

Capital Market Assumptions

Asset Class Returns Forecasts Q3 2022

A combination of sustained inflation and mounting recession fears, interlinked with the geopolitical situation, are the main drivers affecting the current and forward-looking macro environments. The bulk of the uncertainty is in the short to medium term. There is a general trend towards normalisation of price valuations. Central banks have started to put forward significant (and expected) rate normalisation policies to tame inflation. The medium- to long-term macro and market landscapes are likely to be affected by systemic shifts resulting from the transition towards a greener world: increased inflation, yields and spread risks translating into increased long-term volatility across our investment universe as well as subdued EPS growth and valuations. Due to higher starting yield levels and the zero interest rate policy up till now, bondholders can benefit from higher carry returns in the medium term and beyond. Starting credit spreads are high and even if they can stabilise in the short term, we assume they can only normalise in the long term considering the uncertain outlook in the medium term. We see potential for default probabilities to increase in the medium term. Overall, expected returns on credits are appealing in absolute and relative (vs government) terms. Continuing supply-side and material constraints, combined with higher borrowing rates, will put all equities under significant pressure. Moreover, the likelihood of recession is increasing and this could weigh on performance in the short to medium term. On the positive side, equity valuations have improved because of the recent correction. Hence, final expectations are improving vs the previous quarter, crystallising moderate single-digit expectations.

In the table below, we present the simulated forward-looking statistics over a 10-year horizon (expected returns, volatility and CVaR) compared with historical statistics calculated on a 20-year sample. Here, CVaR and max drawdown represent the expected and historical shortfall, respectively. With this quarter, we also start providing arithmetic average returns, which is a useful return statistic for portfolio optimisation purposes. The arithmetic average returns are derived using the price generated by our simulation engine, CASM. By definition, the arithmetic mean is always greater than or equal to the geometric mean. In particular, higher volatility of returns and higher frequency of returns and/or a longer time horizon will increase the difference between the two measures.

Assets in local currency		SIMULATED				HISTORICAL		
		10Y Expected Returns Geometric	10Y Expected Returns Arithmetic	10Y Volatility	10Y CVaR 99%	2000-2020 Returns (annualised)	2002-2022 Volatility (annualised)	2002-2022 Max Drawdown
GOVIES	US Bond	3.0%	3.1%	4.8%	9.9%	3.4%	4.7%	13.0%
	UK Bond	2.2%	2.5%	7.9%	20.2%	4.2%	6.4%	20.2%
	Japan Bond	0.7%	0.7%	3.5%	9.9%	1.4%	2.1%	6.7%
	EMU Bond All Maturity	2.0%	2.1%	4.5%	13.1%	3.5%	4.2%	15.1%
IG	Euro Corporate IG	3.0%	3.1%	4.6%	11.4%	3.3%	3.9%	13.7%
	US Corporate IG	4.3%	4.5%	6.7%	12.3%	4.6%	5.9%	16.1%
HY & EMBI	Euro Corporate HY	4.5%	5.1%	11.9%	26.7%	7.0%	10.3%	37.7%
	US Corporate HY	5.5%	6.1%	12.0%	23.4%	7.1%	9.1%	33.2%
	EM Hard Currency Debt*	6.2%	6.5%	9.1%	20.1%	6.6%	8.9%	22.3%
EQUITIES	US Equity	6.4%	7.7%	17.2%	44.4%	8.5%	14.9%	51.1%
	Euro Zone Equity	5.5%	7.5%	20.8%	53.7%	4.1%	17.5%	56.2%
	UK Equity	7.2%	8.2%	15.3%	40.1%	5.9%	13.6%	40.3%
	Japan Equity	6.1%	8.0%	20.4%	45.9%	4.7%	17.3%	57.4%
	Pacific ex-Japan Equity	6.2%	9.4%	14.4%	49.0%	7.4%	13.5%	49.6%
	Emerging Markets Equity	6.5%	9.8%	18.6%	58.5%	9.3%	16.1%	51.9%
REAL & Alternatives**	EU Real Estate	4.3%	4.9%	11.2%	29.8%			
	EU Private Equity	8.7%	10.5%	20.4%	50.4%			
	US Real Estate	4.9%	6.0%	15.1%	39.6%			
	US Private Equity	9.7%	11.8%	21.4%	52.2%			
	Global Infrastructure	6.4%	7.2%	14.3%	30.7%			
	Global Private Debt	6.4%	6.7%	9.4%	23.2%			

