



# What to expect when you are expecting inflation, rising interest rates, recession

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Inflation is at or close to 40-year highs across the OECD. In response, all major central banks have started to raise their policy rates. Should inflation remain at high levels, central bank responses are expected to be significant, likely causing an economic slowdown. In this macroeconomic environment with elevated risks, core infrastructure will have the opportunity to prove itself: Infrastructure provides inflation-protection, stable cash flows and recession-resilience – only, of course, when it is done right with a core approach.

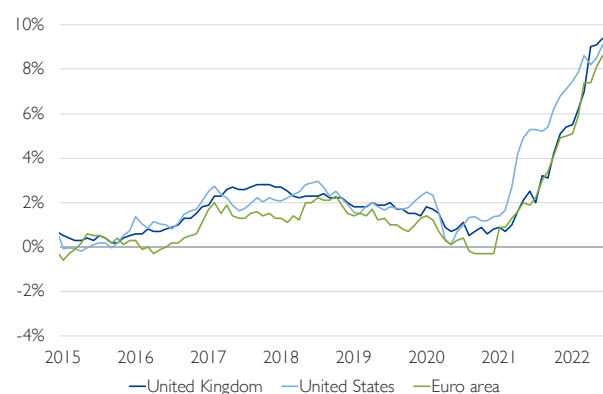
Infrastructure investments require a long-term approach and focusing too much on annual fluctuations can be misleading. Having said that, the stable cash flow characteristic must be considered in an inflation-adjusted way. Considering the expected returns at “mid to high single digits” for core investment strategies, the current level of inflation is certainly challenging: delivering 8% return/5% yield in a 2% inflation environment is much different than delivering the same in an 8% inflation environment. We expect infrastructure investments, done with a core investment strategy, to perform well and provide the inflation-protection even in the short term.

Beyond inflation, in a high interest rates and economic slowdown scenario, we also expect core infrastructure to perform well – relative to other asset classes. Partly for secular reasons such as the increased investor demand for renewables, and partly due to the flight-to-quality to resilient investments, we expect infrastructure valuations to remain strong.

## Inflation update

Inflation is high. Following the Covid-caused lows in late 2020 of -0.3% in the euro area, 0.5% in the UK and 1.2% in the US, CPI inflation has comfortably remained above 8% since May 2022 in all three economies.

### CPI inflation, 2015 - 2022



Sources: Eurostat, US BLS, UK ONS; data accessed in August 2022

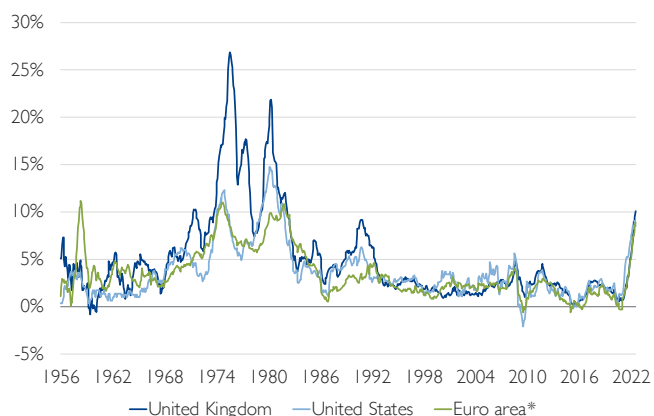
The sharp increase in inflation has been shocking even to the experts.<sup>1</sup> The consensus forecasts, defined as the median of the institutional forecasts, has been playing catch-up for more than a year now.<sup>2</sup>

<sup>1</sup> Obviously, forecasting economists being shocked is not shocking in and of itself.  
<sup>2</sup> For instance, the consensus forecast on the UK economy as of December 2021 was 3.1% CPI inflation in 2022. Available at <https://www.gov.uk/government/statistics/forecasts-for-the-uk-economy-december-2021>.

## The end of the Great Moderation

The sharp increase in inflation has been shocking because of the recency bias. Such an increase had not happened since 1990s, but it is actually quite common when one looks at longer datasets. What is rare is the moderate inflation levels of the last thirty years between 1990 and 2020 in all high-income OECD economies, without exception.

