

Capital Market Assumptions

Themes at a glance | November 2024

Asset class returns forecasts

AUTHORS

VIVIANA GISIMUNDO
HEAD OF QUANT SOLUTIONS
MULTI ASSET SOLUTIONS
AMUNDI

LORENZO PORTELLI
HEAD OF CROSS ASSET RESEARCH
AMUNDI INVESTMENT INSTITUTE

TOM WALSH
SENIOR QUANTITATIVE ANALYST
MULTI ASSET SOLUTIONS
AMUNDI

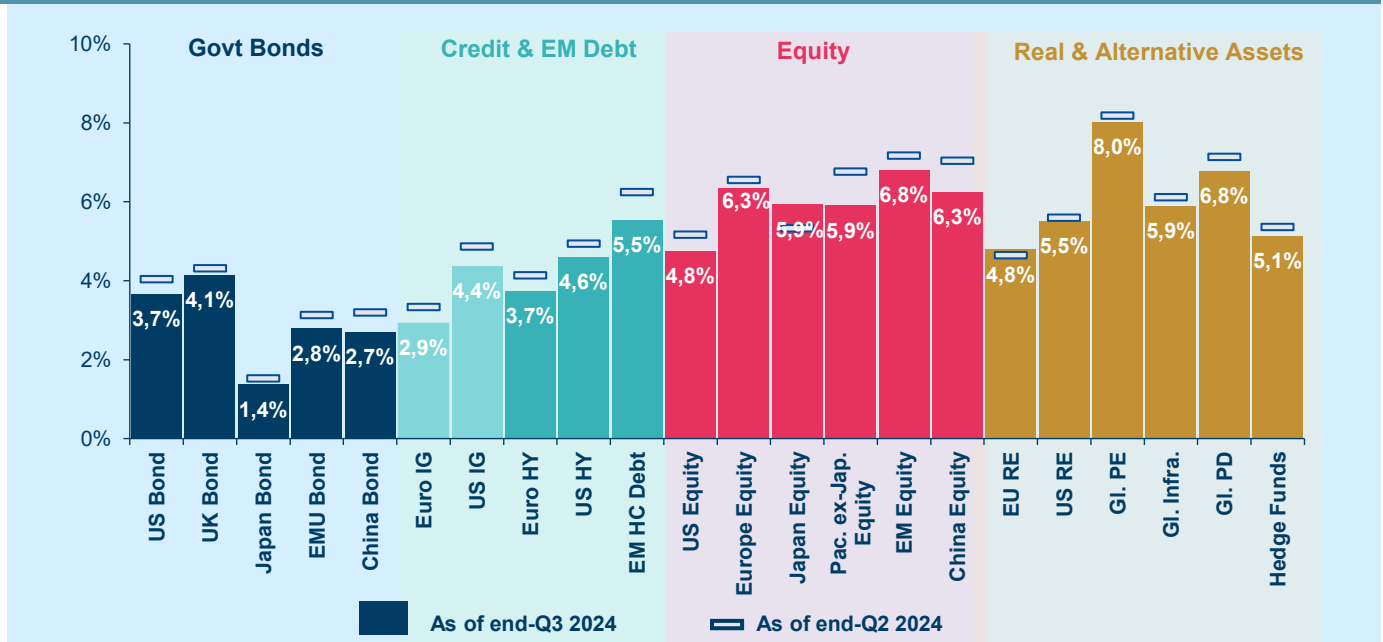
NICOLA ZANETTI
QUANTITATIVE ANALYST
MULTI ASSET SOLUTIONS
AMUNDI

Macro assumptions are confirmed: Our long-term model assumptions reflect a disorderly and delayed energy transition that incorporates secular trends and uncertainties, both of which influence price trends and volatility. In the medium term, the reduction of transition risks and productivity gains driven by Artificial Intelligence (AI) may lead to more stable inflation patterns. Interest rates should stabilise at levels consistent with our scenario of positive interest rates. The [annual](#) publication describes the macroeconomic outlook in more detail.

