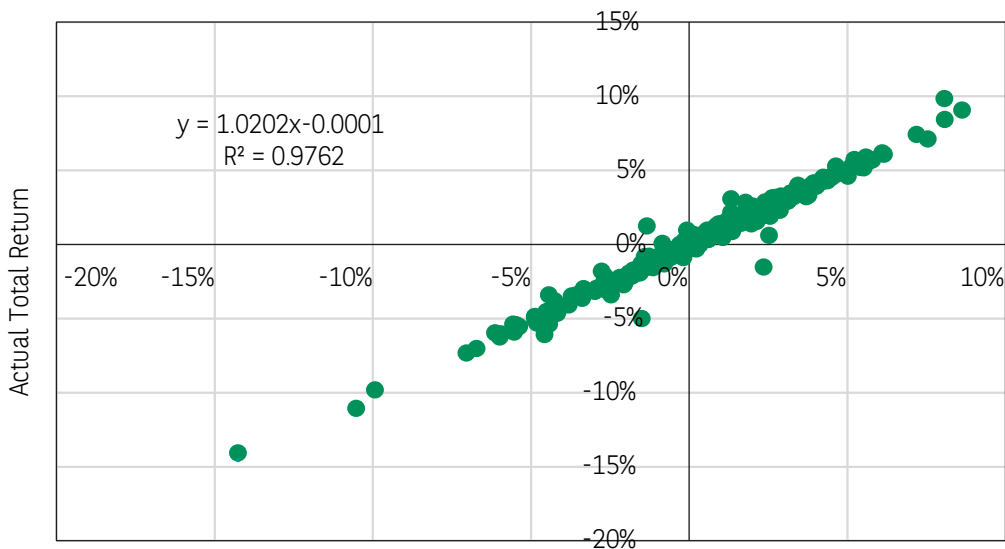
Emerging market debt – local currency

The return of EMD Local Currency (LC) can be decomposed into three components:

- (a) Yield — the income return corresponding to the yield-to-maturity of the index
- (b) Duration — the valuation return corresponding to changes in the yield, and
- (c) Foreign exchange (Fx) — the return coming from the evolution of EM currencies versus the US dollar.

By adding these separate components together, we can closely match the actual total return of the index. This can be seen in Exhibit 11, which shows monthly actual and re-constructed total returns of the JPM GBI EM Global Diversified Composite since 2003.

Exhibit 11: Illustrating that decomposing EMD LC in yield, duration and FX closely tracks the realised annual return of JPM GBI EM Global Diversified Composite.

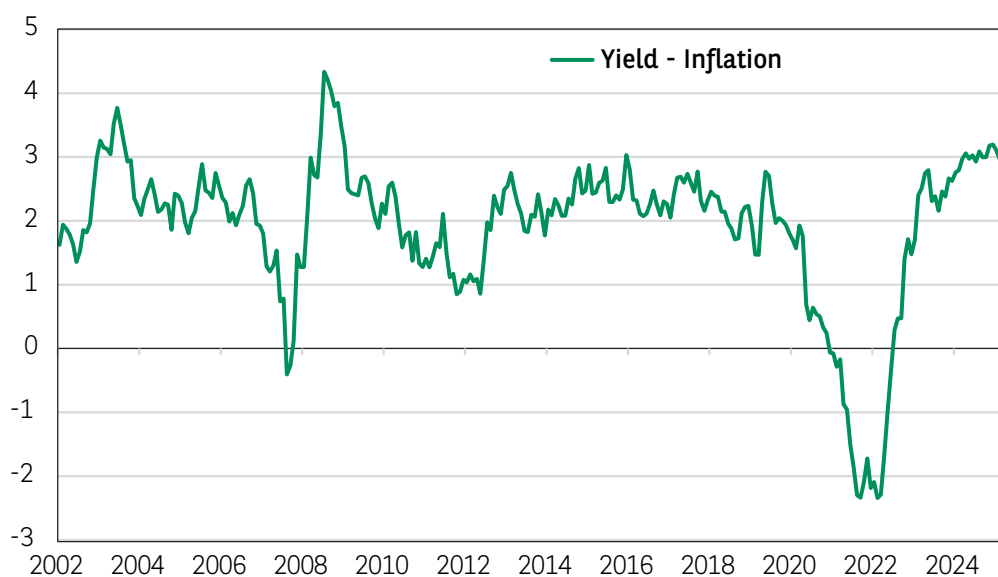


Source: JP Morgan and BNP Paribas, March 2026

As can be seen in Exhibit 12, the difference between the yield of EMD LC and the inflation rate of the corresponding EM basket has been relatively stable over the past 20 years, hovering around 2.2%. We assume that, in equilibrium, yields will adhere to this relationship, that is, yield is equal to the average inflation expectation of EM plus a spread.

