

June 2019 / Research Report

EUROPEAN INFRASTRUCTURE STRATEGIC OUTLOOK H2 2019

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1 / Executive Summary¹

- The European economy started 2019 on a weaker footing than we originally predicted, but we continue to see a period of near-trend growth ahead. We believe that it would take a big shock to derail the European economy from its prospects of gradual, medium-term expansion. Nevertheless, risks remain on the horizon, including a potential trade slowdown, and short-term political uncertainty in Europe with Brexit prospects remaining unclear.²
- Allocations to alternative assets continue to increase and infrastructure represents the fastest growing asset class within the portfolios of institutional investors. Europe represents a key market, providing investors with a unique set of opportunities to diversify portfolios across countries and sectors.³ We believe that the European markets with the most relevant fundamentals for long-term infrastructure investment are core markets such as the United Kingdom, Germany, the Netherlands, the Nordics and France, as well as Italy, Spain, and Portugal, which combine slightly higher risk/return potential with conducive market fundamentals.⁴ These markets offer a mature investment environment, and support strategies targeting inflation-hedged, long-term income return stability, and potential for some capital growth.⁵
- From a portfolio perspective, regulated infrastructure is beneficial to balance systemic risk. However, returns are capped by high dry powder, especially for larger deals. We continue to see a sound yield premium over government bonds, and over global listed equities, particularly as we expect Eurozone bond yields to remain below their long-term historical average for longer.⁶ For 2019, we forecast levered entry returns for core assets⁷ in mature European markets to be in the range of 7% to 9.5% (IRR⁸).⁹ In the core plus space, levered entry return assumptions are in the range of 9.5% to 13.5% (IRR), and, in the middle market¹⁰, we see the opportunity to generate a risk-adjusted premium over core strategies.
- Traffic growth is moderating from the peak levels observed in 2018, but European transportation should continue to benefit from supportive industry and medium-term economic fundamentals, providing a growing set of opportunities. Allowed returns for regulated networks continue to compress and power demand remains sluggish. However, prices seem to have now found a floor, and across Europe the medium-term outlook for gas generation is increasingly supported by a projected reduction in coal generation driven by climate change policies. Utilities continue to refocus their business profiles after having consolidated their positions on networks and renewables, while municipal utilities should continue to seek partnerships.
- Digitalisation continues to generate strong data demand growth, supporting fundamentals for fibre networks and telecom towers and generating potential transaction opportunities. Other megatrends, including demographic changes should increasingly support investment fundamentals for transaction opportunities, for instance in the healthcare sector. One trend in particular is gaining exceptional recognition: sustainability. Acquiring and managing assets following rigorous sustainability criteria will be a crucial driver of long-term value generation going forward.

¹ Any forecasts provided herein are based on DWS's opinion at time of publication and are subject to change.

² Oxford Economics, 17 April 2019.

³ Preqin, "Preqin Quarterly Update: Infrastructure. Q1 2019", 10 April 2019.

⁴ Based on DWS proprietary methodology for ranking unlisted infrastructure markets as at 25 November 2018, 30 November 2018.

⁵ Based on DWS proprietary methodology for ranking unlisted infrastructure markets as at 25 November 2018, 30 November 2018.

⁶ Oxford Economics, 17 April 2019.

⁷ Core infrastructure includes brownfield assets in geographically mature markets, with returns predominantly based on income return. Income return is predictable in the long term, based on regulation or contractual structure, while capital appreciation potential is more limited. Core assets provide essential services in economically and demographically mature areas, are often fully regulated, and technological obsolescence risk is minimal, contributing to low return volatility.

⁸ IRR = Internal Rate of Return.

⁹ Based on DWS proprietary methodology for ranking unlisted infrastructure sectors as at 30 April 2019. Valuations for 2019 are based on a ten year dividend discount model and a terminal value at exit. Dividend yields, leverage, growth, exit assumptions and discount rate vary by country and sector. There is no guarantee the forecast shown will materialise.