Update on valuations: Equity returns are expected to be marked by moderate earnings growth and declining valuation multiples. Valuations dampen our expectations for equity markets, particularly in the United States. Last quarter price increases observed across all regions, except Japan, contribute to a downgrade in future return projections, especially for Asia ex-Japan and China. In contrast, Japan is the only region showing improved valuations. Government yields have shifted lower and closer to our equilibrium level, resulting in a decline in expected bond returns. The current market environment remains highly volatile, with significant fluctuations that can also impact the longer-term horizon. Expectations for high-quality credit are also trending downward, as credit valuations echo the negative shifts originating from government yields.

Risk-return trade-off: The capital market line (CML) maintains its previous shape, which is rather flat compared to historical norms. However, the CML has shifted downwards, as our expectations have marginally decreased overall. Alternatives remain an appealing allocation choice for generating higher returns, and fixed income remains a fundamental building block of multi-asset portfolios.

FIGURE 1: Ten-year expected returns

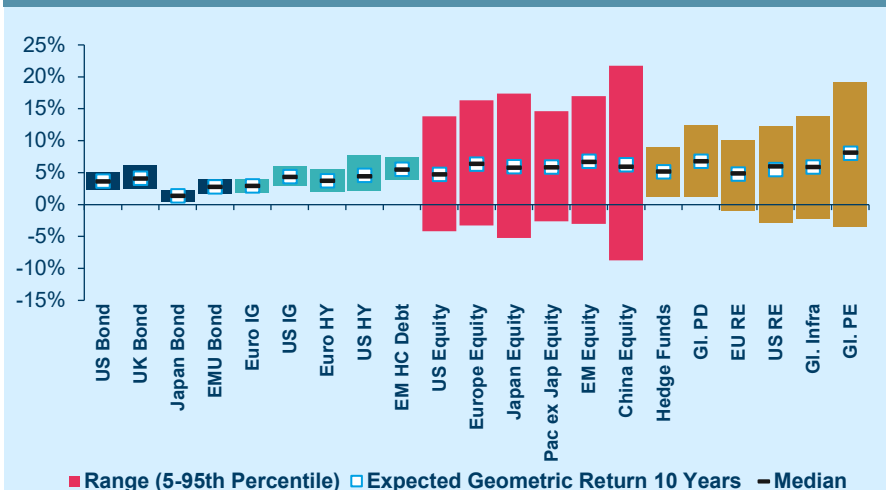


Source: Amundi Asset Management CASM Model, Quant Solutions and Amundi Investment Institute teams. Full source on page 6.

Adding the risk dimension

The chart to the right shows the 5th and 95th percentile range for our simulated ten-year annualised geometric returns, which is a measure of the dispersion of expected outcomes around the distribution average, namely our central scenario. The dispersion increases with the riskiness of the asset class. Equities -- both public and private -- top the list in terms of distribution width. Bonds display a much narrower distribution due to their lower volatility and to the carry component, which provides stability to the forward-looking return owing to the mean reversion assumption.