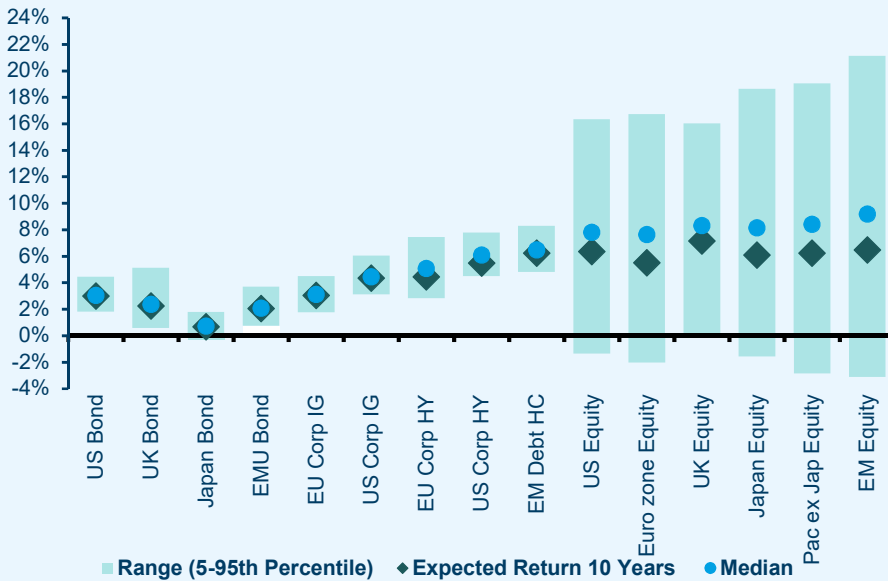
*Hard currency USD, **Historical figures on real and alternatives are not available, as our models refer to un-smoothed data if necessary. Regarding real assets, the table represents the modelling of core/core-plus (moderate risk) real estate and direct lending on the private debt side. The expected returns do not consider the potential alpha, generated by portfolio management that can be significant above all for real and alternative assets. Full sources on page 4.



ASSET CLASS RETURN FORECASTS

In the chart, we present the ranges for the expected returns where we excluded the tail scenarios.

10Y Expected Returns Ranges



Fixed income assets are centred on normalised positive average returns: low carry and/or high duration implies returns close to zero on the left side of the distribution for government assets. **Credit returns** are supported by the spread component even if enlarging the uncertainty for the low quality ranges.

On the **equity side**, the upside potential is double digits for most of the asset classes, but the downside extends into the negative returns as the time can only partially diversify equity risk.

Expected returns are calculated on Amundi central scenario assumptions, which include climate transition.

For more detailed information, see: [Keeping Up with Climate Change](#)

10Y vs 5Y Expected Returns



Government yields have recently increased across the universe, narrowing the gap with the long-term levels. Most of the changes on monetary policy are implied in current levels. We assume only slight adjustment toward higher yields in the medium term, resulting in medium-(5Y) and long-term (10Y) returns being very close, benefiting from the higher carry.

Expectations for **credit** in the medium term are supported by the high carry and narrowing spreads.

Improved **valuations on equity** are supportive for equity in the medium and long term, partially offsetting the risk and uncertainty linked to macro and financial scenarios. Medium term, equities with less stretched valuations are favoured.

Source: Amundi Asset Management CASM Model, Amundi Asset Management Quant Solutions and Amundi Institute Teams, Bloomberg. Data as of 27 July 2022. Macro figures as of last release. Starting date is 30 June 2022. Equity returns based on MSCI indices. Reference duration are average figures. Local Currency. Returns on credit asset are comprehensive of default losses. **Expected returns are calculated on Amundi central scenario assumptions, which include climate transition.**

Forecasts for annualised returns are based upon 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, which could differ substantially.**



In the following table, we present our annualised return forecasts across different asset classes, calculated as the average of simulated returns on different forward-looking horizons (at five and 10 years). We also report historical figures for annualised returns and volatility calculated on the last 20 years, a sample that includes the two big crises (GFC and Covid-19).

