

Private infrastructure and business cycles

Private infrastructure is a defensive asset class, but it tends to react to macroeconomic changes in multifaceted ways.

- _ For a diverse asset class like private infrastructure, benchmark returns can only provide limited insights.
- _ Infrastructure tends to be supported by long-term demand and dividend predictability, but much also depends on sector and contract profiles.
- _ Across different macroeconomic scenarios, an infrastructure portfolio with complementary characteristics may help to improve risk-adjusted returns.



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How do private infrastructure assets perform across a wide range of macroeconomic scenarios? It is a question increasingly asked by institutional investors. This partly reflects current market conditions. It is also partly because private infrastructure is still a relatively new, complex and diverse asset class. When pondering how to optimize their strategies, investors frequently rely on historical correlations between changes to the macroeconomic cycle and total returns for the asset class in question. In the case of private infrastructure, though, benchmark availability is limited, so historical return analysis can only go so far. Moreover, much depends on the sector of exposure, the underlying contractual structure of the asset, and the strategic approach an investor may take.

For purposes of this discussion, we take a slightly different approach. To start with, we believe that most appreciate private infrastructure assets for their perceived defensive characteristics. What is often less clear is what types of assets may have the potential to perform better as longer-term risks materialize. To help figure this out we developed four long-term macroeconomic scenarios for the Eurozone (indicative archetypes). See chart 1 for details.

In addition to a base-case and a goldilocks scenario, we also felt it important to differentiate between secular stagnation

(in which economic growth, inflation and interest rates all remain low) and stagflation (in which growth is low but inflation and interest rates rise over the medium term). We then analyzed how private infrastructure has historically performed in a changing macroeconomic environment with the help of big data, while also taking into account traditional macro-economic statistics and results from a benchmark-return analysis, explained in greater detail below.

Specifically, we started by analyzing the volatility in demand across various European sectors, mainly relying on Eurostat data for the period 2005-2016. From it, we concluded that demand for infrastructure on average historically tended to be less volatile than for other sectors. However, not all infrastructure sectors revealed the same resilience to business cycles in our analysis. Some sectors, including for example essential services, such as regulated water networks, education or healthcare, exhibited solid demand characteristics and low volatility historically. Other sectors appeared to be more exposed to a downturn, but also appeared to be supported by solid underlying long-term growth trends, which help reinforce demand fundamentals. For example, sectors such as airports or public transportation are typically positioned to capitalize on healthy long-term growth trends, but may be exposed to some volatility in the short term compared with other areas such as essential services.

For the second step in our analysis, we relied on our proprietary database comprising over 300 infrastructure companies with publicly available data.¹ We tried to understand how changes in the macroeconomic environment may filter through the capital structure of assets across different sectors and used a panel regression analysis² of operating performance, capital expenditure (capex), leverage and free cash flow, with key macroeconomic variables including gross-domestic-product (GDP) growth, inflation and interest rates for purposes of that evaluation. The knowledge gained from this analysis supports our view that income may well be predictable across most infrastructure sectors, but the source of this resilience to change varies in the macroeconomic environment.

More specifically, our analysis found that regulated sectors including water networks or electricity grids evidenced a somewhat solid level of resilience across most parts of the capital structure. Some other sectors, including for example airports or healthcare evidenced an overall long-term neutrality to macroeconomic changes across the capital structure and flexibility in operating performance, capex or leverage offering the potential to preserve dividend predictability. Other sectors, including ports, waste management, toll roads and rail freight have also historically demonstrated long-term dividend predictability, but also experienced some exposure to the macroeconomic cycle, particularly for operating performance and leverage. We believe this may represent a risk in case of a downturn, but also an important opportunity for growth and value creation in periods of economic expansion.

In our view, a helpful way to think about this may be to consider two different, widely used types of infrastructure-strategy styles. "Core strategies" are typically viewed as potentially having lower risks. Regulated water networks in mature markets would be one example. Such assets have historically provided a significant component of income yield, somewhat predictable and regulated revenues, as well as a longer-term investment horizon. However, the bond-like characteristics of such assets also make asset valuations quite sensitive to changes in interest rates. An increase in bond yields may cap valuations for core assets, even if, with a time lag, most regulatory frameworks allow for both inflation-indexed user tariffs, and the recovery of increases in interest rates.

By contrast, "core-plus strategies" target infrastructure assets with still moderate but slightly higher risk-return characteristics. They provide cash-flow visibility, but also have potential for some capital appreciation. An operational energy-from-waste business with an additional development component would be a typical example. In our analysis, core-plus infrastructure income has exhibited the ability to recover inflation in the long-term, while it only showed limited ability to absorb fundamental changes in interest rates in valuations. At the same time, income for core-plus assets has historically demonstrated the potential to grow at a multiple of gross-domestic-product (GDP) growth, thus supporting income and driving valuations in periods of economic growth, generally associated to rising interest rates. Growth may help offset the potential impact of increasing interest rates on valuations in the long term.

All this work, in turn, allowed us to model how different assets might do in the four long-term macroeconomic scenarios for the European economy outlined above. It helped us define an indicative, optimal strategic portfolio allocation across core and core-plus strategies for each scenario when looking at synchronized changes in GDP, interest rates and inflation. From our analysis, we determined that short-term changes in the macroeconomic cycle, such as a recession, remain an important factor in tactical investment decisions, but these tended to have more limited repercussions on private-infrastructure performance when investing for the longer term.

