
2024 Long-Term Capital Market Assumptions

Invesco Solutions | Japanese yen (JPY)

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Executive Summary

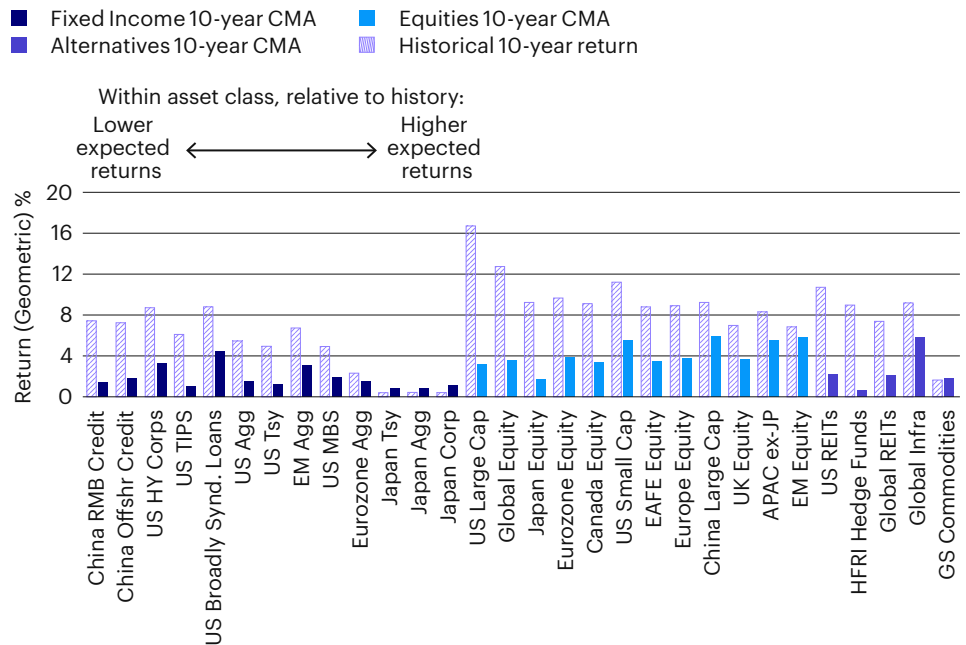


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Invesco Solutions provides forecasts for 170+ assets in over 20 currencies, including 10 private assets. For additional CMA data, views, or analysis, please reach out to your Invesco representative.

- As 2023 comes to a close, we can use this time to reflect on what has been generally a positive year for capital markets and prepare for rebalances and possible changes to asset allocations. While welcome, the forecasted recession of 2023 never actually materialized despite the loud warnings from a variety of economists about the long and variable lags of policy tightening.
- In recent client conversations we have repeatedly heard conflicting views from investment teams where half believes a soft landing is possible while the other side expects an abrupt end to the business cycle. We sympathize that it is incredibly difficult to predict which of these two opposing scenarios will play out. To avoid having our strategic views skewed because of the latest narrative, our team at Invesco Solutions utilizes a robust process for constructing forward looking estimates of a full business cycle and market performance.
- In the spirit of adding to the discussion of how markets are anticipated to perform next year and beyond, we propose a list of ten observations from our capital market assumptions that help shape our long-term views and asset allocations.

Figure 1: Expectations relative to historical average (JPY)



Source: Invesco, estimates as of September 30, 2023. Proxies listed in **Figure 8**. These estimates are forward-looking, are not guarantees, and they involve risks, uncertainties, and assumptions. Please see page 11 for information about our CMA methodology. These estimates reflect the views of Invesco Solutions; the views of other investment teams at Invesco may differ from those presented here.

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Asset Allocation Insights



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For further details on our process for defining scenarios and adjustments, please refer to our CMA Methodology paper.

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Strategic perspective

As 2023 comes to a close, we can use this time to reflect on what has been generally a positive year for capital markets and prepare for rebalances and possible changes to asset allocations. While welcome, the forecasted recession of 2023 never actually materialized despite the loud warnings from a variety of economists about the long and variable lags of policy tightening. The third quarter inspired flashbacks of 2022 when both equities and fixed income sold off as interest rates rose. However, October and November have provided a sigh of relief as a collection of encouraging economic surprises has investors questioning if this accelerated tightening cycle could actually lead to a soft landing. Recent data has shown that inflation is being tamed globally, the US consumer remains strong, there are signs of slack in what has been a tight labor market, and central banks have begun signaling that they are close to done hiking, all together reducing the probability of a deep recession in the near future.

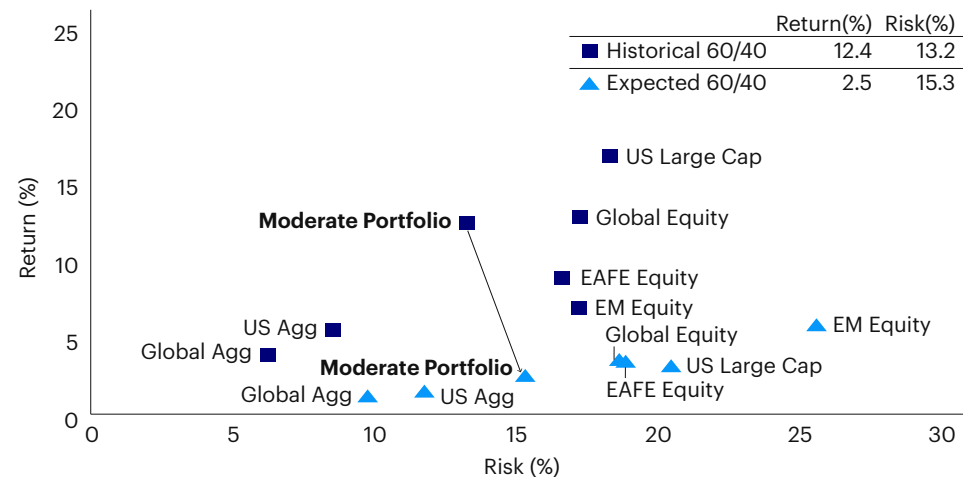
Indeed, in recent client conversations we have repeatedly heard conflicting views from investment teams where half believes a soft landing is possible while the other side expects an abrupt end to the business cycle. We sympathize that it is incredibly difficult to predict which of these two opposing scenarios will play out. To avoid having our strategic views skewed because of the latest narrative, our team at Invesco Solutions utilizes a robust process for constructing forward looking estimates of a full business cycle and market performance. Our long term capital market assumptions (CMAs) do not attempt to estimate if a recession is on the horizon or if we are at the beginning of a new cycle. It is through this unbiased approach that we keep our strategic asset allocations steady and pointed towards what we believe are reasonable targets and behaviors for the 170+ asset classes we cover.

