Marketing Material*

September 2019 / Research Report

PRIVATE INFRASTRUCTURE AND THE MACRO ENVIRONMENT

Table of Contents

1 / Executive Summary[1]

— To optimise their strategies, institutional investors are increasingly interested in understanding how private infrastructure may perform throughout a period of market volatility, in an economic downturn, or if inflation and interest rates change. They typically approach this complex question by focusing on the historical correlation between changes to the macroeconomic cycle and total returns for a private infrastructure benchmark. However, for a complex and diverse asset class with limited benchmark availability, historical return analysis is only the tip of the iceberg. Understanding how private infrastructure assets may react to a changing macroeconomic environment is a multifaceted exercise, and depends on the sector of exposure, the underlying contractual structure of the asset, and the strategic approach of investors. Not all infrastructure assets share the same performance characteristics: assets will absorb macroeconomic fluctuations differently, and information provided by benchmarks today is still limited.

— Therefore, in this paper, we try to understand how infrastructure performs in a changing macroeconomic environment with the help of big data, adopting an innovative approach that looks at this question from different perspectives and tries to integrate information provided by benchmarks. Infrastructure may be a new asset class for long-term investors, but it has been around for many centuries. For this project, we identified thousands of data points for fundamental and financial performance. With the help of the data, we analysed the volatility in demand across various sectors. We concluded that infrastructure sectors should be on average less volatile than non-infrastructure ones and should therefore exhibit resilience during economic downturns. Moreover, certain infrastructure sectors have historically demonstrated more stable demand fundamentals, or solid long-term industry growth trends supporting performance.[2]

— As a second step in our analysis, we tried to understand how changes in the macroeconomic environment filter through the capital structure of assets across different sectors, with the help of our database comprising over 300 infrastructure companies. To achieve this, we ran a panel regression analysis of operating performance, capex, leverage and free cash flow, with key macroeconomic variables including GDP growth, inflation and interest rates. The knowledge gained from this analysis supports our view that income may well be predictable across most infrastructure sectors, but that the source of this resilience to changes in the macroeconomic environment may be in different parts of the capital structure. This analysis can be pivotal in driving investment strategies, asset management, and portfolio management.[3] Finally, we modelled four long-term macroeconomic scenarios for the European economy. Based on our return forecast for infrastructure across these scenarios, we tried to define the indicative, optimal strategic portfolio allocation across core and core plus strategies for each scenario when looking at synchronised changes in GDP, interest rates and inflation. We determined that short-term changes in the macroeconomic cycle, such as a recession, are certainly important for tactical investment decisions, but these tend to have more limited repercussions on private infrastructure performance when investing for the long term.

— Our analysis shows that, in the long term and across long-term macroeconomic scenarios, infrastructure investors could benefit from constructing portfolios diversified across core and core plus assets.[5] 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, an allocation to core plus infrastructure, where assets may still exhibit a predictable dividend component, but also be positioned for some growth, may improve risk-adjusted returns in a portfolio over the long term.[6]

[1] Any forecasts provided herein are based on DWS's opinion at time of publication and are subject to change. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect.
[2] Based on DWS proprietary database, Oxford Economics, Eurostat, Bloomberg, as at January 2019. Past performance is not a guide for future results.
[3] Based on DWS proprietary database and methodology, Bloomberg, Oxford Economics, as at April 2019. Past performance is not a guide for future results.
[4] Based on DWS proprietary database and methodology, Oxford Economics, as at May 2019. There is no guarantee the forecast shown will materialise.
[5] Core Infra = 'Low Risk' in MSCI Infrastructure Investment Style Matrix, includes brownfield assets in mature markets, with a significant component of income yield, predictable and regulated revenues, long-term investment horizon, and an investment grade rating profile. Core+ = 'Moderate Risk', includes brownfield assets in mature markets with some development risk, relatively predictable revenues and income and capital generally contributing equally to total return.
[6] Any forecasts provided herein are based on DWS's opinion at time of publication and are subject to change. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect.

2 / Strategic Insights[7]

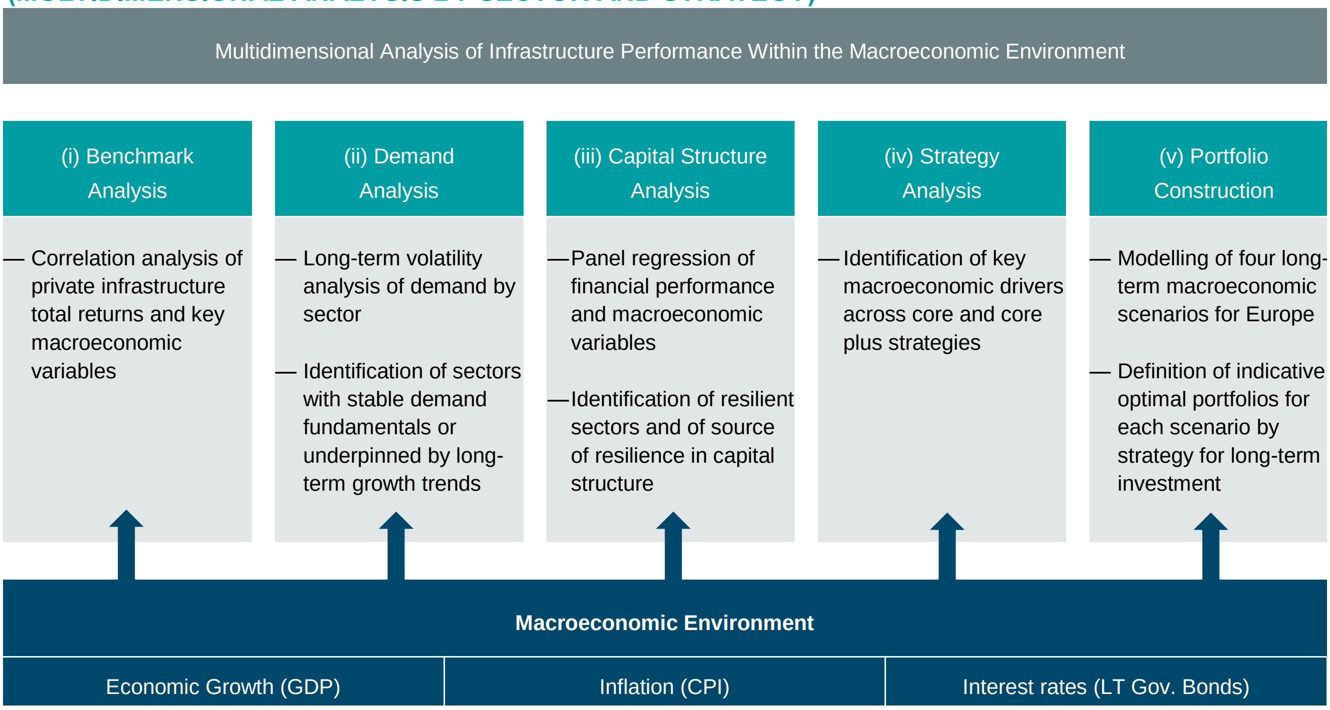
Private Infrastructure and the Macroeconomic Environment		
Returns & Economy	1	Limited Insights: Our correlation analysis indicates that private infrastructure total returns may provide a fair hedge against inflation, some correlation to GDP growth and limited negative correlation to interest rates. Income return is more resilient than capital return. However, for an asset class with fundamentals changing by market, sector, contract profile and asset, benchmark analysis provides only limited insights.[8]
Demand Fundamentals & Economy[9]	2	Demand Predictability: Demand for infrastructure should be on average less volatile than for other sectors. However, not all infrastructure sectors revealed the same resilience to the macroeconomic cycle. Some sectors have historically shown strong defensive characteristics, while other sectors may be more exposed to a downturn, but may also be supported by solid underlying industry long-term growth trends stabilising demand.
	3	Essential Services: Essential services, such as regulated water networks, education and healthcare exhibit solid demand characteristics, i.e. strong long-term annual growth and low long-term volatility.
	4	Long-term Trends: Some sectors, such as airports or public transportation are positioned to capitalise on healthy long-term growth trends providing potential for value creation, but may be exposed to some volatility in the short term compared with essential services. For some energy sub-sectors, such as thermal generation based on solid fuels and oil, we observed potential for short-term volatility, coupled with a consistent long-term decline.
Capital Structure & Economy[10]	5	Income Predictability: We identified long-term dividend stability across most infrastructure sectors. However, the ability to absorb fluctuations in GDP, inflation and interest rates supporting dividend payments, and the source of this flexibility within the capital structure change by sector and contract profile.
	6	Defensive Sectors: Regulated sectors including water networks or electricity grids evidenced a solid level of resilience across most parts of the capital structure. Some other sectors, 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 preserving dividend predictability.
	7	Exposed/ Growth Sectors: Some sectors, including ports, waste management, toll roads and rail freight have demonstrated long-term dividend predictability, but also some exposure to the macroeconomic cycle, particularly for operating performance and leverage. This may represent a risk in case of a downturn, but also an opportunity for growth in periods of economic expansion.
Portfolio Construction & Economy[11]	8	Long-Term Horizon: Our return analysis across various macroeconomic scenarios, highlighted that short-term changes in macroeconomic cycles, such as a recession, are important for tactical investment decisions, but may have limited consequences on long-term infrastructure investment performance. Focusing on one variable independently, for example interest rates, provides a limited picture, investors should consider the long-term interplay between macro variables such as growth, inflation and interest rates.
	9	Portfolio Diversification: Core assets like regulated networks should be well-positioned to recover inflation and interest rate increases in the long term. We believe core plus assets should recover inflation and outperform in conditions of economic growth. Core and core plus strategies demonstrated complementarity and diversification benefits across all macroeconomic scenarios to maximise long-term risk-adjusted returns.
	10	Portfolio Optimisation: In our opinion, core assets provide an essential support to reduce residual portfolio risk in all scenarios, and may support portfolio performance particularly in the scenario of a secular stagnation. Core plus strategies remain essential to provide some growth across all scenarios, but particularly in cases that include some economic growth, such as in our base case, or in cases of more modest long-term expansion.

