CANDRIAM
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Capital Market Assumptions

Asset Class Returns Forecasts

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Marketing communication

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Executive summary.

We are pleased to present our first publication of our medium- and long-term return expectations for the traditional asset classes.

As Paul Saffo, a Professor in Engineering and technology forecaster, put it, "the goal of forecasting is not to predict the future but to tell you what you need to know to take meaningful action in the present".

Indeed, in a world in constant move and where geopolitical events frequently remind us that the unexpected should not be ruled out, we believe that investors need guidance and support in their effort to build robust and resilient portfolios. This is what guided us to conceive this new series: provide investors with a handy toolset to help them make the right asset allocation decisions for their portfolios.

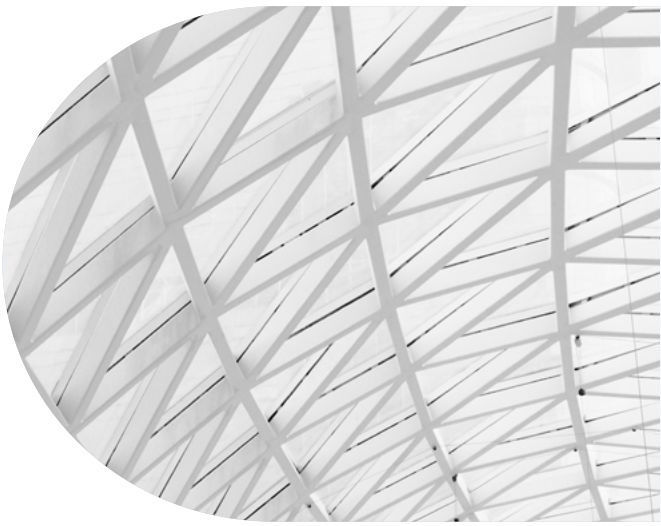
As anticipated, 2024 is a year full of challenges. After a first quarter where equities continued to perform strongly following the momentum of the last two months of 2023, it appeared clearly that euphoria was gradually giving way to greater caution in an environment filled with uncertainties on both the economic context (economic slowdown? decline in inflation?) and the geopolitical front, with several key elections ahead. In that context, it is wise of investors to review their strategic allocation using updated asset class return forecasts.

Asset class return forecasts – August 2024

In the following table, we present our annualized return forecasts as of August 31, 2024. They are shown across different asset classes and over two distinct forward-looking horizons (5 and 10 years). We also provide our prospective volatility assumptions for each asset class. Our forecasts assume nominal returns denominated in local currency.

This first edition includes a thorough explanation of our methodology. We expect to publish regular updates that will gradually incorporate sectors and additional asset classes. Stay tuned!

These forecasts are based on estimates and reflect 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. Forecast returns are not necessarily indicative of future performance, which could differ substantially. The scenarios presented are an estimate of future performance based on evidence from the past on how the value of this investment varies, and/or current market conditions and are not an exact indicator. What you will get will vary depending on how the market performs and how long you keep the investment/product.



	Currency	5Y Expected Return	10Y Expected Return	Expected Volatility (*)
Developed Markets Equities	**LOC**	**6.3**	**6.4**	**15.5**
USA	USD	6.1	6.3	17.1
EMU	EUR	7.6	7.2	18.5
UK	GBP	7.3	7.6	15.5
Japan	JPY	5.5	5.3	18.6
Emerging Markets Equities	LOC	8.5	8.1	17.5
Government Bonds				
US Treasuries	USD	4.7	4.2	4.6
EMU Treasuries	EUR	3.3	3.0	5.2
Credit Bonds				
US Investment Grade	USD	5.1	4.8	6.9
EU Investment Grade	EUR	3.3	3.0	4.3
US High Yield	USD	5.3	5.5	7.5
EU High Yield	EUR	4.2	4.5	6.3
EM Debt (HC)	USD	6.6	6.6	8.2

(*) Expected volatility = 10-year historical volatility

Source: Candriam, estimates as of 31/08/2024.
A full version of the table with corresponding reference indices is available in section VI.

I. Building our forecasts.

Historical Performance

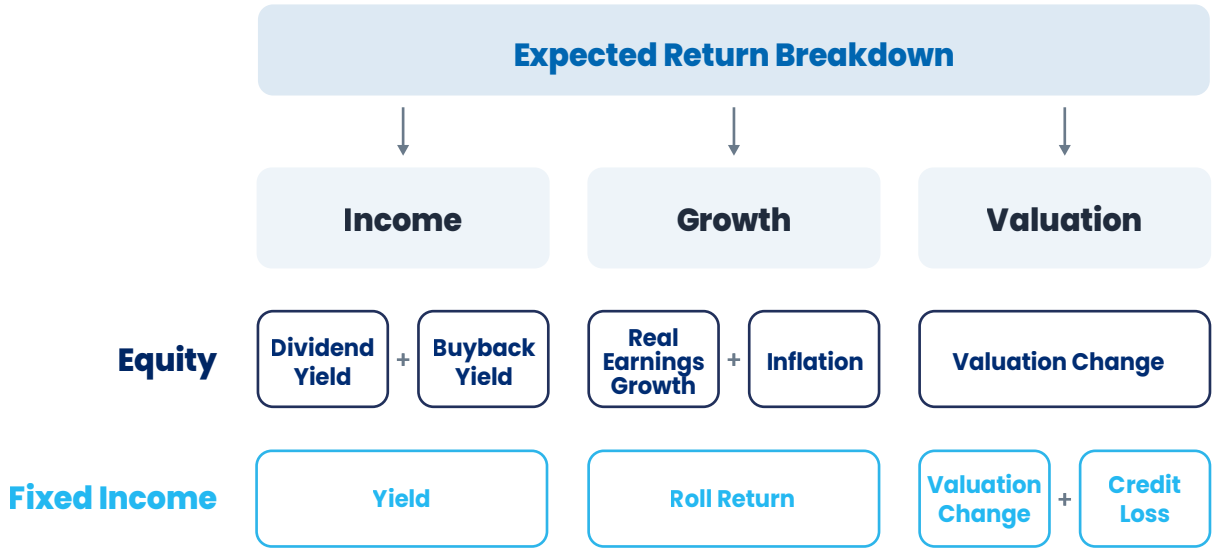
Historical average returns are a common starting point for assessing the accuracy of return expectations. The idea is that if expected returns are constant over time, the long-run average realized return is a good estimate of the expected future return. Moreover, longer historical windows reduce sample specificity and enable more accurate estimates of average returns. However, any sample period may be biased, perhaps exhibiting tremendous returns from falling bond yields or improving market valuations, and historical data from the distant past may be irrelevant due to structural changes in the economy (such as monetary policy interventions).

Empirical studies show how expected returns may vary with business cycle conditions. Indeed the link between stock market returns and economic conditions has been researched extensively in the mainstream asset pricing literature. This interest was spurred in large part by the empirical findings of Fama and French (1989) and many others, suggesting that historical aggregate stock returns are predictable when conditioned on observable financial variables. The consensus view is that stock market returns should compensate investors for their exposure to macroeconomic risks.

Three fundamental pillars

The idea of time-varying expected returns is now well accepted by both academics and practitioners. But investors cannot reliably benefit from time-varying expected returns unless they have useful tools to predict them (*Ilmanen*, 2012).

To this end, our return estimates are based on different combinations of the following inputs: 1) **historical data**, 2) **financial and behavioral theories**, and 3) **forward-looking market indicators**.