In the spirit of adding to the discussion of how markets are anticipated to perform next year and beyond, we propose a list of ten observations from our capital market assumptions that help shape our long-term views and asset allocations:

1. Sell-offs tend to turn into buying opportunities over the long term. In the moment, this philosophy is easier said than done, and behavioral finance shows that we are wired to be risk adverse and risk seeking at the worst moments. We remove speculation by adding a valuation component to our building block approach to capital market assumptions which provides a tailwind to our views should markets become cheap, like they did in 2022.
2. Inflation expectations have been anchored near 2% over the long term. However, despite the resurgence and recent collapse of inflation, markets have believed policymakers that they will do what it takes to keep inflation near their target, an important piece of market stability over the long-term.
3. Credit spreads are tight. This is both a good sign and one that is a warning for those that believe that we are at the beginning of a new cycle. High credit spreads are often indicate capitulation within markets amid economic damage and recessionary conditions. At present levels, there is little incentive of significant spread tightening, however spreads can often be harvested at these levels for quite some time.
4. There is record concentration in US equities, a standout relative to the rest of the world equity markets. However, outside of the Magnificent Seven companies powered by the hype of artificial intelligence, the rest of the US market is priced near long term averages. Our forecast for the US over the next decade will likely be lower than the past decade, but this does not mean that US equities are not investable, in fact, we anticipate a reasonable 7% nominal equity risk premium for the US based on shareholder yields, valuations, and expected earnings growth.
5. Fixed income is significantly more attractive than it was over the past decade. The best predictor of future fixed income returns are yield levels and yields are significantly higher than they have been in quite some time.

6. Risky credit, namely broadly syndicated loans and high yield, is incredibly attractive on a relative and absolute basis, with returns at or above equity levels and volatility near other fixed income instruments. There are certainly risks when it comes to higher yielding fixed income in the event of an economic downturn, however our assumptions for credit losses provide a buffer for this possibility.
7. Small capitalization (cap) equities have a higher expected return than large caps as they are projected to have faster earnings growth rates and more attractive valuations.
8. Emerging markets (EM) may have a strong decade ahead of them. There are significant challenges facing many emerging markets including aging demographics, nearshoring, and the threat of geopolitical risks. We believe these types of risks are always there when it comes to this asset class and are not reasons to prohibit investment given the potential opportunities. It is not uncommon for regional equity asset classes to be out of favor, for example, over the decade spanning 2000 to 2010, the US returned 0%, a stark contrast to recent history.
9. The US dollar is overvalued in our interest rate parity framework as the tightening cycle has provided potential space for other economies to close the relative gaps with their benchmark rates and thus reverse some of the recent dollar strength.
10. Risk is expected to be higher for most asset classes. While we have seen the return of volatility in 2020 and 2022 our framework anticipates higher levels of risk for both equities and fixed income. This is by no means a recession call, however it does require a shift in mindset regarding portfolio risk as we are no longer in a zero interest rate world.

Figure 2: Historical returns for the 60/40 have fallen amid recent sell-off while expected returns are improving (JPY)



Source: Invesco, estimates as of September 30, 2023. Proxies listed in **Figure 8**. These estimates are forward-looking, are not guarantees, and they involve risks, uncertainties, and assumptions. Please see page 11 for information about our CMA methodology. These estimates reflect the views of Invesco Solutions; the views of other investment teams at Invesco may differ from those presented here. The 60/40 Portfolio is a blend of 60% S&P 500 Index and 40% Bloomberg US Aggregate Index.

2024 CMA observations (10Y, USD):

Equities: Global equity CMAs have improved over the quarter (+1%) following the 3Q selloff with improved valuations, higher inflation expectations and better currency tailwinds for non-USD assets. Compared to a year ago, global equity returns are slightly lower (-0.6%) given the rally in the first half of the year. Chinese equities are the outlier on a YoY basis (+0.6%) with significantly better valuations than other markets. Our US large cap CMA (7%) is slightly lower than that of the EU (7.3%) and significantly less than EM (9.6%), the complete opposite ranking versus the past 10 years. US small caps (9.4%) are expected to outperform large caps due to faster earnings growth and more attractive valuation levels.