[7] Any forecasts provided herein are based on DWS's opinion at time of publication and are subject to change. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.
[8] Based on quarterly correlations analysis from 2008 to March 2019. Source: Oxford Economics, MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending March 2019", local currency, as at August 2019. Past performance is not a guide to future returns.
[9] Based on data from Oxford Economics, Eurostat data from 2005 to 2016, as at January 2019. Past performance is not a guide for future results.
[10] Based on DWS proprietary database and methodology, Bloomberg, Oxford Economics, as at April 2019. Past performance is not a guide for future results.
[11] Based on DWS proprietary database and methodology, Oxford Economics, as at May 2019. There is no guarantee the forecast shown will materialise.

3 / Analytical Framework[12]

Due to the limited insights provided by (i) an analysis based on the correlation of macroeconomic variables and total return series for private infrastructure benchmarks, we designed a multidimensional big data approach to understand how infrastructure performs across the macroeconomic environment, based on four additional analytical perspectives.

ANALYTICAL FRAMEWORK
(MULTIDIMENSIONAL ANALYSIS BY SECTOR AND STRATEGY)



Source: Based on DWS proprietary methodology, as at April 2019. For illustrative purpose only. Past performance is not a guide to future returns. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.

We looked at (ii) how demand fundamentals have historically performed across different infrastructure sectors, and (iii) how macroeconomic variables are correlated to the financial performance of various infrastructure sectors across the capital structure. We achieved this by running a panel regression of GDP growth, CPI, and interest rates on financial performance of infrastructure companies from 2005 to 2017.

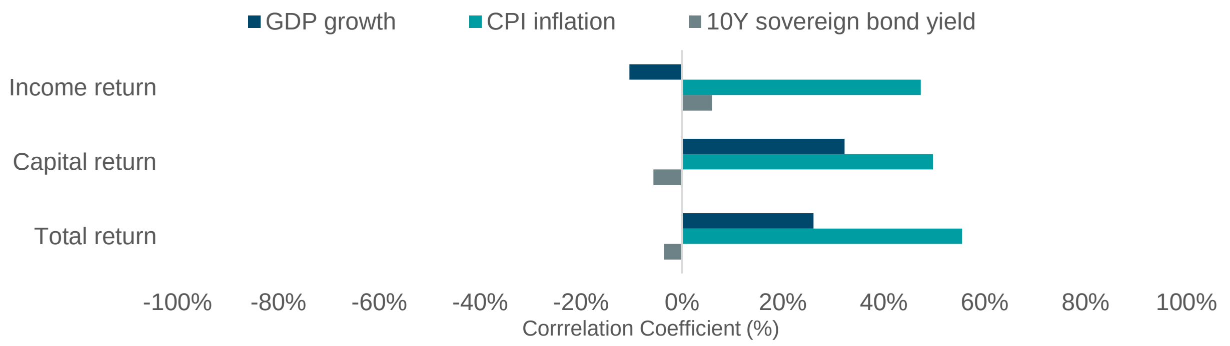
We then examined (iv) the key macroeconomic drivers for different investment strategies, including core and core plus assets. Finally, we modelled four long-term macroeconomic scenarios for the European economy. Based on our return forecast for private infrastructure across these scenarios, looking at changes in GDP, interest rates and inflation with an integrated approach, we (v) defined the indicative, optimal strategic portfolio allocation across core and core plus strategies maximising risk-adjusted returns for each scenario.

[12] Any forecasts provided herein are based on DWS's opinion at time of publication and are subject to change. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.

4 / Infrastructure Benchmarks and Economy

Investing in infrastructure offers potential benefits to long-term investors, including the possibility to own real assets that provide essential services and have monopolistic features, supporting long-term performance visibility across macroeconomic cycles. A legitimate starting point to analyse how private infrastructure performance may react to a changing macroeconomic environment is a focus on a historical correlation analysis between private infrastructure performance benchmarks and key macroeconomic variables, including GDP growth, long-term interest rates and inflation. Benchmarks available for private infrastructure performance have historically been limited. MSCI now publishes the "MSCI Global Infrastructure Asset Index", which provides investors with some indications on the quarterly historical performance of the asset class, but only from 2008 onwards, and supports this analysis.[13]

CORRELATIONS OF INDEX RETURNS TO CHANGES IN MACROECONOMIC INDICATORS
(%, QUARTERLY, GLOBAL AVERAGE, 2008-Q1 2019)



Source: Oxford Economics, MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending March 2019", local currency, as at August 2019. Past performance is not a guide to future returns. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.

The results of this correlation analysis can only be interpreted as a high-level indication, but appear to confirm that private infrastructure performance has historically been relatively resilient to macroeconomic changes. Private infrastructure may provide a fair hedge for inflation, has demonstrated resilience to changes in interest rates, and limited correlation to GDP growth. More in detail, the resilience of income return to the economy appears stronger compared with the capital return component. Income return has provided a good hedge for inflation, and offers some resilience to changes in GDP growth and interest rates. Capital return has historically provided some good protection against changes in inflation and interest rates, but has also demonstrated a moderate exposure to GDP growth, proving potentially more volatile in case of a potential recession, but also providing some return uplift in a growth environment.[14]

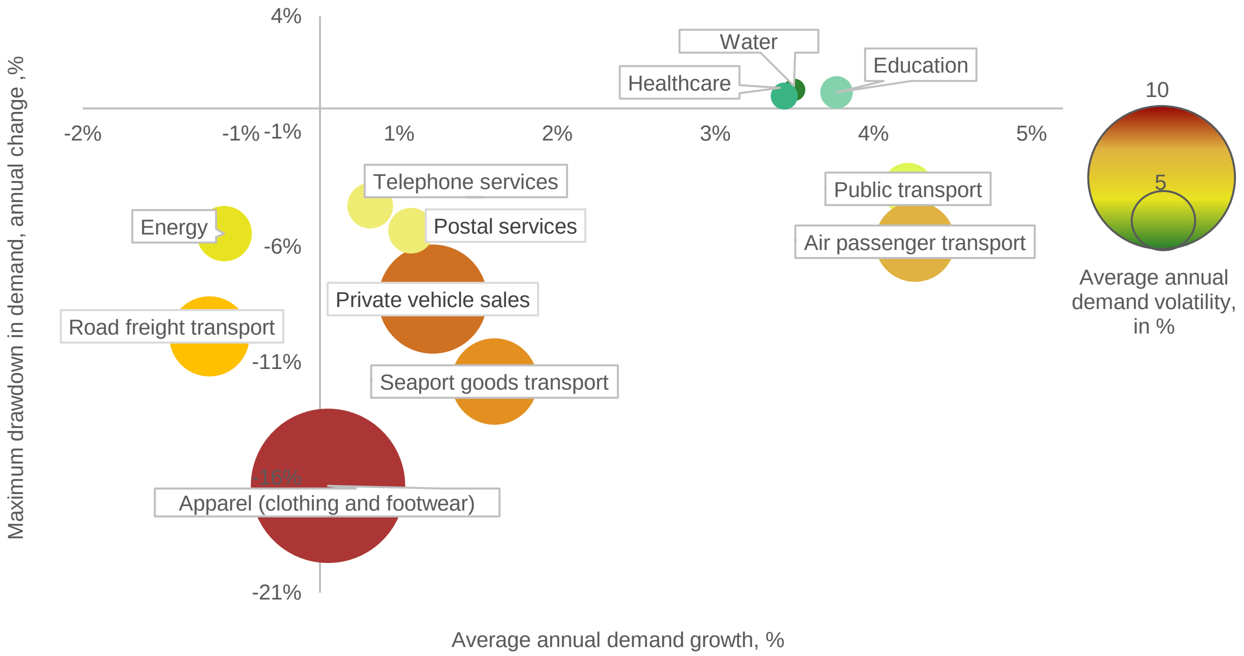
Although this analysis only provides investors with a high-level indication, it also faces two key challenges that limit its use in strategic investment decisions, underpinning the need for additional analysis. First, the index is global, although skewed towards mature regions, and only captures performance over a restricted timeframe, limiting the statistical meaningfulness of our conclusions. Secondly, the analytical insight provided by broad private infrastructure benchmarks may be constrained by the fact that private infrastructure is a diverse asset class, and not all infrastructure assets share the same characteristics from a risk/return perspective. Performance characteristics may vary geographically, by sector, based on the underlying contractual structure of the asset, and the individual asset risk/return characteristics. These factors highlight the need for alternative methods to improve our understanding of how private infrastructure performs in a changing macroeconomic environment.