### CPI inflation, 1956 - 2022



Note: \* Germany-France average before 1996

Sources: Eurostat, US BLS, UK ONS; data accessed in August 2022

The “Great Moderation” in inflation<sup>3</sup> is the result of successful central bank policies<sup>4</sup>, as the ways to combat inflationary cycles are believed to be well-analysed and understood. When inflation stays at a high level for an extended period, say a year or more, the cost of lowering it is a recession. We still remember Paul Volcker, the US Fed’s chairman between 1979-87, who is credited with the successful disinflation of the 1980s at the expense of the relatively deep 1980-82 recession. In an environment where US CPI inflation was fluctuating between 10% and 15%, the US Fed doubled its policy rate from 10% in June 1979 to 20% in January 1982, forcing the real interest rate (nominal interest rate minus inflation) to be meaningfully positive. As aggregate demand was curbed, inflation started to fall. Before the year-end in 1982, CPI inflation was below 5%. The resulting recession was deep – the worst recession from 1945 until 2008 in terms of the increase in unemployment rate. Nevertheless, Volcker’s policy with sharp rate increases is now considered a huge success in hindsight.

3 The term “great moderation” was coined in early 2000s to describe the reduction in macroeconomic volatility and business cycle fluctuations.

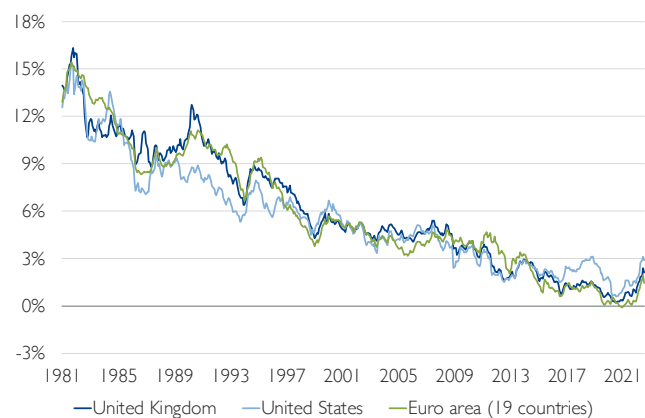
4 Admittedly a self-serving claim from various economists, see for instance Ben Bernanke’s explanation at <https://www.federalreserve.gov/boarddocs/speeches/2004/20040220/>. The rise of global supply chains may also be considered as one of the main causes.

## 40 years of declining interest rates

During the Great Moderation, central bankers of the world kept lowering interest rates to support their economies. As CPI inflation remained low and unaffected by rate declines, it was considered a “free lunch” to lower the rates to strengthen the GDP growth. Given the connectivity of the global economy, even the central banks which were reluctant to lower the rates themselves<sup>5</sup> had to follow suit to keep currency exchange rates relatively stable and, as such, the trade balance.

The only risk was not having enough room to lower policy rates radically to provide monetary support if a recession hit. The 2008-09 recession is an example – all major central banks practically immediately started implementing zero-interest-rate-policies and, when that was not enough, quantitative easing – a method developed by the Bank of Japan. Similarly, when the Covid crisis hit in early 2020, there again was not much room for the central bankers to provide monetary policy support. They just enhanced the quantitative easing programmes.

### 10-yr government bond yields



Source: OECD Stat; data accessed in August 2022

As a side note, the main impact of forty years of steadily declining interest rates has been asset price inflation:<sup>6</sup>

### Inflation-adjusted increase between 1980 and 2020

World GDP	3.3 times
S&P 500 price index	15 times
Average house price in London	9.5 times

5 E.g., the Deutsche Bundesbank, and later on the ECB, highly influenced by its Frankfurt office, until 2009-2011 Eurozone debt crisis. For a brief summary of the Bundesbank’s influence on ECB decisions before 2009, see <https://www.cer.org.uk/insights/ecb-not-german-central-bank>.

6 Many investors of the past four decades owe significant portions of their “success” to the interest rate trend and the corresponding asset price inflation.

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## What is next?

Covid-related restrictions are being phased away globally. There is pent-up consumer demand, supply response is weak due to the sharp decline in the global labour force through Covid, and there is a war in Europe, which is affecting the energy prices globally. So, inflation is back after 40 years. The Great Moderation, at least for this year, has ended.

