

30-year return
forecasts (2023-52):
Part 2
January 2023





Contents

4

Summary

A summary of our work and findings, with some conclusions on their implications.



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6

Forecasts and methodology

Forecasts and methodology for cash, bonds, credit, equities, real estate and private equity.



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16

How do the forecasts compare to last year's analysis?

This section looks at the evolution of most of the forecasts.

20

Accounting for currency moves

This section converts our forecasts into common currencies, to facilitate comparison for investors in different regions.

22

Appendix

Additional charts and tables showing our full set of forecasts in one place, as well as some of our underlying assumptions.

Long-run asset class performance: 30-year return forecasts (2023–52)

Summary

Equities still deliver stronger returns compared to bonds...

Schroders Economics Group produces thirty-year return forecasts on an annual basis, which incorporates the impact of climate change. In this paper, we outline the methodology used to forecast returns for a range of asset classes. This is based on a series of building blocks and estimates of risk premia.

In 2020, our assumption started to incorporate the impact of climate change and the energy transition. Each year, we have developed the supporting analysis, and for this year's update, our central case has moved to the *Delayed Transition* scenario following a change in modelling partner to Oxford Economics. Our new scenarios are consistent with the those published by the NGFS (Network for Greening the Financial System). We think *Delayed Transition* is the most realistic scenario where there is a disorderly transition to net-zero as carbon pricing only starts to rise from 2030 (further details can be found in Part 1 of the paper).

This year, we are expecting higher returns across the different asset classes in real and nominal terms. The *Delayed Transition* is more inflationary compared to last year's *Partial Mitigation* scenario, which has pushed up our nominal return forecasts. In terms of our cash return forecasts, particularly for the developed economies, the rise in expected returns has been driven by upward adjustments to our central bank policy rate forecasts. In the near-term, central banks are assumed to normalise monetary policy faster given the elevated levels of inflation.

Given upgrades to our cash return forecasts, this means higher long-run return forecasts for the sovereign and credit bond markets. For instance, our US and Eurozone sovereign and credit bond forecasts are higher primarily because of the increase in the real rate and inflation assumptions.

On equities, our global return forecast has moved higher this year thanks to stronger expected returns in the developed region and emerging markets. For the US, nominal equity returns have been lifted by the increase in inflation and dividend yield. For emerging market economies, such as mainland China and Taiwan, the increase in return forecasts were largely due to the rise in dividend yields. For India, an upgrade to productivity growth (which feeds into the growth rate of earnings and dividends) was the main driver for the upward revision to returns.

...but the equity risk premium has narrowed

Overall, accounting for climate change, equities are still expected to outperform other asset classes over the next 30 years. On a regional basis, emerging equities are expected to outperform most developed equity markets. Our forecasts also suggest that credit and property will still deliver better returns than sovereign bonds. At the same time, the return gap/ risk premium between equities and sovereign bonds has also narrowed slightly from 3.8% to 3.6% led by greater upward revisions to our bond forecasts. That said, investors are still incentivised to move up the risk curve in search of higher returns over the next 30 years. So, it is important to invest actively given the challenges of harvesting returns particularly with climate change considerations.

Throughout our analysis, we have had to make several assumptions. There is little agreement as yet in the literature about the quantitative impact of climate change on economic activity for a given quantity of warming. There is also debate on the costs of transition and the form mitigation efforts will take. Consequently, the variability in asset return forecasts depends on the models used and assumptions made. Nonetheless, the direction of travel is clear, and these estimates provide a consistent

framework for assessing the potential effects of a development which will have profound effects on the world economy and financial system.

Table 1: Long-run return forecasts (2023–52) based on *Delayed Transition*

% p.a. over the next 30 years	Currency	Yield	Capital gain	Nominal return	Inflation	Real return
Cash						
US	USD	3.0	N/A	3.0	2.7	0.2
UK	GBP	1.8	N/A	1.8	2.4	-0.6
Eurozone	EUR	1.8	N/A	1.8	2.5	-0.7
Japan	JPY	0.6	N/A	0.6	1.5	-0.9
G4 cash	Local	2.1	N/A	2.1	2.4	-0.3
Government bonds (10-year)						
US Treasury bond	USD	4.0	N/A	4.0	2.7	1.3
UK Gilt	GBP	2.4	N/A	2.4	2.4	0.0
Eurozone (Germany)	EUR	2.5	N/A	2.5	2.5	0.0
JGB	JPY	1.0	N/A	1.0	1.5	-0.5
G4 bond	Local	3.0	N/A	3.0	2.4	0.5
Credit						
US Investment Grade	USD	5.1	N/A	5.1	2.7	2.4
US High yield	USD	6.2	N/A	6.2	2.7	3.4
Euro Investment Grade	EUR	3.6	N/A	3.6	2.5	1.1
Euro High Yield	EUR	4.4	N/A	4.4	2.5	1.9
Equity markets						
US	USD	1.8	4.4	6.3	2.7	3.5
UK	GBP	3.7	3.5	7.3	2.4	4.8
Europe ex.UK	EUR	3.1	3.3	6.5	2.1	4.2
Japan	JPY	3.2	3.5	6.8	2.5	3.8
Pacific ex. Japan	Local	4.5	3.7	8.4	2.7	5.6
Emerging markets	Local	4.2	4.4	8.8	2.8	5.8
Developed markets	Local	2.2	4.4	6.6	2.8	3.7
Global	Local	2.4	4.1	6.7	2.6	4.0
Global equity vs. G4 bonds	Local			3.6		

Note: G4 is a market-cap weighted composite of the US, UK, Eurozone and Japan. Source: Refinitiv, Schroders Economics Group, January 2023.

Forecasts and Methodology

Climate change

Working with Oxford Economics, our central scenario for mitigation is *Delayed Transition* where the more ambitious action to reduce emissions only starts from 2030. Thanks to these carbon emission mitigation policies, temperature increases are more limited than *Current Policies* (which is our reference scenario). The latter assumes that governments will not be able reach all the announced climate goals. Instead, they will implement only the commitments that are backed up by sufficiently detailed measures.

Overall, compared to *Current Policies*, we find that productivity growth is broadly lower in *Delayed Transition* because of a disorderly move towards net zero that requires rapidly increasing carbon pricing.

Chart 1 summarises the main differences between *Current Policies* and *Delayed Transition*. In addition, in *Net Zero with Innovation*, we have return forecasts based on the scenario where we assume an orderly transition with wider economic benefits associated with innovation from investment in clean technology. This scenario is not discussed in this paper, but further details can be found in part 1 of the paper and forecast numbers in tables A4 and A5 in the appendix section.

Chart 1: Summary of our new scenarios

Current Policies (reference scenario)	Delayed Transition (central scenario)	Net Zero with Innovation
<ul style="list-style-type: none">- No further mitigation measures taken such as carbon pricing- Reflects policy commitments that are supported by credible measures- Global warming set to reach 2°C by 2050	<ul style="list-style-type: none">- Policymakers only start to take action and increase carbon taxes in 2030- Disorderly transition, with higher transitional impact- Global temperature to rise by 1.7 °C by 2050	<ul style="list-style-type: none">- Prompt action is taken and carbon taxes start rising from 2023- Orderly transition, with additional innovation benefits from R&D investment- Global warming is limited to around 1.5°C by 2050

Source: Oxford Economics, Schroders Economics Group, January 2023

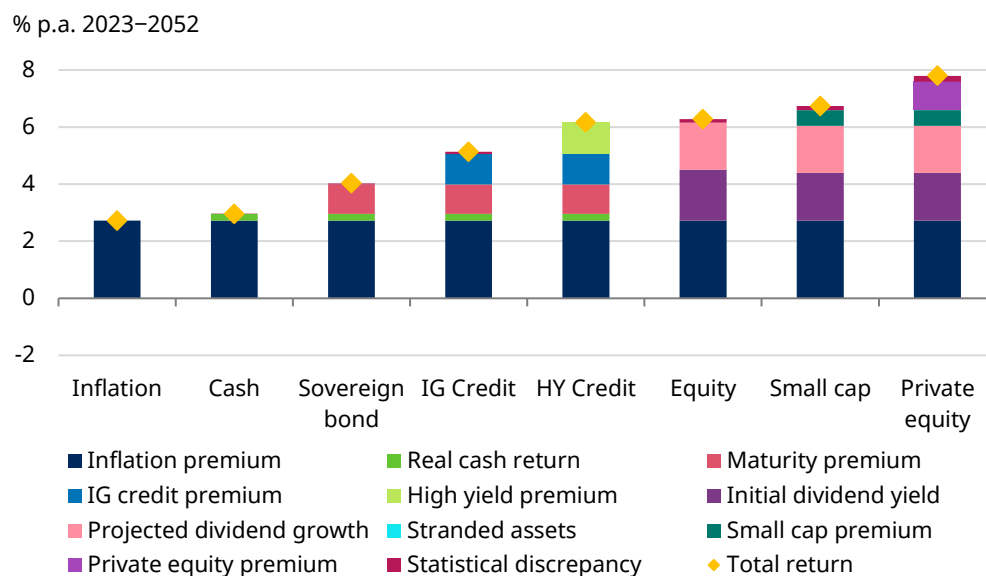
Building blocks in forecasting returns

The foundation behind our approach in forecasting returns for a range of asset classes is shown in chart 2. We use a series of building blocks from inflation to different risk premia to formulate our final capital market assumptions.