[13] MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending March 2019". It should be noted that the relative strength of unlisted infrastructure in this analysis is in part due to the fact that the MSCI Index is a valuation-based index, while indices used for the listed asset classes are calculated on a transactional base and are therefore inherently more volatile. Past performance is not indicative of future returns.
[14] Based on quarterly correlations analysis from 2008 to March 2019. Source: Oxford Economics, MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending March 2019", local currency, as at August 2019. Past performance is not a guide to future returns.

5 / Demand Fundamentals and the Economy

We begin our analysis of infrastructure demand by focusing on how key demand variables across sectors within the asset class have performed historically. While the availability of infrastructure performance benchmarks is still limited, data availability for infrastructure demand patterns is high, and may trace back several decades. Understanding how demand fundamentals change for different sectors, in the long term and in case of a downturn, is a first important step to support investment strategies, mitigate potential volatility through active asset management, or capitalise on favourable long-term trends to generate value through capital appreciation.[15]

KEY VARIABLES OF INFRASTRUCTURE DEMAND PATTERNS
(ANNUAL CHANGE, %, 2005-2016)



Source: DWS, Oxford Economics, Eurostat, 29 January 2019. Past performance is not a guide for future results. For illustrative purpose only.

Infrastructure is essential to the functioning of modern economies, and user demand patterns tend therefore to be relatively inelastic. Assets often enjoy monopolistic or quasi-monopolistic market positioning, making it economically unsound, or legally not possible to build competing facilities. Moreover, infrastructure requires a high level of initial capital investment, and this can act as a potential impediment to competitors entering the market. Our analysis demonstrates that historically, demand for infrastructure services has exhibited lower volatility relative to non-infrastructure sectors, such as private vehicle sales or apparel (clothing and footwear), as represented in the chart.[16] At the same time, we identified material differences in the demand patterns across different infrastructure sectors, in terms of their volatility, potential exposure to a downturn, and underlying long-term sector growth trends.

[15] Any forecasts provided herein are based on DWS's opinion at time of publication and are subject to change. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.
[16] Based on data from Oxford Economics, Eurostat data, as at 29 January 2019. Past performance is not a guide for future results.

Defensive Sectors: Essential services - including water, healthcare and education stand out for their negligible volatility profile. Importantly, these three sectors have not experienced a downturn in demand over the last decade, and have grown consistently over the long term, at an average of 3.5% per year. Due to the essential nature of these services, access for private investors may be limited and often heavily regulated, such as water networks or large parts of the healthcare value chain. We expect these sectors to continue to provide resilient demand fundamentals in the long term, while also offering scope for investment strategies focusing on achieving some moderate, long-term growth. [17]

Growth/ Volatile Sectors: Demand variables historically exposed to comparatively stronger volatility within infrastructure include road and sea transport, an important factor to consider when evaluating an investment in toll roads or ports, impacting both asset selection, asset management and growth objectives.

Toll Roads: Toll roads may be exposed to potential demand volatility in private vehicle and freight traffic. Moreover, there is evidence that freight road traffic has experienced a long-term volume contraction, which may cap traffic volumes in the future. Identifying toll roads with a diversified catchment area, located in prosperous areas, and in strategic locations for traffic flows may support long-term traffic resilience and investment performance.[18]

Seaports: Seaport traffic has enjoyed a sustained period of long-term volume growth, driven by supportive global trade and containerization of commodities, a trend that we expect to mature in the future. The sector has been historically exposed to some volatility, and has seen periods of traffic reduction during economic downturns. For ports, more than in any other sector, we believe that asset location is a key driver of long-term performance. Identifying assets in strategic geographical locations for trade routes and supply chains, supported by solid regional logistics infrastructure, exposed to limited competition from other ports, and driven by ownership models supporting flexibility is key for the long-term growth of traffic volumes.

Sector Supported by Favourable Long-term Trends: Demand patterns in sectors - including postal and telecommunication services, air passenger transport, public transportation and healthcare - seem to be driven by favourable long-term trends.

Healthcare: European population is ageing. Over the next twenty years, by 2038, the share of population over 65 years should reach 27%, up from 20% in 2019[19], driven by sluggish birth growth rates and medical advances improving longevity. An ageing population will have substantial consequences for healthcare services demand.

Airports: The liberalisation of European air transport has played a vital role in contributing to strong air passenger growth over the past decades.[20] In future, European airports should benefit from resilient domestic demand, but European airport hubs interlinked to Asian markets should continue to experience long-haul passenger and commercial revenues growth. Asia's air-passenger count could more than double by 2035, versus 2018 levels, driven by urbanization, middle-class proliferation, and greater affordability, and is unlikely to be undermined by a potential economic slowdown.[21]

Public Transportation: Public transportation is an essential service, and demand has not only grown at a higher rate than private vehicles in the long-term, but has also demonstrated low levels of volatility.[22] Demand for public

[17] Based on data from Oxford Economics, Eurostat data, as at 29 January 2019. Past performance is not a guide for future results. No assurance can be given that investment objectives will be achieved.
[18] Based on data from Oxford Economics, Eurostat data, as at 29 January 2019. Past performance is not a guide for future results. No assurance can be given that investment objectives will be achieved.
[19] Oxford Economics, April 2019.
[20] "Air transport: market rules". Fact Sheet on the European Union, European Commission, as at April 2019.
[21] Bloomberg, Asia Air Travel Boom, December 2018.
[22] Based on data from Oxford Economics, Eurostat data, as at 29 January 2019. Past performance is not a guide for future results.

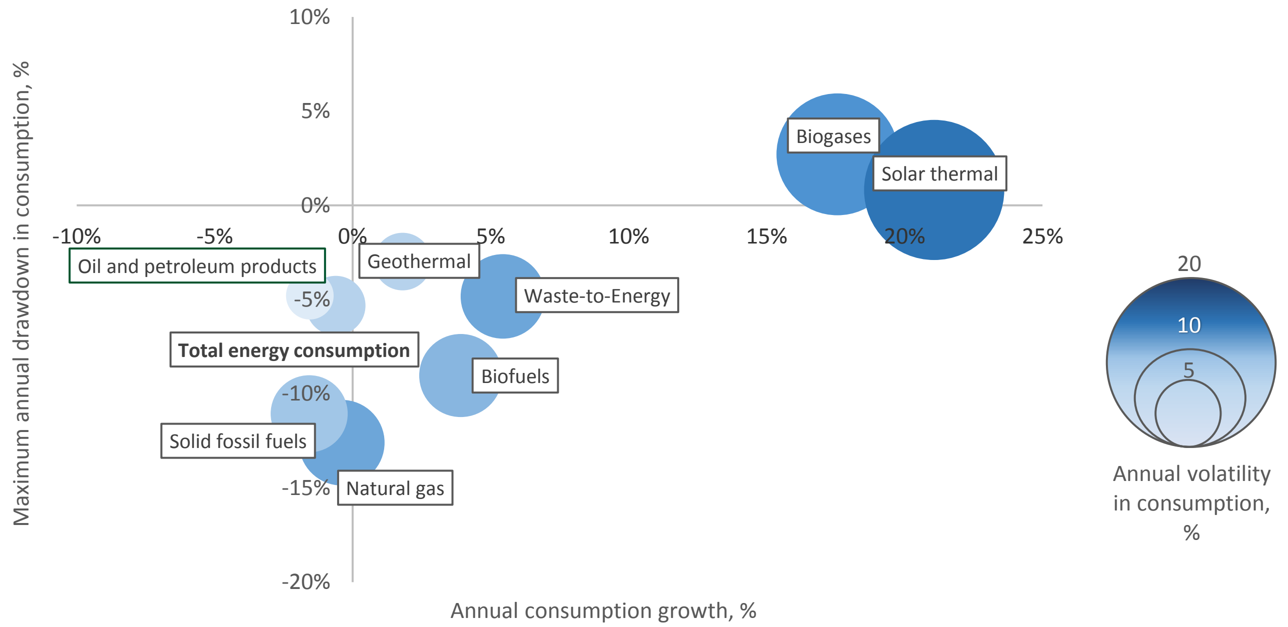
transport should continue to grow, supported by urbanisation, and sustainability policies aimed at reducing urban congestion, making the sector attractive for future infrastructure investment from a fundamentals perspective.[23]

Telecommunication Infrastructure: The telecom sector continues to enjoy high growth driven by digitalisation supporting demand fundamentals for fibre networks, telecom towers and data centres.[24] This trend is expected to continue, but some assets may be exposed to medium-term technological risk potentially impacting demand.