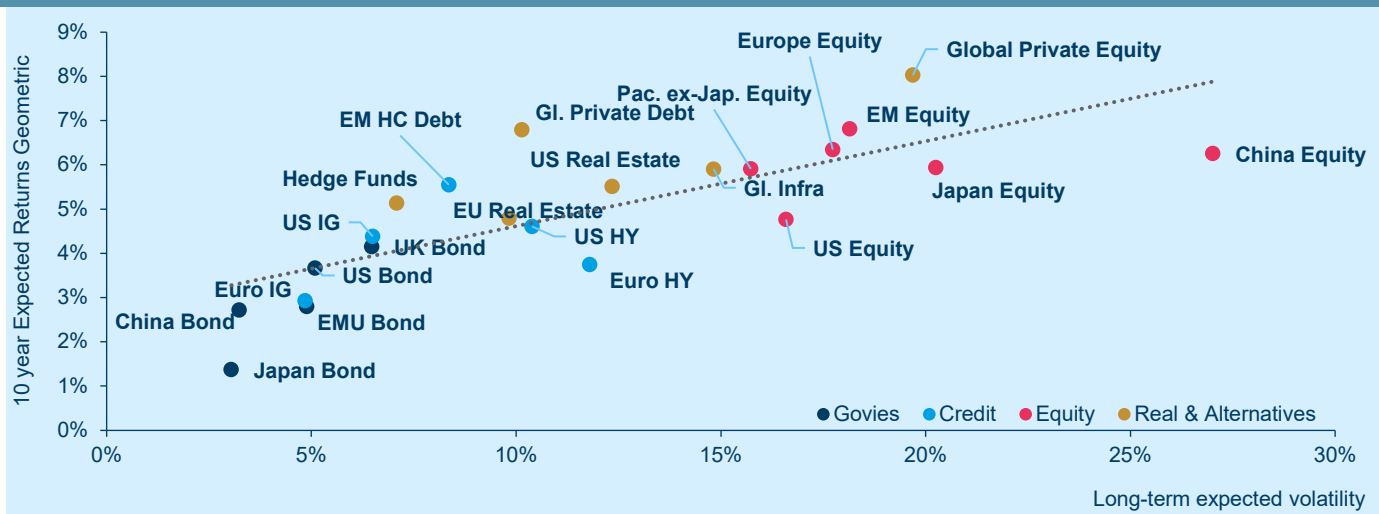
FIGURE 2: Ten-year expected returns and their distributions



Source: Amundi Asset Management CASM Model, Quant Solutions and Amundi Investment Institute teams. Full source on page 6.

The capital market line remains flatter than historical norms, confirming that it can be challenging to reach high return targets using only liquid assets. Real and alternative assets need to be considered for allocations with a more aggressive risk profile, due to their diversification and return-generation features. In addition, fixed-income assets are fundamental to guarantee stable income in multi-asset portfolios.

FIGURE 3: Risk-return landscape in local currency

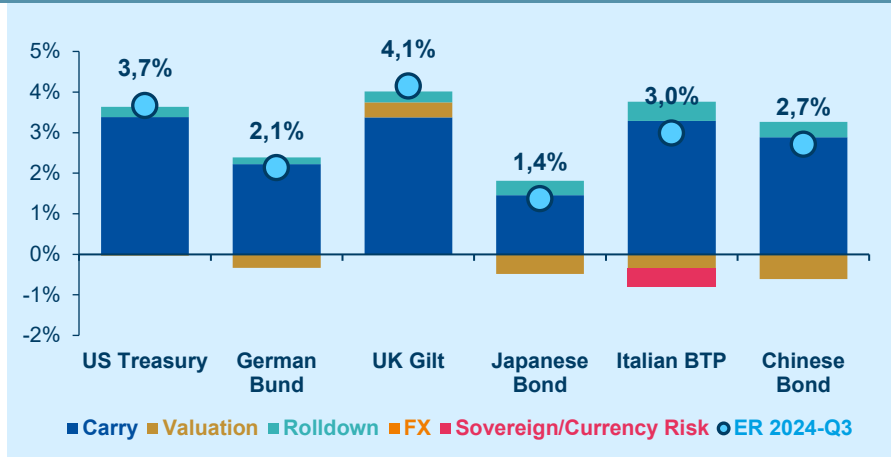


Source: Amundi Asset Management CASM Model, Quant Solutions and Amundi Investment Institute teams. Full source on page 6.