For fixed income assets, inflation and real cash returns are the key components with sovereign bonds incorporating a maturity premium. To forecast investment grade (IG) and high yield (HY) bonds, we add a credit risk premium. Meanwhile, the main building blocks for equities are the initial dividend yield and the growth rate of dividends. For small caps and private equity, we incorporate additional returns for taking on small cap and private equity risks.

In the next section, we provide more details on the underlying assumptions for each asset class.

Chart 2: Building blocks to the US asset return forecasts based on *Delayed Transition*



Note: Stranded assets for the US are close to zero, so it is not visible in the chart. Source: Schroders Economics Group, January 2023.

Cash

Real interest rates

One of the key building blocks for our long-run forecast is our assumption on cash returns. This is almost entirely driven by movements in key central bank policy interest rates in the major developed economies (such as the Bank of England base rate, or the Federal funds rate).

Over the past few years, we have used a multi-stage approach to forecast real interest rates. In the first stage, we forecast the real return on cash to remain negative over the next few years. This is because the high levels of debt on both private and public sector balance sheets keeps monetary policy accommodative. Negative real rates remain an attractive way of reducing the debt burden. But for the US, the strength of trend growth has meant that real rates are positive over the next few years.

The second stage of our cash forecast is a normalisation in cash rates, before we reach the final stage, with real cash rates at zero or lower. This terminal value of real cash returns is based on an historic average, to which we adjust to reflect our views going forward about the strength of trend growth. To arrive at our nominal cash return forecast, we combine our assumption on real cash rates with inflation expectations over the next 30 years.

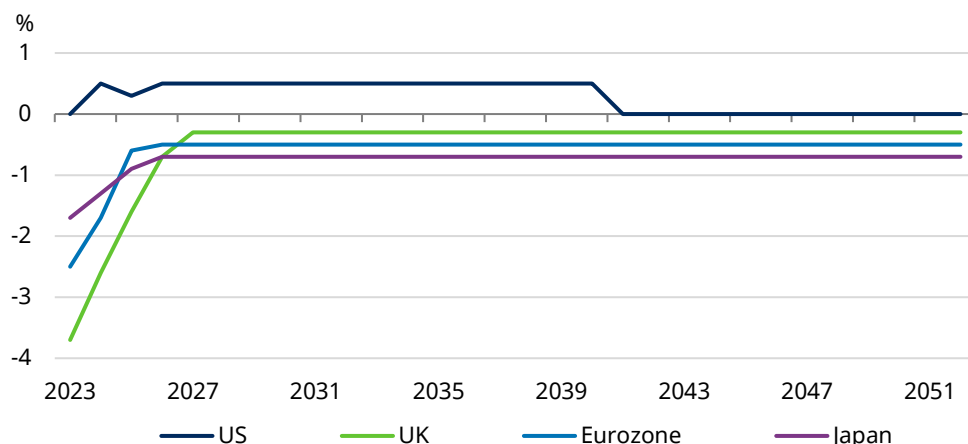
Chart 3 helps to illustrate the expected evolution of real cash rates across the major developed central banks. For the US, real rates are expected to be positive for most of the forecast period as the Federal Reserve (Fed) is assumed to normalise monetary policy faster. This is because inflation is likely to be stickier given the tightness in the labour market keeping prices and wages elevated for longer. At the same time, inflation could prove to be more persistent in the aftermath of the covid-pandemic, which is discussed in the next section.

For the other key developed markets, we assume that the normalisation of cash rates is largely completed by 2027 and real cash rates settle at zero or lower. Overall, real cash rates in the US and eurozone are expected to be higher compared to last year's forecasts.

Real cash returns revised higher

Policy normalisation has been bought forward

Chart 3: Expected evolution of real cash rates



Source: Schroders Economics Group, January 2023.

Inflation

Inflation is expected to be above central bank targets in the near-term

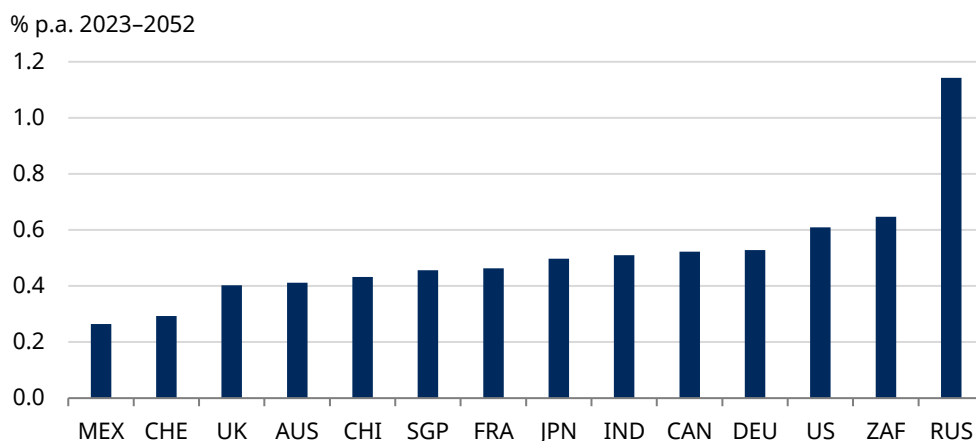
Under *Current Policies*, we assume inflation among the main developed markets to return to central banks' targets. But in the near-term, inflation continues to run well above central bank targets of 2%. For instance, the headline inflation rate in the US appears to have peaked but it is still elevated. The fall in inflation has been largely due to an easing in oil prices. While core inflation is lower than headline, it is still well above target. Again, there are tentative signs that core may have peaked in the US. Overall, we expect inflation to fall in 2023 and return to central bank targets in 2024. We have discussed this in more detail in the [Economic and Strategy Viewpoint - Q4 2022](#).

Over the medium-term, inflation could prove to be more persistent because of the covid-pandemic. We believe there to be five key macro trends we expect to define the coming years as we move into a new economic regime. We have discussed this in more detail in the [Regime shift: investing into the new era](#).

The energy transition is inflationary for all countries

Under *Delayed Transition*, inflationary pressures rise globally due to more aggressive carbon taxation policies. But the inflation impact is estimated to differ across countries. Economies with greater reliance on coal for their energy production should experience higher inflation than others more dependent on cleaner sources of energy. So, Russia and South Africa are set to experience the largest rise (chart 4). For the US, *Delayed Transition* is estimated to add 0.6% p.a. to headline inflation over the next 30 years.

Chart 4: The impact on inflation from incorporating more ambitious climate action (*Delayed Transition* versus *Current Policies*)



Source: Oxford Economics, Schroders Economics Group, January 2023.

Climate change impacts productivity...

...and the long run equilibrium interest rate

Climate change and cash returns

As we discuss in part 1 of the paper, climate change has consequences for productivity. Productivity is impacted by the physical costs of global warming and the transition costs of efforts taken to reduce emissions. In the *Delayed Transition* scenario, greater inflationary pressures are the result of more aggressive carbon taxes. While this puts a squeeze on corporate profitability and household wealth, the investment drive and productivity benefits associated with lower temperatures helps reduce the economic impact of higher carbon pricing. We find that all economies experience lower productivity under *Delayed Transition*. We can assess the consequences for fixed income assets by making use of the productivity figures to modify our cash and bond returns.

Following the framework developed by Laubach and Williams¹, long run equilibrium interest rates move in line with changes in trend growth in the economy. Assuming that the supply of labour is not affected by climate change, then changes in productivity feed directly into changes in trend growth. In turn, this directly affects the long-run or equilibrium interest rate for the economy.

To incorporate climate change into the nominal cash forecasts, we take the difference between productivity estimates based on *Delayed Transition and Current Policies*. This difference in productivity is then incorporated into the cash return forecast.

In *Delayed Transition*, our nominal cash return forecasts are generally higher than estimates based on *Current Policies* (table 2). Note that the transition impact shown in table 2 is the difference between *Delayed Transition* and *Current Policies*. The transition impact is made of up of the impacts from inflation and productivity growth.

While economies are likely to experience lower productivity growth, this is more than offset by the rise in inflation. For the US, thanks to higher inflation, the cash return forecast is 0.6% greater in *Delayed Transition*. For Hong Kong, the nominal cash return forecast is the same as the US given that the Hong Kong currency is pegged to the US dollar.