Urban Logistics: Digitalisation continues to drive a rise of e-commerce and the on-demand economy, driving postal services and boosting the need for efficient logistic networks, particularly at urban level. Urban freight delivery is expected to increase by 40% by 2050, driving the need for investment in smart logistics infrastructure.[25]

Energy Sector Trends: In the last decade, the energy sector has been underpinned by marked volatility, and has also contracted. This highlights the importance of investing in energy assets that are volume-neutral, either through regulation, such as in the case of networks, or that are backed by long-term contractual arrangements, such as take or pay contracts in the case of thermal generation. However, within the energy sector the picture is fragmented, with some sectors, including renewables, and energy-from-waste, supported by a favourable long-term trend, and other sectors, particularly fossil fuels, positioned on a long-term decline pattern. [26]

ENERGY DEMAND BY SOURCE
(ANNUAL CHANGE, %, 2005-2016)



Source: DWS, Oxford Economics, Eurostat, 29 January 2019. Here, Europe includes only Austria, Belgium, France, Germany, Italy, Spain and Portugal. For illustrative purpose only. Past performance is not a guide for future results.

[23] Based on European Commission, "Transport in the European Union: current trends and issues", April 2018.
[24] Based on Oxford Economics, Bloomberg and Moody's Investors Service data, as at March 2019.
[25] Based on "MHI Annual Industry Report – Next Generation Supply Chains: Digital, On-Demand and Always-On", Deloitte, 2017.
[26] Based on data from Oxford Economics, Eurostat data, as at 29 January 2019. Past performance is not a guide for future results.

Renewables: Incentive mechanisms and falling equipment costs have driven continued renewables capacity increases, and growth is expected to continue over the long term, supported by market conditions, decarbonisation policies and equipment costs for renewables continuing to shrink, particularly across photovoltaic (PV) and battery storage technologies.[27]

Energy-From-Waste (EfW): Waste volumes are correlated to GDP growth, particularly with regard to industrial production and private consumption supporting the energy from waste industry. The EfW industry is expected to continue expanding in the long term. The European Commission aims to reduce landfill to a maximum of 10% for municipal waste by 2030,[28] leading to the gradual closure of landfill sites and thus providing sustainable waste flows towards EfW projects. The revised legislative proposal on waste includes a common EU target for recycling of 65% of municipal waste by 2030.[29] However, historical evidence demonstrates that recycling rates can reach a cap that becomes progressively more difficult to overcome, supporting our view of continued, long-term need for EfW.[30]

Fossil Fuels: Traditional energy sources such as oil and petroleum products have experienced a long-term decline[31] particularly driven by climate change policies and rising CO_2 prices. We expect this trend to continue, with the exception of gas, where modest albeit continued growth is expected over the next decade. The implications of these long-term trends represent a threat for midstream oil assets and baseload coal thermal generation.

[27] Based on Fitch Ratings and Moody's Investors Service data, as at March 2019.
[28] European Commission, "Review of Waste Policy and Legislation", December 2017.
[29] European Commission, "Review of Waste Policy and Legislation", December 2017.
[30] McKinsey, June 2015.
[31] Based on data from Oxford Economics, Eurostat data, as at 29 January 2019. Past performance is not a guide for future results.

6 / Capital Structure and the Economy[32]

Demand shortfalls may translate into revenue volatility, depending on the regulatory framework and contractual agreements in place for different infrastructure sectors. It is therefore important to build an understanding of how fluctuations in demand, also driven by changes in the macroeconomic environment, may filter through the capital structure of infrastructure corporates, - including their operating performance, capex and leverage - and ultimately whether these can affect dividend payments. A better understanding of this dynamic can support investment decisions, portfolio construction and active asset management.

Our big data analysis is based on a series of panel regressions of key financial metrics including EBITDA margin, capex, leverage, free cash flow (FCF), on key macroeconomic variables, including GDP growth, CPI inflation and interest rates (10 year government bond rates) from a database including over 300 global infrastructure corporates.[33]

EXPOSURE OF FINANCIAL PERFORMANCE TO CHANGES IN KEY MACROECONOMIC INDICATORS (BY INFRASTRUCTURE SECTOR, 2005-2017)

Panel regressions on changes in GDP, CPI and interest rates	EBITDA Margin	Capital Expenditure	Leverage (Net Debt/EBITDA)	Free Cash Flow (FCF)
Networks	Resilient	Resilient	Neutral	Resilient
Subsidised Renewables	Resilient	Neutral	Neutral	Resilient
Water	Resilient	Neutral	Neutral	Neutral
Airports	Neutral	Neutral	Neutral	Resilient
Telecom Infrastructure	Resilient	Exposed	Neutral	Neutral
Private Healthcare	Neutral	Neutral	Neutral	Neutral
Rolling Stock Leasing	Neutral	Neutral	Neutral	Neutral
Waste Management	Exposed	Neutral	Neutral	Neutral
Toll Roads	Exposed	Exposed	Resilient	Neutral
Ports and Port Services	Exposed	Neutral	Exposed	Neutral*
Integrated Utilities	Exposed	Neutral	Exposed	Neutral
Rail Freight	Exposed	Exposed	Exposed	Neutral

Notes: *FCF for "Ports and port services" exposed to changes to exports/ imports. Source: DWS's proprietary database, Bloomberg, Oxford Economics, April 2019. Based on DWS proprietary methodology. Relative ranking based on panel regressions of data between 2005 and 2017 of fundamental macroeconomic variables (inflation, GDP, interest rates = 10 year government bond rates) with a database of financial indicators for listed infrastructure companies. Resilient = financial indicator resilient to change in macro variables, Neutral = no statistical relationship between macro variables and financial indicator, Exposed = positive relationship between financial indicator and macro variables. Past performance is not a reliable indicator of future returns.

Based on our regression analysis between macroeconomic indicators and the financial performance of infrastructure companies, we can highlight the following key observations:

[32] Any forecasts provided herein are based on DWS's opinion at time of publication and are subject to change. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.
[33] Based on DWS's proprietary database, Bloomberg, Oxford Economics, April 2019. Past performance is not a reliable indicator of future returns.

Dividend Predictability: Regulated networks, subsidised renewables and airports proved to be the most defensive infrastructure sectors when it comes to income return, underpinned by their regulated nature or subsidised contract profile. Other sectors demonstrated no meaningful, historical long-term statistical relationship between changes in free cash flow and key macroeconomic variables, supporting our expectation for long-term dividend predictability. Although these sectors may not benefit from a regulatory framework providing the same level of protection to changes in the macroeconomic environment, they have highlighted a number of strengths across the capital structure, supporting dividend payments. This includes the ability to stabilise revenues through contracts, flexibility to reduce operating costs, and the ability to adjust capex and leverage to preserve value generation. [34]

Operating Performance: A demand shortfall, driven for example by a recession, can impact revenue generation. In the absence of a supportive regulatory framework, a take-or-pay contract or sufficient operating expenditure flexibility, this may lead to a reduction in EBITDA margins. At the same time, a favourable long-term economic environment may support stronger operating performance in sectors where regulation or the contractual structure may not act as a cap on growth. Based on our panel regression analysis, we have clustered sectors in three different groups.

For (i) resilient sectors, the EBITDA margin moves independently from changes in macroeconomic variables, for (ii) neutral sectors, we did not identify any meaningful statistical relationship between the economy and EBITDA performance, and for (iii) exposed sectors we identified a meaningful correlation of the EBITDA margin and macroeconomic variables.