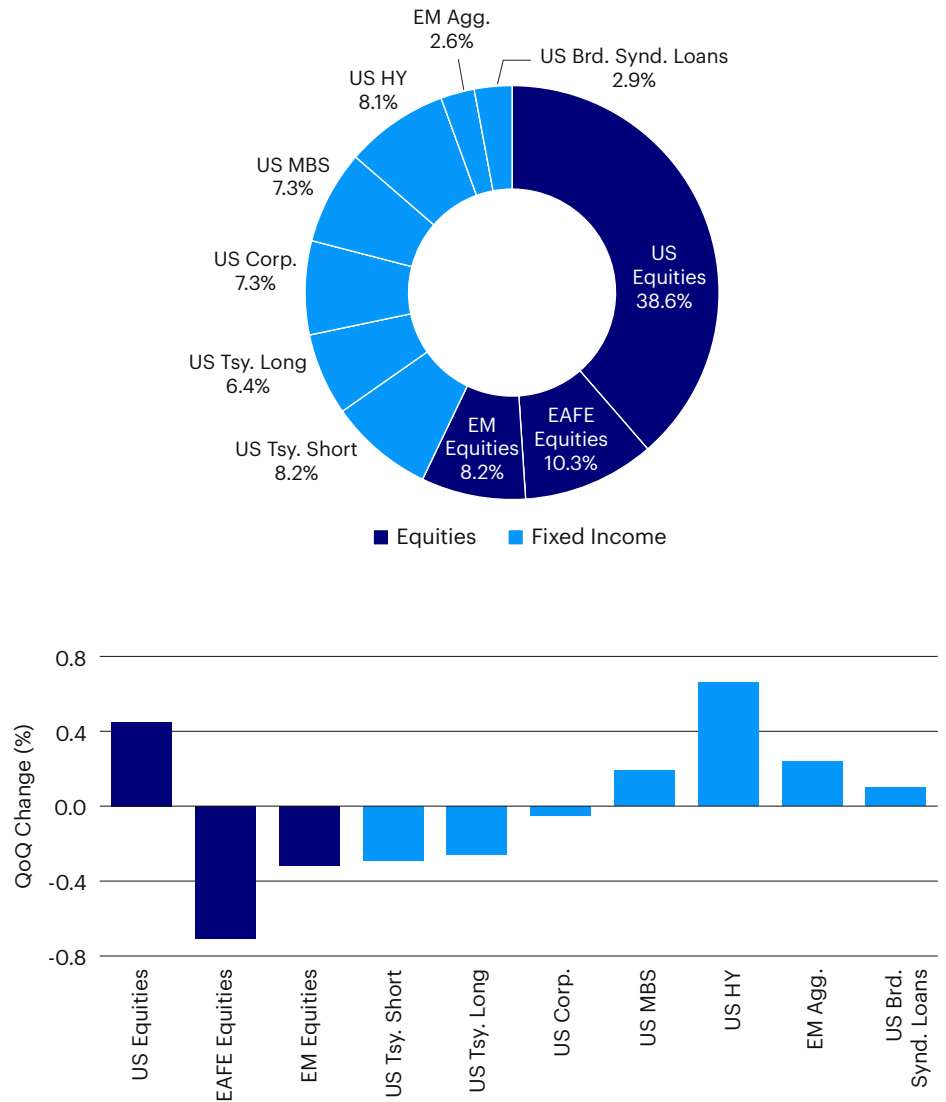
The strategic asset allocation (SAA) displayed here is denominated in USD and is representative of our CMA's applied in a hypothetical portfolio context for global investors.

There are many considerations for investors beyond CMA's when it comes to asset allocation decisions. To learn more about our investment process or discuss your own portfolio needs, please reach out to your Invesco Solutions representative.

Fixed Income: Higher yields (current and future) and steeper yield curves (positive roll return) have contributed the most to the 1% QoQ improvement in the US aggregate bond CMA (5.3%). We have seen a near 1% improvement YoY from similar dynamics. Higher yielding credit assets in general are very attractive on a relative, absolute, and portfolio basis with equity like returns and fixed income risk, with broadly syndicated loans (8.3%) and HY (7.2%) expected to return more than global equities.

Strategic asset allocation trends:

Figure 3: 2024 SAA rebalance (USD)



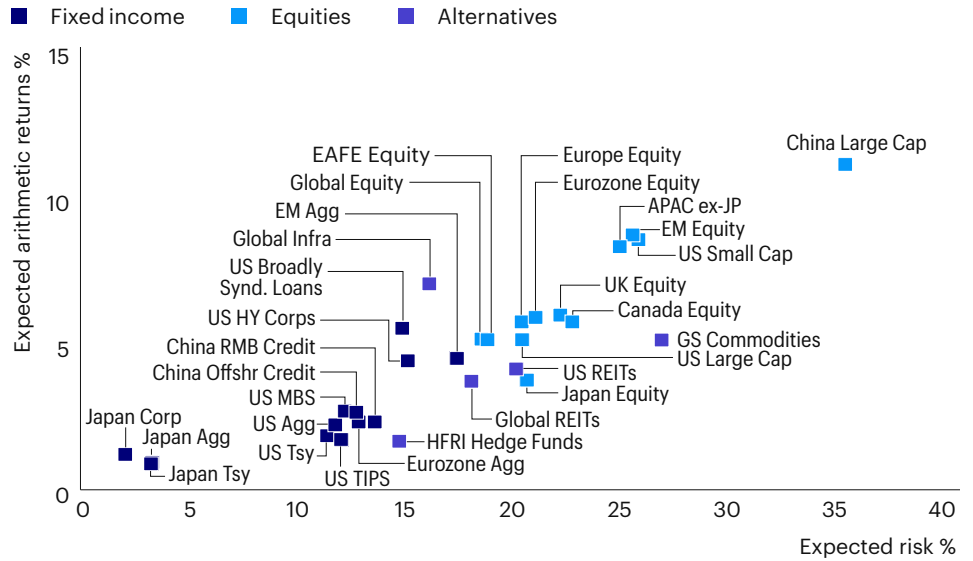
Source: Invesco Solutions, as of September 30, 2023. Proxies listed in **Figure 8**. These estimates reflect the views of Invesco Solutions; the views of other investment teams at Invesco may differ from those presented here. References to overweights and underweights are relative to a 60% global equity and 40% global aggregate fixed income benchmark.

- **Portfolio level:** Compared to a global 60/40 benchmark, our strategic portfolio (5-10Y) is slightly overweight fixed income relative to equities. Overall, our portfolio has not shifted significantly into or out of any asset classes this quarter.
- **Within equities:** We are overweight EM and US large cap equities while underweight DM ex-US equities due to a lower expected risk/return ratio.
- **Within fixed income:** Presently overweight both treasuries and risky credit. Neutral duration compared to our benchmark.