II. Equity expected returns.

Predictable time-variation in expected equity returns is among the most salient facts in financial economics (Cochrane, 2001). Many academic publications have discussed and compared the accuracy of popular frameworks such as the Gordon growth model (GGM, 1962), also known as the Dividend discount model (DDM). While the GGM is now considered the most commonly used fundamental valuation technique, it has many limitations. Among them, it is of no value in determining the estimated value of companies that do not pay dividends, which is generally the case of new and innovative companies, where investors commonly expect share price appreciation rather than high dividend payments. Therefore, in this report, we rely on the building-block approach of Grinold and Kroner (2002), and break down the expected equity returns into three components: 1) **total yield**, 2) **earnings growth**, and 3) **valuation change**.

Total yield
represents return or cash paid out to investors (dividend yield), plus share repurchases (buyback yield).

+

Earnings growth
combines expected real growth rate of earnings per share with expected inflation rate over the long term.

+

Valuation change
refers to the repricing effect due to expected changes in price multiples.

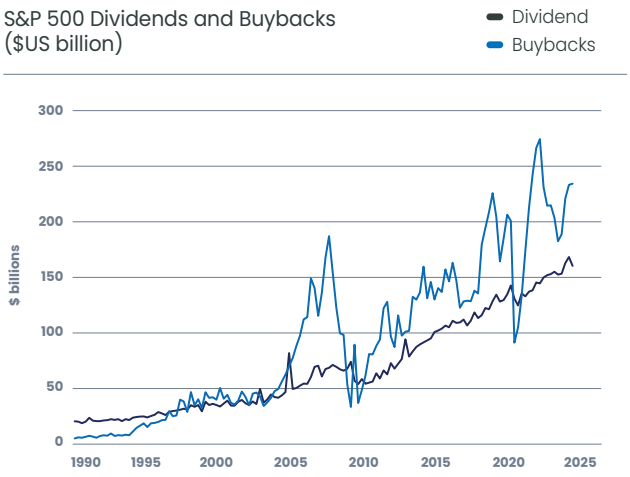
= **Expected Return**

A. Total yield

To capture the total cash yields paid to investors, we expand upon dividend yields by also including the effect of share buybacks.

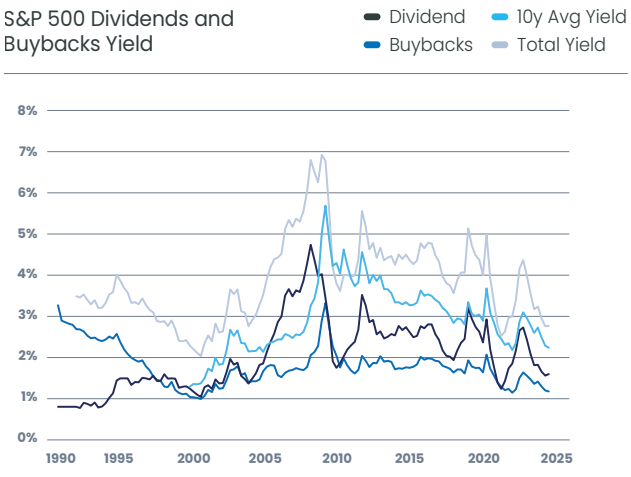
Historically, the narrow definition of equity yield was limited to dividend yields. However, given the dramatic increase in share buybacks in place of dividend payments over the past 20 years (mainly for tax-efficiency purpose), our approach accounts for the effect of buybacks in the yield calculation to provide more meaningful return estimates.

Figure 1:
S&P 500 Dividends and Buybacks ($US billion)



Dramatic increase in share buybacks in place of dividend payments over the past 20 years.

Figure 2:
S&P 500 Dividends and Buybacks Yield



Our estimate is ***based on the 10-year trailing average total yield ratio*** to reflect secular trends but not cyclical variations.

Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, June 2024.

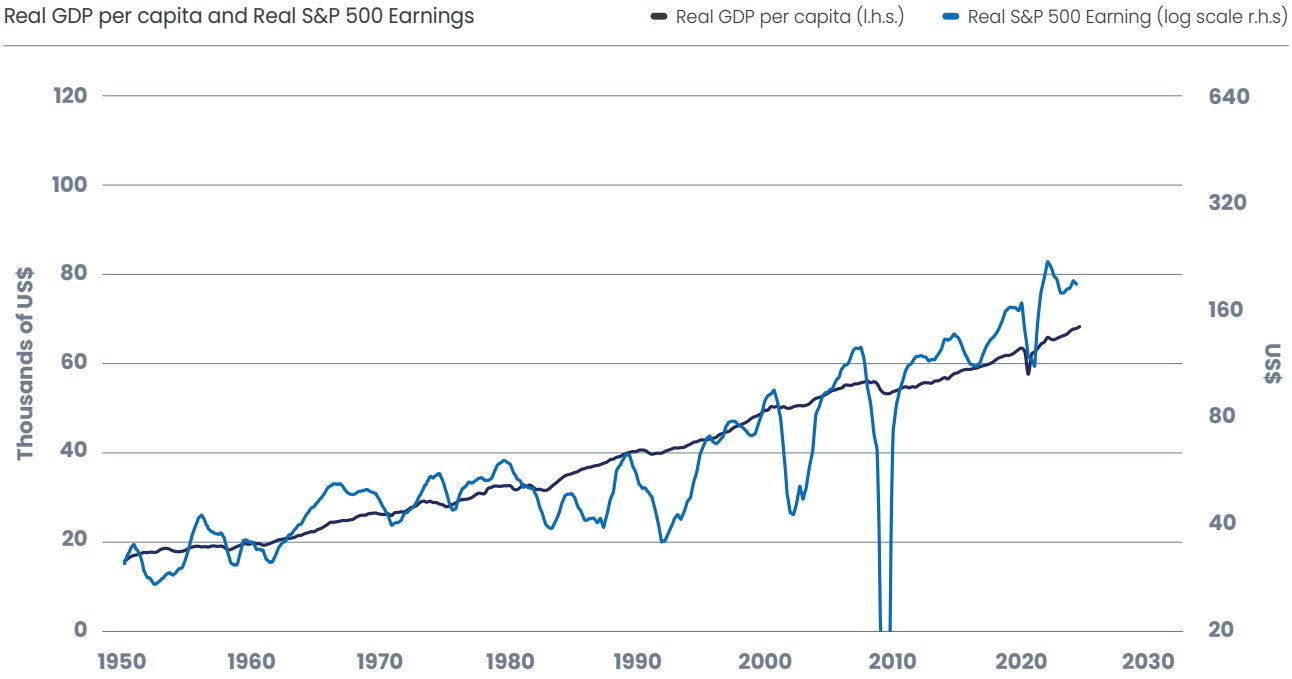
Total Yield = Dividend Yield + Buyback Yield

B. Earnings growth

Earnings per share (EPS) growth is one of the main drivers of capital appreciation in stock returns. But instead of using forward EPS to estimate future earnings growth, we prefer to use a more stable approach that estimates future earnings growth based on past trends. To this end, we rely on the fact that earnings growth is linked to economic growth, and we estimate the EPS growth rate as the secular trend of the real gross domestic product (GDP) per capita.

Over the long-term, US aggregate corporate earnings tend to grow at the same pace as the US GDP per capita.

Figure 3:
Real GDP per capita and Real S&P 500 Earnings



We estimate the ***EPS growth rate as the secular trend of the real gross domestic product*** (GDP) per capita

Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, June 2024.

However, we must adjust this relationship between real EPS growth rate and real GDP growth rate by accounting for the beta of the regression. Indeed, in some circumstances, or for specific regions, we observe empirically that earnings growth can exceed economic growth (corporate profits growing faster than the rest of the economy), and conversely, earnings growth can be inferior to economic growth due to the opposite of the above, as well as other factors, such as state intervention (maximizing shareholder wealth not being a primary objective).

The nominal earnings growth rate is then calculated by adding its real value to the expected inflation rate.