Across long-term macroeconomic scenarios, we believe that infrastructure investors may be able to benefit from constructing portfolios diversified across core and core-plus assets (see chart 2). We also feel that core, regulated infrastructure is key to balance systemic risk in a portfolio and to hedge against interest-rate changes in the long term, but capital-growth potential may be limited. In our base case, we believe that interest rates should remain lower for longer to support economic growth. In this context, considering an allocation to core-plus infrastructure, where assets may still exhibit a predictable dividend component but also be positioned for some growth, may help to improve risk-adjusted returns longer-term.

¹ Mostly, this is because these infrastructure companies are listed. We used their financial performance in the past to see how comparable private infrastructure assets might do in the future.

² A panel regression analysis is a widely used statistical method to identify whether one set of variables (such as, in this case, GDP growth) appears to have an identifiable and significant impact on another set of variables (such as capital expenditure by infrastructure companies in various sectors).

FOUR LONG-TERM MACROECONOMIC SCENARIOS FOR EUROPE

Our scenarios are intended as indicative archetypes. The goal is to see how different types of private infrastructure assets might perform over a wide range of plausible outcomes.

		GDP growth (real*)	Inflation (CPI**)	Interest rates (10-year government bond)
Macro scenario (10-year)	Goldilocks scenario	High	Low	Low
	Base case	Moderate	Low/ Moderate	Low/ Moderate
	Secular stagnation	Low	Low	Low
	Stagflation	Low	High	High

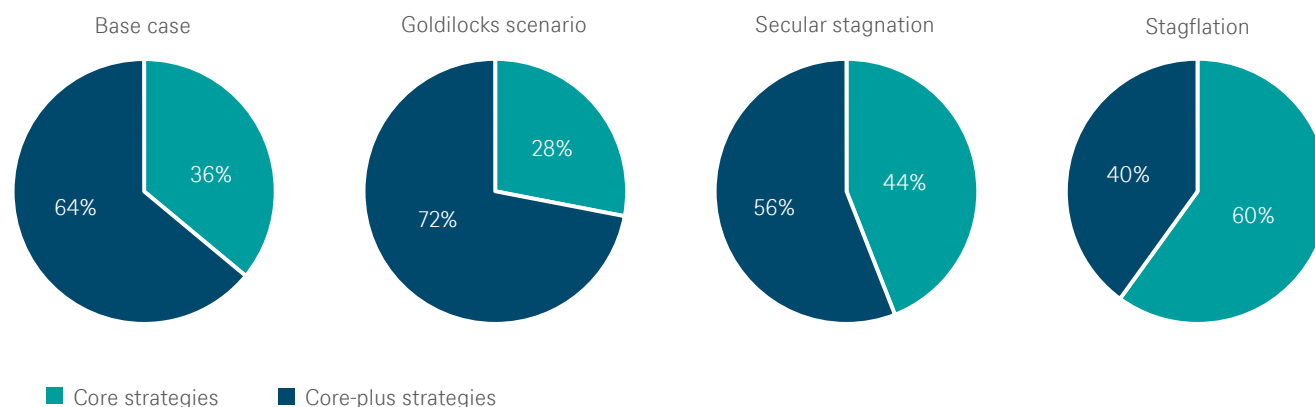
* In economics, a real value is adjusted for inflation.

** Consumer price index (CPI)

Sources: Oxford Economics, Eurostat, DWS Investment GmbH as of May 2019

INDICATIVE OPTIMAL INFRASTRUCTURE PORTFOLIOS

Our analysis suggests that building infrastructure portfolios with complementary characteristics can help boost risk-adjusted returns in all four scenarios.



Source: DWS Investment GmbH as of May 2019

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GLOSSARY

A **benchmark** is an index or other value against which an investment's performance is measured.

Capital expenditure (Capex) are funds used by a company to acquire or upgrade physical assets such as property, industrial buildings or equipment.

Correlation is a measure of how closely two variables move together over time.

The **Eurozone** is formed of 19 European Union member states that have adopted the euro as their common currency and sole legal tender.

Free Cash Flow (FCF) is a measure of financial performance calculated as operating cash flow minus capital expenditures. It shows how much cash a company is able to generate after deducting the money required to maintain or expand its asset base.

The term **Goldilocks economy** refers to a state of the economy, where there is neither a threat of inflation due to an overheating economy, nor a threat of a recession.

The **gross domestic product (GDP)** is the monetary value of all the finished goods and services produced within a country's borders in a specific time period.

A **hedge** is an investment to reduce the risk of adverse price movements in an asset.

Inflation is the rate at which the general level of prices for goods and services is rising and, subsequently, purchasing power is falling.

Leverage attempts to boost gains when investing through the use of borrowing to purchase assets.

A **recession** is, technically, when an economy contracts for two successive quarters but is often used in a looser way to indicate declining output.

Stagflation is the combination of the words "stagnation" and "inflation," referring to a period where inflation is high while the economy is stagnating.

Volatility is the degree of variation of a trading-price series over time. It can be used as a measure of an asset's risk.

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