¹⁰ The middle market includes assets requiring equity checks in the range of EUR 250 million to EUR 500 million, offering a value proposition that is less competitive than the market for large-scale core assets. Opportunities in the middle market often enable acquirers to compete on factors other than price, including, such as business plan strength and asset management/ industry expertise.

2 / Strategic Themes¹¹

Strategic Themes for Unlisted Infrastructure Investment and Portfolio Management

Strategic Themes ¹²	1	Mature markets: Focus on Germany, the United Kingdom, the Netherlands, the Nordics, France, Italy, Spain and Portugal. These markets offer a predictable investment environment and a transparent legal and regulatory framework. ¹³
	2	Yield and some growth: Target brownfield assets with solid infrastructure characteristics, supporting income yield through regulated or contracted profiles, but that also offer a platform for growth. Growth can offset the potential impact of increasing interest rates in the long-term on exit valuations and help protect value. Should the cycle mature further, an adequate exposure to regulated infrastructure is key to balance systemic risk in a portfolio. ¹⁴
	3	Long-term industry trends: Target sectors favourably positioned to capitalise on long-term industry trends. Mobility, digitalisation, urbanization and demographic trends should support value creation in the long term independently from the volatility of the macroeconomic cycle.
Risk Awareness	1	Large-Cap: The middle market offers opportunities to acquire assets at reasonable valuations, with less competition than in the large-cap market. Opportunities requiring structuring may enable value creation through operational, strategic and financial expertise in the medium-to-long term.
	2	Greenfield: Greenfield opportunities remain a valuable strategy, but only in core countries. Such opportunities can generate alpha and complement a portfolio with higher returns, while increased risks associated can often be mitigated. ¹⁵
	3	Political uncertainty: Understand implications of political uncertainty on assets. Source investment opportunities where industry dynamics, regulation, or contractual framework provides protection from the volatility of the political cycle.
Portfolio Optimisation	1	Sustainability: Investors should target assets that comply with rigorous ESG criteria and responsible investment guidelines. ¹⁶ We also believe the market may increasingly incorporate ESG factors in investment decisions going forward. Acquiring and managing assets with solid ESG profiles, will protect their long-term value, particularly at exit.
	2	Power: With coal and nuclear capacity reductions driven by climate change policies, selective allocation to efficient cogeneration gas power plants (CCGT) may offer opportunities, backed by capacity payments, power purchase agreements (PPA), and if valuations reflect the impact of rising CO ₂ prices. ¹⁷
	3	U.S.: U.S. infrastructure may offer the opportunity to diversify a portfolio of European investments, particularly across the long-term contracted energy space. ¹⁸

¹¹ Any forecasts provided herein are based on DWS's opinion at time of publication and are subject to change.

¹² No assurance can be given that investment objectives will be achieved.

¹³ DWS proprietary methodology for ranking unlisted infrastructure markets as at 25.11.2018, 30 November 2018.

¹⁴ DWS proprietary methodology for ranking unlisted infrastructure sectors as at 25.11.2018, 30 November 2018.

¹⁵ DWS proprietary model for ranking unlisted infrastructure markets and sectors as at 30 April 2019.

¹⁶ DWS, University of Hamburg, "ESG and Corporate Financial Performance", December 2015.

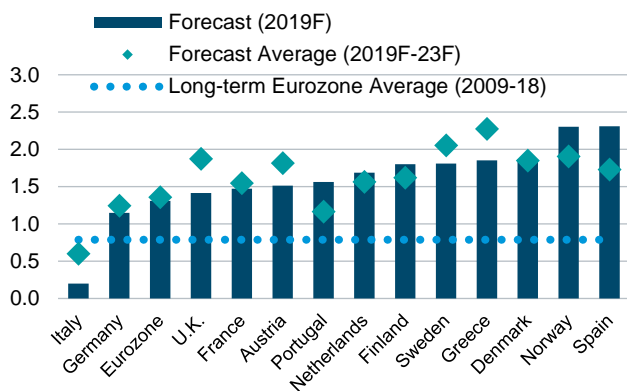
¹⁷ Based on Bloomberg and DNV GL data, as at April 2019.

¹⁸ Based on InfraNews data, as at April 2019.