Table 2: Cash return forecasts based on *Current Policies* and *Delayed Transition*

Nominal returns, % p.a. over the next 30 year	Currency	Delayed Transition	Current Policies	Transition impact (total difference)	Impact from Inflation	Impact from productivity growth
US	USD	3.0	2.4	0.6	0.6	0.0
UK	GBP	1.8	1.4	0.4	0.4	0.0
Eurozone	EUR	1.8	1.4	0.4	0.5	-0.1
Japan	JPY	0.6	0.2	0.4	0.5	-0.1
Canada	CAD	2.2	1.9	0.3	0.5	-0.2
Australia	AUD	3.1	2.7	0.3	0.4	-0.1
Hong Kong	HKD	3.0	2.4	0.6	0.6	0.0
Singapore	SGD	2.4	1.7	0.6	0.4	0.2
G4 cash	Local	2.1	1.7	0.5	0.5	-0.1

Note: G4 is a market-cap weighted composite of the US, UK, Eurozone and Japan. Source: Schroders Economics Group, January 2023.

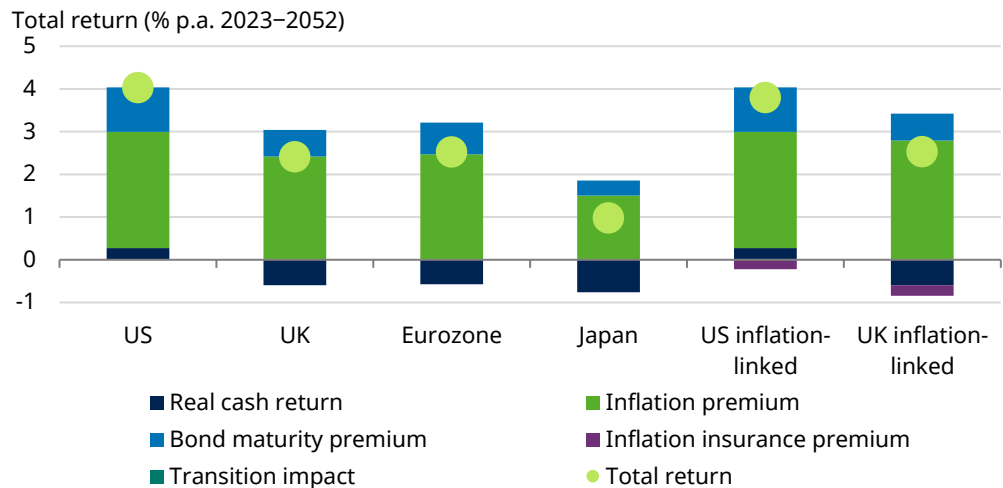
¹Laubach and Williams, Measuring the natural rate of interest, Review of Economics and Statistics (2003).

Cash upgrades in the developed markets lifts bond returns

Sovereign bonds

Our return assumption for sovereign debt builds on the return we have for cash, adding a term premium to forecast the returns to longer maturity (10-year) bonds. As with our cash methodology, we estimate the maturity premium from historical averages (in this case 20 years) and make an adjustment to reflect our own views. Chart 5 provides a more detailed breakdown of the building blocks used to forecast sovereign bond return under *Delayed Transition*.

Chart 5: Breakdown of sovereign and inflation-linked bond return forecasts based on *Delayed Transition*



Note: UK inflation linked bond returns use RPI inflation for the nominal returns. Source: Schroders Economics Group, January 2023.

Using the historical average maturity is a sensible base, as there is a maximum steepness a yield curve can reach before the carry and roll becomes too attractive for investors to ignore, thus encouraging them to buy long-dated bonds and flatten the curve again. We apply a 20 to 40% discount to the historic steepness of the yield curve for all countries. This is to reflect the view that yield curves are likely to be flatter going forward than they have been since the early 1990s. This is because central banks have been more focused on controlling inflation and managing inflation expectations. At the same time, trend growth is expected to be weaker due to declines in demographics and productivity.

The UK and eurozone see slightly smaller discounts than other markets. For instance, in the UK, following Brexit, the expected reduction in migration will limit flexibility to respond to sudden changes in demand. So, the Phillips curve (the relationship between unemployment and inflation) should steepen. This would therefore increase the chances of higher inflation, resulting in a higher term premium demanded by investors.

For the UK and US, we also forecast the returns on inflation-linked government debt, by applying a discount to the returns on the nominal bonds known as the 'inflation insurance premium'. It is to be expected that inflation-linked bonds offer a lower return than nominal, owing to the insurance they offer against rising prices. The reason for the greater yield discount applied to UK linkers compared with US TIPS (Treasury Inflation Protected Securities) is because of technical market reasons related to the relative liquidity and structure of the two markets². Note that we are assuming no difference in duration with nominal bonds.

²UK linkers make up a bigger share of the total gilt market (roughly 20%) than TIPS do of the Treasury market (less than 10%). Thus, relative to their main market, TIPS are less liquid than UK linkers, and thus have a price discount (e.g., lower prices, thus higher yield and smaller differential between nominal and TIPS yield).

Sovereign debt should outperform cash

Climate change and sovereign bond returns

The climate change assumptions on productivity and inflation feed into the cash return forecast, which is the main building block for sovereign bond returns. Table 3 shows that the nominal sovereign bond returns are higher under our central scenario *Delayed Transition* compared to *Current Policies*. As highlighted earlier, countries are likely to experience lower productivity under *Delayed Transition*, but this is more than offset by the rise in inflation.

Table 3: Sovereign and inflation-linked bond return forecasts based on *Current Policies* and *Delayed Transition*

Nominal returns, % p.a. over the next 30 year	Currency	Delayed Transition	Current Policies	Transition impact (total difference)	Impact from Inflation	Impact from productivity growth
US Treasury bond	USD	4.0	3.5	0.6	0.6	0.0
UK gilt	GBP	2.4	2.0	0.4	0.4	0.0
Eurozone (Germany)	EUR	2.5	2.1	0.4	0.5	-0.1
JGB	JPY	1.0	0.6	0.4	0.5	-0.1
Canada	CAD	2.9	2.6	0.3	0.5	-0.2
Australia	AUD	3.5	3.1	0.3	0.4	-0.1
Singapore	SGD	3.1	2.5	0.6	0.4	0.2
G4 bond	Local	3.0	2.5	0.5	0.5	-0.1
Inflation-linked (IL)						
Barclays 7-10 year IL Gilts	GBP	2.5	2.2	0.4	0.4	0.0
Barclays 7-10 year TIPS	USD	3.8	3.2	0.6	0.6	0.0

Note that the transition impact shown in table 3 is the difference between *Delayed Transition* and *Current Policies*. The transition impact is made up of the impacts from inflation and productivity growth. G4 is a market-cap weighted composite of the US, UK, Eurozone and Japan. Source: Schroders Economics Group, January 2023.

Credit and emerging market debt (EMD) bonds

Our credit returns are forecast using the risk premium or excess return of credit (both investment grade and high yield) over sovereign bonds for the respective market. The two key drivers of credit's excess return are the changes in spreads and the expected loss through defaults, both of which are closely linked to the economic cycle. For this reason, we combine regression analysis of spread changes and default losses with our long run US growth forecast to predict the excess return of US high yield and investment grade credit over Treasuries. Using regression analysis again, we exploit a historical relationship and use the excess returns of US credit to estimate the excess returns of UK and European credit over UK gilts and German bunds respectively.

For investment grade credit, we also attempt to account for losses from downgrades (table 4). To forecast this for the next 30 years, we believe that the best approach is to apply an historic ratio of downgrade losses to spreads to the current forecast spread. This provides a downward adjustment to the spread to allow for the

downgrade losses. As might be expected, this results in downward revisions to our forecast returns for investment grade (IG) credit.