Earnings growth =
Real growth rate of earnings + Inflation rate

C. Valuation change

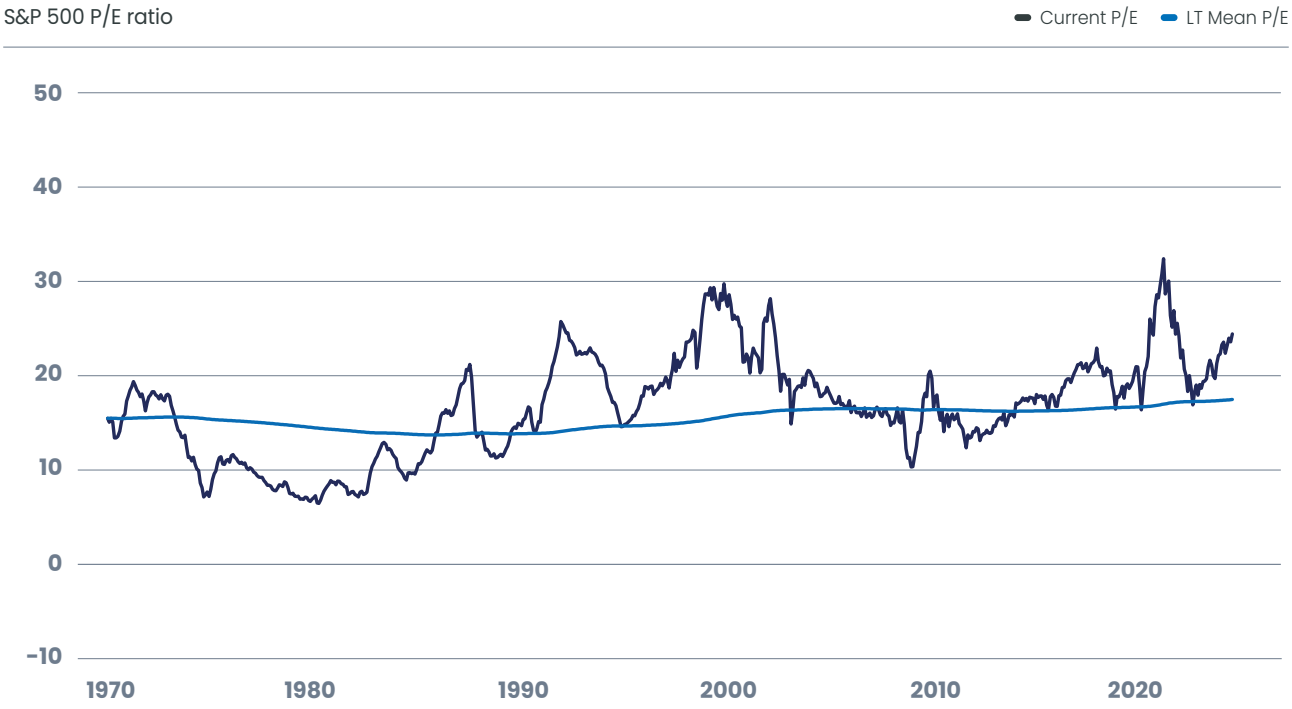
Finally, we incorporate into our equity return forecasts any potential repricing effects, i.e., expected changes in valuations annualized over the next decade.

To this end, we rely on Campbell and Shiller (1998) who suggest that over time the price-to-earnings (P/E) ratio should revert to its long-term mean. The intuition behind this approach is the belief that the higher the current purchase price of the stock, the lower its future return potential.

Therefore, we must calculate the long-term mean of the P/E ratio to estimate the change in equity valuation. But rather than simply calculating the long-term mean of the P/E ratio, we use the findings of Arnott *et al* (2015) that claim that P/E mean reverts towards levels suggested by prevailing macroeconomic conditions, and varies with both real interest rates and inflation. They give to this level the name of "normal P/E" that is conditioned to reflect current inflation and real yields.

The current valuation change is then calculated as the ratio of the "normal P/E" over the current P/E ratio annualized over the 10-year (or 5-year) time horizon.

Figure 4:
S&P 500 P/E ratio



We exploit the fact that over time, the ***P/E ratio tends to revert to its long-term mean*** while this mean is conditioned to reflect current inflation and real yieds.

Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, August 2024.

D. Emerging Markets

Emerging market (EM) economies are structurally different from developed market (DM) economies. As a result, some adjustments need to be made.

First, we estimate future equity returns for each country to account for the country's specificity. For example, China is a rapidly growing economy transitioning towards more domestic-driven growth, while South Korea and Taiwan are more mature in their economic development while sharing characteristics with developing countries. This is why we use beta-adjusted regression between the price-to-earnings and GDP per capita of such economies when we estimate their earnings growth rate.

Lastly, we calculate the expected equity return for emerging markets by averaging the estimated future return of each country in our universe, weighted by the country's market capitalization. Countries of our universe are the top constituent countries within the MSCI EM index (*China, Taiwan, South Korea, India, Brazil*) and account for more than 80% of the index.

E. Our August 2024 forecasts

As of August 31st 2024, we have applied the methodology described in the previous section to generate our estimates. The following two charts provide the expected return levels over 5 and 10 years for the different equity regions, as well as the respective contribution of the three components.

Figure 5:
5-year Expected Returns for Equities

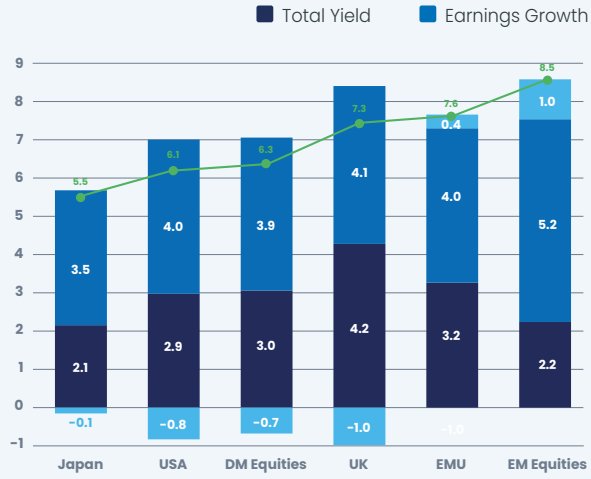
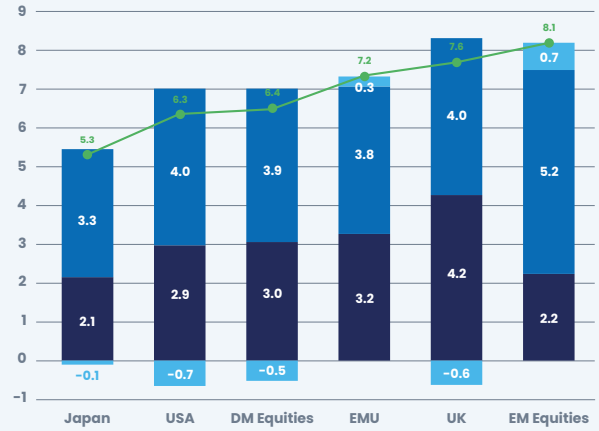