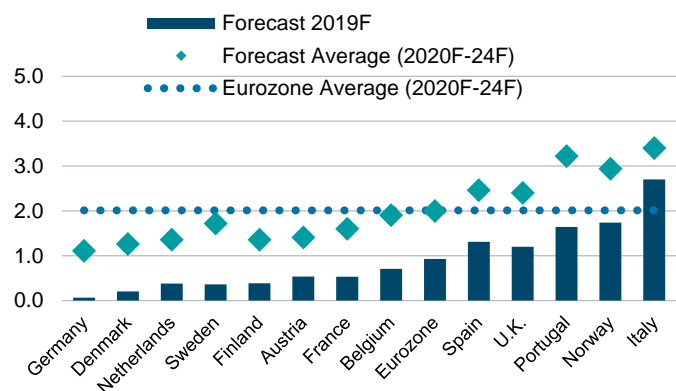
3 / Macroeconomic Outlook

Global Growth: The global expansion appears to have peaked in 2018, and the economy has somewhat underperformed our expectations in the first part of 2019. That said, supportive fundamentals and more dovish central banks might provide some upside to the remaining part of 2019. U.S. economic growth remains supportive, while in China GDP growth has remained robust, and we expect only a slight ease in growth to 6.2% in 2019 compared with 6.6% achieved in 2018. Growth may be weaker than observed over the past decade, but appears steady and resilient. We see this scenario continuing in the medium term, and believe that only a major shock would derail the global economy.¹⁹

REAL GDP GROWTH (% P.A., 2009-23F)



SOVEREIGN BOND YIELDS (10 YEARS, %, 2019F-24F)



Source: Oxford Economics, as at 17 April 2019. Notes: F = forecast, E = expected. Past performance is not a guide for future results. There is no guarantee the forecast shown will materialise. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect.

European Growth: European growth was below our expectations for the first part of 2019, yet preliminary indicators draw a supportive picture for the remaining part of 2019. Continued recovery in labour markets, and accommodative monetary and fiscal policies are likely to provide support. GDP growth is expected to be at 1.3%, down from 1.8% in 2018, but to remain supportive in the medium-term. In the United Kingdom, current baseline forecasts suggest that economic growth may slow down to 1.3% in 2019, before accelerating to 1.9% in 2020, subject to ongoing Brexit negotiations.²⁰

Risks: Beyond Brexit, rising trade barriers and a potential further slowdown of Chinese economic growth represent the main potential risks undermining our view on supportive medium-term economic growth.²¹

European Infrastructure: Infrastructure performance should remain robust over the coming years across various sectors. We continue to see interest rates remaining below the long-term historical average in the medium-term. Infrastructure will remain a critical asset class during the part of the cycle where inflationary pressures pick-up. Infrastructure assets can provide inflation hedging due to demand inelasticity allowing inflation to pass through to the end customer.²²

¹⁹ Based on Oxford Economics data, as at 9 April 2019.

²⁰ Based on Oxford Economics data, as at 9 April 2019.

²¹ Based on Oxford Economics data, as at 9 April 2019.

²² OECD, November 2017.

4 / Infrastructure Outlook²³

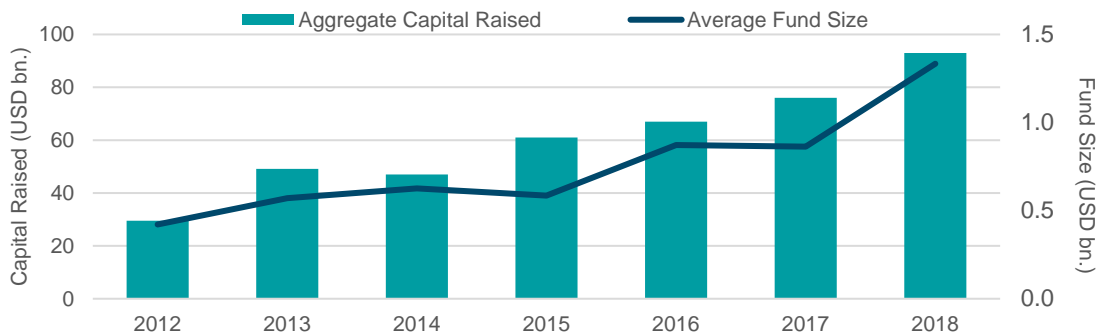
4.1 Market Update²⁴

The current environment is driven by comparatively lower returns from traditional investments and uncertainty around the length of the investment cycle. Therefore, long-term investors continue to look at unlisted infrastructure as an asset class that continues to offer a yield premium over government bonds, can match long duration needs, and has historically produced strong risk-adjusted returns.²⁵