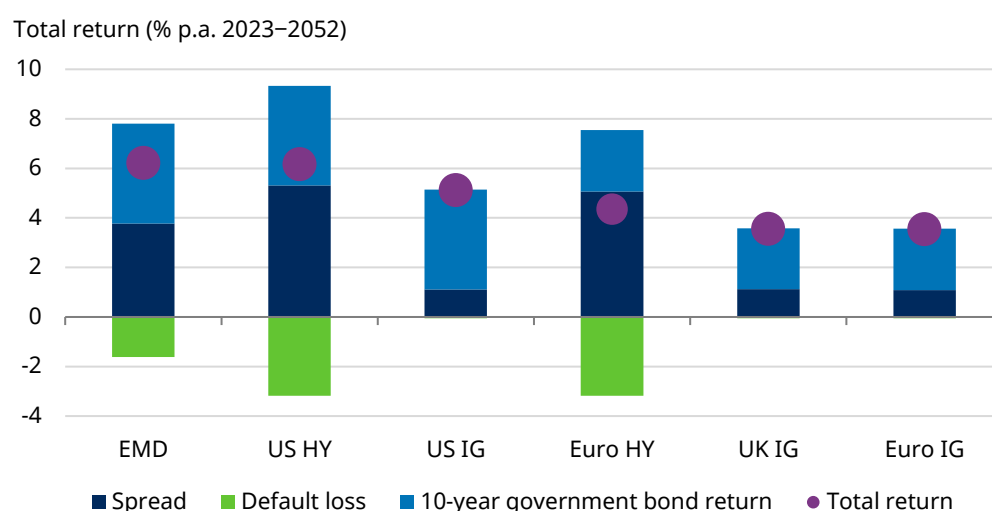
Table 4: Adjusting forecast spreads in IG credit for downgrade losses

	Downgrade loss, %	Median spread, bps	Downgrade loss/Median spread, %	Current forecast spread, bps	Loss adjusted spread, bps
US IG	-0.36	134	-0.3	151	111
EU IG	-0.32	99	-0.3	162	109
UK IG	-0.5	135	-0.4	180	113

Source: Schroders Multi Asset, Schroders Economics Group, January 2023.

Finally, we also estimate the relationship between US high yield (HY) and emerging market debt (EMD) spreads and use this to drive the EMD spread projection, while also assuming an historic ratio holds for EMD defaults and US HY defaults (chart 6).

Chart 6: Breakdown of credit bond return forecasts based on *Delayed Transition*



Note: Returns are in local currency except EMD which is denominated in US dollar. Source: Schroders Economics Group, January 2023.

Climate change and credit bond returns

Changes to credit returns have two key drivers in our climate change work. As we have seen, cash rates are impacted quite considerably in some cases, and this has knock-on effects for government yields and credit returns. In addition, there is an impact on growth from transition policies that will limit carbon emissions, which feeds into our forecast for default rates and spreads in credit assets.

Given that we have upgraded nominal cash returns, it should not be surprising that credit returns are also expected to be higher. At the same time, credit default rates have fallen as the US GDP growth forecast in the new central scenario (*Delayed Transition*) is higher compared to last year. We do not make any assumptions for stranded assets, which could affect the default rates of some companies in the index.

Credit returns increase thanks to higher cash rates

Table 5: Credit and EMD bond return forecasts based on *Current Policies* and *Delayed Transition*

Nominal returns, % p.a. over the next 30 years	Currency	Delayed Transition	Current Policies	Transition impact (total difference)
US IG	USD	5.1	4.6	0.6
US HY	USD	6.2	5.6	0.5
UK IG	GBP	3.5	3.1	0.4
Euro IG	EUR	3.6	3.2	0.4
Euro HY	EUR	4.4	4.0	0.4
EMD	USD	6.2	5.7	0.5
Asian Credit (JACI Index)	USD	5.9	5.3	0.6

Source: Schroders Economics Group, January 2023.

Equities

Our equity return assumptions use a Gordon's Growth model approach, in which returns are generated through the initial dividend yield and the growth rate of dividends (via earnings growth). Earnings are assumed to grow in line with productivity (i.e., growth in GDP per working age population).

While this forecast for productivity is the basis of our earnings and dividend growth assumptions, we adjust for markets where the relationship between earnings and trend productivity has deviated. This is the case in the emerging markets, where productivity gains have historically not translated fully into earnings growth. Hence, we scale earnings per share (EPS) growth downwards.

One of the reasons for EM productivity growth not translating into EPS growth is that there have been more companies in the region going public, particularly in China, over time. This increase in equity issuance has diluted the value of existing shares. At the same time, some sectors among the emerging market countries may be under-represented in the stock market³.

Climate change and equity returns

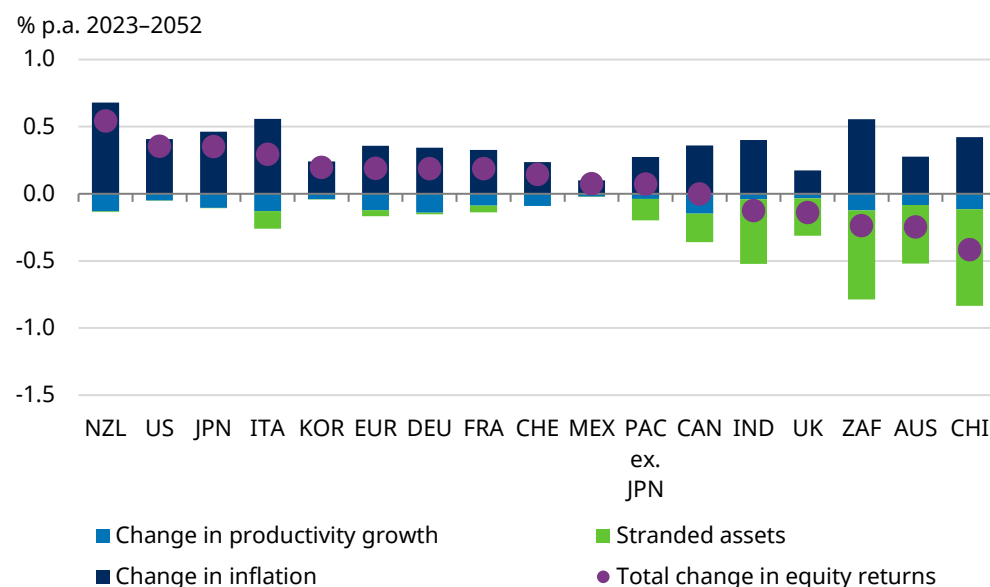
Climate change matters a lot for equities. As discussed at length in our part 1 of the paper, the associated higher temperatures and costs of transition, including stranded assets, affect equities either directly or through their effects on productivity growth. In our approach, the productivity impact translates more or less directly into an impact on equity earnings. Once we adjust for stranded assets in our *Delayed Transition* scenario, there will be winners and losers because of more aggressive climate change mitigation policies.

Chart 7 and table 6 shows the equity return forecasts based on *Delayed Transition* compared to *Current Policies* and highlights the impact of more stringent mitigation policies on equity returns. Under *Delayed Transition*, most of the developed world experiences higher nominal returns driven by higher inflation. But real equity returns are lower given the drag from stranded assets and lower productivity growth.

Under *delayed transition*, our developed equity forecasts are broadly higher...

³Source: <https://www.schroders.com/id/global-syndication/thought-leadership-professional-only/gdp-and-earnings-growth/>.

Chart 7: Breakdown of equity return forecasts (*Delayed Transition* versus *Current Policies*)



Source: Schroders Economics Group, January 2023.

Table 6: Nominal equity return forecasts based on *Current Policies* and *Delayed Transition*

Nominal returns, % p.a. over the next 30 years	Currency	Delayed Transition	Current Policies	Transition impact (total difference)
US	USD	6.3	5.7	0.5
UK	GBP	7.3	7.2	0.1
Eurozone	EUR	6.8	6.4	0.4
Japan	JPY	5.3	4.9	0.4
Switzerland	CHF	5.9	5.6	0.2
Canada	CAD	6.5	6.4	0.1
Australia	AUD	8.4	8.4	0.0
Hong Kong	HKD	9.0	8.6	0.3
Singapore	SGD	8.3	7.8	0.5
Pacific ex. Japan	Local	8.4	8.2	0.2
South Korea	KRW	6.7	6.8	-0.1
Taiwan	TWD	9.4	9.3	0.1
China onshore	CNY	9.1	9.2	-0.1
India	INR	9.5	9.7	-0.2
Emerging markets	Local	8.8	9.3	-0.5
Developed markets	Local	6.6	6.1	0.5
Global	Local	6.7	6.3	0.4

Source: Schroders Economics Group, January 2023.

...but lower for EM equities

EM equities still deliver higher returns versus the developed world

For emerging markets, despite higher inflation, *Delayed Transition* is bad news for equity investors. The biggest hit to return forecasts occur in countries such as India and China driven predominately by stranded assets. For China, the lower return forecast is mainly driven by stranded assets and lower productivity growth.

Despite the substantial downgrades in emerging market returns from the incorporation of climate change, they are still expected to deliver higher returns than most of the developed markets. Compared to last year, the excess return premium between the emerging markets and the developed world has stayed relatively stable at 2% per annum.

Real estate

For private commercial real estate in the UK and Europe, our long-term forecasts are provided by the Schroders Real Estate team. The forecast consists of several components but, in similar fashion to other assets, includes an income and a capital growth component (table 7). Rental growth is based on the long-term inflation outlook where we assume that the price of commercial space will broadly change in line with that for other goods and services in the economy.