Resilient Sectors: Regulated networks, including water networks with Regulated Asset Base (RAB) models, subsidised renewables and telecom infrastructure proved to be historically the most resilient sectors in terms of operating performance. Looking at regulated networks, Regulated Asset Base (RAB) models enable a tariff-setting mechanism that provides a volume-neutral, regulated return to investors based on the value of the RAB and a regulated rate of return (WACC), while at the same time inflation and most operating costs can also be recovered, stabilising operating performance.

While RAB models are supportive for operating performance stabilisation in case of demand changes, we identified a negative impact on tariffs driven by the correlation between the reduction in the risk-free interest rates across Europe, and the average reduction in WACC rates, determined by a corresponding reduction in the debtrate return component over the last decade.

Historically, subsidy schemes for renewable energy projects have focused on feed-in tariffs mechanisms, supporting long-term revenue stability. In this regard, we recognised that in certain European jurisdictions subsidy schemes have proven less predictable than initially expected, exposing investors to regulatory risk, and leading to some retroactive tariff changes affecting operating performance. Going forward, incentive mechanisms will increasingly be based on auctions and contract for difference (CfD) mechanisms, leading to a greater correlation of revenues with market conditions and energy prices. While these mechanisms may potentially introduce more volatility in the performance of subsidised renewables, we see them as an improvement in terms of regulatory risk reduction.[35]

The operating performance of telecom infrastructure has been driven by the long-term nature of underlying contract arrangements providing inflation-indexed cash flow visibility, and by the strategic nature of assets in the context of a strong digitalisation trend driving demand growth and providing a source of resilience to the macroeconomic cycle.

Neutral Sectors: Airports, private healthcare, and rolling stock leasing demonstrated no particular statistical relationship with changes in macroeconomic variables. Private healthcare companies have historically benefitted from the essential nature of services stabilising demand, and adequate levels of operating expenditure flexibility.

For airports, aeronautical activities are normally regulated, providing a source of resilience to price changes and inflation, but assets can be exposed to changes in passenger volumes, also impacting retail revenues. Nevertheless,

[34] Based on DWS's proprietary database, Bloomberg, Oxford Economics, April 2019. Past performance is not a reliable indicator of future returns. There is no guarantee the forecast shown will materialise.
[35] Based on Fitch Ratings and Moody's Investors Service data, as at March 2019.

airports are supported by a favourable long-term passenger growth trend, and by adequate operating expenditure flexibility to mitigate potential revenue shortfalls driven by short-term economic downturns.

The operating performance of rolling stock leasing companies has proven particularly predictable for passenger rolling stock, supported by inflation-linked medium-term or long-term contracts with rolling stock lessees, such as for rolling stock leasing companies (ROSCOs) in the United Kingdom. ROSCOs own coaches, locomotives and freight wagons that run on the rails, which they lease to train operating companies, in accordance with franchise concession agreements. At the same time, the operating performance of freight rail has proven to be historically more volatile, thereby exposing freight rolling stock leasing - where contracts are generally short-term - to a potentially more volatile operating performance.

Exposed Sectors: The analysis demonstrated that the operating performance of waste management, toll roads, ports and integrated utilities was more exposed to the potential volatility of the macroeconomic environment, particularly to GDP growth, without having sufficient operating expenditure flexibility to fully offset revenue declines. Waste management revenues tend to be exposed to short-term contract volatility from industrial waste clients, while concessions for domestic waste tend to be more predictable, although historically margins have observed a declining trend. For toll roads, while the tariff component is regulated and typically linked to inflation, assets are still exposed to potential traffic volatility, with heavy vehicles traffic having historically proven more volatile than private vehicles in a downturn.

For ports, operating performance can vary substantially based on location and business model. On average, ports operate on the basis of a diversified stream of medium-term contracts, and the revenue profile for ports in non-strategic locations has historically proven to be particularly sensitive to trade, including both import and export dynamics. At the same time, ports in strategic locations were supported by stronger resilience to changes in the macro environment.

For integrated utilities, the regulated network business segment proved to be historically resilient to changes in the macroeconomic environment. However, over the last decade, non-regulated businesses, including thermal power generation, trading and retail sales were more exposed to market volatility.

Capex and Leverage: Capex and leverage flexibility can help absorb the pressure generated by a downturn on operating performance, preserving dividend payments. At the same time, the ability to invest can be a powerful tool to grow a business providing value to investors. Our analysis identified at least one source of flexibility or resilience across the capital structure in any infrastructure sector analysed, with the exception of rail freight, which has proven to be the most exposed sector to changes in the macroeconomic environment within our database.

Regulated networks, including water, demonstrated a resilient capex and leverage profile, with capex representing a building block of the RAB remuneration model. While this protects regulated networks from the volatility of the macroeconomic cycle, it also represents a potential limit to their flexibility to scale back investment programmes quickly if needed, or to accelerate investment to pursue growth. Other sectors that proved particularly independent in setting their capex or leverage targets from fluctuations in the macroeconomic environment are healthcare, waste management, airports and ports, where capex can represent a source of flexibility and support business expansion. [36]

Looking at the cost of debt, the long-term tenor of debt for infrastructure assets provides an element of protection against changes to interest rates, although on average core, regulated infrastructure tends to be comparatively more leveraged and therefore potentially more exposed to long-term changes in interest rates. However, the credit quality profile of infrastructure companies, generally in the investment-grade space, provides an important buffer against increases in interest rates.

[36] Based on DWS's proprietary database, Bloomberg, Oxford Economics, April 2019. Past performance is not a reliable indicator of future returns.

7 / Portfolio Optimization by Macro Scenario[37]

In this section, we identify the key long-term macroeconomic drivers for core and core plus[38] strategies, examining how, when analysed independently (7.1), changes in GDP growth, interest rates and inflation drive value generation for these two strategies. Finally, (7.2) we model four long-term macroeconomic scenarios for the European economy, approaching changes in GDP, interest rates and inflation in an integrated way. Based on our return forecast for infrastructure, we try to define the indicative, optimal strategic portfolio allocation across core and core plus strategies across these scenarios.

7.1 Macro Value Drivers of Core and Core Plus Strategies

KEY INFRASTRUCTURE LOGN-TERM VALUE DRIVERS
(ASSUMPTIONS BY STRATEGY AND MACRO VARIABLE)

	GDP Growth (Real)	Interest Rates (10Y Govt. Bond)	Inflation (CPI)
Core	-	✓	✓
Core Plus	✓	-	✓

Source: Based on DWS proprietary methodology as at June 2019, analysing long-term historical correlations between infrastructure strategies, sectors and macro variables. Past performance is not a guide to future returns. There is no guarantee the forecast shown will materialise. Forecasts are not a reliable indicator of future returns. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect.

Core Strategies: In the short term valuations for core assets, such as regulated networks, can be exposed to changes in interest rates. These assets provide investors with a bond-like dividend yield component, and a change in interest rates can make bond yields look more or less attractive compared with the dividend yield of regulated networks. A decrease in bond yields may make an investment in core infrastructure comparatively more attractive, supporting valuations in the space, while an increase in bond yields may cap valuations for core assets. Although with a time lag, most regulatory frameworks allow assets to use inflation-indexed user tariffs, and to recover increases in interest rates. Therefore, in the medium term, income for core assets should recover changes in inflation or interest rates through the regulatory framework, helping to protect valuations from interest rate increases.

We did not identify any meaningful direct correlation between changes in GDP and income for core infrastructure. Income and valuations for core assets should therefore be protected in the case of an economic downturn. However, income and valuations do not benefit from periods of economic expansion, and valuations may be exposed to investors focusing on growth assets rather than core infrastructure during periods of economic growth.

Core Plus Strategies: Core plus strategies tend to focus on brownfield assets, in sectors that are contracted in the medium-to-long term. Core plus strategies may also focus on brownfield, regulated assets, but these would include a development component. Core plus infrastructure can include assets that provide cash flow visibility to support income returns, but that also have potential for some capital appreciation. In our analysis, core plus infrastructure income has evidenced ability to recover inflation in the long-term, while it has shown only limited ability to absorb fundamental changes in interest rates in valuations. At the same time, income for core plus assets has demonstrated potential to grow at a multiple of GDP growth, 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.

[37] Any forecasts provided herein are based on DWS's opinion at time of publication and are subject to change. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.
[38] Core Infra = 'Low Risk' in MSCI Infrastructure Investment Style Matrix, includes brownfield assets in mature markets, with a significant component of income yield, predictable and regulated revenues, long-term investment horizon, and an investment grade rating profile. Core+ = 'Moderate Risk', includes brownfield assets in mature markets with some development risk, relatively predictable revenues and income and capital generally contributing equally to total return.