Fundraising Trends: Unlisted infrastructure fundraising achieved a new record in 2018. Sixty-seven unlisted infrastructure funds raised a combined USD 85 billion. In 2018, twenty-two North America-focused funds raised USD 44 billion, while thirty-three Europe-focused funds raised USD 35 billion, and four Asia-focused funds raised USD 4.1 billion. The trend of capital concentration among managers with a solid track-record continues.²⁶ The solid fundraising momentum observed last year has continued into the first quarter of 2019. The USD 15 billion secured by funds in the first quarter of 2019 is in line with the first quarter of 2018. Looking forward, 2019 can become another record-making fundraising year for unlisted infrastructure.²⁷

UNLISTED INFRASTRUCTURE FUNDRAISING (GLOBAL, USD BILLION, 2012 - 2018)



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



Allocation Trends: Europe represents the key investment region for core/core-plus investment strategies, offering strong diversification opportunities by country and sector. European infrastructure has the potential to align well with investment strategies focusing on long-term income yield stability with some capital growth potential.²⁸ For example, Europe provides access to numerous investment opportunities in transportation, such as airports governed by mature and tested concessions, which have historically provided long-term

²³ Any forecasts provided herein are based on DWS's opinion at the time of publication and are subject to change.

²⁴ Any forecasts provided herein are based on DWS's opinion at the time of publication and are subject to change.

²⁵ MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending September 2018", March 2019.

²⁶ Preqin, "Q4 2018 Private Capital Fundraising Update", January 2019.

²⁷ Preqin, "Preqin Quarterly Update: Infrastructure. Q1 2019", 10 April 2019.

²⁸ MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending September 2018", January 2019.

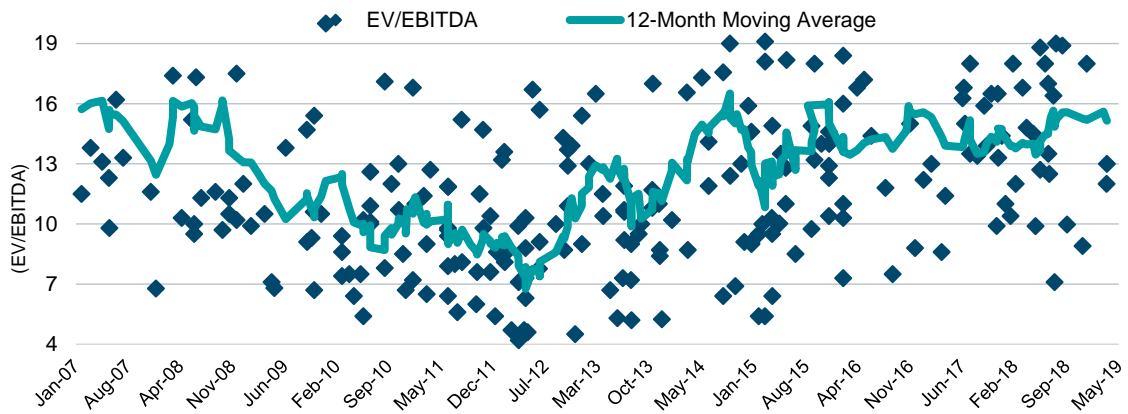
income return visibility as well as potential for long-term business expansion.²⁹ European infrastructure regulation is relatively transparent when compared with other markets around the globe. Mature European countries can offer an established investment environment, a transparent legal and regulatory framework, and a history of private infrastructure ownership.³⁰