Meanwhile, we have incorporated the impact from climate change through the rental growth component. Overall, compared to last year's forecasts, the expected returns for both markets have risen due to the increase in rental growth and future income return.

Table 7: Private commercial real estate forecasts

Component (% p.a. 2023–52)	UK	Europe
Future income return (initial property yield)	4.8	4.3
Potential income growth already in portfolio	0.3	0.3
Rental growth (inflation)	2.4	2.5
Depreciation	-2.0	-0.8
Refurbishment capital expenditure	-0.7	-1.3
Adjustment for depreciation and modernisation	1.7	1.3
Stamp duty and trading fees	-1.0	-0.8
Nominal Total Return	5.4	5.5

Note: Returns are in local currency. Source: Schroders Real Estate, January 2023.

For the UK and European real estate securities (REITs, real estate investment trusts), we start with the returns on private real estate and then apply a discount or a premium to forecast the REIT return. Based on historical returns between the private and public property sectors, we find that European and UK REITs generally offer lower returns than the unlisted sector. In the UK, the illiquidity premium from owning private real estate appears to be small as public listed REITs can amplify returns by investing in higher risk assets and taking advantage of leverage in their capital structure.

Table 8: REITs return forecasts

Component (% p.a. 2023–52)	UK	Europe
Private commercial real estate return	5.4	5.5
Premium/discount	-0.1	-1.4
Nominal total return	5.2	4.0

Note: Returns are in local currency. Source: Schroders Real Estate, Schroders Economics Group, January 2023.

Private equity

To estimate the US private equity return, we apply a premium on top of our forecast for US small cap equities (table 9). This premium, which is capturing the illiquidity and more broadly the complexity premium of the private sector, is based on comparing the historical performance of US private equity returns versus US small caps over the last 30 years. The choice of using small caps as the anchor for comparison is based on academic literature. The impact of climate change has been incorporated in this forecast.

Table 9: US private equity forecasts

Component (% p.a. 2023–52)	
US small cap	6.7
Premium	1.0
Nominal total return	7.8

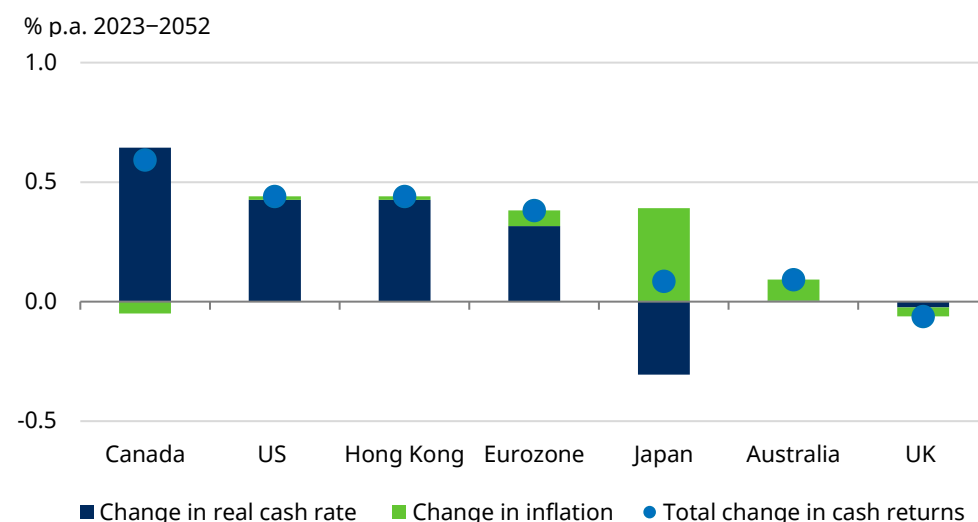
Note: Returns are in local currency. Source: Schroders Economics Group, January 2023.

How do the 30-year return forecasts compare to last year's analysis?

Cash

Firstly, compared to last year, the increase in cash return forecasts have been predominately driven by higher real rates particularly in the US and Canada. Chart 8 compares this year's *Current Policies* with last year's reference scenario (*No Climate Change*), which illustrates the change in the underlying macro assumptions and excludes the climate change impact from the energy transition.

Chart 8: Cash return forecasts compared to last year's estimates (*Current Policies* versus *No Climate Change*)



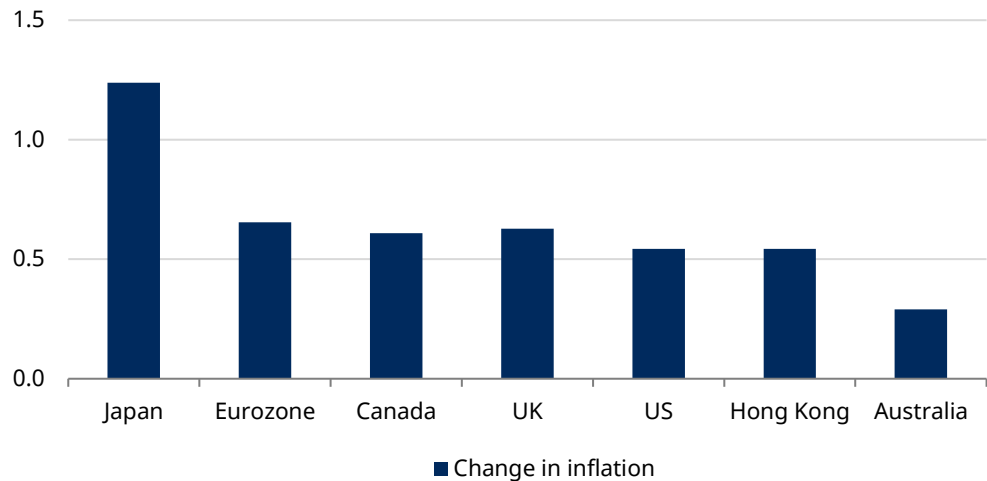
Source: Schroders Economics Group, January 2023.

Secondly, incorporating the inflation impact from the energy transition, higher nominal cash returns this year have been led by the higher inflation forecasts. Chart 9 shows the inflation forecasts for this year's central scenario *Delayed transition* compared to last year's *Partial Mitigation*.

Cash return forecasts have been revised higher due to real rates and inflation

Chart 9: Inflation forecasts compared to last year's estimates (*Delayed Transition versus Partial Mitigation*)

% p.a. 2023–2052

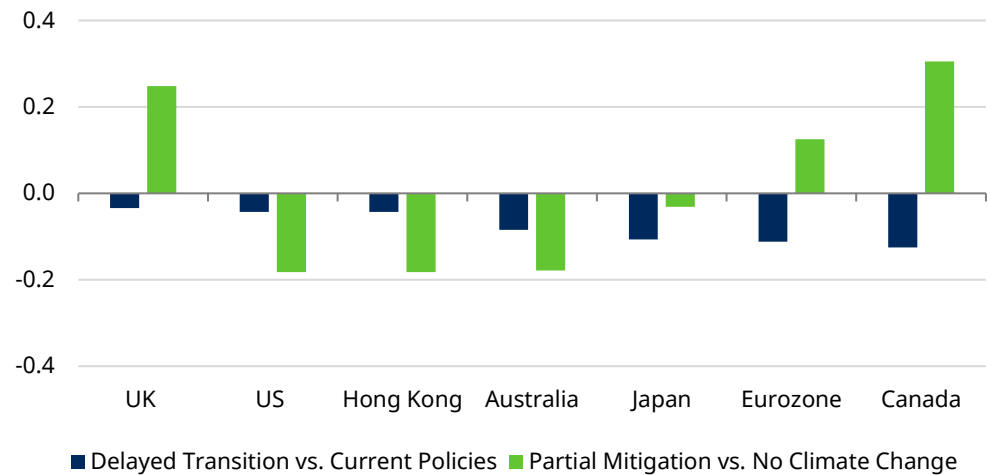


Source: Schroders Economics Group, January 2023.

Finally, productivity growth is generally lower under *Delayed Transition* compared to *Current Policies* (chart 10). This is because more aggressive mitigation policies, such as a carbon tax, leads to lower production and output. For some countries, such as the UK, Eurozone and Canada, the impact from productivity growth is more negative compared to last year's estimates. This is because last year's *Partial Mitigation* scenario incorporated the boost in productivity growth thanks to investment towards clean technology and innovation. This is not incorporated in *Delayed Transition* but in *Net Zero with Innovation*.