Figure 6:
10-year Expected Returns for Equities



Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

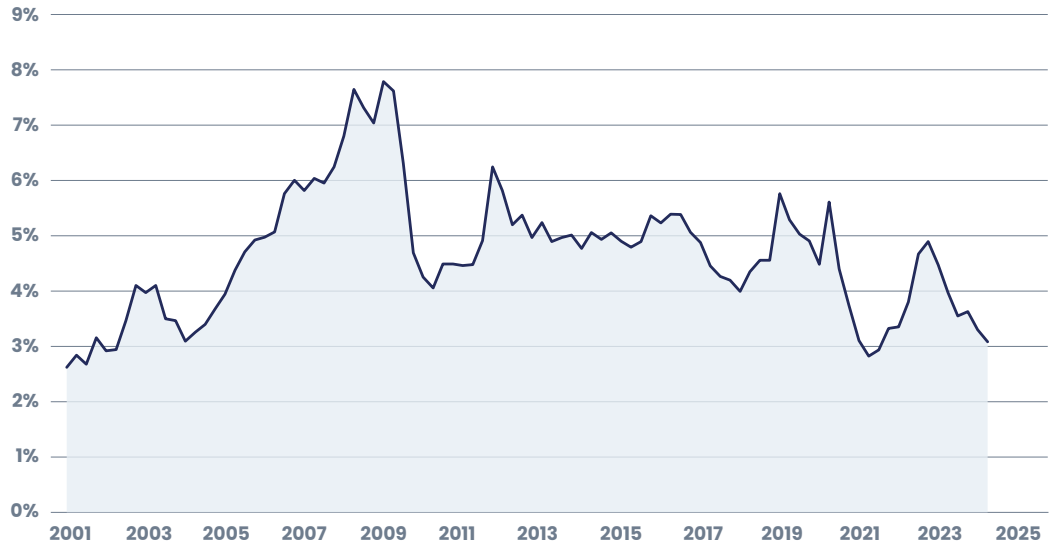
Source: Candriam, estimates as of 31/08/2024.

Our expected return estimates are historically low for the USA, while they are high for the UK, and relatively normal for the Euro area and Japan.

How should these results be interpreted?

First, the ***Total Yield*** is historically very low for the USA and the Euro area while it is historically very high for the UK region and normal for Japan.

Figure 7:
S&P 500 Dividend + Buyback Yield



Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, June 2024.

In the chart, we observe that since 2009, the dividend yield has been steadily declining year after year. At the same time, the composition of the S&P 500 index has significantly changed, with the IT sector now accounting for nearly 30% of the total market cap of the index, compared to just 14% ten years ago, as shown in the Figure 8.

Figure 8:
Sector Breakdown of S&P 500 by market capitalisation

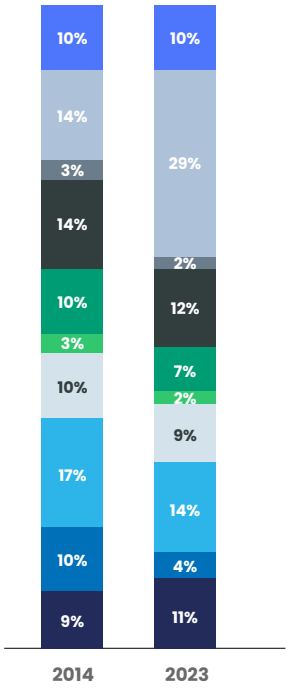
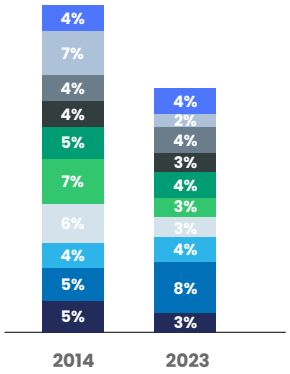
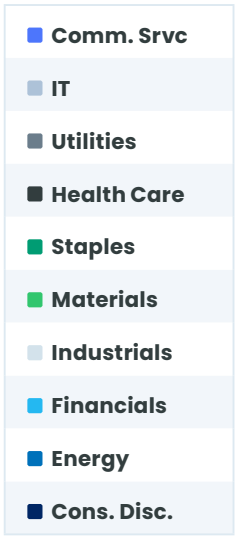


Figure 9:
Dividend + Buyback Payout ratio S&P 500





Source: Candriam, December 2023.

But the real explanation likely lies in the fact that most sectors' dividend payout ratios have significantly declined over the past 10 years. Only the energy sector shows an increasing ratio (*post Covid rally period*), while this ratio has halved for materials and even decreased threefold for the IT sector.

Second, ***earnings growth*** is at historical highs for the Euro area, UK and Japan while it is at a normal level for the USA. In the case of the Euro area, this high level is explained by higher expected inflation (*as seen in the 2000s before the GFC*) and accelerating real earnings growth.

Lastly, the ***valuation change*** is historically low for the USA while normal for both the Euro area and the UK. In the case of the USA, as previously mentioned, the composition of the S&P 500 index has significantly evolved over the past 10 years, with the tech sector (IT + Communication services) now accounting for nearly 40% of the total market cap. In our opinion, this is why the S&P 500 index exhibits a historically high P/E ratio, significantly deviating from its long-term mean. Under these conditions, we use a scaling factor to mitigate the impact of a strong mean reversion, thereby reducing partially the effect of the valuation change.

III. Bond expected returns.

For bond expected returns, just like for equities, we use a building block approach, seeking to identify the main drivers of the fixed income risk premium. We rely on three components: 1) ***yield***, 2) ***growth***, and 3) ***valuation***.

Yield

represents the initial nominal yield which is the yield that an investor locks in throughout the life of a bond, assuming that the bond is held to maturity.

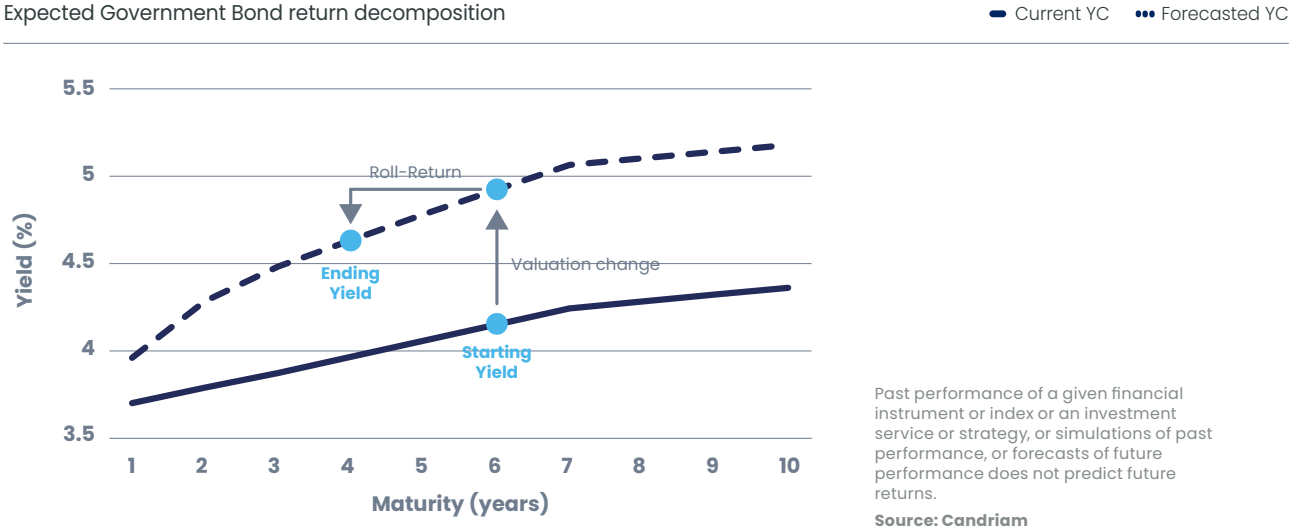
Growth

represents the roll return which reflects the impact of time on bonds. Given upward-sloping yield curves (which is true most of the time), bond price is expected to be higher as its maturity decreases.

Valuation

combines the impact on bond price from movement of the yield curve with expected credit losses due to downgrades and defaults..