UK and US bonds' expected returns dominate the sovereign bond universe (duration mismatch on UK gilts could alter the picture), while Japan bonds lag behind peers due to structurally lower interest rates. Credit return forecasts for high-grade assets confirm an average premium with respect to relative government bonds, even if lower than previous updates due to compressed spreads. In particular, Euro IG expectations are in line with EMU government bonds ones due to the tight starting corporate spreads and the presence of credit risk in the government bond index. The risk associated to high-yield (HY) credit -- coming from greater intrinsic volatility and default loss assumptions -- and the low excess return over high quality dampen the overall appeal to the HY asset class. On the equity side, ten-year expected returns are moderating in the 4.8-7.1% range, with expectations for ex-US DM concentrated around 6%. Overall, the outlook for equities remains nuanced, the interplay between valuations and growth expectations will be crucial in shaping future performance across different regions. Hedge funds maintain their role as portfolio diversifiers, keeping in mind that we model funds of hedged funds. Global private debt shows an interesting expected risk-adjusted return, making this asset a convincing alternative to liquid credit instruments. Private equity is expected to provide returns close to double-digits; however, there are still some headwinds as demonstrated by the increase in time to exit. Real estate expectations are unchanged from last quarter, the negative valuation component is slightly fading. Notwithstanding the correlation with fixed income, the dispersion around the central scenario is as wide as other risky assets, reflecting the illiquidity and complexities of this asset class.

Asset class return attribution

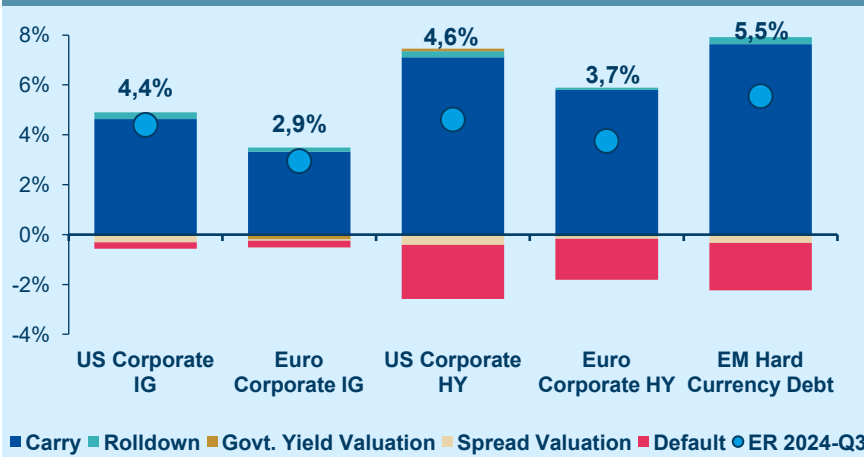
FIGURE 5: Government bonds expected returns attribution



The ten-year outlook for government bonds has deteriorated, primarily due to lower interest rates over the past quarter. For developed market (DM) government bonds, this change is largely attributed to less favourable valuations, with a smaller contribution from lower carry, particularly in the United States and both euro core and peripheral markets. Meanwhile, the decline in expectations for Chinese government bonds is primarily driven by lower carry.

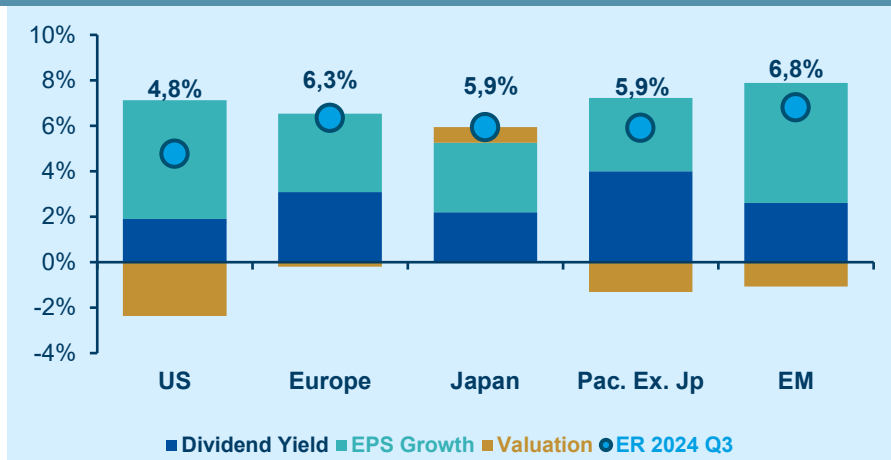
The downgrade in expectations for credit assets primarily stems from a combination of less favourable valuations on both the government yield and credit spread fronts. Lowered carry is significant for all credit assets, with the exception of European high-yield (EU HY) bonds. Within the high-yield space, expected returns remain notably tight. The most substantial change occurred in emerging market hard currency (EM HC) debt, where expected returns decreased more than half a percentage point, driven by less favourable valuations and lower carry, highlighting the considerable variability of this asset class in the current environment of heightened interest-rate volatility.