Assets in local currency	Reference Index	Duration	Average Annualised GEOMETRIC		Average Annualised ARITHMETIC	10 year Simulated Volatility	2002-2022 Historical Returns (annualised)	2002-2022 Historical Volatility (annualised)
			5 year Expected Returns	10 year Expected Returns	10 year Expected Returns			
Cash								
Euro Cash	JPCA EU3M Index	0.3	1.3%	1.6%	1.6%	1.2%	1.3%	0.9%
US Cash	JPCA US3M Index	0.2	2.9%	2.9%	2.9%	0.9%	1.8%	0.8%
Government Bonds								
US Bond	JPM TUS Index	6.4	2.6%	3.0%	3.1%	4.8%	3.4%	5.5%
UK Bond	JPM TUK Index	11.4	1.7%	2.2%	2.5%	7.9%	4.2%	6.9%
Japan Bond	JPM TJPN Index	9.7	0.3%	0.7%	0.7%	3.5%	1.4%	2.5%
Emu Bond - Core	JPM TWG index	7.6	0.4%	1.2%	1.3%	4.6%	3.2%	4.9%
Emu Bond - Semi Core (France)	JPM TFR Index	8.0	1.3%	1.9%	2.0%	5.1%	3.4%	5.1%
Italy Bond	JPM TIT index	6.8	2.1%	2.8%	3.0%	5.9%	4.2%	6.3%
Spain Bond	JPM TSP Index	7.1	1.4%	2.3%	2.4%	5.6%	4.0%	5.6%
EMU Bond All Maturity	JPM GEM UI Index	7.5	1.3%	2.0%	2.1%	4.5%	3.5%	4.8%
Barclays Global Treasury	BTSYTRUH Index	7.8	1.7%	2.0%	2.4%	3.5%	3.5%	3.7%
Credit Investment Grade								
Euro Corporate IG	ER00 index	5.2	2.8%	3.0%	3.1%	4.6%	3.3%	4.6%
US Corporate IG	C0A0 index	7.5	4.0%	4.3%	4.5%	6.7%	4.6%	6.3%
Barclays Euro Aggregate	LBEATREU Index	6.6	1.6%	2.2%	2.3%	4.0%	3.3%	4.3%
Barclays US Aggregate	LBUSTRUU Index	5.8	3.1%	3.5%	3.6%	4.6%	3.6%	3.9%
Barclays Global Aggregate	LEGATRUU Index	6.8	2.4%	2.7%	3.0%	3.7%	3.6%	3.4%
Credit High Yield								
Euro Corporate HY	HE00 index	3.7	4.6%	4.5%	5.1%	11.9%	7.0%	13.3%
US Corporate HY	H0A0 index	4.3	5.6%	5.5%	6.1%	12.0%	7.1%	10.7%
Emerging Market Debt								
EM Hard Currency Debt*	JPEIDVR Index	7.4	7.3%	6.2%	6.5%	9.1%	6.6%	9.4%
GBI-EM China LOC	JGENCNTL Index	5.4	2.1%	3.4%	3.5%	5.1%	na	na
Convertible Bond								
Europe Index (Eur Hedged)	UCBIFX20 Index		4.4%	3.9%	4.5%	11.2%	3.7%	10.2%
Equities								
US Equity	NDDLUS Index		7.3%	6.4%	7.7%	17.2%	8.5%	16.8%
Europe Equity	NDDLE15 index		7.6%	6.1%	7.7%	16.9%	5.2%	16.5%
Euro zone Equity	NDDLEM U Index		7.0%	5.5%	7.5%	20.8%	4.1%	19.5%
UK Equity	NDDLUK Index		8.7%	7.2%	8.2%	15.3%	5.9%	14.6%
Japan Equity	NDDLJN Index		6.9%	6.1%	8.0%	20.4%	4.7%	19.9%
Pacific ex-Japan Equity	NDDLXPJ Index		6.1%	6.2%	7.3%	14.8%	7.4%	15.2%
Emerging Markets Equity	NDLEEGF index		6.0%	6.5%	8.2%	18.8%	9.3%	18.0%
China Equity	NDELCHF Index		5.1%	6.2%	9.5%	26.2%	10.5%	26.0%
World Equity	NDDLWI index		7.3%	6.3%	7.4%	15.1%	7.1%	16.1%
AC World Equity	NDLEACWF Index		7.1%	6.3%	7.4%	14.6%	7.2%	16.0%

* Hard Currency USD, China Bond starting date is beginning of 2019. Source as for previous page.