Chart 10: Climate-adjusted productivity growth of *Delayed Transition* versus *Current Policies* and *Partial Mitigation* versus *No Climate Change*

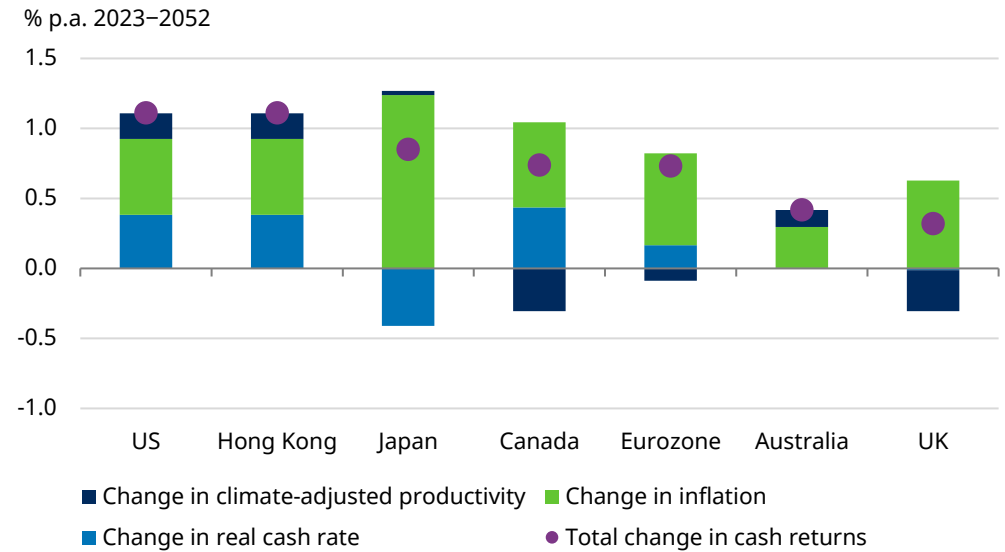
% p.a. 2023–2052



Source: Schroders Economics Group, January 2023.

Chart 11 shows the final breakdown of the change from *Partial Mitigation* to this year's *Delayed Transition*. As previously mentioned, cash returns are pulled upwards due to the higher inflation and real cash rate assumptions. For some countries, such as the UK and Canada, the productivity growth assumptions compared to last year are a drag on returns.

Chart 11: Breakdown of cash return forecasts compared to last year's estimates (*Delayed Transition versus Current Policies*)

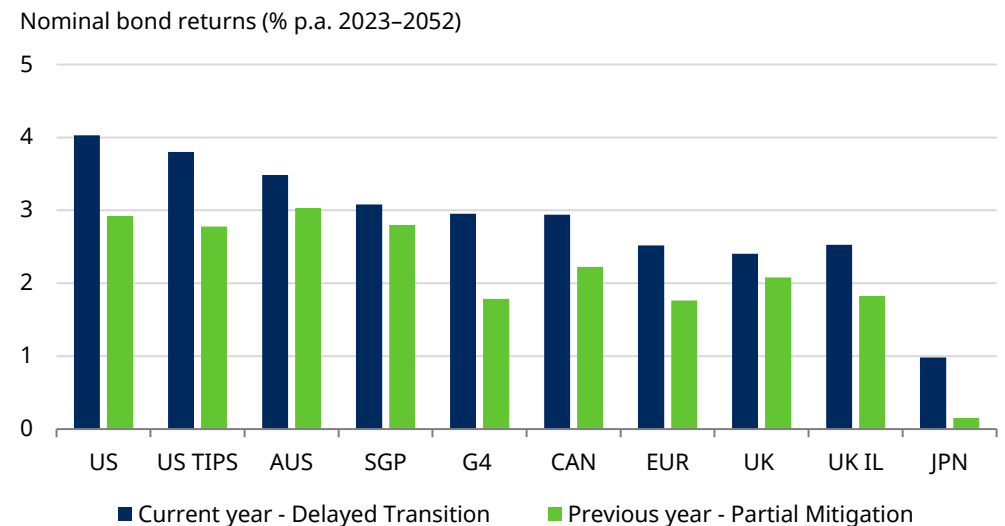


Note: The change in the climate-adjusted productivity number is comparing the productivity growth differential between *Delayed Transition versus Current Policies* and last year's *Partial Mitigation versus No climate change*. Source: Schroders Economics Group, January 2023.

Sovereign and credit bonds

Given the upgrades to our cash return forecasts, our sovereign bond forecasts have also been revised up mainly driven by upward revisions to our assumptions on real rates and inflation (chart 12). Similarly, our credit bond forecasts have been upgraded thanks to higher expected sovereign bond returns (chart 13).

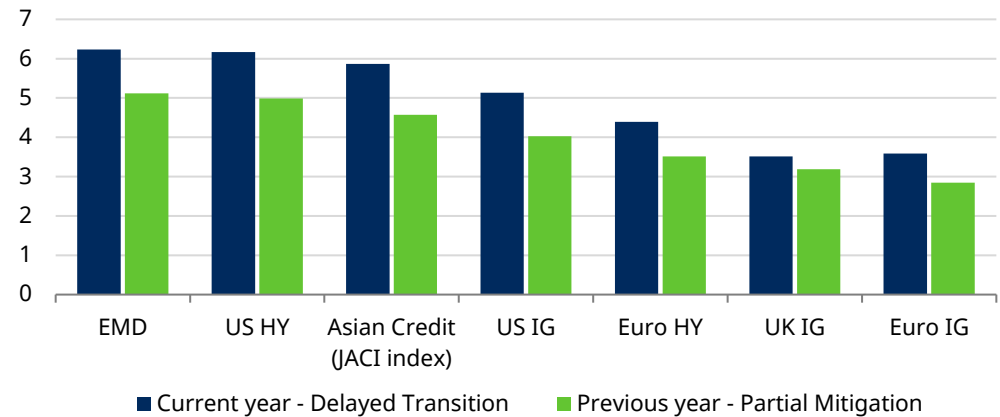
Chart 12: Sovereign and inflation-linked bond return forecasts compared to the previous year



Note: G4 is a market-cap weighted composite of the US, UK, Eurozone and Japan. Source: Schroders Economics Group, January 2023.

Chart 13: Credit and EMD bond return forecasts compared to the previous year

Nominal returns (% p.a. 2023–2052)



Note: Returns are in local currency except for EMD and Asian Credit which is denominated in US dollar. Source: Schroders Economics Group, January 2023.

Equities

EM should still outperform most of DM

Table 10 compares our equity return forecasts based on this year's *Delayed Transition* compared to last year's estimate (*Partial Mitigation*). Most of the markets that we track have experienced upgrades this year particularly China onshore, Taiwan, and Japan. By contrast, South Korea and Hong Kong are expected to experience lower returns over the next 30 years when compared to our previous analysis.

Table 10: Nominal equity return forecasts compared to the previous year (*Delayed Transition* versus *Partial Mitigation*)

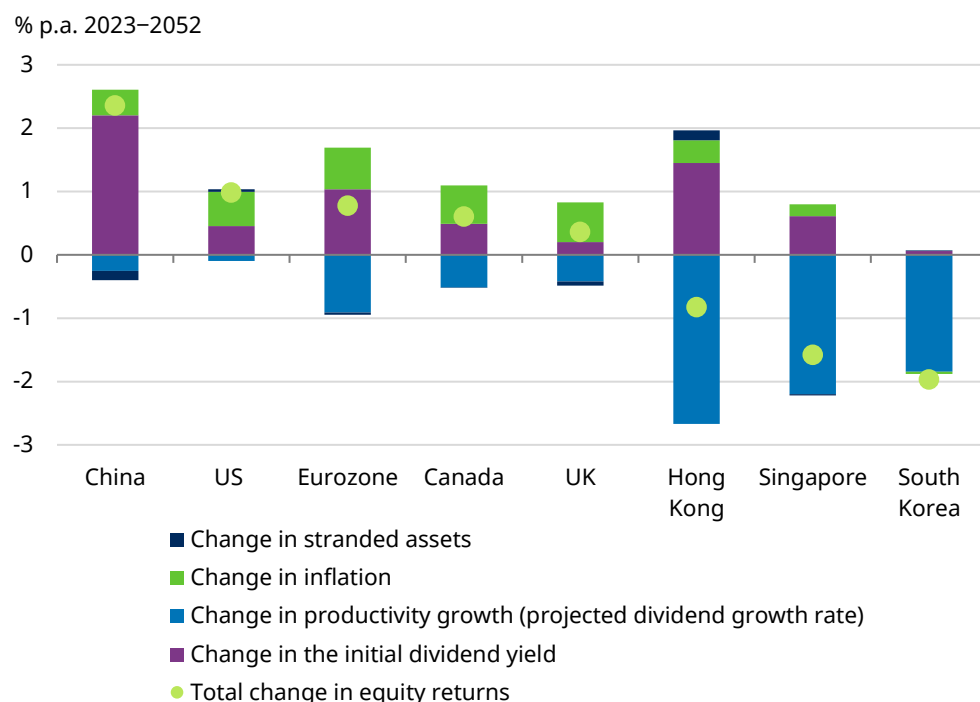
Nominal returns, % p.a. over the next 30 years	Currency	Delayed Transition	Partial Mitigation	Difference compared to last year
US	USD	6.3	5.3	0.9
UK	GBP	7.3	6.9	0.3
Eurozone	EUR	6.8	6	0.7
Japan	JPY	5.3	2.9	2.3
Switzerland	CHF	5.9	6.2	-0.3
Canada	CAD	6.5	5.9	0.6
Australia	AUD	8.4	7.8	0.5
Hong Kong	HKD	9	9.8	-0.8
Singapore	SGD	8.3	9.9	-1.4
Pacific ex. Japan	Local	8.4	8.1	0.3
South Korea	KRW	6.7	8.7	-1.8
Taiwan	TWD	9.4	7.3	2
China onshore	CNY	9.1	6.7	2.2
India	INR	9.5	7.6	1.8
Emerging markets	Local	8.8	7.4	1.3
Developed markets	Local	6.6	5.4	1.2
Global	Local	6.7	5.7	0.9

Note: Returns are in local currency. Source: Schroders Economics Group, January 2023.