Starting from the current yield level, the yield converges in 10 years to 6.2% (an equilibrium inflation expectation of 4% plus a 2.2% spread).

Exhibit 12: Difference between the yield of the JPM GBI EM Global Diversified Composite and inflation of the EM basket.



Source: Bloomberg, Moody's and BNP Paribas, March 2026

Exhibit 13 gives the expected return, at different investment horizons, for the total yield. It also shows average values for different horizons for the duration effect and foreign currencies. The duration effect is calculated using equation (1) while the impact of foreign currency exposure on EMD LC is assessed using Purchasing Power Parity (with adjustment for difference in productivity). In equilibrium, we assume a zero-currency effect.

Exhibit 13: Expected return for EMD Local Currency in USD at different investment horizons for the total yield components (inflation + spread), Duration Effect and Currency effect.

	First 5 Years	First 10 Years	First 20 Years	Equilibrium
Total Yield	6.3%	6.3%	6.2%	6.2%
Duration Effect	0.2%	0.1%	0.0%	0.0%
FX Effect	0.1%	0.2%	0.1%	0.0%
Total Return	6.6%	6.6%	6.4%	6.2%

Source: BNP Paribas Asset Management, March 2026

EQUITIES

To model equity returns we decompose them into the various components — inflation, total yield/income and real total payout growth — which contribute to the expected return. This approach is often referred to as a total payout model.¹ With the growing importance of buybacks we prefer this approach over the dividend discount model. Additionally, a total payout method has the advantage over an earnings-driven approach in that, unlike earnings, payout is not sensitive to changes in accounting standards.

The total payout model decomposes equilibrium returns into inflation, total yield and real total payout growth. For inflation, we use the same equilibrium assumption as for fixed income. Consequently, the total payout model for real equity returns becomes the real equilibrium return plus a valuation adjustment:

$$\text{Real Return} = \text{Total Yield} + \text{Real Total Payout Growth (adj B.)} \\ + \text{Valuation Adjustments (2)}$$

To gauge the valuation component, we look at the variation in the price to total payout (of an index). The starting point is the Cyclically Adjusted Price to Total Payout (CAPTP) ratio, calculated by taking the 10-year median real total payout divided by the current price. The idea is that the current CAPTP will converge to its equilibrium level in 10 years. However, since 2009, we have seen a spectacular increase in the balance sheets of developed economy central banks, which supported an expansion of valuation measures such as the CAPTP.

Exhibit 15 depicts this balance sheet growth versus CAPTP. Regression analyses confirm a relatively significant statistical relationship between central bank balance sheet expansion and CAPTP. These regressions are in-sample, so they do not necessarily confirm the predictive power of balance sheet expansion vis-à-vis equilibrium CAPTP.

“The starting point for valuations is the Cyclically Adjusted Price to Total Payout (CAPTP) ratio.”

With central banks reducing their balance sheets, however, we try to proxy the effect this may have on CAPTP and consequently on the valuation adjustment. We assume current CAPTP will converge to a long-term CAPTP adjusted for each central bank's balance sheet.

Combining the valuation adjustments with the equilibrium equity expectations over inflation gives real equity return expectations for the first 10 years. Adding the inflation equilibrium assumptions used within the fixed income model gives the total return expectations depicted in Exhibit 14.

1. Philip U Straehl and Roger G. Ibbotson, “The Long-Run Drivers of Stock Returns: Total Payouts and the Real Economy” *Financial Analysts Journal*, Third Quarter 2017.

