



Expected Returns Model

Expected returns are a crucial building block for strategic asset allocation. In-depth research can lead to well-founded expected returns estimates. We believe the analysis of multiple expected returns estimates of experts will, on average, generate better and well documented return estimates, which offer an excellent basis for strategic asset allocation decisions.

In our 'expected returns' reports, we bring together the collective intelligence from over 40 distinct investment research reports, marking a record in participation, to establish robust consensus forecasts. These consensus forecasts, derived from an unprecedented breadth of data and analysis, are good estimators of expected returns and are available for a large number of asset classes.



Methodology

ECR Research is constantly up to date with the available Capital Market Assumption and other reports related to expected returns. These data are analysed and are presented in the Expected Returns report.

Forecast period

Every Capital Market Assumption (CMA) report presents its expected returns in a different forecast period. One forecast might be for a period of five years, while other data may be forecasted for a period of ten years. Therefore, drawing a consensus from this data could be disputable. To justify for this possible inconsistency, we will elaborate on the different forecast periods here:

Table10

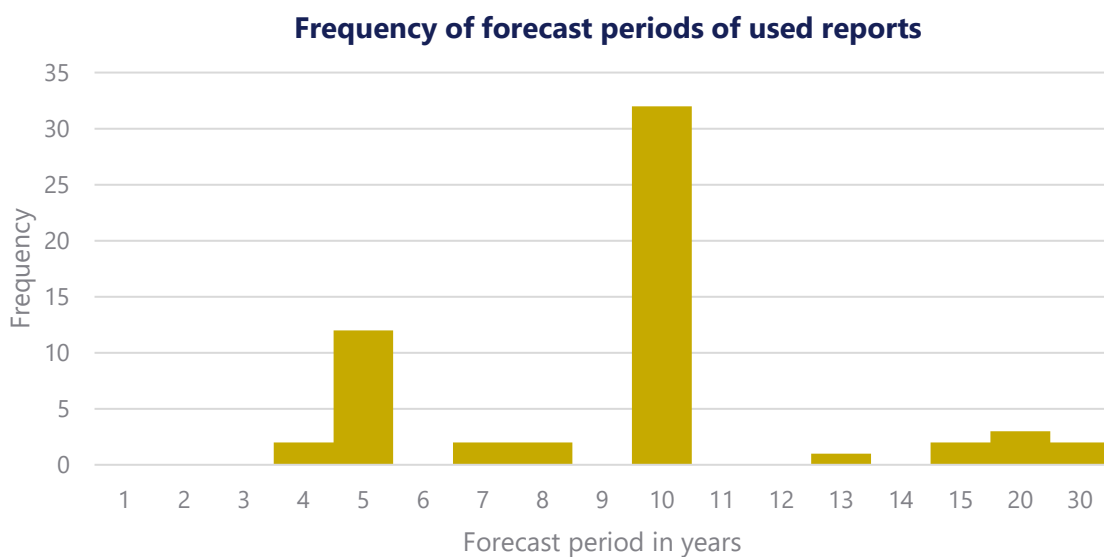


Table11

Average (year)	Median (year)	St. Dev. (year)
12.0	10.0	8.0

As you can see, most of the forecasted data is either around five years, ten years, or more. This consensus might be seen as expected returns for the medium term of around ten years.



Currency

Another disadvantage is that not all reports forecast the expected returns in the same currency. One Capital Market Assumption (CMA) shows returns in Euros and another one has their forecasts in US Dollar terms. Local currency forecasts are preferred, because that makes it easy to convert to another currency using currency expectations. Where a large majority participating parties have local return forecasts, others use either US Dollar or Euro. Conveniently, reports that state returns in US Dollar mostly have US Dollar only asset classes. For reports that state returns in Euros, it is the same case.

If Euro investors want to translate expected returns in US Dollars into Euro returns, they can look at the forward rate of the Euro-Dollar swap. The liquidity of long-term currency swaps is limited, but it does provide a picture of the impact of translating US dollars returns into Euros. The table below shows that the forward currency market assumes a depreciation of the US Dollar against the Euro. Returns in US Dollar should therefore be reduced by approximately 1.26% on an annual basis when converted to Euros. This is also the method that we apply to make return forecasts comparable.