The pipeline of European transactions remains strong. The total of closed transactions in the European infrastructure market in 2019 year to date stood at EUR 28 billion. From a regional perspective, looking at key markets, Southern Europe accounted for about 35% of total transaction volume, France accounted for about 22%, while the United Kingdom and Germany accounted for about 20% and 8.0% respectively.³¹ Investors look at North America as a region that can offer diversification opportunities to their European infrastructure portfolios, particularly in the energy sector, but where private infrastructure investment has been historically more skewed towards core plus/ value add strategies, and therefore proved more volatile.³²



Valuation Trends: After a period of relative stability in 2017 and 2018, unlisted infrastructure transaction multiples seem to have increased slightly in the first part of 2019, in line with what observed across other asset classes in developed markets. This was due to a number of factors, including an increased number of larger, core deals coming to the market in auction processes, some telecom transactions supported by somewhat generous assumptions around long-term business growth, and expectations around looser monetary policy reducing discount rates compared with what previously expected.³³

EV/EBITDA, UNLISTED INFRASTRUCTURE TRANSACTIONS IN EUROPE (2007 - 2019 YTD)



Source: DWS proprietary database, based on publicly available transaction data, 24 April 2019. Past performance is not a guide for future results.

²⁹ Based on Infrastructure Journal database as at 3 April 2019. Figures include all European projects in the database that have been listed with the status “Financial Close”. This figure reflects both infrastructure project financing and non-project financing deals.

³⁰ Based on DWS proprietary methodology for ranking unlisted infrastructure markets as at 25.11.2018, 30 November 2018.

³¹ Based on Infrastructure Journal database, as at 3 April 2019. Figures include all European projects in the database that have been listed with the status “Financial Close”. This figure reflects both infrastructure project financing and non-project financing deals.

³² Preqin, “Q4 2018 Private Capital Fundraising Update”, January 2019.

³³ DWS proprietary database of European unlisted infrastructure transactions, based on publicly available transaction information from various sources, including Infrastructure Journal, InfraNews, Reuters, 24 April 2019.

Today, it is important to have a fundamental view on valuations throughout a cycle, taking a realistic mid-cycle approach and applying alpha to discount rates, to keep a fairly consistent and stable view of value across a portfolio over the long term. In the core infrastructure space, competition continues to be high, particularly across auction processes and at the direct end of the market.³⁴ We continue to see the mid-market core plus space as the most attractive segment of the market, offering investors access to a comparatively less competitive landscape.³⁵

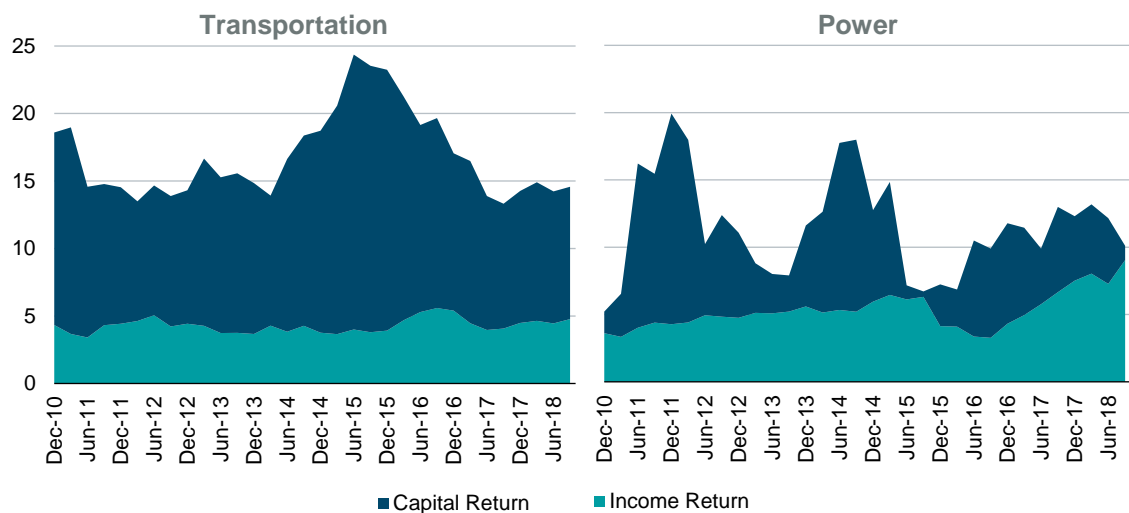
In the medium-term, we expect several drivers to provide some support to valuations for European unlisted infrastructure, including dry powder levels, the availability of debt financing at historically low interest rates, a supportive macroeconomic environment, and an implied equity risk premium that continues to reduce, driven by a large number of investors looking to invest in the asset class.