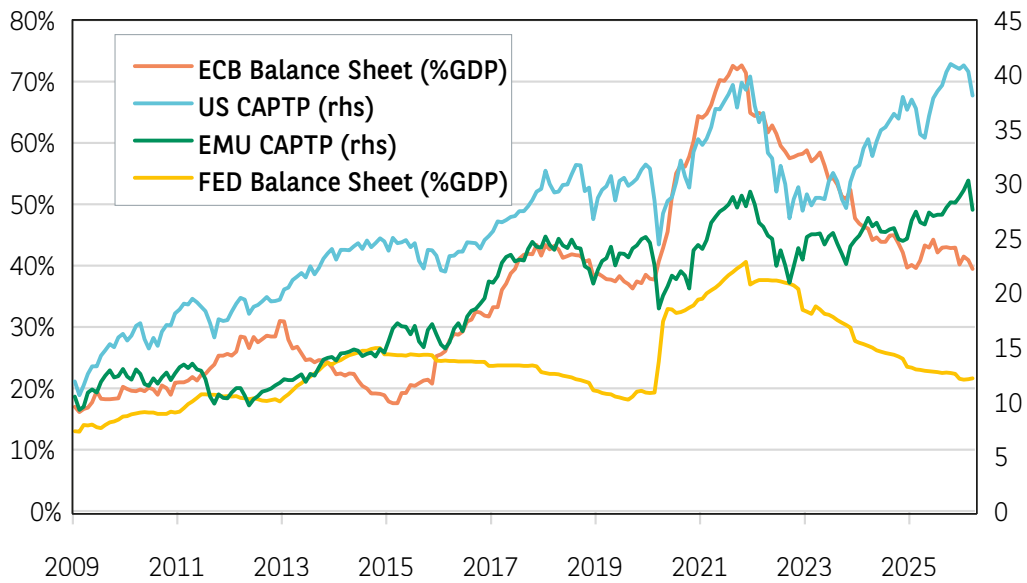
For the developed regions, these numbers assume, after the central banks' balance sheets contracted quite a bit over the past years, relatively stable central bank balance sheets over the next 10 years; resulting in a marginal impact on the expected returns. Most large cap regional equity indices look relatively expensive while small caps look attractive.

Exhibit 14: Expected equity returns in local currency for different investment horizons*

	First 5 Years	First 10 Years	First 20 Years	Equilibrium
USA	4.8%	5.3%	6.9%	8.4%
USA SC	10.1%	9.9%	9.4%	8.9%
EMU	4.7%	5.2%	6.4%	7.7%
EMU SC	9.7%	9.4%	8.5%	7.7%
UK	7.2%	7.3%	7.4%	7.5%
Japan	4.9%	5.1%	5.7%	6.3%
Emerging	9.8%	9.9%	10.0%	10.1%

*EM returns are in USD. Source: BNP Paribas Asset Management, March 2026

Exhibit 15: Balance sheet as % of GDP of FED vs. US MSCI CAPTP & ECB vs. MSCI EMU CAPTP



Source: FED, ECB and BNP Paribas Asset Management, March 2026

REAL ESTATE

We decompose real estate returns into inflation, income, growth and valuation components. To proxy the income and growth components, we rely on dividends and earnings. The model for real returns is:

$$\text{Real Return} = \text{Dividend Yield} + \text{Real Earnings Growth} + \text{Valuation Adjustments (3)}$$

The reason for choosing the dividend model instead of a total payout approach as we do for equities is twofold. Firstly, buybacks are less relevant. A large part of real estate indices consists of real estate investment trusts (REITs), which require payments in dividend for most of their taxable income. Secondly, the data on buybacks is more limited for real estate indices. Exhibit 16 gives the expected return for real estate over different investment horizons. After the market correction we saw in 2022, real estate has not fully recovered for the US and Europe; it still looks slightly undervalued for these regions.

Exhibit 16: Expected return in local currency for real estate over different investment horizons

	Total Return	First 5 Years	First 10 Years	First 20 Years	Equilibrium
Real Est. US		7.9%	7.9%	7.9%	7.9%
Real Est. Europe		8.2%	8.0%	7.4%	6.9%
Real Est. Asia-Pacific		7.6%	7.7%	7.9%	8.1%

Source: BNP Paribas Asset Management, March 2026

PRIVATE ASSETS

Private assets provide the potential to further diversify the risks in an investment portfolio. They exploit the 'illiquidity premium' as they require a long-term commitment of capital. Unlike the public asset, we do not distinguish in expected returns over different investment horizons for private assets; they represent a long-term commitment with long lead times for investing and disinvesting, making timing the market more difficult.²

We believe that private assets form a useful addition to a portfolio. Nonetheless, one must be very careful in comparing private and public/liquid assets solely in risk and return terms. For example, a forced sale of a private asset is usually extremely detrimental to performance, meaning there are significant tail risks. Using volatility as the sole measure of risk is therefore not ideal, but to facilitate the comparison with public/liquid assets we use volatility as the reported risk measure, cognisant that this is a simplification.

Exhibit 17 gives the return and risk for a variety of private debt and equity assets. For all private assets there is a difference between committed and actual invested capital. The expected return numbers are for invested capital only. According to Preqin (a private asset index provider) historically around 25% of the capital is not invested. Whether this committed but not invested capital is kept as cash or, say, equity, will have a marked impact on the total expected return.

² New European fund regulation provides more possibilities for managing private assets in an open-ended fund structure with regular liquidity windows facilitating the investments in private assets, for more details see Somefun, Koye, Blanchoz, Stephane and Carvalho, Raul L., Navigating the Private Debt Landscape: Insights and New Fund Formats. The Journal of Private Equity. Vol. 24 Issue 1, pp. 94-108, 2025.