Figure 10:
Expected Government Bond return decomposition



Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

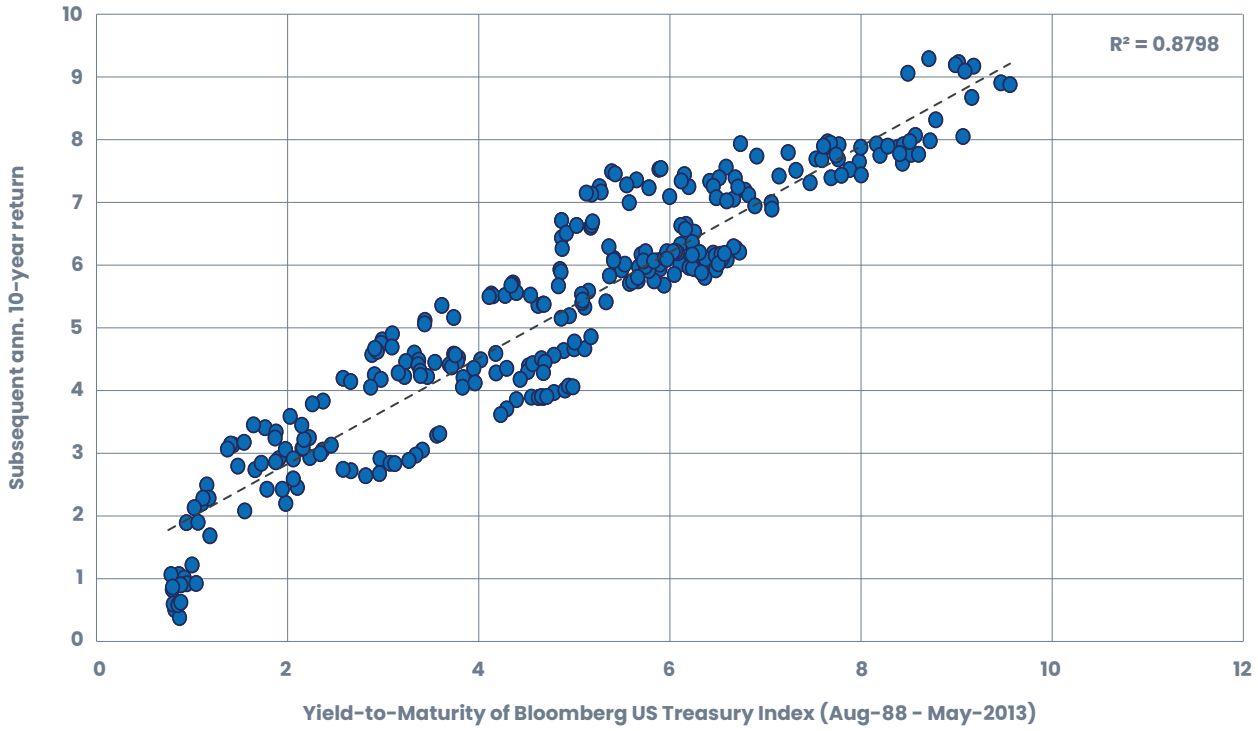
Source: Candriam

Expected Bond Return =
Yield + Roll Return + Valuation Change - Credit Loss

A. Government bonds

For debt instruments such as government bonds that are generally considered to have minimal credit risk (conventionally referred to as risk-free bonds), we consider the **yield-to-maturity** (YTM) as the initial yield. Indeed Bogle and Nolan (2015) find that the YTM of a 10-year US Treasury bond explains substantially the bond return over the subsequent decade (*correlation ~95%*)..

Figure 11:
Forecasting the 10-year return of the US Treasury Bond Index



The YTM of a 10-year US Treasury bond explains substantially the bond return over the subsequent decade (*correlation ~95%*)

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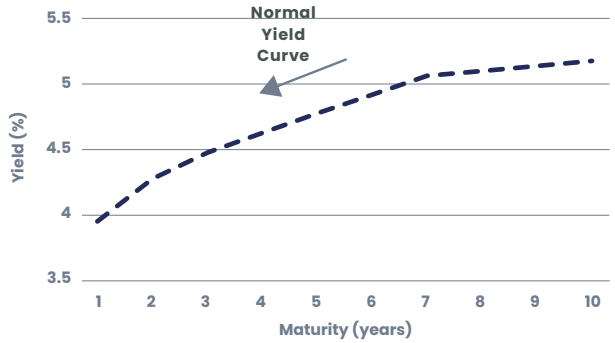
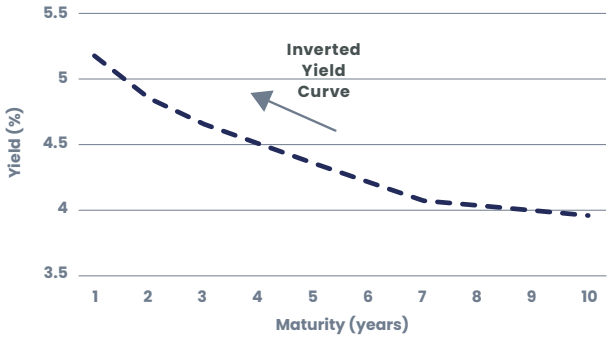
Source: Candriam, August 2024.

To maintain a constant duration, we then adjust our expected return to take into account the **roll-down return** which represents the price appreciation of the bonds as they roll down the yield curve (in case of upward sloping curve) since their years to maturity decrease over time. In this case, the return comes from the positive difference of price between a lower duration bond and a higher duration bond, all else equal.

Figure 12:
Positive and negative roll-down returns





Positive roll-down return: Given upward-sloping yield curves, ***bond price is expected to be higher*** as its maturity decreases

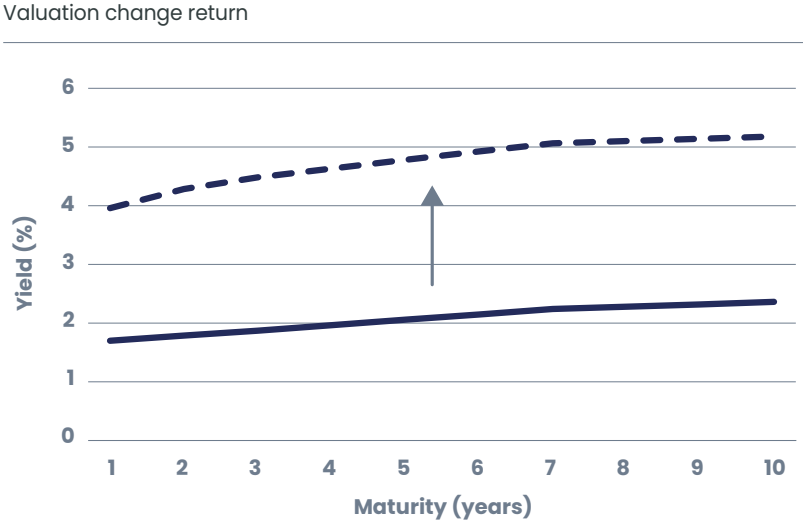
Negative roll-down return: Given downward-sloping yield curves, ***bond price is expected to be lower*** as its maturity decreases

Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, August 2024.

Last, we add the **valuation change return** which is due to changes in the level of the underlying yield curve. It is calculated by multiplying the current duration by the yield change where the yield change is the difference in yields at current duration between the current and estimated future yield curves.