FIGURE 6: Credit bonds expected returns attribution



The main factor influencing the differences in expected returns compared to the previous quarter is predominantly the valuation component, while estimates regarding EPS growth have been only slightly revised down. The recent rally in equities across Asia ex-Japan and China has led to a negative revision in expected returns for these markets. Expensive valuations -- only marginally offset by a benign growth outlook -- still represent a headwind for our US equity long-term scenario. Conversely, Japan is expected to recover its standing in the rankings, driven by more favourable valuations that present a more attractive investment opportunity in the current climate.

FIGURE 7: Equity expected returns attribution



Fixed income asset expected return is broken down into: **Carry**: proxied by the par government or credit yield, **Roll-down**, the effect on bond price generated by the passage of time, **Valuation**: the effect on bond price generated from government yield and spread moving, **Default**: assumption on the loss from a credit event. Others can include residual factors due to not linear components and simulation effect. Sovereign/Currency Risk, impact for being exposed to sovereign and currency risk, FX, performance associated to the FX exposure vs USD. Equity asset expected return is broken down into: **Dividend Yield**, **EPS Growth** which includes net dilution (provision for shares repurchase programs and new shares issuance effect) and **Valuations**, the effect of price multiples converging to equilibrium.

Source: Amundi Asset Management CASM Model, Quant Solutions and Amundi Investment Institute teams. Full source on page 6.

ASSET CLASS RETURN FORECASTS

In the following table, we present our annualised return forecasts across different asset classes, calculated as the average simulated returns over different forward-looking horizons (five and ten years). We also report historical figures for annualised returns and volatility calculated over the past 20 years, a period that includes two major crises (GFC and Covid-19).