That said, in the long-term, we cannot exclude that higher interest rates may have an impact on discount rates and hence crystallise on valuations at exit. We believe that this risk may be higher for regulated, core infrastructure, while core plus infrastructure assets may offset the impact of increasing yields through earnings growth. Moreover, regulated infrastructure remains exposed to tighter regulated returns reducing the spread over long-term government bonds, an element that today we do not always see fully factored into valuations.³⁶



Historical Performance Overview: According to the MSCI Global Infrastructure Asset Index (MSCI Index), global unlisted infrastructure has recorded double-digit total returns in recent years, supported by a steady and predictable income return profile and some capital growth.³⁷

MSCI GLOBAL INFRASTRUCTURE ASSET INDEX RETURN BY SECTOR
 (% - ROLLING ANNUAL, DECEMBER 2010 - SEPTEMBER 2018)



Source: MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending September 2018", local currency, January 2019. Past performance is not a reliable indicator of future returns.

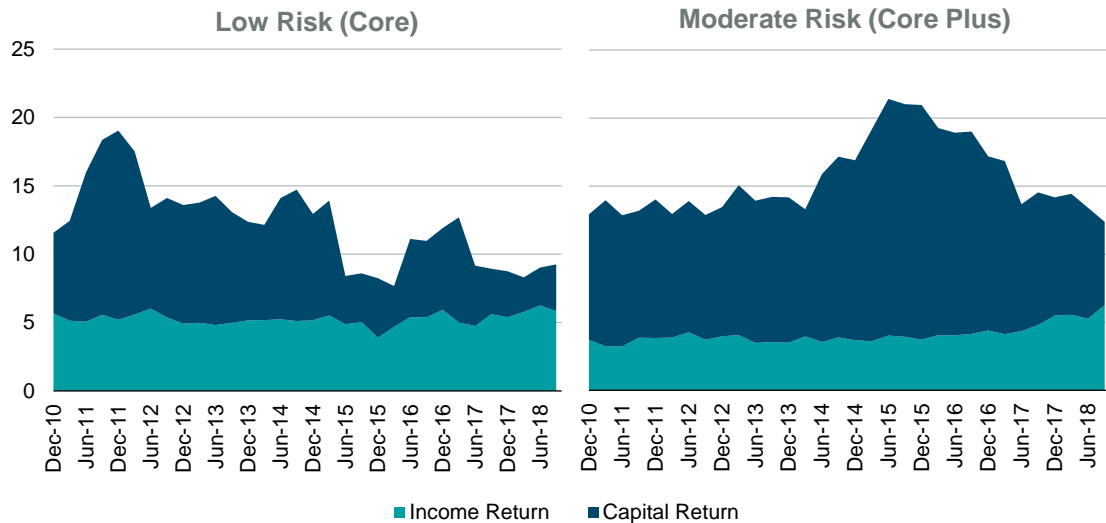
³⁴ Based on Infrastructure Journal database as at 3 April 2019. Figures include all European projects in the database that have been listed with the status "Financial Close". This figure reflects both infrastructure project financing and non-project financing deals.

³⁵ DWS proprietary database of European unlisted infrastructure transactions, based on publicly available transaction information from various sources, including Infrastructure Journal, InfraNews, Reuters, 24 April 2019.

³⁶ DWS proprietary database of European unlisted infrastructure transactions, based on publicly available transaction information from various sources, including Infrastructure Journal, InfraNews, Reuters, 24 April 2019.

³⁷ MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending September 2018", January 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.