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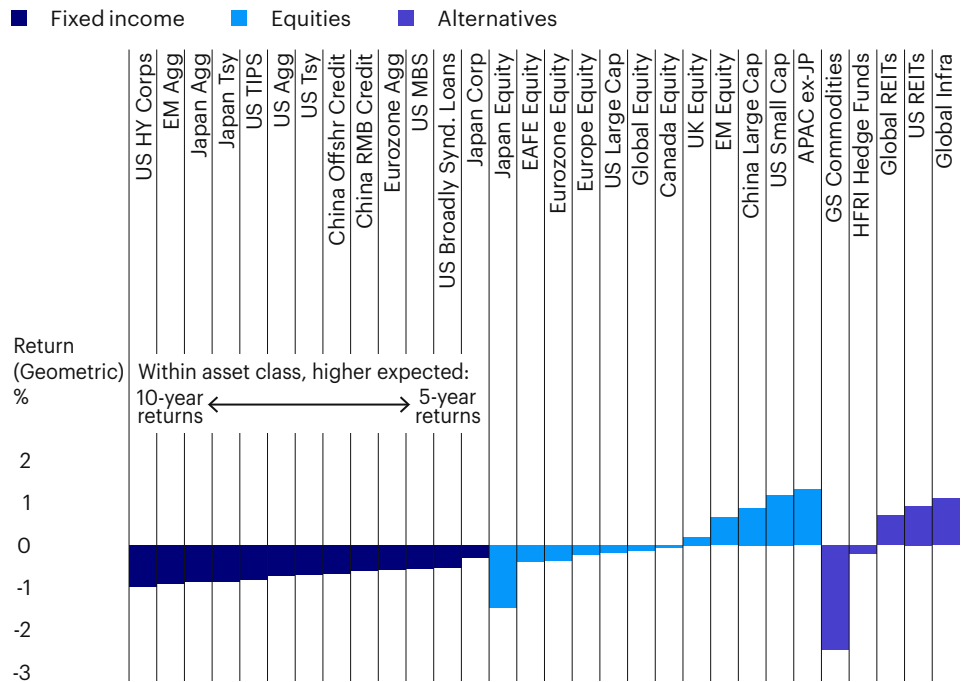
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Figure 4: 10-year asset class expectations (JPY)



Source: Invesco, estimates as of September 30, 2023. Proxies listed in **Figure 8**. These estimates are forward-looking, are not guarantees, and they involve risks, uncertainties, and assumptions. Please see page 11 for information about our CMA methodology. These estimates reflect the views of Invesco Solutions; the views of other investment teams at Invesco may differ from those presented here. **Past performance is not a guarantee of future results.**

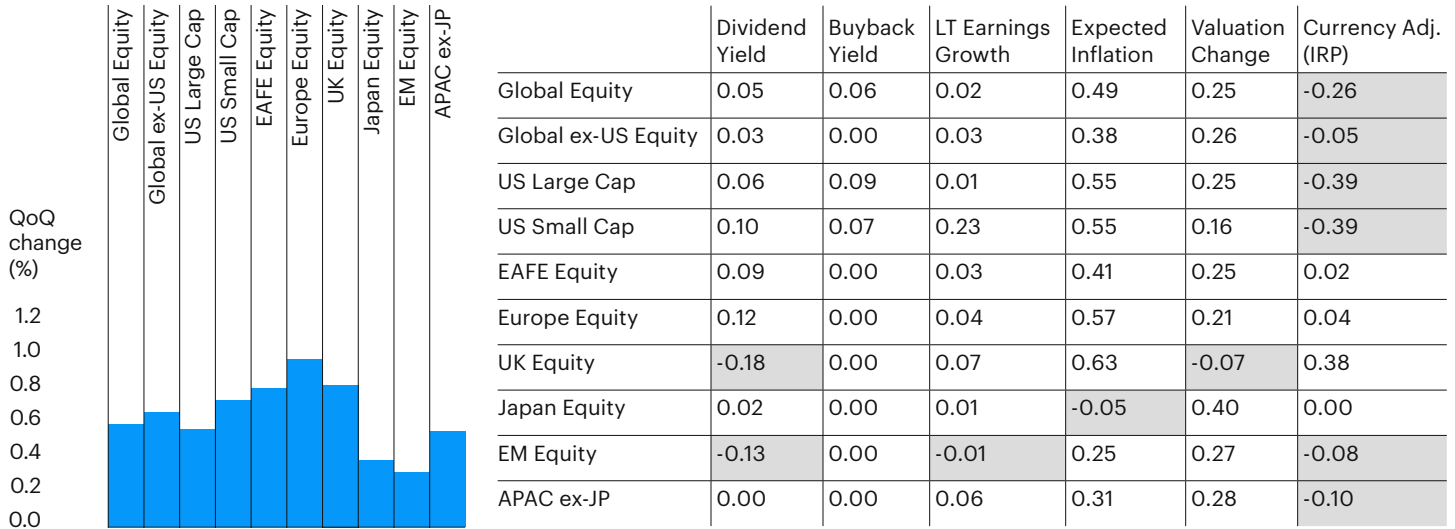
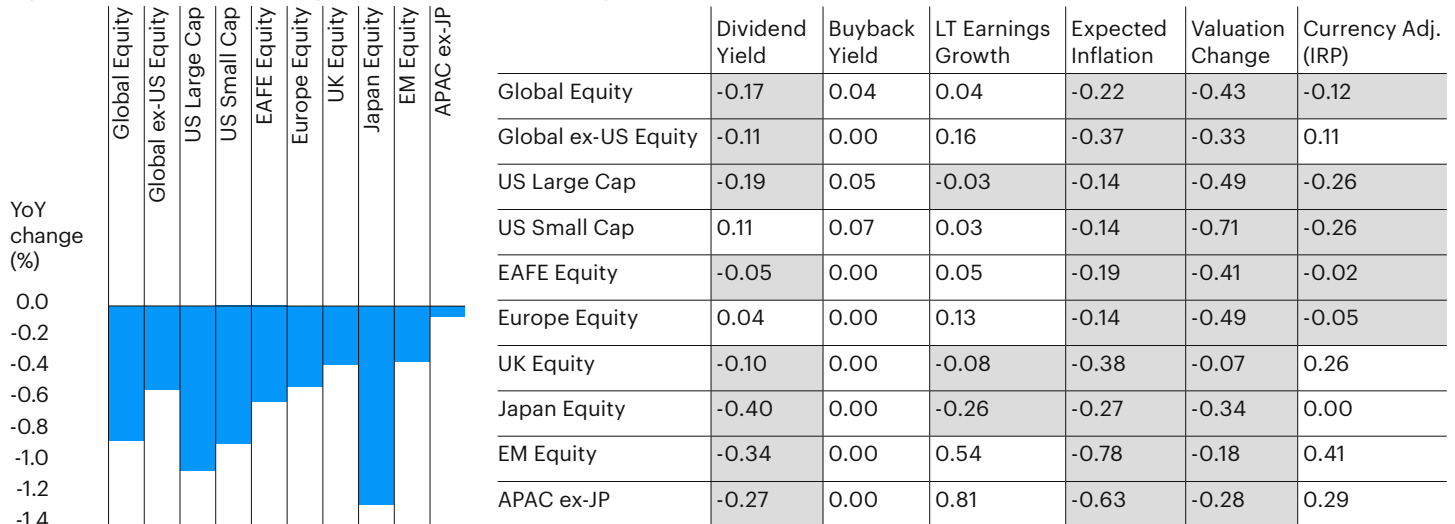
Figure 5: CMA difference: 5-year minus 10-year assumptions (JPY)