Figure 13:
Valuation change return



Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam

Expected Government Bond Return =
Yield-to-Maturity + Roll Return + Valuation Change

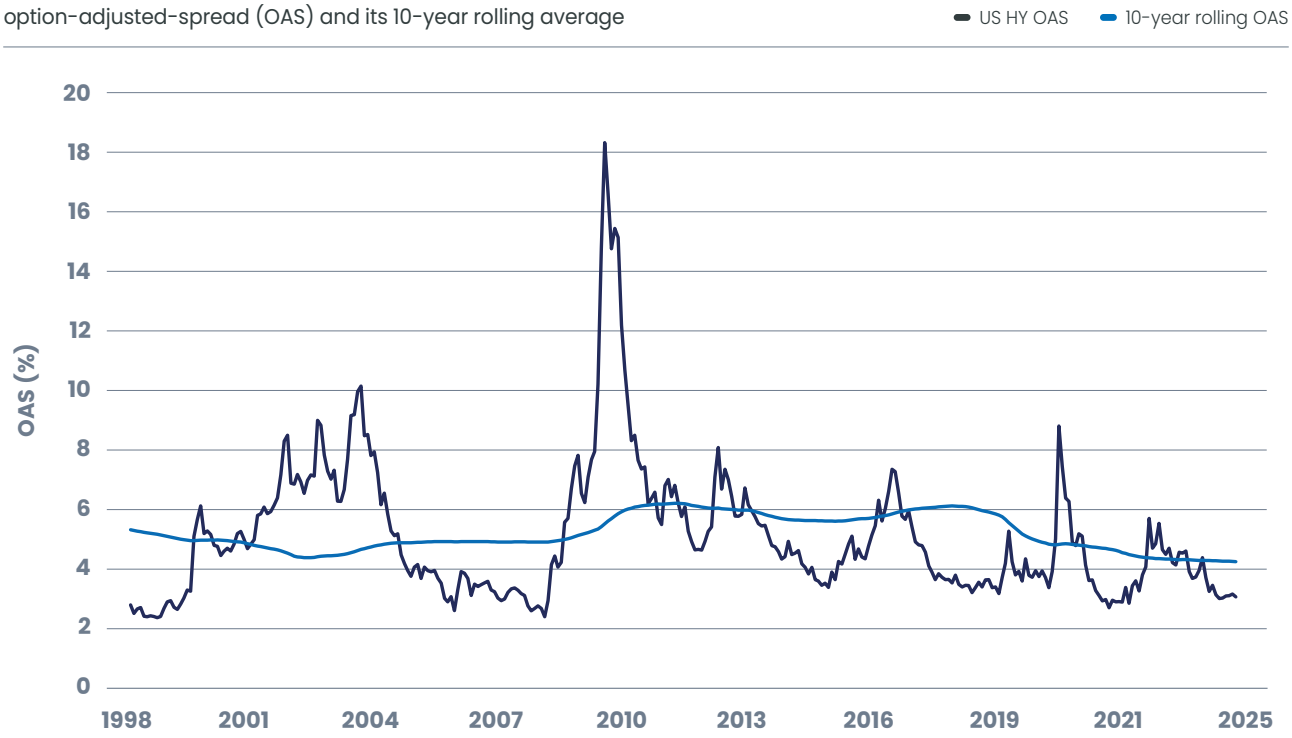
B. Corporate bonds

To estimate the expected return for corporate bonds, we follow the same building block methodology as for government bonds, with some adjustments.

First, instead of using yield-to-maturity as initial yield, we prefer to use the ***yield-to-worst*** (YTW) which represents the lowest possible yield that can be received on a bond with an early retirement provision because of embedded options. For example, if a bond is trading at a premium to par and gets unexpectedly called, the bondholders suffer a capital loss equal to the premium amount.

Second, we change the way we calculate the valuation change return, to account for both changes in interest rates and credit spreads. Credit spread change is estimated as the difference between the current option-adjusted-spread (OAS) and its 10-year rolling average. This means that we think that credit spreads mean-revert to their long-term mean as observed historically. We cap this variation at 10% to mitigate the impact of extreme credit events.

Figure 14:
Credit spread change: difference between the current option-adjusted-spread (OAS) and its 10-year rolling average



Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, August 2024.

Lastly, following the framework outlined by Ilmanen (2011), we adjust corporate bond expected returns to account for a credit specific component which captures the expected impact on returns from a bond migration (i.e. credit rating downgrade) and from a default loss. **Credit Loss** is then the sum of both bond migration and default loss effects.

- The expected ***default loss*** is the product of default rate multiplied by one minus the recovery rate, where we estimate default rate as its 10-year median of annual default rates and we take 40% for the recovery rate which is the long-term average recovery rate for senior unsecured corporate bonds.
- ***Bond migration*** is the capital loss occurring from a credit rating downgrade. We find empirically that this loss increases as the OAS widens due to anticipated rating downgrades, and can be estimated by multiplying the current OAS by the size of loss (haircut) which we assume is 40% based on historical observations.

Expected Corporate Bond Return =
Yield-to-Worst + Roll Return + Valuation Change - Credit Loss

C. EM sovereign bonds

In this report we focus on hard currency sovereign debt issued by emerging market countries. Since this debt should carry no currency risk, our methodology for forecasting hard currency EM sovereign debt expected returns is similar to that for corporate bonds, with a smaller adjustment for expected capital loss in case of bond migration (haircut = 30% for EM debt instead of 40% for corporate bonds).

Unlike the market cap-weighted expected return of EM countries, we infer directly the expected EM sovereign bond return by using the J.P. Morgan EMBI Global index which consists of sovereign debt denominated in US dollar.

Expected EM Sovereign Bond Return =
Yield-to-Worst + Roll Return + Valuation Change - Credit Loss

D. Our August 2024 forecasts

Here are our forecasts as of August 31st 2024. We have applied the methodology described above. The following two charts provide the expected return levels over 5 and 10 years for the different bond indices, as well as the respective contribution of the four components.

Figure 15:
5-year expected returns for global fixed income

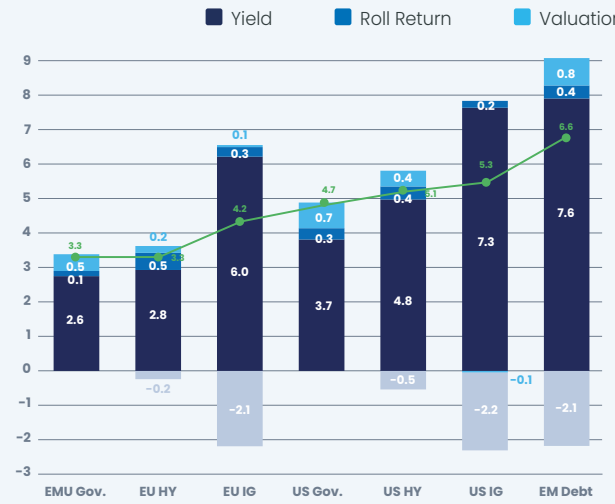
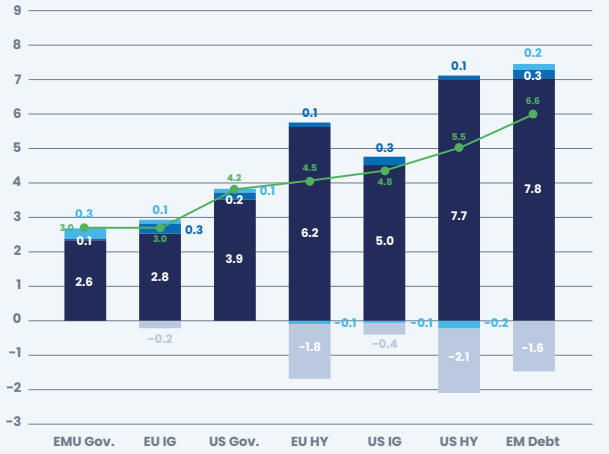


Figure 16:
10-year expected returns for global fixed income



Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, estimates as of 31/08/2024.

How should these results be interpreted?

In the case of the US government and corporate IG bonds, the yields used in our approach are above their historical mean over the past 25 years (see figures 17 and 18 hereafter), and largely explain why our current forecasted returns are higher than those estimated over the past 15 years.

Figure 17:
Yield to maturity, US government bonds

Figure 18:
Yield to worst, US corporate IG bonds

Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, August 2024.