The risk of private equity is typically not fully reflected in the net asset value (NAV) data. This data is based on a limited number of actual transactions and hence does not fully reflect the mark-to-market risk.

Capturing the long-term risk of these kinds of investments is critical. Simply looking at the quarterly data, which only contain limited additional information, will likely lead to underestimating this risk. Instead, we try to directly estimate the longer-term risk of these investments.

For private debt, we explicitly model the risk of a portfolio of buy-and-hold loans with different vintages (i.e., maturing at different dates). The risk measured by volatility is less than that of a bond of similar rating quality but fixed duration: the dominant risk for the latter is rating migration whereas for the former, it is default.

Exhibit 17: The expected return and risk in local currency for private assets*

	Total return	Volatility
Unlisted Bond EUR Infrastructure Junior	5.2%	4.8%
Unlisted Bond EUR Infrastructure Senior	3.0%	3.9%
Unlisted Bond EUR Real Estate Senior	3.2%	2.8%
Unlisted Bond EUR SME	4.8%	4.9%
Unlisted Bond EUR Unitranche	5.0%	7.4%
Unlisted Private Equity Global	10.8%	15.2%
Unlisted Private Equity Venture Capital Global	9.6%	30.4%

*For global assets it is a cap weighted average of local returns. Source: BNP Paribas Asset Management, March 2026

CURRENCY AND VALUATION: TO HEDGE OR NOT?

All risk and return numbers are presented in local terms, avoiding the issue of what an asset's expected return will be from a particular investor's currency perspective. As a rule of thumb, we believe an investor should hedge the currency risk of their fixed-income investments as it could otherwise dominate the volatility of their fixed-income exposure.

As a proxy for the hedging cost, we take the difference between US and euro cash returns, resulting in a hedging cost of 1.1% on a 10-year horizon. The expected 4.7% local currency total return for US Treasuries (on a 10-year horizon) becomes a 3.6% euro-hedged return, which is lower than the 4.5% expected return on Bond Euro Sovereign Germany (see Exhibit 3). Another factor in determining whether one should hedge foreign currency exposure is the return we can expect on the currency. To address this, we turn to the relative version of the Purchasing Power Parity (PPP) theory of currency determination.

In a world of free trade, the price of identical tradable goods across countries should be normalised by cross-border arbitrage. In other words, nominal exchange rates should move to offset relative changes in price levels. PPP seems to provide a good anchor for foreign exchange forecasts. However, purchasing power parity (PPP) often fails to predict short-term exchange rate movements due to market frictions, capital flows and speculative behaviour. Given the present economic landscape marked by US tariffs and a global realignment of trade patterns, this observation is particularly relevant.

The assumption is that if prices in country A rise relative to those in country B, we would expect to see a depreciation of country A's nominal exchange rate (i.e. a rise in the number of units of currency A necessary to buy one unit of currency B). An ECB study comparing equilibrium exchange rate models confirms that in terms of predictability, PPP outperforms two other fair value models.³

Exhibit 18 gives the expected currency return from a euro investor's point of view. In terms of relative purchasing power parity, the US dollar (USD), British pound (GBP) and Swiss Franc (CHF) are overvalued versus the euro while the Japanese yen (JPY) is undervalued. Taking into account valuation, hedging costs, but also the extent to which hedging can reduce portfolio risk, we would at the moment typically advise investors to underweight the currency exposure of CHF and overweight JPY and GBP relative to their strategic weights; we are neutral on the dollar exposure mainly due to the high hedging costs.

Exhibit 18: The expected currency returns for a euro-based investor over different investment horizons

Total Return	First 5 Years	First 10 Years	First 20 Years	Equilibrium
USDEUR	-0.7%	-0.6%	-0.3%	0.0%
GBPEUR	-0.4%	-0.4%	-0.2%	0.0%
JPYEUR	6.8%	5.8%	2.9%	0.0%
CHF EUR	-0.5%	-0.4%	-0.2%	0.0%

Source: BNP Paribas Asset Management, March 2026

INCORPORATING RECOMMENDATIONS INTO A STRATEGIC ALLOCATION

To translate the above recommendations into actionable portfolio recommendations one might use an optimizer. This approach has its limitations, however. It is not scalable when dealing with portfolio constraints or objectives across different investors. Additionally, it fails to provide guidance on how clients can adjust their long-term asset allocations to align with these opportunities within their personal risk tolerance.