| Assets in local currency | Reference Index | Duration | Average Annualised GEOMETRIC | | Average Annualised ARITHMETIC | 10-year SIMULATED Volatility | 10-year Simulated CVaR 99% | 2004-2024 Historical Returns (annualised) | 2004-2024 Historical Volatility (annualised) |
|---------------------------------------|-----------------|-----------------------|------------------------------|--------------------------|-------------------------------|------------------------------|----------------------------|---|--|
| | | Average next 10 years | 5-year Expected Returns | 10-year Expected Returns | 10-year Expected Returns | | | | |
| Cash | | | | | | | | | |
| Euro Cash | JPCAUE3M Index | 0.2 | 2.1% | 2.0% | 2.1% | 1.0% | 2.6% | 1.4% | 0.9% |
| US Cash | JPCAUS3M Index | 0.2 | 3.1% | 3.0% | 3.0% | 0.9% | 1.2% | 2.1% | 1.0% |
| Government Bonds | | | | | | | | | |
| US Bond | JPMTUS Index | 5.8 | 3.7% | 3.7% | 3.8% | 5.1% | 10.4% | 2.9% | 5.5% |
| UK Bond | JPMTUK Index | 9.1 | 4.9% | 4.1% | 4.3% | 6.5% | 14.3% | 3.1% | 7.8% |
| Japan Bond | JPMTJPN Index | 8.8 | 1.1% | 1.4% | 1.4% | 3.0% | 6.3% | 1.1% | 2.7% |
| Emu Bond - Core | JPMTWG index | 6.8 | 2.0% | 2.1% | 2.2% | 4.6% | 10.2% | 2.4% | 5.2% |
| Emu Bond - Semi Core (France) | JPMTEUFR Index | 7.0 | 3.0% | 3.0% | 3.1% | 4.7% | 10.1% | 2.6% | 5.4% |
| Italy Bond | JPMITT index | 5.9 | 2.7% | 3.0% | 3.2% | 6.9% | 13.4% | 3.7% | 6.7% |
| Spain Bond | JPMTSP Index | 6.5 | 2.9% | 3.0% | 3.2% | 6.4% | 12.7% | 3.4% | 5.8% |
| EMU Bond All Maturity | JPMGEMUI Index | 6.6 | 2.7% | 2.8% | 2.9% | 4.9% | 10.2% | 2.8% | 5.2% |
| Barclays Global Treasury | BTSYTRUH Index | 6.5 | 2.8% | 2.9% | 3.0% | 3.7% | 6.8% | 3.3% | 3.9% |
| Credit Investment Grade | | | | | | | | | |
| Euro Corporate IG | ER00 index | 4.6 | 2.7% | 2.9% | 3.0% | 4.8% | 8.4% | 2.9% | 4.7% |
| US Corporate IG | C0A0 index | 6.5 | 4.2% | 4.4% | 4.5% | 6.5% | 12.1% | 4.2% | 6.6% |
| Barclays Euro Aggregate | LBATEU Index | 6.2 | 2.7% | 2.8% | 2.9% | 4.5% | 9.3% | 2.7% | 4.6% |
| Barclays US Aggregate | LBUSTRUU Index | 6.0 | 3.9% | 3.9% | 4.0% | 4.8% | 9.7% | 3.2% | 4.4% |
| Barclays Global Aggregate | LEGATRUH Index | 6.4 | 3.3% | 3.4% | 3.5% | 4.1% | 7.5% | 3.5% | 3.7% |
| Credit High Yield | | | | | | | | | |
| Euro Corporate HY | HE00 index | 2.8 | 3.3% | 3.7% | 4.4% | 11.8% | 20.6% | 6.0% | 12.7% |
| US Corporate HY | H0A0 index | 3.2 | 4.0% | 4.6% | 5.0% | 10.4% | 20.1% | 6.6% | 10.4% |
| Emerging Market Debt | | | | | | | | | |
| EM Hard Currency Debt* | JPEIDIVR Index | 6.3 | 4.9% | 5.5% | 5.8% | 8.4% | 17.5% | 5.8% | 9.2% |
| EM-Global Diversified** | JGENVUUG Index | 5.3 | 5.8% | 5.6% | 6.2% | 10.8% | 23.1% | 4.6% | 11.8% |
| GBI-EM China LOC | JGENCNTL Index | 5.1 | 1.3% | 2.7% | 2.8% | 3.2% | 6.9% | na | na |
| Convertible Bond | | | | | | | | | |
| Europe Index (Eur Hedged) | UCBIFX20 Index | | 4.4% | 4.4% | 5.1% | 11.9% | 25.9% | 3.9% | 10.2% |
| Equities | | | | | | | | | |
| US Equity | NDDLUS Index | | 6.0% | 4.8% | 5.9% | 16.6% | 41.5% | 10.1% | 16.2% |
| Europe Equity | NDDLE15 index | | 7.1% | 6.3% | 7.6% | 17.7% | 41.6% | 6.7% | 15.0% |
| Euro zone Equity | NDDLEMU Index | | 6.9% | 5.9% | 7.5% | 19.6% | 45.8% | 6.2% | 17.9% |
| UK Equity | NDDLUK Index | | 7.3% | 7.1% | 7.9% | 14.7% | 33.5% | 6.8% | 13.4% |
| Japan Equity | NDDLJN Index | | 7.1% | 5.9% | 7.7% | 20.3% | 41.8% | 6.5% | 19.6% |
| Pacific ex Japan Equity | NDDLJPX Index | | 7.6% | 5.9% | 6.9% | 15.7% | 36.5% | 7.6% | 15.2% |
| Emerging Markets Equity | NDLEEGF index | | 9.6% | 6.8% | 8.2% | 18.1% | 41.2% | 8.7% | 16.8% |
| China Equity | NDELCHF Index | | 8.2% | 6.3% | 9.5% | 27.0% | 56.1% | 8.0% | 25.4% |
| World Equity | NDDLWI index | | 6.3% | 5.2% | 6.3% | 16.4% | 40.6% | 8.7% | 15.3% |
| AC World Equity | NDLEACWF Index | | 6.7% | 5.4% | 6.5% | 16.3% | 40.3% | 8.6% | 15.2% |
| Real and Alternative assets*** | | | | | | | | | |
| EU Real Estate | | | 0.0% | 4.8% | 5.2% | 9.8% | 29.6% | | |
| US Real Estate | | | 0.0% | 5.5% | 6.3% | 12.3% | 45.4% | | |
| Global Private Equity | | | 0.0% | 8.0% | 9.6% | 19.7% | 53.4% | | |
| Global Infrastructure | | | 0.0% | 5.9% | 6.8% | 14.8% | 35.6% | | |
| Global Private Debt | | | 0.0% | 6.8% | 7.2% | 10.1% | 32.8% | | |
| Hedge Funds | | | 0.0% | 5.1% | 5.3% | 7.1% | 19.9% | | |