Table12

Swap	USD	Annual Return
EURUSD 5Y FWD	1.1347	-1.50%
EURUSD 10Y FWD	1.2060	-1.36%
EURUSD 15Y FWD	1.2704	-1.26%

Used benchmarks

For the asset classes, we use the following benchmarks, mainly because in the majority of the reports these benchmarks were used as well:

Table 13

Used benchmarks	
Equities	
Global	MSCI ACWI
Developed	MSCI World
Global ex-US	MSCI EAFE
United States	S&P 500
Europe	MSCI Europe ex UK
United Kingdom	FTSE 100
Japan	MSCI Japan
Asia ex-Japan	MSCI AC Asia ex Japan
Emerging Markets	MSCI Emerging Markets



Fixed Income

Global Government Bonds	Barclays Global Treasury index
Global Investment Grade	Barclays Global Aggregate index
Global High Yield	Barclays Global High Yield index
Euro Government Bonds	Barclays Euro Treasury index
Euro Investment Grade	Barclays Euro Aggregate index
Euro High Yield	Barclays Pan-European High Yield index
US Treasury	Barclays US Treasury index
US Investment Grade	Barclays US Aggregate index
US High Yield	Barclays US High Yield index
US TIPS	Barclays US TIPS index
UK Government Bonds	Barclays Sterling Gilts index
Japanese Government Bonds	Barclays Global Treasury Japan Index
EM Sovereign (USD)	JP Morgan EMBI index
EM Sovereign (local)	JP Morgan GBI-EM diversified index
EM Corporate Bonds	JP Morgan CEMBI index

Alternatives

Real Estate	FTSE EPRA/NAREIT Developed index
Infrastructure	S&P global infrastructure index
Commodities	Bloomberg commodity index
EU Cash	LIBOR EUR 3 Month
US Cash	Barclays US 3-month treasury bill
Private Equity	S&P Listed Private Equity index
Hedge Funds	HFRI Fund Weighted Composite index



Participating parties

Table 14

Participating parties	Report name	Latest version	Forecast Period	Frequency
Achmea AM	Investment Letter	30-Sep-23	5	Q
Aegon AM	Beleggingsvisie	30-Sep-22	4	Q
Alliance Bernstein	Reassessing Return Expectations	30-Jun-22	5	Q
Amundi AM	Quarterly Asset Class Return Forecasts	8-Aug-23	5 & 10	Y
Angeles Capital	Long Term Capital Market Assumptions	31-Jan-23	10	Y
AQR	Alternative Thinking	1-Jan-23	8	Q
Baillie Gifford	Long-Term Return Expectations	1-Jan-23	10	Y
Blackrock	Capital Market Assumptions	8-Aug-23	5 & 15	Q
BNP Paribas AM	Investment Outlook	1-Feb-23	10	Y
BNY Mellon WM	Capital Market Return Assumptions	1-Jan-23	10	Y
Callan Institute	Capital Market Assumptions	1-Mar-23	10	Y
Capital Group	Capital Market Assumptions	16-Apr-23	20	Y
CIBC AM	Long-term capital markets expectations	17-Jul-23	10	Q
Cliffwater	Long Term Cap. Market Assumptions	1-Jul-22	10	Y
Columbia Threadneedle	Capital Market Assumptions	7-Aug-23	5 & 15	Q
DWS	Multi-Asset Long View	1-May-23	10	Q
Fidelity Investments	Capital Market Assumptions	15-Aug-23	20	Y
Franklin Templeton	Long Term Cap. Market Assumptions	4-Jan-23	7.5	Y
GMO	7 year forecasts	31-Aug-23	7	Q
Invesco	Capital Market Assumptions	1-Jun-23	10	Y
J. Safra Sarasin	Global View	13-Jun-23	10	Q
Janney	Long Term Cap. Market Assumptions	31-Jul-23	10	Y
Janus Henderson Investors	About our long-term expected returns	22-Aug-23	10	Y
JP Morgan AM	Long Term Capital Market Assumptions	21-Nov-22	13	Y
Julius Baer	Capital Market Assumptions	26-Sep-23	10	Y



Manulife	Foresight	1-Jun-22	5	Y
Meketa	Capital market expectations	1-Jan-23	10 & 20	Y
Morgan Stanley WM	Inputs for GIC Asset Allocation	29-Mar-23	7	Y
Morningstar Research	Morningstar Markets Observer	1-Sep-23	10	Y
Ninety One	Capital Market Assumptions	11-Jul-23	10	Y
Northern Trust	Capital Market Assumptions	9-Aug-23	5 & 10	Q
PGIM	Capital Market Assumptions	17-Jul-23	10	Y
Pictet WM	Horizon	30-Apr-23	10	Y
Pimco	Survey Response	17-Jul-23	5	Q
PineBridge	Capital Market Line	29-Sep-23	5	Q
Research Affiliates	Core Overview Performance	25-Sep-23	10	Q
Robeco AM	Expected Returns	12-Sep-23	5	Y
RVK	Capital Market Assumptions:	13-Jul-23	10	Y
Schroders IM	10 (30) year returns	14-Jul-23	10 & 30	Y
Sellwood	Capital Market Assumptions	1-Mar-23	10	Y
SSGA	Long Term Asset Class Forecasts	28-Jul-23	4 & 30	Q
Syntrinsic	Capital Market Forecast	1-Jan-23	10	Y
T. Rowe Price	Capital Market Assumptions	31-Mar-23	5	Y
TD Asset Management	Long-term expected returns	3-Jul-23	10	Y
Vanguard	Economic and Market Outlook	13-Sep-23	5 & 10	Y
Verus	Capital Market Assumptions	1-Dec-22	10	Y
Voya IM	Long Term Capital Market Forecasts	23-Nov-22	10	Y