Rather than relying on such methods, we propose a structured two-step approach:⁴

Step 1: Generate an unconstrained long-short portfolio based on the difference between the long-term (equilibrium) and 10-year risk and return numbers (as presented in this document).

Step 2: Use the implied active returns derived from the unconstrained long-short portfolio in Step 1 to construct tailored portfolios with investor-specific constraints and targets using robust portfolio optimization.

This approach produces portfolios consistent with our recommendations while complying with client constraints. Moreover, it facilitates a detailed performance breakdown: distinguishing between the client's long-term asset allocation, the unconstrained portfolio, and the impact of client-specific constraints.

3 Ca' Zorzi, Michele and Cap, Adam and Mijakovic, Andrej and Rubaszek, Michał, The Predictive Power of Equilibrium Exchange Rate Models, January 2020. Available at SSRN: <https://ssrn.com/abstract=3516749>

4 Issaoui, T., Perchet, R., Retière, O., Soupé, F. and Yin, C., 2020, R. Leote de Carvalho. Mass Customization of Asset Allocation. *Journal of Investing* April 2022, 31 (3) 73-97.

Let us illustrate the performance breakdown of an unconstrained portfolio. Starting from the beginning of 2022 (when we had our last major model review) and using the risk and return numbers (of liquid assets) we have on record till the end of Q1 2026, this “hypothetical” unconstrained portfolio would have generated an excess over cash of 2.4% with a realized volatility of 1.3%. The unconstrained portfolio contains over- and underweight position for over 25 assets that are updated each quarter. Exhibit 19 details this performance. After neutralizing the return contribution for underlying common risk drivers such as Market Risk, Duration and Corporate Spread, the performance attribution of the asset-specific risk is positive for all major asset classes, except EM bonds, with a significant contribution coming from government bonds, inflation-linked bonds and real estate.

Exhibit 19: Return of hypothetical long-short portfolio from beginning of 2022*.

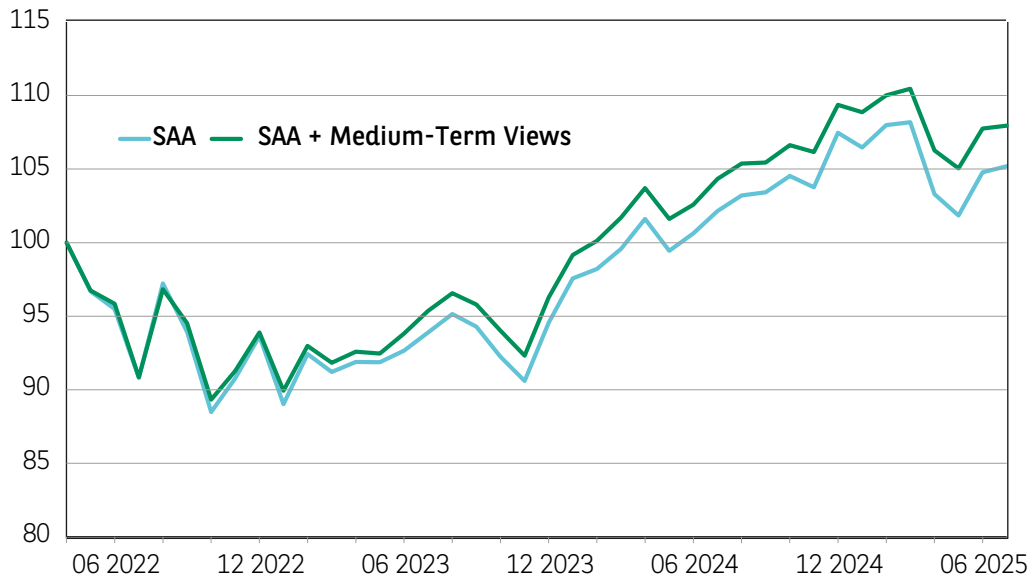
		Excess Return	Realized Volatility	Realized SR	
Risk Factors	Market Risk	0.1%	0.2%	0.4	
	Duration	0.1%	0.4%	0.2	
	EM & Commodities	0.0%	0.1%	0.1	
	Corporate spreads	0.1%	0.2%	0.6	
	US	0.3%	0.3%	1.0	
	Asia & China	0.3%	0.5%	0.5	
	Equity	0.3%	0.6%	0.5	
Specific Risk	Sovereign	0.4%	0.4%	0.8	
	Inflation Linked	0.2%	0.3%	0.7	
	Investment Grade	0.2%	0.3%	0.8	
	High Yield	0.1%	0.2%	0.4	
	Leveraged Loans	0.1%	0.2%	0.5	
	Bond EMD	-0.1%	0.2%	-0.4	
	Real Estate	0.3%	0.3%	0.9	
	Commodity	0.0%	0.1%	-0.2	
	Factors		0.9%	0.8%	1.2
	Specific		1.4%	1.0%	1.4
Total		2.4%	1.3%	1.8	

*Shows the hypothetical euro hedged excess return of the unconstrained long-short portfolio ignoring trading costs. Realized volatility and Sharp Ratio (SR) do not add up due to correlation effects.