What comes next in this Covid-induced cycle will mostly be determined by central bank responses to inflation. The outcome is likely to be somewhere between two scenarios:

- Disinflation starts in the second half of 2022: central banks declare victory, keep interest rates low, and may even consider taking back some of the recent increases; and
- Inflation stays above 8% annual rate for the rest of the year: central banks keep raising rates – moderately at the start, harshly when their patience runs out.

The disinflation scenario is the consensus forecast as of now<sup>7</sup>, especially with the hope that September-October inflation readings will be the start of a decline in inflation. The high inflation scenario implies high interest rates and a recession.

## Time to test infrastructure's downside protection premise

The disinflation scenario (current consensus) is the business-as-usual case. Debt will continue to be available at relatively low rates, especially for core infrastructure investments which are considered lower risk than average corporates. The gradually declining discount rate trend that we have observed so far will continue, based on the elevated investor appetite and increasing allocations to infrastructure.

In the high inflation scenario with high rates and an accompanying recession, investors need to carefully analyse the impact on valuation discount rates across all asset classes. Other asset classes such as fixed income, equities and real estate do not generally perform well in macroeconomic environments with high inflation, high interest rates and low economic growth: Bond valuations, which are at record highs

because of record low interest rates, will remain under pressure; as interest rates increase, capital values may decline. Listed equity valuations will be volatile with investor demand focusing on “defensive” stocks, etc.

Infrastructure is considered to be a defensive investment strategy protecting against inflation and capital market volatility through stable long-term cash flows. It has been promising to provide downside protection, i.e. inflation-protection, stable cash flows and recession resilience:

- It provides inflation-protection either explicitly through contracts or regulatory frameworks, or indirectly with revenues strongly aligned with inflation;
- It demonstrates low exposure to interest rates with focus on long term fixed rate debt; and
- It relies on conservative demand growth assumptions in GDP-sensitive assets.

Throughout the Great Moderation, infrastructure's downside case performance could not get tested. While inflation was mostly fluctuating within a narrow band around 2%, inflation-protection ability was not central for most investors. The choice between a nominally-fixed revenue contract and an inflation-linked one got blurred as investors focused on nominal return targets. Similarly, the choice between long-term fixed-rate debt and short-term variable-rate debt (lower cost, higher risk) was not straightforward as interest rates remained at record low levels.

Infrastructure can strongly provide downside case protection, only if it is done with a core approach to the investment strategy. The high inflation and high interest rate scenario will test infrastructure investments, and most likely there will be lessons learned for a considerable number of investors.

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<sup>7</sup> See Footnote 2 for an example on the success of consensus forecasts.

## EXAMPLE: The impact of core infrastructure when it is done right

The core approach to the investment strategy is an overly used term for marketing purposes, while being costly to implement and requiring discipline. In short, a core approach requires opting for the long-term stability at the expense of the short-term gain. Since infrastructure is a truly long-term investment, even the short-term is measured by more than a few years. Investor reporting, which tends to be quarterly, is much more frequent than any meaningful “short-term” in the infrastructure space. The frequency of reporting creates a bias for opting for the short-term gain, rather than the long-term stability. That is where investor discipline is needed.

Let us consider two macroeconomic scenarios as described above and look at the estimated effects of various key variables in the investment approach. First, let us define the scenarios at a very high level on inflation, cost of debt and GDP growth:

	Business-as-usual			High inflation, high rates, recession		
	Inflation	Cost of debt	GDP growth	Inflation	Cost of debt	GDP growth
2022	9%	5%	3%	10%	5%	3%
2023	5%	5%	1%	9%	12%	-2%
2024	3%	4%	2%	5%	7%	-1%
2025	3%	4%	2%	1%	4%	0%
2026	2%	3%	2%	2%	3%	2%
2027+	2%	3%	2%	2%	3%	2%

Note that the difference in inflation between the two scenarios averages to an approximate 50 bps per year considering the next 10 years, and 16 bps considering the next 35 years. We can feed-in these macroeconomic scenarios into simple financial models and look at the effects on various return and yield metrics for illustrative infrastructure investments:

## Unlevered solar farm with 35-yr of economic life remaining

	Business-as-usual scenario		High inflation, high rates, recession scenario	
	IRR	10-yr avg yield	IRR	10-yr avg yield
10-yr fixed-rate contract	5.0%	4.9%	5.2%	4.9%
10-yr inflation-linked contract	5.0%	5.0%	5.3%	5.2%

Note that while the investment with the inflation-linked contract does better in the high inflation scenario, the difference is relatively small since the assumption is that after Year 10, the merchant cash flows will be exactly the same for both investments. For longer contracted periods, the impact of the high inflation scenario will be more pronounced.