7.2 Macro Scenarios and Portfolio Construction

In the long term, any investment may go through different phases in a macroeconomic cycle, including a recession, periods of stronger economic growth, as well as changes in interest rates or inflation. Short-term changes in the macroeconomic cycle, such as a recession, are important factors for investment decisions, but tend to have historically shown more limited repercussions on private infrastructure performance when investing in the long term, particularly when in excess of ten years.

In our view, infrastructure investors should mainly focus on long-term investment strategies rather than only on tactical investment decisions based on short-term macroeconomic factors. More importantly, it may be misleading to focus independently on specific changes in macroeconomic variables, such as inflation or interest rates. Changes to GDP growth, inflation and interest rates are interdependent, and it is important to look at them with a combined approach.

Macroeconomic Scenarios: To develop an understanding of the combined long-term effect of changes in GDP growth, interest rates and inflation on strategic portfolio allocation across infrastructure strategies, we have sensitised the impact of four theoretical, distinct, long-term macroeconomic scenarios in Europe over ten years using our forecasting model calibrated to these scenarios.

In our "Base case", we have modelled moderate, albeit resilient growth in Europe, with limited inflationary pressures, and long-term interest rates remaining lower for longer. This scenario may not exclude a short-term recessionary period, but overall expects real GDP to be in line with the average growth experienced in the last decade.

LONG-TERM MACROECONOMIC SCENARIOS
(ASSUMPTIONS BY SCENARIO)

		GDP growth (Real)	Inflation (CPI)	Interest rates (10Y Govt. Bond)
Macro Scenario (10Y)	Goldilocks	High	Low	Low
	Base Case	Moderate	Low/Moderate	Low/Moderate
	Secular Stagnation	Low	Low	Low
	Stagflation	Low	High	High

Source: DWS, Oxford Economics as at May 2019. Notes: F=forecast. Past performance is not a guide to future returns. There is no guarantee the forecast shown will materialise. Forecasts are not a reliable indicator of future returns. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.

In the "Goldilocks" scenario, European economies should benefit from stronger economic growth, but also from low interest and inflation. The "Secular Stagnation" case would involve a decade of modest economic growth, interest rates and inflation, including a potential short-term recession. The "Stagflation" case would involve sluggish economic growth in the long term, coupled with sharp inflation and interest rates increases, and would not exclude recessionary periods.[39]

Optimal Portfolio Allocation: Based on our return forecast for each long-term macro scenario, we have determined the indicative, optimal strategic portfolio allocation across core and core plus infrastructure strategies.[40]

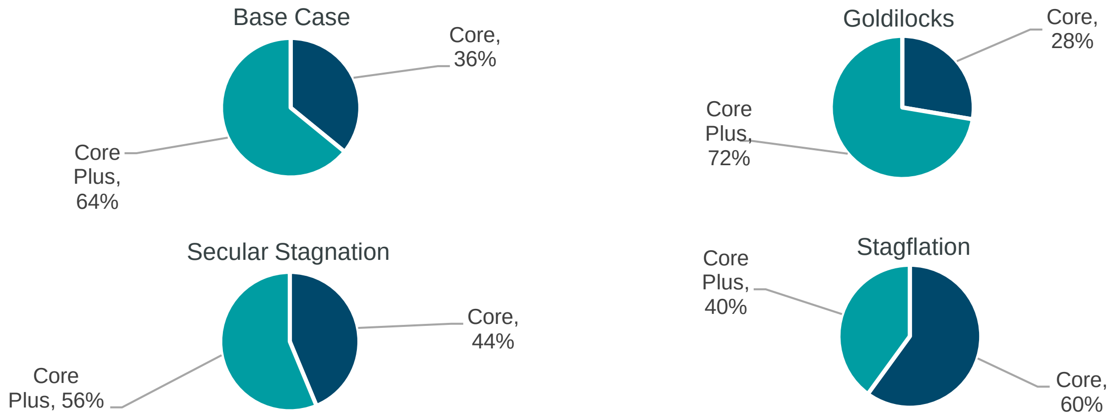
Our conclusion is that across all projected scenarios, to aim to maximise risk-adjusted returns, investors may wish to focus on building portfolios that combine the complementary characteristics of core and core plus infrastructure assets, driving long-term cash flow visibility and capital appreciation potential. Results are only indicative, but demonstrate the importance of portfolio diversification when investing for the long term.

[39] Based on DWS proprietary methodology as at May 2019. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.
[40] Based on DWS proprietary methodology as at May 2019. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.

In a maturing investment environment, investors may approach portfolio allocation in a conservative way, focusing on core infrastructure assets that provide long-term cash-flow visibility, but not on the fact that entry valuations for core infrastructure may be comparatively high and long-term growth potentially limited. At the same time, in times of buoyant GDP growth, investors may focus only on investing in core plus infrastructure.

Our analysis reveals that core assets may provide an essential support to reduce residual portfolio risk in all scenarios, including scenarios involving solid GDP growth, such as in the "Goldilocks" scenario.

INFRASTRUCTURE AND LONG-TERM MACRO SCENARIOS (INDICATIVE OPTIMAL PORTFOLIOS)



Source: DWS proprietary methodology as at May 2019. For indicative purposes only. Past performance is not a guide to future returns. There is no guarantee the forecast shown will materialise. Forecasts are not a reliable indicator of future returns. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.

At the same time, an allocation to core plus infrastructure contributes to improving risk-adjusted returns across all scenarios. Core plus infrastructure remains an important component of long-term private infrastructure portfolios, as well as across scenarios involving a downturn, such as in the "Secular Stagnation" or "Stagflation" cases. Core plus strategies would represent a substantial component of portfolios in our "Base Case" or in the "Goldilocks" scenarios, where interest rates would remain lower for longer, and core plus assets would benefit from supportive long-term growth. Core strategies would have limited capital growth potential, but may still help balance systemic risk of a portfolio. [41]

In a "Stagflation" case, core infrastructure would be a long-term hedge against spikes in inflation and, importantly, interest rates, but an allocation to core plus infrastructure might still contribute to improve long-term risk-adjusted returns.

[41] Based on DWS proprietary methodology as at May 2019. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect.

8 / Appendix

Calendar Annual Performance

Index	2014	2015	2016	2017	2018	YTD Mar-2019
MSCI Global Infrastructure Direct Asset Index - Total Return	15.5%	18.0%	15.2%	13.1%	11.9%	1.9%
MSCI Global Infrastructure Direct Asset Index - Capital Return	11.1%	14.0%	10.1%	7.4%	6.0%	1.0%
MSCI Global Infrastructure Direct Asset Index - Income Return	4.0%	3.6%	4.8%	5.4%	5.7%	0.9%

Source: DWS, MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending March 2019", August 2019. Past performance is not a guide for future results.

Rolling Annual Performance

Index	Mar-2014	Mar-2015	Mar-2016	Mar-2017	Mar-2018	Mar-2019
MSCI Global Infrastructure Direct Asset Index - Total Return	12.0%	18.0%	16.0%	15.3%	13.2%	11.7%
MSCI Global Infrastructure Direct Asset Index - Capital Return	7.7%	13.5%	11.5%	10.6%	7.3%	6.0%
MSCI Global Infrastructure Direct Asset Index - Income Return	4.1%	4.0%	4.1%	4.3%	5.6%	5.4%

Source: DWS, MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending March 2019", August 2019. Past performance is not a guide for future results.

Important Information

The brand DWS represents DWS Group GmbH & Co. KGaA and any of its subsidiaries, such as DWS Distributors, Inc., which offers investment products, or DWS Investment Management Americas, Inc. and RREEF America L.L.C., which offer advisory services.

DWS represents the asset management activities conducted by DWS Group GmbH & Co. KGaA or any of its subsidiaries. In the U.S., DWS relates to the asset management activities of RREEF America L.L.C.; in Germany: DWS Grundbesitz GmbH, DWS Real Estate GmbH, and DWS Alternatives GmbH ; in Australia: DWS Investments Australia Limited (ABN 52 074 599 401) an Australian financial services incense holder; in Japan: DWS Investments Japan Limited; in Hong Kong: Deutsche Bank Aktiengesellschaft, Hong Kong Branch (for direct real estate business), and DWS Investments Hong Kong Limited (for real estate securities business); in Singapore: DWS Investments Singapore Limited (Company Reg. No. 198701485N); in the United Kingdom: Deutsche Alternative Asset Management (UK) Limited, DWS Alternatives Global Limited and DWS Investments UK Limited; and in Denmark, Finland, Norway and Sweden: DWS Investments UK Limited and DWS Alternatives Global Limited; in addition to other regional entities in the Deutsche Bank Group. Key DWS research personnel are voting members of various investment committees. Members of the investment committees vote with respect to underlying investments and/or transactions and certain other matters subjected to a vote of such investment committee. The views expressed in this document have been approved by the responsible portfolio management team and Infrastructure investment committee and may not necessarily be the views of any other division within DWS.