Source: BNP Paribas Asset Management, March 2026

This unconstrained portfolio is hypothetical as it ignores typical implementation constraints such as no outright short positions and the restriction of the investment universe to the universe of the underlying long-term asset allocation. However, the impact of these two restrictions is modest for a relatively traditional balanced portfolio with allocations to euro sovereign, global credits and global equity. The excess return drops from 2.4% to 1.6% with realized volatility that stays at 1.3%. The return of the portfolio starts to lag more if we introduce the additional constraint of being fully invested without leverage. The excess return then drops to 0.7% with realized volatility a touch lower at 1.1%. Exhibit 20 illustrates the added value of this more restricted implementation.

Exhibit 20: Performance of long-term asset allocation (SAA) with and without medium-term tilts. The tilts constraints are the universe of the underlying SAA, no short position and fully invested without leverage.



Source: BNP Paribas Asset Management, March 2026

The unconstrained long-short portfolio based on the difference between long-term and 10-year risk and return numbers assumes hedging of the currency exposure. If a client cannot hedge their currency exposures, most of the excess returns could evaporate due to the implicit currency exposure that follows from the tilts. For example, long Japanese equity, if not hedged, also implies a long position on the Japanese yen, which would have been detrimental to the overall performance.

This two-step approach provides a robust and scalable way to implement portfolio recommendations based on medium-term valuation dislocations (discussed in this document). Moreover, it also facilitates greater explainability of the final portfolio performance by allowing for an easy split between the performance coming from the long-term strategic asset allocation and the medium-term portfolio recommendations. Finally, the performance of the latter can be further broken down by showing the impact of various portfolio constraints vis-à-vis the unconstrained portfolio.

APPENDIX: THE APPROACH

The long-term expected return views can be broken down into equilibrium returns and valuation adjustments. The idea is that financial assets typically go through economic cycles. Equilibrium returns represent the return expectations for financial assets over multiple economic cycles. Economic and financial conditions more specific to the current cycle are captured in the valuation-adjustment component.

For five to 10-year investment horizons, the valuations component is quite important, whereas for >20-year investment horizons, return expectations are dominated by the equilibrium return. Explicitly separating out the valuation component has the benefit of transparency as it shows how the valuation assumption contributes to the period return.

We have generated these expected return and risk views to facilitate the asset allocation of our clients. Some of our clients have very long liabilities, e.g., the decommissioning of a nuclear power plant could easily lead to liabilities of 50-plus years, or a pension fund with many young participants could have decades-long liabilities.

Having forecasts of long-term returns and risk facilitates the design of a strategic asset allocation to finance these very long-term liabilities.

Key points of the forecasted approach

Government bond return assumptions are derived from a forward-looking equilibrium yield curve model that represents the entire curve using level, slope, and curvature factors. The equilibrium level is anchored by our forward-looking macro-economic views, while the curve shape is based on the robust historical median, adjusted to reflect persistently flatter post-2015 yield curves. Real yield curves are inferred consistently from nominal yields and inflation assumptions. Current yields and inflation are assumed to gradually converge toward equilibrium over roughly ten years, with near-term inflation paths guided by IMF forecasts

Expected returns for corporate bonds are built from three components. First, the government bond return provides the base, driven by yield carry and the assumed convergence of yield curves toward long-term equilibrium. Second, credit spreads contribute through current spread levels and their expected normalization toward historical medians. Third, credit risk is incorporated using rating migration and default probabilities, with rating changes playing a larger role than defaults for investment-grade bonds. Combining these elements yields total and excess return expectations, with differences across regions reflecting spread levels, government yields, and different cash rates.

Expected equity returns are determined using a building block framework that combines long term fundamentals with valuation effects. The starting point is equilibrium assumptions for inflation, total payout yield (dividends plus buybacks), and real payout growth, calibrated from long term historical averages and adjusted to reflect structurally lower yields. Valuation effects are captured through the Cyclically Adjusted Price to Total Payout (CAPTP) ratio, which accounts for buybacks and is robust to accounting changes. Expected returns also incorporate a gradual convergence of current valuation levels toward long term equilibrium, adjusted for the impact of central bank balance sheets.