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Figure 6a: Equity CMA building block contribution (JPY) (%)

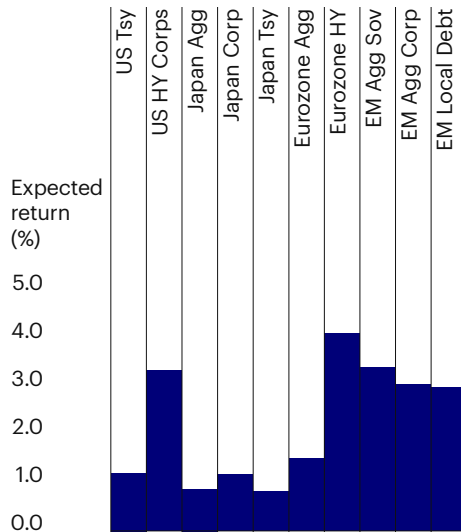
■ Expected Return

**Figure 6b: Equity CMA building block quarter-over-quarter change and contribution (JPY) (%)****Figure 6c: Equity CMA building block year-over-year change and contribution (JPY) (%)**

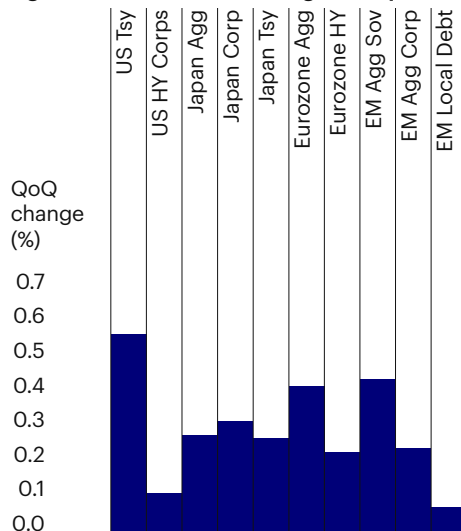
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Figure 7a: Fixed CMA building block contribution (JPY) (%)

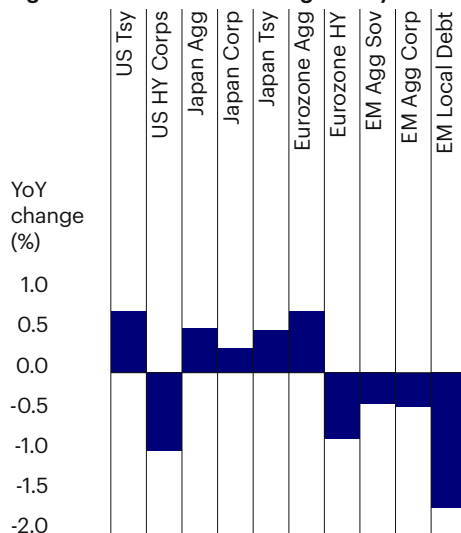
■ Expected Return



	Average Yield	Roll Return	Valuation Change (Yield Curve)	Valuation Change (OAS)	Credit Loss	Currency Adj. (IRP)
US Tsy	5.06	0.21	-0.26	0.00	0.00	-3.81
US HY Corps	9.58	-0.19	-0.12	-0.45	-1.69	-3.81
Japan Agg	1.35	0.83	-1.29	-0.01	0.00	0.00
Japan Corp	1.44	0.51	-0.61	0.06	-0.23	0.00
Japan Tsy	1.28	0.83	-1.29	0.00	0.00	0.00
Eurozone Agg	3.97	0.15	-0.19	-0.03	-0.34	-2.05
Eurozone HY	7.82	-0.23	-0.01	-0.17	-1.26	-2.05
EM Agg Sov	8.50	0.11	-0.36	0.12	-1.16	-3.81
EM Agg Corp	8.67	0.08	-0.20	-0.47	-1.23	-3.81
EM Local Debt	7.14	0.47	-0.38	0.00	0.00	-4.26

Figure 7b: Fixed CMA building block quarter-over-quarter change and contribution (JPY) (%)