This material was prepared without regard to the specific objectives, financial situation or needs of any particular person who may receive it. It is intended for informational purposes only. It does not constitute investment advice, a recommendation, an offer, solicitation, the basis for any contract to purchase or sell any security or other instrument, or for DWS or its affiliates to enter into or arrange any type of transaction as a consequence of any information contained herein. Neither DWS nor any of its affiliates gives any warranty as to the accuracy, reliability or completeness of information which is contained in this document. Except insofar as liability under any statute cannot be excluded, no member of the DWS, the Issuer or any office, employee or associate of them accepts any liability (whether arising in contract, in tort or negligence or otherwise) for any error or omission in this document or for any resulting loss or damage whether direct, indirect, consequential or otherwise suffered by the recipient of this document or any other person.

The views expressed in this document constitute DWS Group's judgment at the time of issue and are subject to change. This document is only for professional investors. This document was prepared without regard to the specific objectives, financial situation or needs of any particular person who may receive it. No further distribution is allowed without prior written consent of the Issuer.

Investments are subject to risk, including market fluctuations, regulatory change, possible delays in repayment and loss of income and principal invested.
The value of investments can fall as well as rise and you might not get back the amount originally invested at any point in time.

An investment in infrastructure involves a high degree of risk, including possible loss of principal amount invested, and is suitable only for sophisticated investors who can bear such losses. The value of shares/ units and their derived income may fall or rise.

Any forecasts provided herein are based upon DWS's opinion of the market at this date and are subject to change dependent on the market. Past performance or any prediction, projection or forecast on the economy or markets is not indicative of future performance.

In Australia: Issued by DWS Investments Australia Limited (ABN 52 074 599 401), holder of an Australian Financial Services License (AFSL 499 640). This information is only available to persons who are professional, sophisticated, or wholesale investors as defined under section 761 G of the Corporations Act 2001 (Cth). The information provided is not to be construed as investment, legal or tax advice and any recipient should take their own investment, legal and tax advice before investing. DWS Investments Australia Limited is an asset management subsidiary of DWS Group GmbH & CO. KGaA ("DWS Group"). The capital value of and performance of an investment is not in any way guaranteed by DWS Group, DWS Investments Australia Limited or any other member of the DWS Group. Any forecasts provided herein are based upon our opinion of the market as at this date and are subject to change, dependent on future changes in the market. Any prediction, projection or forecast on the economy, stock market, bond market or the economic trends of the markets is not necessarily indicative of the future or likely performance. Investments are subject to investment risk, including possible delays in repayment and loss of income and principal invested. DWS Investments Australia Limited is not an Authorised Deposit-taking Institution under the Banking Act 1959 nor regulated by APRA.

Notice to prospective Investors in Japan: This document is distributed in Japan by DWS Investments Japan Limited. Please contact the responsible employee of DWS Investments Japan Limited in case you have any question on this document because DWS Investments Japan Limited serves as contacts for the product or service described in this document. This document is for distribution to Professional Investors only under the Financial Instruments and Exchange Law.

Dubai International Financial Centre: Deutsche Bank AG in the Dubai International Financial Centre (registered no. 00045) is regulated by the Dubai Financial Services Authority. Deutsche Bank AG - DIFC Branch may only undertake the financial services activities that fall within the scope of its existing DFSA license. Principal place of business in the DIFC: Dubai International Financial Centre, The Gate Village, Building 5, PO Box 504902, Dubai, U.A.E. This information has been distributed by Deutsche Bank AG. Related financial products or services are only available to Professional Clients, as defined by the Dubai Financial Services Authority.

Kingdom of Saudi Arabia: Deutsche Securities Saudi Arabia LLC Company, (registered no. 07073-37) is regulated by the Capital Market Authority. Deutsche Securities Saudi Arabia may only undertake the financial services activities that fall within the scope of its existing CMA license. Principal place of business in Saudi Arabia: King Fahad Road, Al Olaya District, P.O. Box 301809, Faisaliah Tower - 17th Floor, 11372 Riyadh, Saudi Arabia.

For Investors in Switzerland: This material is intended for information purposes only and does not constitute investment advice or a personal recommendation. This document should not be construed as an offer to sell any investment or service. Furthermore, this document does not constitute the solicitation of an offer to purchase or subscribe for any investment or service in any jurisdiction where, or from any person in respect of whom, such a solicitation of an offer is unlawful. Neither DWS CH AG nor any of its affiliates, gives any warranty as to the accuracy, reliability or completeness of information which is contained in this document. Past performance or any prediction or forecast is not indicative of future results.

The views expressed in this document constitute DWS Group's judgment at the time of issue and are subject to change. DWS Group has no obligation to update, modify or amend this letter or to otherwise notify a reader thereof in the event that any matter stated herein, or any opinion, projection, forecast or estimate set forth herein, changes or subsequently becomes inaccurate, or if research on the subject company is withdrawn. Prices and availability of financial instruments also are subject to change without notice.

The information provided in this document is addressed solely to Qualified Investors pursuant to Article 10 paragraph 3 of the Swiss Federal Act on Collective Investment Schemes (CISA) and Article 6 of the Ordinance on Collective Investment Schemes. This document is not a prospectus within the meaning of Articles 1156 and 652a of the Swiss Code of Obligations and may not comply with the information standards required thereunder. This document may not be copied, reproduced, distributed or passed on to others without the prior written consent of DWS CH AG or its affiliates.

For investors in the United Kingdom: FOR PROFESSIONAL CLIENTS ONLY

Issued and approved by DWS Investments UK Limited of Winchester House, 1 Great Winchester Street, London EC2N 2DB, authorised and regulated by the Financial Conduct Authority ("FCA").

This document is a "non-retail communication" within the meaning of the FCA's Rules and is directed only at persons satisfying the FCA's client categorisation criteria for an eligible counterparty or a professional client. This document is not intended for and should not be relied upon by a retail client. This document may not be reproduced or circulated without written consent of the issuer.

This document is intended for discussion purposes only and does not create any legally binding obligations on the part of DWS Group GmbH & Co. KGaA and/or its affiliates ("DWS"). Without limitation, this document does not constitute investment advice or a recommendation or an offer or solicitation and is not the basis for any contract to purchase or sell any security or other instrument, or for DWS to enter into or arrange any type of transaction as a consequence of any information contained herein. The information contained in this document is based on material we believe to be reliable; however, we do not represent that it is accurate, current, complete, or error free. Assumptions, estimates and opinions contained in this document constitute our judgment as of the date of the document and are subject to change without notice. Past performance is not a guarantee of future results. Any forecasts provided herein are based upon our opinion of the market as at this date and are subject to change, dependent on future changes in the market. Any prediction, projection or forecast on the economy, stock market, bond market or the economic trends of the markets is not necessarily indicative of the future or likely performance. Investments are subject to risks, including possible loss of principal amount invested.

When making an investment decision, potential investors should rely solely on the final documentation relating to the investment or service and not the information contained herein. The investments or services mentioned herein may not be appropriate for all investors and before entering into any transaction you should take steps to ensure that you fully understand the transaction and have made an independent assessment of the appropriateness of the transaction in the light of your own objectives and circumstances, including the possible risks and benefits of entering into such transaction. For general information regarding the nature and risks of the proposed transaction and types of financial instruments please go to https://www.db.com/company/en/risk-disclosures.htm. You should also consider seeking advice from your own advisers in making this assessment. If you decide to enter into a transaction with us you do so in reliance on your own judgment. Any opinions expressed herein may differ from the opinions expressed by Deutsche Bank AG and/or any other of its affiliates (“DB”). DB may engage in transactions in a manner inconsistent with the views discussed herein. DB trades or may trade as principal in the instruments (or related derivatives), and may have proprietary positions in the instruments (or related derivatives) discussed herein. DB may make a market in the instruments (or related derivatives) discussed herein. You may not distribute this document, in whole or in part, without our express written permission.

DWS SPECIFICALLY DISCLAIMS ALL LIABILITY FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL OR OTHER LOSSES OR DAMAGES INCLUDING LOSS OF PROFITS INCURRED BY YOU OR ANY THIRD PARTY THAT MAY ARISE FROM ANY RELIANCE ON THIS DOCUMENT OR FOR THE RELIABILITY, ACCURACY, COMPLETENESS OR TIMELINESS THEREOF.