Private assets return assumptions are derived by estimating an illiquidity premium over comparable public markets. Risk is assessed using relevant benchmark data and a factor model that includes latent factors to help neutralize hidden risks embedded in observed returns. The resulting exposures are then combined with the expected returns of the underlying factors (for example, small-cap equity returns as a proxy factor for private equity) to produce expected private asset returns.

Exhibit 21: Risk and return numbers for different investment horizons in local terms*

	Total Return Q1 2026	First 5 Years	First 10 Years	First 20 Years	Equilibrium
Cash					
Cash GBP		3.5%	2.8%	2.3%	1.8%
Cash EUR		2.1%	1.6%	1.1%	0.6%
Cash USD		3.3%	2.7%	2.3%	1.9%
Fixed Income					
Bond EUR Sovereign		5.0%	4.3%	3.1%	1.9%
Bond EUR Sovereign Core		4.8%	4.1%	2.9%	1.7%
Bond GBP Sovereign		7.8%	6.2%	4.8%	3.3%
Bond USD Sovereign		5.7%	4.7%	3.8%	3.0%
Bond EUR Inflation Linked		4.8%	4.1%	3.0%	1.7%
Bond USD Inflation Linked		6.4%	5.3%	4.4%	3.4%
Bond GBP Investment Grade		7.7%	6.6%	5.5%	4.2%
Bond GBP High Yield		7.3%	6.8%	6.3%	6.0%
Bond EUR Investment Grade		4.8%	4.3%	3.4%	2.5%
Bond EUR High Yield		5.6%	5.1%	4.3%	3.8%
Bond EUR Leveraged Loans		4.4%	4.0%	3.6%	3.2%
Bond USD Investment Grade		6.8%	6.0%	5.2%	4.3%
Bond USD High Yield		6.5%	6.0%	5.4%	5.1%
Bond USD Leveraged Loans		4.9%	4.7%	4.5%	4.3%
Bond EMD HC Sov Global		4.7%	4.9%	5.1%	5.2%
Bond EMD LC Sov Global		6.6%	6.6%	6.4%	6.2%
Equity					
Equity North America USA		4.8%	5.3%	6.9%	8.4%
Equity North America USA SC		10.1%	9.9%	9.4%	8.9%
Equity Europe Pan-Europe		5.2%	5.5%	6.4%	7.4%
Equity Europe EMU		4.7%	5.2%	6.4%	7.7%
Equity Pacific Japan		4.9%	5.1%	5.7%	6.3%
Equity Emerging Global		9.8%	9.9%	10.0%	10.1%
Equity Global Developed Countries		5.2%	5.6%	6.8%	8.0%
Alternatives					
Alternative Real Estate Pan-Europe		8.2%	8.0%	7.4%	6.9%
Alternative Real Estate USA		7.9%	7.9%	7.9%	7.9%
Alternative Real Estate Asia-Pacific		7.6%	7.7%	7.9%	8.1%
Alternative Convertible Global		6.0%	5.9%	6.1%	6.2%
Alternative Commodity Global		6.7%	6.6%	6.4%	6.1%

	Total Return Q1 2026	First 5 Years	First 10 Years	First 20 Years	Equilibrium
Cash					
Cash GBP		0.7%	0.7%	0.8%	0.9%
Cash EUR		0.5%	0.5%	0.6%	0.7%
Cash USD		0.6%	0.6%	0.6%	0.6%
Fixed Income					
Bond EUR Sovereign		4.7%	4.9%	4.9%	4.9%
Bond EUR Sovereign Core		4.7%	4.9%	5.0%	5.1%
Bond GBP Sovereign		7.1%	7.3%	7.3%	7.2%
Bond USD Sovereign		4.9%	5.1%	5.2%	5.3%
Bond EUR Inflation Linked		5.7%	5.9%	6.0%	4.8%
Bond USD Inflation Linked		8.3%	8.5%	8.6%	7.7%
Bond GBP Investment Grade		6.5%	6.6%	6.7%	6.8%
Bond GBP High Yield		7.8%	7.8%	8.5%	9.5%
Bond EUR Investment Grade		4.9%	5.0%	5.1%	5.2%
Bond EUR High Yield		6.7%	6.8%	7.6%	9.1%
Bond EUR Leveraged Loans		6.8%	6.9%	7.1%	7.4%
Bond USD Investment Grade		5.9%	6.1%	6.3%	6.4%
Bond USD High Yield		7.0%	7.0%	7.6%	8.6%
Bond USD Leveraged Loans		5.3%	5.3%	5.6%	6.1%
Bond EMD HC Sov Global		7.1%	7.1%	7.8%	8.8%
Bond EMD LC Sov Global		10.7%	10.7%	11.2%	11.7%
Equity					
Equity North America USA		15.1%	15.1%	15.0%	15.0%
Equity North America USA SC		20.2%	20.2%	19.9%	19.7%
Equity Europe Pan-Europe		13.8%	13.8%	14.6%	15.4%
Equity Europe EMU		15.9%	15.9%	16.6%	17.4%
Equity Pacific Japan		15.7%	15.7%	16.6%	17.6%
Equity Emerging Global		18.5%	18.5%	19.5%	20.7%
Equity Global Developed Countries		13.5%	13.5%	13.7%	13.9%
Alternatives					
Alternative Real Estate Pan-Europe		19.6%	19.6%	17.9%	15.7%
Alternative Real Estate USA		18.9%	18.9%	18.1%	17.2%
Alternative Real Estate Asia-Pacific		17.8%	17.8%	16.7%	15.3%
Alternative Convertible Global		10.8%	10.8%	10.9%	11.0%
Alternative Commodity Global		18.8%	18.8%	19.1%	19.4%