* Hard currency USD, China bond starting date is the beginning of 2019. ** USD unhedged, including the USD currency expectation towards EM currencies. ***Historical figures on real and alternatives are not available, as our models refer to un-smoothed data if necessary.

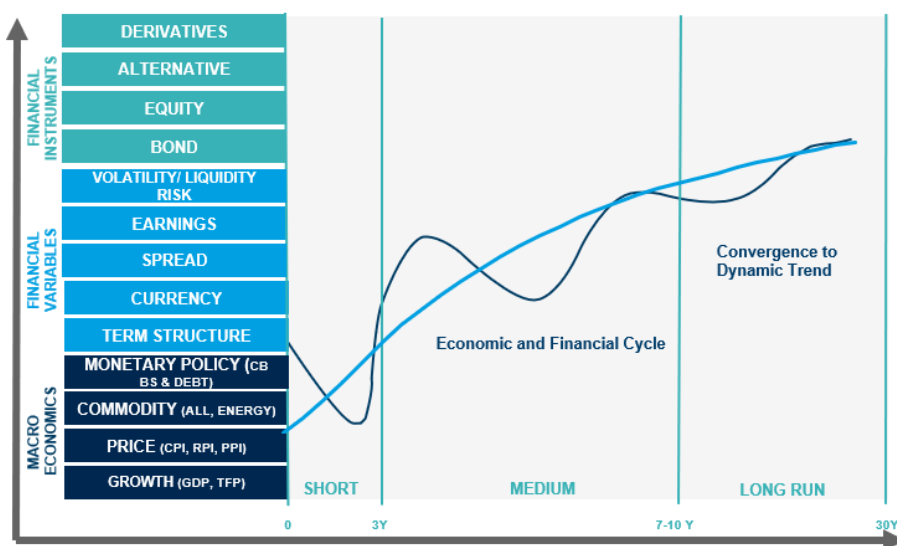
Source: [Amundi Asset Management CASM Model](#), Quant Solutions and Amundi Investment Institute teams. Full source on page 6.

CASCADE ASSET SIMULATION MODEL (CASM)

This medium- and long-term return forecast report is intended to provide some guidance for investor expectations. The time horizon under consideration is ten years, a timeframe deemed to be appropriate and during which long-term trend factors and issues can reasonably be expected to play out and, therefore, market returns should reflect this information accurately.

Cascade Asset Simulation Model (CASM) is a platform developed by Amundi in collaboration with Cambridge University. CASM combines our short-term financial and economic outlooks. It incorporates medium-term dynamics into a long-term equilibrium, to simulate forward-looking returns for different asset classes over multiple horizons.