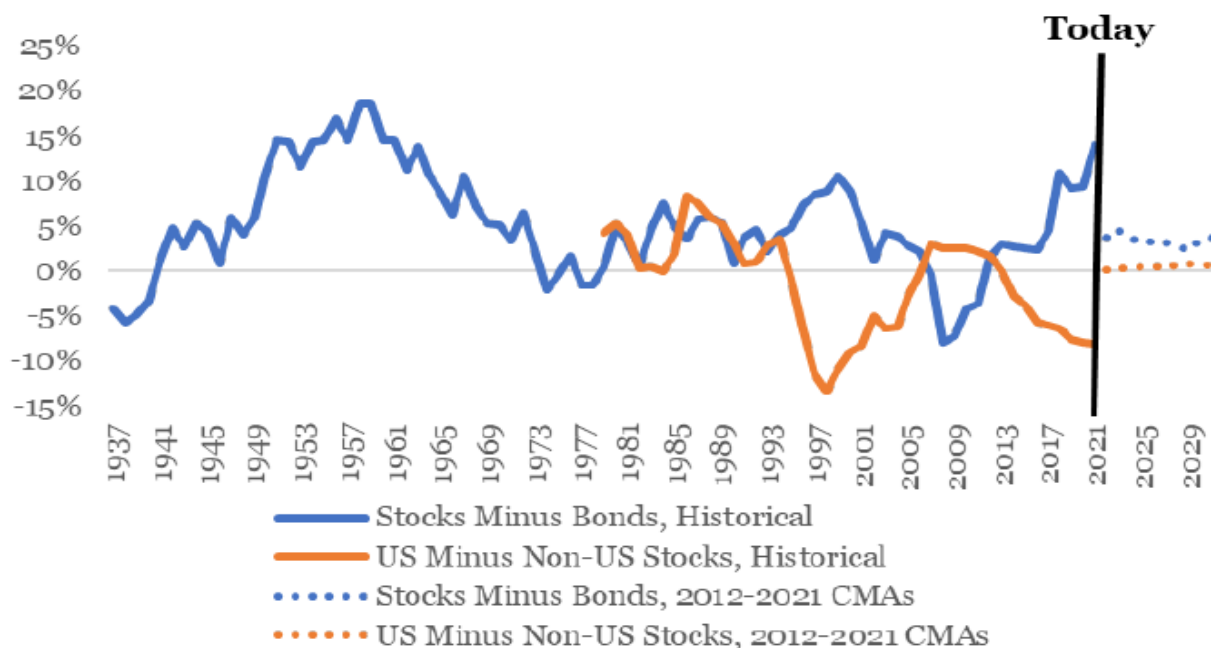
How accurate are Capital Market Assumptions, and How Should We Use Them?

In his article: [How accurate are Capital Market Assumptions, and How Should We Use Them](#), Mike Sebastian has compared 10-year forecasted capital market returns with actual average returns. It turned out that consensus return forecasts have generally been incorrect. Actual 10-year returns were even out of the range from most pessimistic to most optimistic assumptions for 14 of the 15 markets.

Market assumptions are more stable than actual returns have historically been for rolling 10-year periods in the past. Returns on risky assets are cyclical and highly dependent on the coming economic regime. Stable expected risk premiums are unlikely to be a good guide.

However, equities have generally outperformed bonds over fairly long periods. In 85% of the 10-year periods since 1920, stocks have only fallen short of bonds during the Great Depression, in 1973-1974 and the Global Financial Crisis. The relatively stable positive risk premium for equities which is often assumed, could hold reasonably true over the next 10-years, if we avoid a catastrophe.

Rolling 10-Year Historical and Projected (CMA) Return Premiums



Source: Horizon Actuarial Services, LLC, Standard and Poor's, Morgan Stanley Capital International

Some thoughts on how to best use return forecasts:

- » Fund overseers need something and imperfect forecasts are the best we have.



- » De-emphasise the role of return forecasts in the asset allocation process. Alternatively take a market or even peer portfolio as a basis and adjust your funds allocation on your unique characteristics, your investment objectives and your (mostly qualitative) views.
- » Use return assumptions with more emphasis on range of possible returns, to assess various economic and market regimes and to stress test your strategy.

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ECR Research

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| 1. Healthcare | iShares Global Healthcare |
| 2. Telecommunications | iShares Global Information Telecom |
| 3. Utilities | iShares Global Utilities |

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