## Regulated utility with 60% loan-to-value ratio

	Business-as-usual scenario		High inflation, high rates, recession scenario	
	IRR	10-yr avg yield	IRR	10-yr avg yield
10-yr fixed-rate debt	7.0%	4.5%	7.9%	5.8%
10-yr variable-rate debt	7.4%	5.0%	6.7%	3.4%

The impact of opting for fixed-rate debt for a regulated utility where revenues are assumed to be fully inflation-indexed, is much larger. While the variable-rate debt can increase the expected IRR as much as 40 bps in the business-as-usual scenario, the impact of high interest rates makes a material negative impact on cash flows and more than takes away the positive impact of higher inflation for the investment with the variable interest rate debt.

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## Valuation discount rates and conclusion

As interest rates kept declining through the period of Great Moderation, valuation discount rates followed suit, keeping the equity risk premia relatively constant for most asset classes. In the infrastructure space, at least for some sectors such as renewables because of the elevated investor appetite, the equity risk premia also declined, lowering the valuation discount rates even further. Going forward, if we assume the scenario with sustained increases in interest rates, valuation discount rates should also start rising. The level of such increases will depend on the specifics of the assets and the investors' appetite as well as perception of risk.

As infrastructure is truly a wide asset class in terms of revenue sources, any analysis of valuation discount rates needs to be done in a bottom-up approach, looking at the dynamics at the asset/sector level. At a high level, core infrastructure has three main revenue sources:

- Long term contracts including government subsidies, e.g. renewables with power purchase agreements and/or feed-in-tariffs;
- Regulators setting end-user tariffs to limit the return on equity, e.g. regulated utilities;
- GDP-sensitive revenues for assets that serve high numbers of end-users in user-pays frameworks, e.g. toll roads and airports.

The behaviour of valuation discount rates in the high inflation, high interest rates and recession scenario will depend on the market's perception of the main source of revenue.

- For contracted assets, we expect the valuation discount rates to remain stable, or at least increase at much lower rates compared to the interest rates. Contracted assets, which are dominated by renewables by market size and transaction volume, remain exceedingly attractive for institutional investors. Due to the pressures of the global warming, institutional investors globally are implementing responsible investment policies, with a big appetite for renewables with

long-term contracts. Even in non-renewable sectors that allow long-term contracts with credit-grade counter-parties, the investor demand is high as operational risks are increasingly better understood.

- For regulated utilities, we expect the valuation discount rates to increase less than the interest rates, as equity risk premia remain stable in the long-term while flight-to-quality in a recessionary environment will help. Theoretically, regulators pass the cost of debt through to end-users. In practice, the pass through has a lag, which can be significant even in the medium-term. Regulated utilities have the reputation to provide resilience against recession.<sup>8</sup> As the scenario we are considering also involves a recession (or an economic slowdown), the impact of the lag in regulatory decisions to pass through the higher costs of debt can be negated by the flight-to-quality behaviour by the investors.
- For GDP-sensitive assets, especially considering recession fears following the recent once-in-a-lifetime declines in traffic volumes due to the Covid lockdowns, we expect the valuation discount rates to increase with the relevant interest rates in tandem. The availability of debt for GDP-sensitive transportation assets may go down, and levered discount rates may actually go down as well with lower leverage levels.

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<sup>8</sup> Not much data are available for the privately owned utilities in the 1970s and 1980s, but there is strong evidence that the listed utilities performed better than the market average at that time, the last time when high inflation, high interest rates and low economic growth prevailed. See for instance "The Effects of Rising Interest Rates on Electric Utility Stock Prices: Regulatory Considerations and Approaches" by S. Kim et al. available at <https://www.osti.gov/servlets/purl/1372673>.

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