	Average Yield	Roll Return	Valuation Change (Yield Curve)	Valuation Change (OAS)	Credit Loss	Currency Adj. (IRP)
US Tsy	0.65	0.52	-0.21	0.00	0.00	-0.39
US HY Corps	0.65	0.07	-0.24	0.02	0.00	-0.39
Japan Agg	0.35	0.07	-0.14	0.00	0.00	0.00
Japan Corp	0.31	0.12	-0.10	-0.02	0.02	0.00
Japan Tsy	0.34	0.07	-0.14	0.00	0.00	0.00
Eurozone Agg	0.39	0.21	-0.15	0.00	0.00	-0.04
Eurozone HY	0.27	0.15	-0.12	-0.03	0.00	-0.04
EM Agg Sov	0.75	0.20	-0.11	0.00	-0.01	-0.39
EM Agg Corp	0.59	0.33	-0.25	-0.17	0.13	-0.39
EM Local Debt	0.45	0.16	-0.02	0.00	0.00	-0.53

Figure 7c: Fixed CMA building block year-over-year change and contribution (JPY) (%)

	Average Yield	Roll Return	Valuation Change (Yield Curve)	Valuation Change (OAS)	Credit Loss	Currency Adj. (IRP)
US Tsy	0.80	0.32	-0.10	0.00	0.00	-0.26
US HY Corps	0.07	-0.09	-0.07	-0.62	0.01	-0.26
Japan Agg	0.29	0.25	0.00	0.00	0.00	0.00
Japan Corp	0.33	0.10	-0.12	-0.01	0.00	0.00
Japan Tsy	0.27	0.25	0.00	0.00	0.00	0.00
Eurozone Agg	0.96	0.13	-0.11	-0.16	0.10	-0.17
Eurozone HY	0.00	-0.20	0.09	-0.56	0.00	-0.17
EM Agg Sov	0.37	0.14	-0.09	-0.63	0.09	-0.26
EM Agg Corp	0.09	0.19	-0.15	-0.78	0.49	-0.26
EM Local Debt	-0.43	-0.07	-0.13	0.00	0.00	-1.05

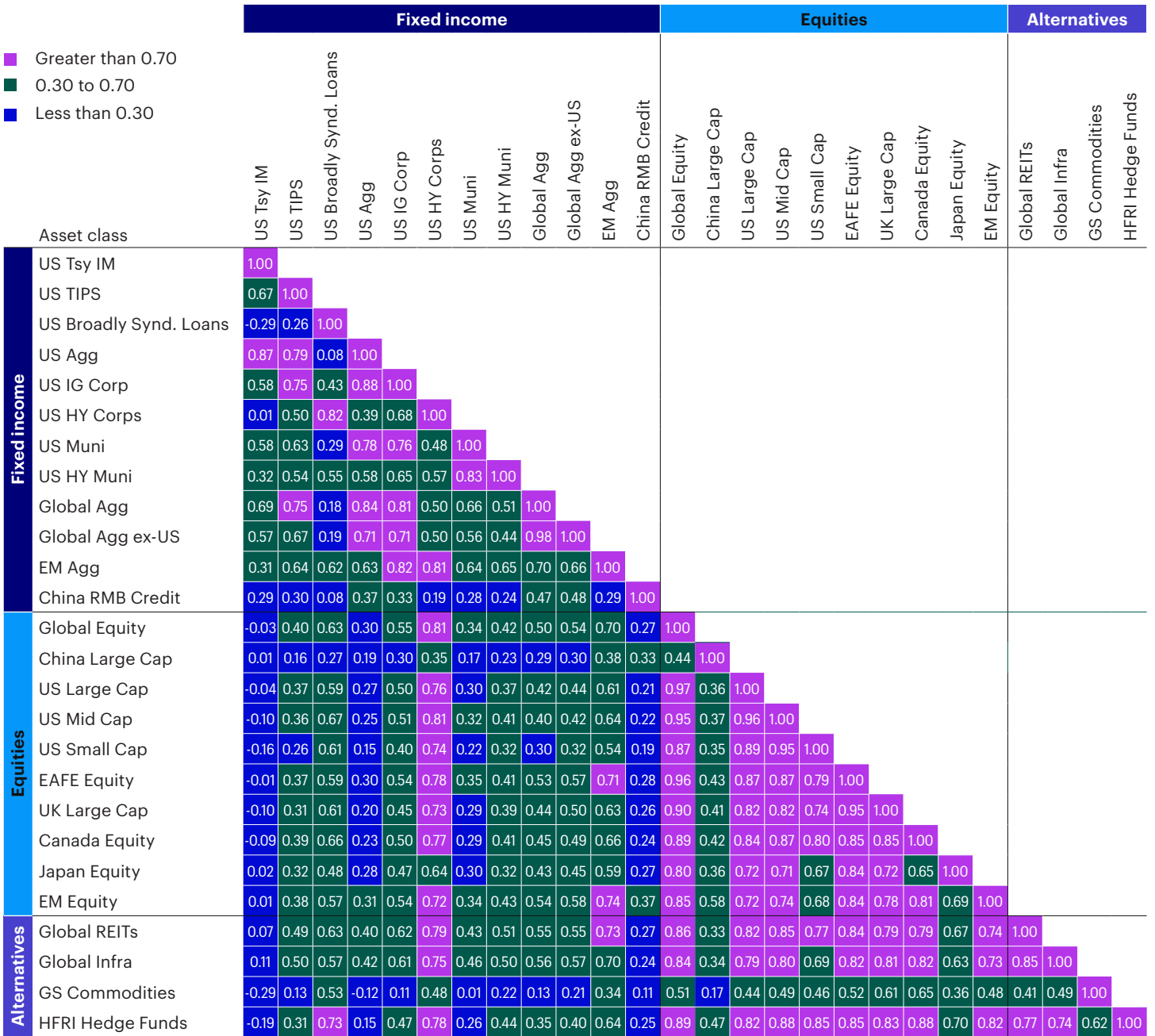
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Figure 8: 10-year asset class expected returns, risk, and return-to-risk (JPY)