*Except emerging market debt in local currency and emerging equity they are in USD. Source BNPP AM, March 2026.

BNP PARIBAS ASSET MANAGEMENT Europe, "the investment management company", is a simplified joint stock company with its registered office at 1 boulevard Haussmann 75009 Paris, France, RCS Paris 319 378 832, registered with the "Autorité des marchés financiers" under number GP 96002.

This material is issued and has been prepared by the investment management company.

This material is produced for information purposes only and does not constitute:

1. an offer to buy nor a solicitation to sell, nor shall it form the basis of or be relied upon in connection with any contract or commitment whatsoever or
2. investment advice.

This material makes reference to certain financial instruments authorised and regulated in their jurisdiction(s) of incorporation.

No action has been taken which would permit the public offering of the financial instrument(s) in any other jurisdiction, except as indicated in the most recent prospectus of the relevant financial instrument(s), or on the website (under heading "our funds"), where such action would be required, in particular, in the United States, to US persons (as such term is defined in Regulation S of the United States Securities Act of 1933). Prior to any subscription in a country in which such financial instrument(s) is/are registered, investors should verify any legal constraints or restrictions there may be in connection with the subscription, purchase, possession or sale of the financial instrument(s).

Investors considering subscribing to the financial instrument(s) should read carefully the most recent prospectus and Key Information Document (KID) and consult the financial instrument(s)' most recent financial reports.

These documents are available in the language of the country in which the financial instrument(s) is authorised for the distribution and/or in English as the case may be, on the following website, under heading "our funds": <https://www.bnpparibas-am.com/>

Opinions included in this material constitute the judgement of the investment management company at the time specified and may be subject to change without notice. The investment management company is not obliged to update or alter the information or opinions contained within this material. Investors should consult their own legal and tax advisors in respect of legal, accounting, domicile and tax advice prior to investing in the financial instrument(s) in order to make an independent determination of the suitability and consequences of an investment therein, if permitted. Please note that different types of investments, if contained within this material, involve varying degrees of risk and there can be no assurance that any specific investment may either be suitable, appropriate or profitable for an investor's investment portfolio.

Given the economic and market risks, there can be no assurance that the financial instrument(s) will achieve its/their investment objectives. Returns may be affected by, amongst other things, investment strategies or objectives of the financial instrument(s) and material market and economic conditions, including interest rates, market terms and general market conditions. The different strategies applied to financial instruments may have a significant effect on the results presented in this material. Past performance is not a guide to future performance and the value of the investments in financial instrument(s) may go down as well as up. Investors may not get back the amount they originally invested.

The performance data, as applicable, reflected in this material, do not take into account the commissions, costs incurred on the issue and redemption and taxes.

You can obtain this by clicking here: www.bnpparibas-am.fr/investisseur-professionnel/synthese-des-droits-des-investisseurs a summary of investor rights in French. BNP PARIBAS ASSET MANAGEMENT Europe may decide to terminate the arrangements made for the marketing of its collective investment undertakings/financial instruments, in the cases covered by the applicable regulations.

"The sustainable investor for a changing world" reflects the objective of BNP PARIBAS ASSET MANAGEMENT Europe to integrate sustainable development into its activities, although not all funds managed by BNP PARIBAS ASSET MANAGEMENT Europe fulfil the requirement of either Article 8, for a minimum proportion of sustainable investments, or those of Article 9 under the European Regulation 2019/2088 on sustainability-related disclosures in the financial services sector (SFDR). For more information, please see www.bnpparibas-am.com/en/sustainability.

VIEWPOINT



BNP PARIBAS
ASSET MANAGEMENT