CASM generates asset price scenarios and underlying economic and financial factors that determine Amundi's expected returns. It is a valuable tool for strategic asset allocation and asset-liability management analysis. We estimate model parameters quarterly to incorporate new market data and our short-term outlook. The process for calibrating models that reflect our view of economic and financial market trends is a collaborative process between many teams at Amundi. We reach a consensus for the short- to medium-term outlooks for macro and financial variables for each region under consideration (the United States, Eurozone core and periphery, UK, Japan, and China). The models are calibrated to be consistent with these outlooks and long-run estimates. At each step in the process, results are analysed against stylised facts and checked for consistency. Price returns are generated using Monte Carlo simulation. Stochastic generation of risk factors and price scenarios allows us to analyse a wide range of possible outcomes and control the uncertainty surrounding these. We can change starting assumptions and see the effect on possible future asset prices. The CASM platform covers macro and financial variables for major regions, in particular the US, the United Kingdom, the Eurozone, Japan, China, India and Emerging Markets as an aggregate.



The architecture of CASM can be described in two dimensions. The first dimension is a 'cascade' of models. Asset and liability price models are composed of market risk factor models. Market risk factor models are made up of macroeconomic models. Initially proposed by Wilkie (1984) and further developed by Dempster et al. (2009), this cascade structure is at the root of the platform's capability to model linear and non-linear relationships between risk factors, asset prices and financial instruments.

The second dimension is a representation of the future evolution of the aforementioned 'cascade' effect. The unique formulation allows us to simulate asset price scenarios that are coherent with the underlying risk factor models. In the short term, CASM blends econometric models and quantitative short-term outlooks from in-house practitioners. In the long term, we assume the market variables are subject to dynamic long-term levels. The short-term evolves into a long-run state through the medium-term dynamic driven by business cycle variables.

SOURCE

Amundi Asset Management CASM Model, Amundi Asset Management Quant Solutions and Amundi Investment Institute Teams. Macro figures as of the last release. Starting date as of 30 September 2024. Equity returns are based on MSCI indices. Reference duration are average figures. If not otherwise specified, expected returns are geometric annualised average total returns at the specific horizon. EM Debt HC, Global Infrastructure and Hedge Funds are in USD, all other indices are in local currency. Returns on credit assets are comprehensive of default losses. Real estate refers to all property unlevered real estate. The expected returns do not consider the potential alpha, generated by portfolio management that can be significant above all for real and alternative assets. Those returns are gross of fees, except Private Equity and Infrastructure returns which are net of fees. The arithmetic average returns are derived using the price generated by our simulation engine. By definition, the arithmetic mean is always greater than or equal to the geometric mean. In particular, higher volatility of returns and / or a longer time horizon will increase the difference between the two measures. Simulated volatilities are calculated on simulated prices over a ten-year horizon.

Expected returns are calculated using Amundi central scenario assumptions, which include climate transition. Forecast and fair values up to a three-year horizon are provided by the Amundi Investment Institute Research team (macro, yields, spread and equity).

Forecasts for annualised returns are based on estimates and reflect subjective judgments and assumptions. These results were achieved by means of a mathematical formula and do not reflect the effect of unforeseen economic and market factors on decision-making. The forecast returns are not necessarily indicative of future performance.

Data sources: Bloomberg, MSCI, Edhec Infra, Cambridge Associates, Global Financial Data.

Trust must be earned

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This environment spans economic, financial, geopolitical, societal and environmental dimensions. To help meet this need, Amundi has created the Amundi Investment Institute. This independent research platform brings together Amundi's research, market strategy, investment themes and asset allocation advisory activities under one umbrella; the Amundi Investment Institute. Its aim is to produce and disseminate research and Thought Leadership publications which anticipate and innovate for the benefit of investment teams and clients alike.

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CHIEF EDITOR

MONICA DEFEND

HEAD OF AMUNDI INVESTMENT INSTITUTE

EDITORS

CLAUDIA BERTINO

HEAD OF AMUNDI INVESTMENT INSIGHTS AND PUBLISHING, AII*

LAURA FIOROT

HEAD OF INVESTMENT INSIGHTS & CLIENT DIVISION, AII*

* Amundi Investment Institute

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