Concerning the **Credit Loss** of the corporate HY bonds, and contrary to what one might think, the current levels are not that high when considering past observations. This is explained by the fact that credit spreads are currently historically very low, as shown in the following charts.

Figure 19:
Option-adjusted spread, US corporate high yield bonds

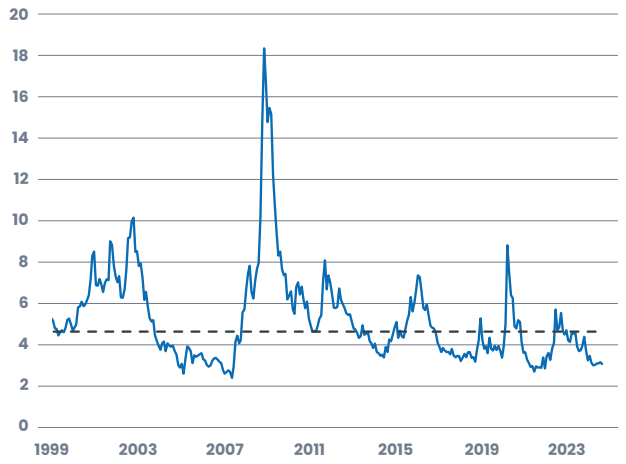
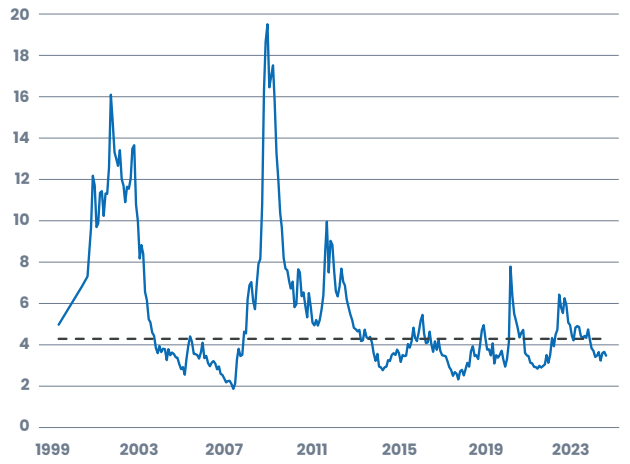


Figure 20:
Option-adjusted spread, EU corporate high yield bonds



Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, August 2024.

IV. Implementation: strategic asset allocations.

In this section we provide the expected return and volatility of three strategic asset allocations that conventionally represent three types of investor profiles:

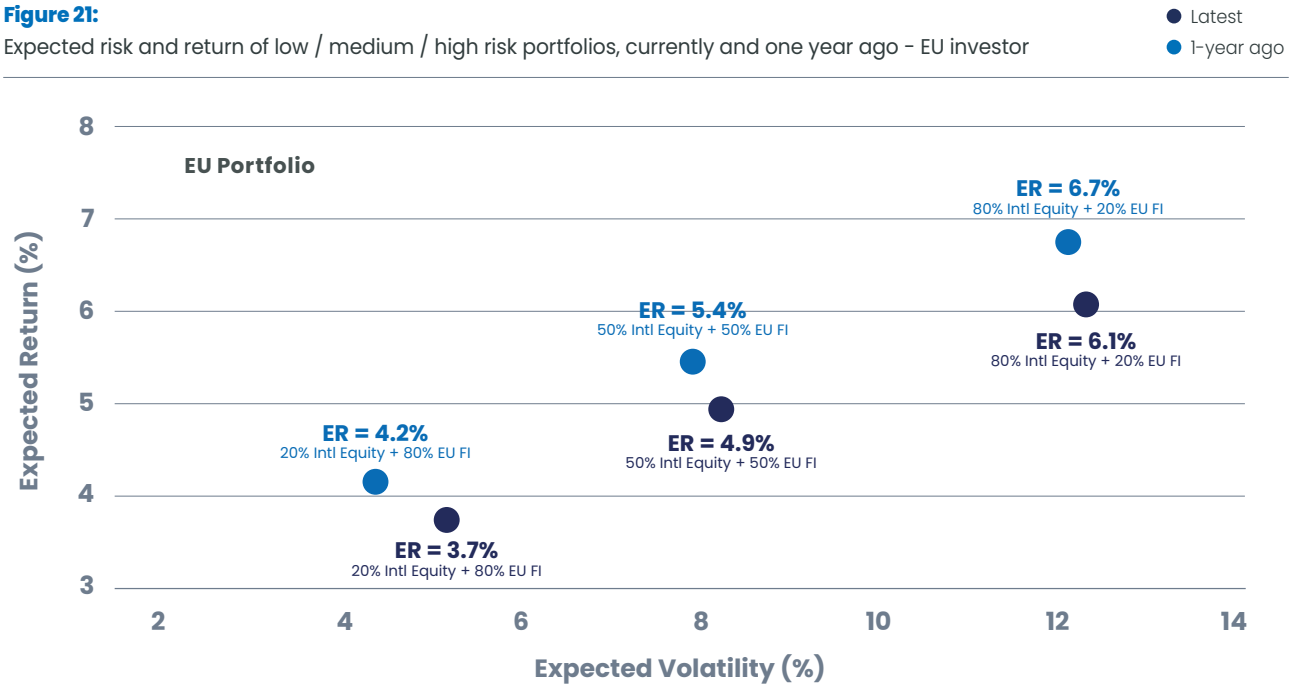
Low risk = 20% Equity + 80% Fixed Income

Medium risk = 50% Equity + 50% Fixed Income

High risk = 80% Equity + 20% Fixed Income

Figure 21 shows the expected risk and return characteristics of the three portfolios for an **unhedged Euro investor** under our current 10-year forecasts, compared to a year ago.

Figure 21:
Expected risk and return of low / medium / high risk portfolios, currently and one year ago - EU investor



Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, estimates as of 31/08/2024.

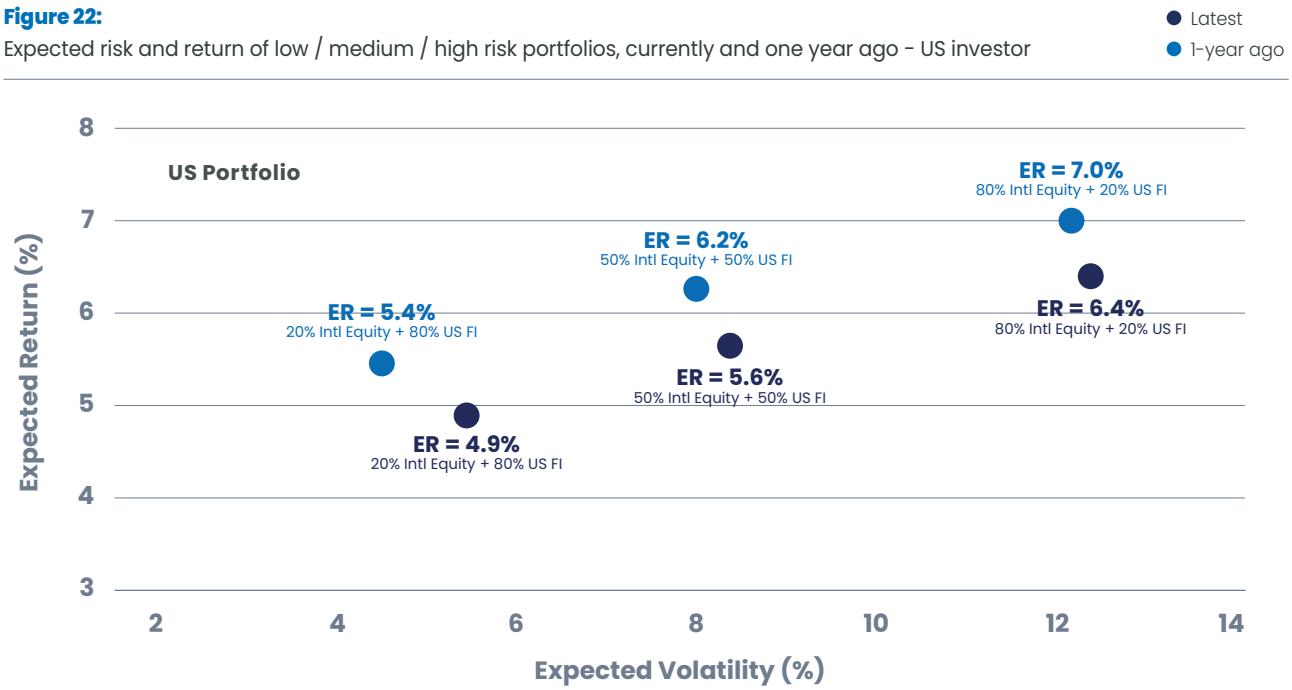
Assumptions :