Any reference to “DWS”, “Deutsche Asset Management” or “Deutsche AM” shall, unless otherwise required by the context, be understood as a reference to asset management activities conducted by DWS Group GmbH & Co. KGaA and/or any of its affiliates. Clients will be provided DWS products or services by one or more legal entities that will be identified to clients pursuant to the contracts, agreements, offering materials or other documentation relevant to such products or services. DWS’s infrastructure investment business is part of the Alternatives platform. In the U.S., DWS relates to the asset management activities of RREEF America L.L.C.; in Germany: DWS Grundbesitz GmbH, DWS Real Estate GmbH, and DWS Alternatives GmbH; in Japan: DWS Investments Japan Limited; in Hong Kong: Deutsche Bank Aktiengesellschaft, Hong Kong Branch (for direct real estate business), and DWS investments Hong Kong Limited (for real estate securities business); in Singapore: DWS Investments Singapore Limited (Company Reg. No. 198701485N); in the United Kingdom: Deutsche Alternative Asset Management (UK) Limited, DWS Alternatives Global Limited and DWS Investments UK Limited; and in Denmark, Finland, Norway and Sweden: Deutsche Bank AG; in Australia: DWS Investments Australia Limited (ABN 52 074 599 401) an Australian financial services license holder.

For investors in Nordics: Deutsche Bank AG is authorised under German Banking Law (competent authority: European Central Bank and the BaFin, Germany’s Federal Financial Supervisory Authority). Deutsche Bank AG Stockholm branch ("DBS", Bolagsverket nr. 516401-9985) is authorised by BaFin and regulated by Finansinspektionen for the conduct of licensed activities in Sweden, Denmark, Norway and Finland. Deutsche Bank branches operate within the EEA on the back of the legal entity (Deutsche Bank AG) EU Passports within the European Economic Area (“EEA”). Reference is made to European Union Regulatory Background and Corporate and Regulatory Disclosures at https://www.db.com/en/content/eu_disclosures_uk.htm. Details about the extent of our authorisation and regulation by BaFin and respective Nordic Region Financial Supervisory Authority are available from us on request.

Without limitation, this document and any attachment does not constitute an offer or a recommendation to enter into any transaction with DBS. This material and attachments is for information purposes only and is not intended to be an offer or an advice or recommendation or solicitation, or the basis for any contract to purchase or sell any security, or other instrument, or for DBS to enter into or arrange any type of transaction as a consequence of any information contained herein. The implicit or explicit views and recommendations expressed in marketing or other financial presentation material as well as any financial proposals are solely those of the issuer of such material, and forwarded to you on behalf of the contracting party.

The views set out in this presentation are those of the author and may not necessarily the views of any other division within Deutsche Bank, including the Sales and Trading functions of the Corporate and Investment Bank or the Global Client Group of Deutsche Asset Management and Private Wealth Management: all services provided by these the Sales and Trading functions of the Corporate and Investment Bank are purely on a non-advised, execution-only basis. DB may engage in transactions in a manner inconsistent with the views discussed herein. DB trades or may trade as principal in the instruments (or related derivatives), and may have proprietary positions in the instruments (or related derivatives) discussed herein. DB may make a market in the instruments (or related derivatives) discussed herein. Sales and Trading personnel are compensated in part based on the volume of transactions effected by them. You may not distribute this document, in whole or in part, without our express written permission.

DBS is solely acting for and on behalf of Deutsche Bank AG and/or any of its affiliates. Potential investors should be aware that if they decide to enter into a transaction with Deutsche Bank AG or any of its affiliates acting in their capacity as principal to the transaction (“contracting party”), any and all agreements will be entered into with that contracting party (unless re-negotiated) and pursuant to the financial laws and regulations of the country where the contracting party is licensed.

Unless DBS is entering into a separate and explicit contractual relationship with you for the provision of investment services, it is neither obliged to categorise you in accordance with MiFID nor perform MiFID suitability and/or appropriateness assessment (as enacted into Swedish laws and regulations). The investments or services mentioned in this material or an attachment thereto may not be appropriate for all investors and before entering into a transaction you should take steps to ensure that you fully understand the transaction and have made an independent assessment of the appropriateness of the transaction in the light of your own objectives and circumstances, including the possible risks and benefits of entering into such transaction. You should also consider seeking advice from your own advisers in making this assessment. If you decide to enter into a transaction with a contracting party you do so in reliance on your own judgment. For general information regarding the nature and risks and types of financial instruments please go to www.globalmarkets.db.com/riskdisclosures.

DB SPECIFICALLY DISCLAIMS ALL LIABILITY FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL OR OTHER LOSSES OR DAMAGES INCLUDING LOSS OF PROFITS INCURRED BY YOU OR ANY THIRD PARTY THAT MAY ARISE FROM ANY RELIANCE ON THIS DOCUMENT OR FOR THE RELIABILITY, ACCURACY, COMPLETENESS OR TIMELINESS THEREOF.

For Investors in Belgium: The information contained herein is only intended for and must only be distributed to institutional and/or professional investors (as defined in the Royal Decree dated 19 December 2017 implementing MiFID directive). In reviewing this presentation you confirm that you are such an institutional or professional investor. When making an investment decision, potential investors should rely solely on the final documentation (including the prospectus) relating to the investment or service and not the information contained herein. The investments or services mentioned herein may not be adequate or appropriate for all investors and before entering into any transaction you should take steps to ensure that you fully understand the transaction and have made an independent assessment of the suitability or appropriateness of the transaction in the light of your own objectives and circumstances, including the possible risks and benefits of entering into such transaction. You should also consider seeking advice from your own advisers in making this assessment. If you decide to enter into a transaction with us you do so in reliance on your own judgment.

For investors in Bermuda: This is not an offering of securities or interests in any product. Such securities may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are permitted to do so under applicable Bermuda legislation.

Research & Strategy—Alternatives

OFFICE LOCATIONS:

Chicago
222 South Riverside Plaza
34th Floor
Chicago
IL 60606-1901
United States
Tel: +1 312 537 7000

Frankfurt
Taunusanlage 12
60325 Frankfurt am Main
Germany
Tel: +49 69 71909 0

London
Winchester House
1 Great Winchester Street
London EC2N 2DB
United Kingdom
Tel: +44 20 754 58000

New York
345 Park Avenue
26th Floor
New York
NY 10154-0102
United States
Tel: +1 212 454 6260

San Francisco
101 California Street
24th Floor
San Francisco
CA 94111
United States
Tel: +1 415 781 3300

Singapore
One Raffles Quay
South Tower
20th Floor
Singapore 048583
Tel: +65 6538 7011

Tokyo
Sanno Park Tower
2-11-1 Nagata-cho
Chiyoda-Ku
18th Floor
Tokyo
Japan
Tel: +81 3 5156 6000

TEAM:

Global

Mark Roberts, CFA
Head of Research & Strategy
mark-g.roberts@dws.com

Jessica Elengical
Head of ESG Strategy
jessica.elengical@dws.com

Gianluca Minella
Infrastructure Research
gianluca.minella@dws.com

Yasmine Kamaruddin
Global Strategy
yasmine.kamaruddin@dws.com

Americas

Kevin White, CFA
Head of Strategy, Americas
kevin.white@dws.com

Brooks Wells
Head of Research, Americas
brooks.wells@dws.com

Ross Adams
Industrial Research
ross.adams@dws.com

Liliana Diaconu, CFA
Office Research
liliana.diaconu@dws.com

Ana Leon
Retail Research
ana.leon@dws.com

Ryan DeFeo
Property Market Research
ryan-c.defeo@dws.com

Joseph Pecora, CFA
Apartment Research
joseph.pecora@dws.com

Europe

Matthias Naumann
CIO & Head of Strategy, Europe
matthias.naumann@dws.com

Simon Wallace
Head of Research, Europe
simon.wallace@dws.com

Tom Francis
Property Market Research
tom.francis@dws.com

Martin Lippmann
Property Market Research
martin.lippmann@dws.com

Farhaz Miah
Property Market Research
farhaz.miah@dws.com

Aizhan Meldebek
Infrastructure Research
aizhan.meldebek@dws.com

Siena Golan
Property Market Research
siena.golan@dws.com

Asia Pacific

Koichiro Obu
Head of Research & Strategy, Asia Pacific
koichiro-a.obu@dws.com

Natasha Lee
Property Market Research
natasha-j.lee@dws.com

Seng-Hong Teng
Property Market Research
seng-hong.teng@dws.com

Hyunwoo Kim
Property Market Research
hyunwoo.kim@dws.com