Chart 14 shows the breakdown of changes in our current forecasts compared to last year's estimates. Some of the changes in our equity returns are due to revisions in our underlying equity assumptions on productivity growth and dividend yield. For instance, US equity returns have been upgraded due to the rise in the initial dividend yield and higher inflation. For countries, such as China, return estimates have been revised up driven predominately by higher dividend yields.

Meanwhile, the assumptions on climate change through the impact on productivity growth and inflation have changed compared to last year. Under *Delayed Transition*, most economies are likely to experience lower productivity and more inflation compared to last year's *Partial Mitigation* scenario.

Chart 14: Breakdown of equity return forecasts compared to last year's estimates (*Delayed Transition* compared to *Partial Mitigation*)



Source: Schroders Economics Group, January 2023.

Accounting for currency moves

To ease comparison, we also attempt to incorporate the impact of currency on asset returns. To do this, we use uncovered interest parity (UIP) theory. Here, an interest rate differential implies an offsetting exchange rate movement, such that holding dollars, sterling or euros yields the same return. So, if sterling cash yields a lower interest rate versus the dollar, it must be that sterling is expected to appreciate versus the dollar by an amount which makes up the difference. To keep our forecasts internally consistent, we use our cash rate forecasts as our interest rates for this purpose (equivalent to assuming a one-year hedge is put on and rolled each year for 30 years). Applying this to a selection of the assets we forecast returns shown in the table 11.

Investors seeking the highest dollar returns over this time period would be drawn to the UK and Europe in equity, US high yield in credit, European private property, and US private equity.

Adjusting for currencies reinforces findings for dollar investors

Table 11: Nominal returns currency hedged based on *Delayed Transition* scenario (% p.a. 2023–52)

UIP basis	USD	GBP	EUR
Cash	3.0	1.8	1.8
Government bonds (10-year)			
US Treasury bond	4.0	2.9	2.9
UK Gilt	3.6	2.4	2.4
Eurozone (Germany)	3.7	2.5	2.5
JGB	3.3	2.1	2.1
Inflation-linked			
Barclays 7-10 year IL Gilts	3.7	2.5	2.5
Barclays 7-10 year TIPS	3.8	2.6	2.6
Credit			
US Investment Grade	5.1	4.0	4.0
US High yield	6.2	5.0	5.0
UK Investment Grade	4.7	3.5	3.5
Euro Investment Grade	4.7	3.6	3.6
Euro High Yield	5.5	4.4	4.4
Real estate			
UK Commercial	6.5	5.4	5.4
EUR Commercial	6.6	5.5	5.5
UK REITs	6.4	5.2	5.2
EUR REITs	5.2	4.0	4.0
Private equity			
US private equity	7.8	6.6	6.6
Equity markets			
US	6.3	5.1	5.1
US small cap	6.7	5.6	5.6
UK	8.5	7.3	7.3
UK small cap	9.3	8.1	8.1
Europe ex UK	7.6	6.5	6.5
Eurozone	7.9	6.8	6.8
Japan	7.6	6.4	6.4

Source: Schroders Economics Group, January 2023.

Appendix

Asia cash forecast methodology

For our Asia cash forecasts, we base our projections on the US real cash rate, adjusted for productivity growth versus the US. In addition, we make further adjustments to the cash returns to take account of historical performance (table A1).

As a result, some of the forecasts come in above the US cash number, as these economies have higher productivity growth forecasts than the US, such as China and India.

Table A1: Cash return forecasts for Asia based on the *Delayed Transition* scenario (2023–52)

% p.a. over the next 30 years	Currency	Nominal return	Inflation	Real return
US	USD	3.0	2.7	0.2
Taiwan	TWD	1.6	1.6	-0.1
Korea	KRW	2.1	2.3	-0.3
China onshore	CNY	4.7	2.7	1.9
India	INR	5.5	4.7	0.7
Hong Kong	HKD	3.0	2.7	0.2
Singapore	SGD	2.4	2.2	0.2
Australia	AUD	3.1	2.9	0.1

Source: Schroders Economics Group, January 2023.

Table A2: Long-run return assumptions based on *Delayed Transition* (2023–52)

% p.a. over the next 30 years	Currency	Yield	Capital gain	Nominal return	Inflation	Real return
Cash						
US	USD	3.0	N/A	3.0	2.7	0.2
UK	GBP	1.8	N/A	1.8	2.4	-0.6
Eurozone	EUR	1.8	N/A	1.8	2.5	-0.7
Japan	JPY	0.6	N/A	0.6	1.5	-0.9
Canada	CAD	2.2	N/A	2.2	2.6	-0.4
Australia	AUD	3.1	N/A	3.1	2.9	0.1
Hong Kong	HKD	3.0	N/A	3.0	2.7	0.2
Singapore	SGD	2.4	N/A	2.4	2.2	0.2
G4 cash	Local	2.1	N/A	2.1	2.4	-0.3
Government bonds (10y)						
US Treasury bond	USD	4.0	N/A	4.0	2.7	1.3
UK Gilt	GBP	2.4	N/A	2.4	2.4	0.0
Eurozone (Germany)	EUR	2.5	N/A	2.5	2.5	0.0
JGB	JPY	1.0	N/A	1.0	1.5	-0.5
Canada	CAD	2.9	N/A	2.9	2.6	0.3
Australia	AUD	3.5	N/A	3.5	2.9	0.5
Hong Kong	HKD	4.2	N/A	4.2	2.7	1.4
Singapore	SGD	3.1	N/A	3.1	2.2	0.9

% p.a. over the next 30 years	Currency	Yield	Capital gain	Nominal return	Inflation	Real return
G4 bond	Local	3.0	N/A	3.0	2.4	0.5
Inflation-linked (IL)						
Barclays 7-10 year IL Gilts	GBP	2.5	N/A	2.5	2.8	-0.3
Barclays 7-10 year TIPS	USD	3.8	N/A	3.8	2.7	1.1
Credit						
US Investment Grade	USD	5.1	N/A	5.1	2.7	2.4
US High yield	USD	6.2	N/A	6.2	2.7	3.4
UK Investment Grade	GBP	3.5	N/A	3.5	2.4	1.1
Euro Investment Grade	EUR	3.6	N/A	3.6	2.5	1.1
Euro High Yield	EUR	4.4	N/A	4.4	2.5	1.9
\$EMD	USD	6.2	N/A	6.2	2.8	3.3
Real estate						
UK Commercial	GBP	4.8	0.6	5.4	2.4	2.9
EUR Commercial	EUR	4.3	1.2	5.5	2.5	2.9
UK REITs	GBP	3.0	2.2	5.2	2.4	2.8
EUR REITs	EUR	3.4	0.6	4.0	2.5	1.5
Private equity						
US private equity	USD	N/A	N/A	7.8	2.7	5.0
Equity markets						
US	USD	1.8	4.4	6.3	2.7	3.5
US small cap	USD	1.7	5.0	6.7	2.7	3.9
UK	GBP	3.7	3.5	7.3	2.4	4.8
UK small cap	GBP	3.5	4.5	8.1	2.4	5.6
Europe ex.UK	EUR	3.1	3.3	6.5	2.1	4.2
Eurozone	EUR	3.2	3.5	6.8	2.5	4.2
Japan	JPY	2.5	2.8	5.3	1.5	3.8
Canada	CAD	3.1	3.4	6.5	2.6	3.8
Switzerland	CHF	2.9	2.9	5.9	1.4	4.4
Singapore	SGD	4.1	4.1	8.3	2.2	6.0
Pacific ex.Japan	Local	4.5	3.7	8.4	2.7	5.6
Emerging markets	Local	4.2	4.4	8.8	2.8	5.8
Developed markets	Local	2.2	4.4	6.6	2.8	3.7
Global	Local	2.4	4.1	6.7	2.6	4.0
Global equity risk premium		v. G4 bonds		3.6		3.5
		v. G4 cash		4.4		4.3

Note: UK Index-linked returns use RPI inflation for the nominal return. G4 is a market-cap weighted composite of the US, UK, Eurozone and Japan. Source: Refinitiv, Schroders Economics Group. January 2023.