	Asset class	Index	Expected geometric return %	Expected arithmetic return %	Total Yield %	Expected risk %	Arithmetic return to risk ratio	
Fixed Income	US Tsy Short	BBG US Tsy Short	1.3	2.0	1.7	12.1	0.16	
	US Tsy IM	BBG US Tsy IM	0.9	1.5	1.0	11.2	0.13	
	US Tsy Long	BBG US Tsy Long	-0.1	0.8	1.0	13.9	0.06	
	US TIPS	BBG US TIPS	1.0	1.7	1.1	12.0	0.14	
	US Broadly Synd. Loans	CSFB Leverage Loan	4.5	5.5	5.8	14.9	0.37	
	US Agg	BBG US Agg	1.5	2.2	1.6	11.7	0.19	
	US IG Corp	BBG US IG	1.7	2.4	2.2	12.4	0.19	
	US MBS	BBG US MBS	2.0	2.7	1.8	12.2	0.22	
	US Preferred Stocks	BOA ML Fixed Rate Pref Securities	1.7	2.7	3.4	14.5	0.19	
	US HY Corps	BBG US HY	3.3	4.4	5.1	15.1	0.29	
	UK Linker	BofA ML UK Inflation-Linked Gilt	0.5	1.5	1.2	14.8	0.10	
	UK Gilts	BBG Sterling Agg Gilts	1.3	2.0	1.0	12.0	0.17	
	UK Corp	BBG Sterling Agg Non-Gilts Corp	2.2	3.5	2.6	16.4	0.21	
	Global Agg	BBG Global Agg	1.2	1.6	1.4	9.7	0.17	
	Global Agg ex-US	BBG Global Agg ex-US	1.1	1.6	1.3	9.2	0.17	
	Global Tsy	BBG Global Tsy	1.1	1.5	1.1	8.2	0.18	
	Global Sov	BBG Global Sov	1.1	1.9	1.7	12.7	0.15	
	Global Corp	BBG Global Corp	1.9	2.8	2.3	13.0	0.21	
	Global IG	BBG Global Corp IG	2.0	2.9	2.4	14.1	0.21	
	Eurozone Corp	BBG Euro Agg Credit Corp	1.9	2.9	2.5	14.8	0.20	
	Eurozone Tsy	BBG Euro Agg Gov Tsy	1.6	2.4	1.5	12.6	0.19	
	Asian Dollar IG	BOA ML AC IG	1.9	2.8	2.5	14.2	0.20	
	EM Agg	BBG EM Agg	3.0	4.5	4.2	17.4	0.26	
	EM Agg Sov	BBG EM Sov	3.4	4.6	4.5	16.2	0.29	
	China Policy Bk & Tsy	BBG China PB Tsy TR	1.2	2.0	0.7	12.9	0.15	
	China RMB Credit	BBG China Corporate	1.4	2.3	1.3	13.6	0.17	
Equities	Global Equity	MSCI ACWI	3.5	5.1	-0.4	18.5	0.28	
	Global ex-US Equity	MSCI ACWI ex-US	4.1	5.8	0.6	19.1	0.30	
	US Broad Market	Russell 3000	3.4	5.4	-0.9	21.1	0.26	
	US Large Cap	S&P 500	3.2	5.1	-1.0	20.4	0.25	
	US Mid Cap	Russell Midcap	4.0	6.4	-0.7	22.8	0.28	
	US Small Cap	Russell 2000	5.6	8.5	-1.3	25.9	0.33	
	EAFE Equity	MSCI EAFE	3.5	5.1	1.3	18.8	0.27	
	Europe Equity	MSCI Europe	3.8	5.7	1.0	20.4	0.28	
	Eurozone Equity	MSCI Euro ex-UK	3.8	5.9	1.2	21.1	0.28	
	UK Large Cap	FTSE 100	3.6	5.8	0.5	22.1	0.26	
	UK Small Cap	FTSE Small Cap UK	5.0	8.2	0.3	27.2	0.30	
	Canada Equity	S&P TSX	3.4	5.7	-0.1	22.8	0.25	
	Japan Equity	MSCI JP	1.7	3.7	2.3	20.7	0.18	
	EM Equity	MSCI EM	5.8	8.7	-0.6	25.6	0.34	
	China Small Cap	CSI 500	5.6	11.5	-0.2	37.7	0.30	
	Pacific ex-JP Equity	MSCI Pacific ex-JP	5.1	8.1	0.9	26.2	0.31	
	US REITs	FTSE NAREIT Equity	2.2	4.1	0.6	20.2	0.20	
	Global REITs	FTSE EPRA/NAREIT Developed	2.1	3.7	1.2	18.1	0.20	
	Alternatives	HFRI Hedge Funds	HFRI HF	0.6	1.6	-	14.7	0.11
		GS Commodities	S&P GSCI	1.8	5.1	-	26.9	0.19
Agriculture		S&P GSCI Agriculture	1.6	4.2	-	24.0	0.18	
Energy		S&P GSCI Energy	2.4	8.9	-	39.4	0.23	
Industrial Metals		S&P GSCI Industrial Metals	2.3	5.2	-	25.4	0.21	
Precious Metals		S&P GSCI Precious Metals	-2.7	-1.0	-	18.6	-0.05	

Source: Invesco, estimates as of September 30, 2023. These estimates are forward-looking, are not guarantees, and they involve risks, uncertainties, and assumptions. Please see page 11 for information about our CMA methodology. These estimates reflect the views of Invesco Solutions; the views of other investment teams at Invesco may differ from those presented here. Agg = Aggregate, Infra = Infrastructure, Corp = Corporate, DJ = Dow Jones, HY = High Yield, Muni = Municipals, Tsy = Treasury, IM = Intermediate, ML = Merrill Lynch, Sov = Sovereign, EM = Emerging Markets, IG = Investment Grade, APAC = Asia Pacific, Gov = Government, MBS = Mortgage Backed Securities, TIPS = Treasury Inflation-Protected Securities.