- Unhedged EUR investor
- 100% allocation to international equities in local currencies = 50% US + 15% EMU + 15% UK + 5% JP + 15% EM
- 100% allocation to EU fixed income = 65% EMU Treasuries + 35% EU Investment Grade

Compared to a year ago, all portfolios exhibit a lower return, in particular the high risk portfolio with an expected return 0.6% lower (6.1% now vs 6.7% a year ago). This is largely explained by the current lower expected returns for all equity regions, while the drop in rates observed this summer following the action of the European Central Bank has led to lower bond expected returns.

Figure 22 shows the expected risk and return characteristics of the three portfolios for an **unhedged US investor** under our current 10-year forecasts compared to a year ago.

Figure 22:
Expected risk and return of low / medium / high risk portfolios, currently and one year ago - US investor



Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Candriam, estimates as of 31/08/2024.

Assumptions :

- Unhedged USD investor
- 100% allocation to international equities in local currencies = 50% US + 15% EMU + 15% UK + 5% JP + 15% EM
- 100% allocation to US fixed income = 65% US Treasuries + 35% US Investment Grade

Compared to a year ago, all portfolios exhibit a lower return with a higher volatility, as investor concerns rise around the pace of the US economy and the Fed's ability to abate a more pronounced slowdown. In particular, the sharp drop in the low risk portfolio's expected return, combined with a significant increase in its volatility, can be explained by expectations of several key rate cuts by the Fed in the coming months. These expectations triggered a downward movement in U.S. long-term rates last spring, while also exacerbating the volatility of government and corporate bond yields.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V. Estimating volatilities and correlation matrix.

One commonly used methodology is to estimate risk and correlation from historical data. Both volatilities and correlations are calculated using the 10 years of weekly index returns.

Figure 23:
Expected volatilities by asset class and correlation matrix

		Reference Index	Currency	Annualized Volatility (%)	DM Equities	USA	EMU	UK	Japan
Equities	**Developed Markets Equities**	NDDLWI Index	LOC	**15.5**	1.00				
	USA	NDDLUS Index	USD	**17.1**	0.98	1.00			
	EMU	NDDLEMU Index	EUR	**18.5**	0.83	0.72	1.00		
	UK	NDDLUK Index	GBP	**15.5**	0.77	0.66	0.84	1.00	
	Japan	NDDLJN Index	JPY	**18.6**	0.70	0.59	0.69	0.61	1.00
	Emerging Markets Equities	NDLEEGF Index	LOC	**17.5**	0.72	0.66	0.67	0.64	0.59
Fixed Income	US Treasuries	LUATTRUU Index	USD	**4.6**	-0.09	-0.06	-0.14	-0.14	-0.18
	EMU Treasuries	LEATTREU Index	EUR	**5.2**	0.14	0.14	0.12	0.07	0.02
	US Investment Grade	LUACTRUU Index	USD	**6.9**	0.38	0.40	0.25	0.23	0.16
	EU Investment Grade	LEACTREU Index	EUR	**4.3**	0.10	0.13	0.02	-0.02	-0.06
	US High Yield	LF98TRUU Index	USD	**7.5**	0.77	0.76	0.61	0.57	0.48
	EU High Yield	LP02TREU Index	EUR	**6.3**	0.72	0.68	0.66	0.57	0.54
	EM Debt (HC)	JPGCCOMP Index	USD	**8.2**	0.63	0.60	0.57	0.53	0.38

Past performance of a given financial instrument or index or an investment service or strategy, or simulations of past performance, or forecasts of future performance does not predict future returns.

Source: Bloomberg, Candriam, estimates as of 31/08/2024.

ting vol- nd cor- natrix.

EM Equities	US Treasuries	EMU Treasuries	US Investment Grade	EU Investment Grade	US High Yield	EU High Yield	EM Debt (HC)
1.00							
-0.01	1.00						
0.10	0.70	1.00					
0.36	0.72	0.60	1.00				
0.06	0.72	0.92	0.61	1.00			
0.63	0.12	0.26	0.66	0.26	1.00		
0.61	0.05	0.27	0.63	0.25	0.86	1.00	
0.62	0.37	0.41	0.75	0.39	0.79	0.76	1.00

VI. Full Table of Expected Returns.

	Reference Index	Reference Index Code	Currency	5Y Expected Return	10Y Expected Return	Expected Volatility (*)
Developed Markets Equities	**MSCI Daily TR Net World Local**	**NDDLWI**	**LOC**	**6.3**	**6.4**	**15.5**
USA	MSCI Daily TR Net USA Local	NDDLUS	USD	6.1	6.3	17.1
EMU	MSCI Daily TR Net EMU Local	NDDLEMU	EUR	7.6	7.2	18.5
UK	MSCI Daily TR Net UK Local	NDDLUK	GBP	7.3	7.6	15.5
Japan	MSCI Daily TR Net Japan Local	NDDLJN	JPY	5.5	5.3	18.6
Emerging Markets Equities	MSCI Daily TR Net Emerging Markets Local	NDLEEGF	LOC	8.5	8.1	17.5
Government Bonds						
US Treasuries	Bloomberg US Treasury Total Return Unhedged USD	LUATTRUU	USD	4.7	4.2	4.6
EMU Treasuries	Bloomberg EuroAgg Treasury Total Return Index Value Unhedged EUR	LEATTREU	EUR	3.3	3.0	5.2
Credit Bonds						
US Investment Grade	Bloomberg US Corporate Total Return Value Unhedged USD	LUACTRUU	USD	5.1	4.8	6.9
EU Investment Grade	Bloomberg Euro Aggregate Total Return Index Unhedged EUR	LEACTREU	EUR	3.3	3.0	4.3
US High Yield	Bloomberg US Corporate High Yield Total Return Index Value Unhedged USD	LF98TRUU	USD	5.3	5.5	7.5
EU High Yield	Bloomberg Pan-European High Yield (Euro) TR Index Value Unhedged EUR	LP02TREU	EUR	4.2	4.5	6.3
EM Debt (HC)	J.P. Morgan EMBI Global Diversified Composite Index	JPGC-COMP	USD	6.6	6.6	8.2

(*) Expected volatility = 10-year historical volatility

Source: Candriam, estimates as of 31/08/2024.

Notes & References.

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*As of 31/12/2022, Candriam changed the Assets Under Management (AUM) calculation methodology, and AUM now includes certain assets, such as non-discretionary AUM, external fund selection, overlay services, including ESG screening services, [advisory consulting] services, white labeling services, and model portfolio delivery services that do not qualify as Regulatory Assets Under Management, as defined in the SEC's Form ADV. AUM is reported in USD. AUM not denominated in USD is converted at the spot rate as of 30/06/2024.

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