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 10 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 accurately reflect this information. We use a Monte Carlo methodology in order to generate possible changes in different risk factors for the time horizon considered, representing the future states of these factors under objective measures. The model is then used to price the instruments in line with these factor scenarios.

In order to determine possible interest rate scenarios, we analysed the changes in the major economic DM regions, China and EM aggregate. We used a cascade-style modelling technique to simulate the different term structures, using risk factors such as the GDP cycle, inflation, real rates, debt pattern and CB guidance for each of the economic regions in question. Moving into spread-related assets (EM and corporate bonds), we focused on implied volatility, quality, default and recovery rates, together with economic cycles, yields, commodity prices, EPS and private investments (both specific for credit spreads) to estimate a forward-looking path for EM bonds (hard currency), EU corporate (IG and HY), and US corporate (IG and HY).

Our framework for equity focuses on earnings growth, economic growth variables, interest rates and inflation as determinants of capital gains and dividend yields to represent the income effect. EPS forecasts are derived considering both top and bottom lines, so including the cost side of the equation.

Our medium-/long-term model, known as CASM, is updated on a quarterly basis to incorporate new starting points, changes in our short-term outlook and medium-term expectations, along with long-term trends, the significance of which is verified on an annual basis. Amundi assumptions include our central scenario on climate transition which impacts expected returns via macro and financial variables.

Our CASM model focuses on key factors that drive this change over the medium to long term. The resulting forecasts look at the comparison between current and medium- to long-term readings for the key factors included in the model.

Note that these are simulated figures only and may not represent actual asset class returns. Actual returns are based on many factors and may vary substantially from modelled ones.

SOURCE:

Amundi Asset Management CASM Model, Amundi Asset Management Quant Solutions and Amundi Institute Teams, Bloomberg. Data as of 27 July 2022. Macro figures as of last release. Starting date is 30 June 2022. Figures shown are in local currency.

Returns on credit asset are comprehensive of default losses. Expected returns are calculated on Amundi central scenario assumptions, which include climate transition. Regarding real assets, the table represents the modelling of core/core-plus (moderate risk) real estate and direct lending on the private debt side. **The expected returns do not consider the potential alpha, generated by portfolio management that can be significant above all for real and alternative assets.** Forecasts for annualised returns are based upon 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, which could differ substantially.**

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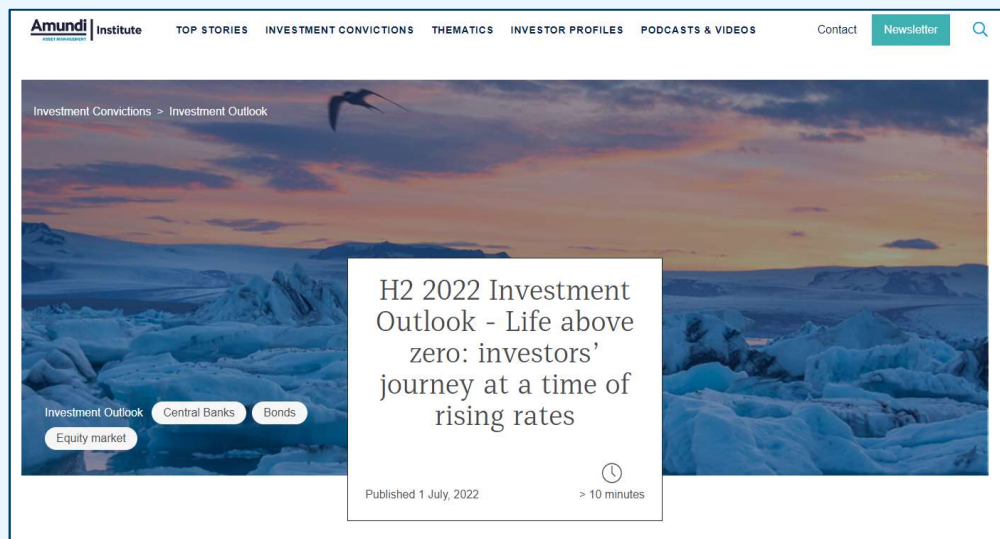
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