Figure 9: 10-year correlations (JPY)

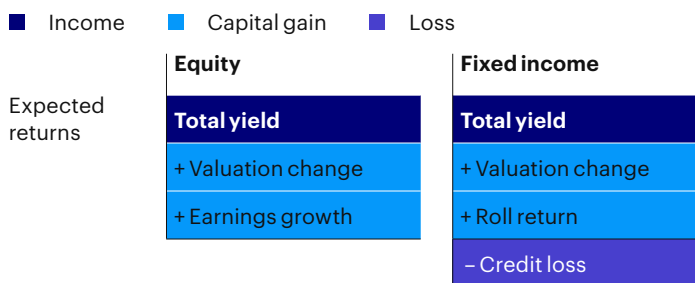


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About our capital market assumptions methodology

We employ a fundamentally based “building block” approach to estimating asset class returns. Estimates for income and capital gain components of returns for each asset class are informed by fundamental and historical data. Components are then combined to establish estimated returns (Figure 10). Here, we provide a summary of key elements of the methodology used to produce our long-term (10-year) estimates. Five-year assumptions are also available upon request. Please see Invesco’s capital market assumption methodology whitepaper for more detail.

Figure 10: Our building block approach to estimating returns



For illustrative purposes only.

Fixed income returns are composed of:

- **Average yield:** The average of the starting (initial) yield and the expected yield for bonds.
- **Valuation change (yield curve):** Estimated changes in valuation given changes in the Treasury yield curve.
- **Roll return:** Reflects the impact on the price of bonds that are held over time. Given a positively sloped yield curve, a bond’s price will be positively impacted as interest payments remain fixed, but time to maturity decreases.
- **Credit adjustment:** Estimated potential impact on returns from credit rating downgrades and defaults.

Equity returns are composed of:

- **Dividend yield:** Dividend per share divided by price per share.
- **Buyback yield:** Percentage change in shares outstanding resulting from companies buying back or issuing shares.
- **Valuation change:** The expected change in value given the current Price/Earnings (P/E) ratio and the assumption of reversion to the long-term average P/E ratio.
- **Long-term (LT) earnings growth:** The estimated rate of the growth of earnings based on the long-term average real GDP per capita and inflation.

Currency adjustments are based on the theory of Interest Rate Parity (IRP), which suggests a strong relationship between interest rates and the spot and forward exchange rates between two given currencies. Interest rate parity theory assumes that no arbitrage opportunities exist in foreign exchange markets. It is based on the notion that, over the long term, investors will be indifferent between varying rates of returns on deposits in different currencies because any excess return on deposits will be offset by changes in the relative value of currencies.

Volatility estimates for the different asset classes, we use rolling historical quarterly returns of various market benchmarks. Given that benchmarks have differing histories within and across asset classes, we normalize the volatility estimates of shorter-lived benchmarks to ensure that all series are measured over similar time periods.

Correlation estimates are calculated using trailing 20 years of monthly returns. Given that recent asset class correlations could have a more meaningful effect on future observations, we place greater weight on more recent observations by applying a 10-year half-life to the time series in our calculation.

Arithmetic versus geometric returns. Our building block methodology produces estimates of geometric (compound) asset class returns. However, standard mean-variance portfolio optimization requires return inputs to be provided in arithmetic rather than in geometric terms. This is because the arithmetic mean of a weighted sum (e.g., a portfolio) is the weighted sum of the arithmetic means (of portfolio constituents). This does not hold for geometric returns. Accordingly, we translate geometric estimates into arithmetic terms. We provide both arithmetic returns and geometric returns, given that the former informs the optimization process regarding expected outcomes, while the latter informs the investor about the rate at which asset classes might be expected to grow wealth over the long run.

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Allocation

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Invesco Solutions is an experienced multi-asset team that seeks to deliver desired client outcomes using Invesco's global capabilities, scale and infrastructure. We partner with you to fully understand your goals and harness strategies across Invesco's global spectrum of active, passive, factor, and alternative investments that address your unique needs. From robust research and analysis to bespoke investment solutions, our team brings insight and innovation to your portfolio construction process. Our approach starts with a complete understanding of your needs:

- We help support better investment outcomes by delivering insightful and thorough analytics.
- By putting analytics into practice, we develop investment approaches specific to your needs.
- We work as an extension of your team to engage across functions and implement solutions.

The foundation of the team's process is the development of capital market assumptions — long-term forecasts for the behavior of different asset classes. Their expectations for returns, volatility, and correlation serve as guidelines for long-term, strategic asset allocation decisions.

Assisting clients in North America, Europe, and Asia, Invesco's Investment Solutions team consists of over 75 professionals with 20+ years of experience across the leadership team. The team benefits from Invesco's on-the-ground presence in 25 countries worldwide, with over 150 professionals to support investment selection and ongoing monitoring.

Invesco Solutions

Investment risks

The value of investments and any income will fluctuate (this may partly be the result of exchange rate fluctuations) and investors may not get back the full amount invested.

Invesco Solutions develops CMAs that provide long-term estimates for the behavior of major asset classes globally. The team is dedicated to designing outcome-oriented, multi-asset portfolios that meet the specific goals of investors. The assumptions, which are based on 5- and 10-year investment time horizons, are intended to guide these strategic asset class allocations. For each selected asset class, we develop assumptions for estimated return, estimated standard deviation of return (volatility), and estimated correlation with other asset classes. This information is not intended as a recommendation to invest in a specific asset class or strategy, or as a promise of future performance. Estimated returns are subject to uncertainty and error, and can be conditional on economic scenarios. In the event a particular scenario comes to pass, actual returns could be significantly higher or lower than these estimates.

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Unless otherwise stated, all information is sourced from Invesco, in JPY and as of September 30, 2023.

Further information is available using the contact details shown on the overleaf.

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