Table A3: Long-run return assumptions for Asia based on *Delayed Transition* (2023–52)

% p.a. over the next 30 years	Currency	Yield	Capital gain	Nominal return	Inflation	Real return
Equity markets						
Asia ex. Japan	USD	3.8	4.8	8.8	2.7	5.9
Taiwan	TWD	5.2	4.0	9.4	1.6	7.6
Korea	KRW	2.1	4.5	6.7	2.3	4.3
China onshore	CNY	4.8	4.1	9.1	2.7	6.2
India	INR	1.4	8.0	9.5	4.7	4.6
Hong Kong	HKD	3.7	5.1	9.0	2.7	6.1
Singapore	SGD	4.1	4.1	8.3	2.2	6.0
Australia	AUD	5.0	3.3	8.4	2.9	5.3
Cash						
Taiwan	TWD	1.6	N/A	1.6	1.6	-0.1
South Korea	KRW	2.1	N/A	2.1	2.3	-0.3
China onshore	CNY	4.7	N/A	4.7	2.7	1.9
India	INR	5.5	N/A	5.5	4.7	0.7
Hong Kong	HKD	3.0	N/A	3.0	2.7	0.2
Singapore	SGD	2.4	N/A	2.4	2.2	0.2
Australia	AUD	3.1	N/A	3.1	2.9	0.1
Government bonds (10y)						
Hong Kong	HKD	4.2	N/A	4.2	2.7	1.4
Singapore	SGD	3.1	N/A	3.1	2.2	0.9
Australia	AUD	3.5	N/A	3.5	2.9	0.5
Asian Govt.	USD	4.8	N/A	4.8	3.2	1.6
Credit						
Asian Credit (JACI Index)	USD	5.9	N/A	5.9	2.7	3.1
Asian Local Currency Bonds	USD	5.3	N/A	5.3	3.2	2.1

Source: Refinitiv, Schroders Economics Group, January 2023.

Table A4: Long-run return assumptions based on *Net Zero with innovation* (2023–52)

% p.a. over the next 30 years	Currency	Yield	Capital gain	Nominal return	Inflation	Real return
Cash						
US	USD	2.9	N/A	2.9	2.5	0.4
UK	GBP	1.9	N/A	1.9	2.3	-0.4
Eurozone	EUR	1.7	N/A	1.7	2.2	-0.5
Japan	JPY	0.5	N/A	0.5	1.3	-0.7
Canada	CAD	2.1	N/A	2.1	2.4	-0.3
Australia	AUD	3.3	N/A	3.3	3.0	0.3
Hong Kong	HKD	2.9	N/A	2.9	2.5	0.4
Singapore	SGD	2.1	N/A	2.1	1.8	0.3
G4 cash	Local	2.0	N/A	2.0	2.2	-0.1
Government bonds (10y)						

% p.a. over the next 30 years	Currency	Yield	Capital gain	Nominal return	Inflation	Real return
US Treasury bond	USD	4.0	N/A	4.0	2.5	1.5
UK Gilt	GBP	2.5	N/A	2.5	2.3	0.2
Eurozone (Germany)	EUR	2.4	N/A	2.4	2.2	0.2
JGB	JPY	0.9	N/A	0.9	1.3	-0.4
Canada	CAD	2.8	N/A	2.8	2.4	0.4
Australia	AUD	3.7	N/A	3.7	3.0	0.7
Hong Kong	HKD	4.1	N/A	4.1	2.5	1.6
Singapore	SGD	2.9	N/A	2.9	1.8	1.0
G4 bond	Local	2.9	N/A	2.9	2.2	0.7
Inflation-linked (IL)						
Barclays 7-10 year IL Gilts	GBP	2.7	N/A	2.7	2.7	0.0
Barclays 7-10 year TIPS	USD	3.7	N/A	3.7	2.5	1.2
Credit						
US Investment Grade	USD	5.1	N/A	5.1	2.5	2.5
US High yield	USD	6.1	N/A	6.1	2.5	3.6
UK Investment Grade	GBP	3.6	N/A	3.6	2.3	1.3
Euro Investment Grade	EUR	3.5	N/A	3.5	2.2	1.3
Euro High Yield	EUR	4.3	N/A	4.3	2.2	2.1
\$EMD	USD	6.2	N/A	6.2	2.6	3.5
Real estate						
UK Commercial	GBP	4.8	0.5	5.3	2.3	2.9
EUR Commercial	EUR	4.3	0.9	5.2	2.2	2.9
UK REITs	GBP	3.0	2.1	5.1	2.3	2.8
EUR REITs	EUR	3.4	0.3	3.7	2.2	1.5
Private equity						
US private equity	USD	N/A	N/A	7.9	2.5	5.3
Equity markets						
US	USD	1.8	4.4	6.2	2.5	3.7
US small cap	USD	1.7	5.1	6.8	2.5	4.3
UK	GBP	3.7	3.7	7.5	2.3	5.1
UK small cap	GBP	3.5	4.8	8.5	2.3	6.0
Europe ex.UK	EUR	3.1	3.3	6.5	1.9	4.5
Eurozone	EUR	3.2	3.4	6.7	2.2	4.4
Japan	JPY	2.5	2.6	5.2	1.3	3.9
Canada	CAD	3.1	3.4	6.6	2.4	4.1
Switzerland	CHF	2.9	3.0	5.9	1.3	4.6
Singapore	SGD	4.1	3.9	8.2	1.8	6.2
Pacific ex.Japan	Local	4.5	3.8	8.5	2.6	5.7
Emerging markets	Local	4.2	4.8	9.1	2.6	6.3
Developed markets	Local	2.2	4.3	6.6	2.6	3.9
Global	Local	2.4	4.1	6.7	2.3	4.2

% p.a. over the next 30 years	Currency	Yield	Capital gain	Nominal return	Inflation	Real return
Global equity risk premium		v. G4 bonds		3.7		3.5
		v. G4 cash		4.5		4.4

Note: UK Index-linked returns use RPI inflation for the nominal return. G4 is a market-cap weighted composite of the US, UK, Eurozone and Japan. Source: Refinitiv, Schroders Economics Group. January 2023.

Table A5: Long-run return assumptions for Asia based on the *Net Zero with innovation* (2023–52)

% p.a. over the next 30 years	Currency	Yield	Capital gain	Nominal return	Inflation	Real return
Equity markets						
Asia ex. Japan	USD	3.8	4.8	8.8	2.5	6.2
Taiwan	TWD	5.2	3.9	9.3	1.4	7.8
Korea	KRW	2.1	4.3	6.5	2.0	4.4
China onshore	CNY	4.8	4.1	9.2	2.5	6.5
India	INR	1.4	8.4	9.9	4.7	5.0
Hong Kong	HKD	3.7	4.9	8.8	2.5	6.2
Singapore	SGD	4.1	3.9	8.2	1.8	6.2
Australia	AUD	5.0	3.6	8.8	3.0	5.6
Cash						
Taiwan	TWD	1.4	N/A	1.4	1.4	0.0
South Korea	KRW	1.9	N/A	1.9	2.0	-0.2
China onshore	CNY	4.6	N/A	4.6	2.5	2.1
India	INR	5.7	N/A	5.7	4.7	1.0
Hong Kong	HKD	2.9	N/A	2.9	2.5	0.4
Singapore	SGD	2.1	N/A	2.1	1.8	0.3
Australia	AUD	3.3	N/A	3.3	3.0	0.3
Government bonds (10y)						
Hong Kong	HKD	4.1	N/A	4.1	2.5	1.6
Singapore	SGD	2.9	N/A	2.9	1.8	1.0
Australia	AUD	3.7	N/A	3.7	3.0	0.7
Asian Govt.	USD	4.8	N/A	4.8	3.0	1.8
Credit						
Asian Credit (JACI Index)	USD	5.8	N/A	5.8	2.5	3.2
Asian Local Currency Bonds	USD	5.3	N/A	5.3	3.0	2.3

Source: Refinitiv, Schroders Economics Group. January 2023.

Glossary on abbreviations

AUS is Australia, CAN is Canada, CHE is Switzerland, CHI is China, DEU is Germany, EUR is Eurozone, FRA is France, IND is India, ITA is Italy, JPN is Japan, KOR is South Korea, MEX is Mexico, NZL is New Zealand, RUS is Russia, SGP is Singapore, UK is United Kingdom, US is United States and ZAF is South Africa.

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