MSCI GLOBAL INFRASTRUCTURE ASSET INDEX RETURN BY STRATEGY
 (% , ROLLING ANNUAL, DECEMBER 2010 - SEPTEMBER 2018)³⁸



Source: MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending September 2018", local currency, January 2019. Past performance is not a reliable indicator of future returns.

Looking at sector specific performance, income and capital return seem to have been more predictable in the transportation sector, where capital returns have benefitted from favourable business fundamentals. Capital returns in the power sector have historically proved to be more volatile, particularly for merchant power, reflecting the structural changes that the power sector is undergoing and the width of the investable risk/return spectrum.³⁹

Looking at historical performance by strategy, the MSCI Index indicates that while income return across core and core plus strategies has been largely comparable, core plus infrastructure has historically demonstrated more consistent potential for capital appreciation, supported by the possibility that core plus assets can be actively managed to improve operations and grow the business over time.⁴⁰ Going forward, we believe that European core plus infrastructure strategies should continue to post solid performance, particularly for strategies focusing on assets with solid long-term industry growth dynamics.

³⁸ MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending September 2018", January 2019. Total Returns based on MSCI Global Quarterly Infrastructure Asset Index, as at September 2018, Local. Core Infra = 'Low Risk' in MSCI Infrastructure Investment Style Matrix, includes brownfield assets in geographically mature markets, with significant component of income yield, predictable and regulated revenues, long-term investment horizon, and an investment grade rating profile. Core/Core plus = 'Moderate Risk', includes brownfield assets with some development risk, in mature markets, with relatively predictable revenues and income and capital, generally contributing equally to total return. 'Opportunistic' = High Risk includes high risk brownfield or greenfield assets, located in mature and maturing markets, with a sub-investment grade profile, with potentially volatile income streams and with the capital return component representing the primary driver of total return. Past performance is not guide for future results.

³⁹ Based on DWS proprietary methodology for ranking unlisted infrastructure sectors as at 30 April 2019. Valuations for 2019 are based on a ten year dividend discount model and a terminal value at exit. Dividend yields, leverage, growth, exit assumptions and discount rate vary by country and sector. There is no guarantee the forecast shown will materialise.

⁴⁰ MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending September 2018", January 2019.

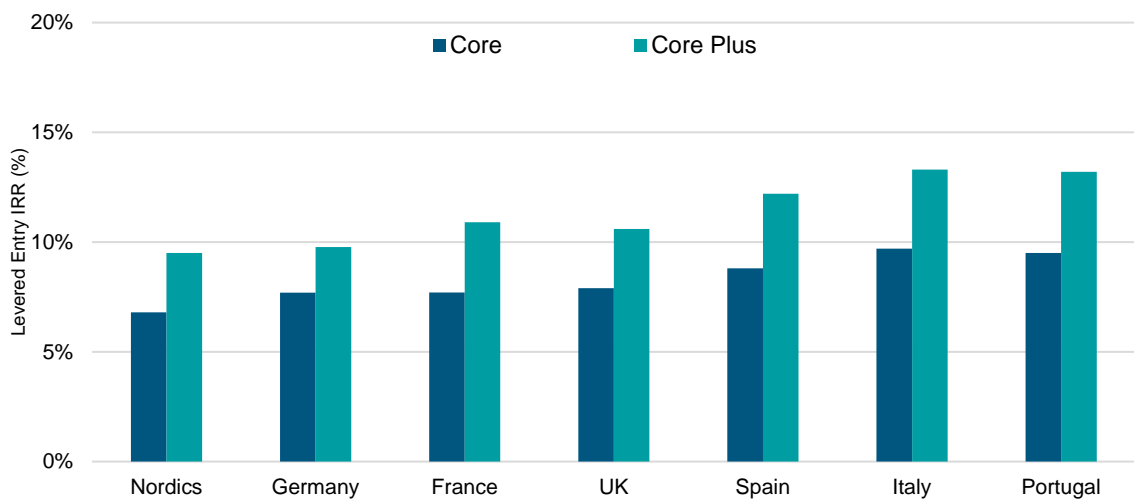


Performance Outlook:⁴¹ Evaluating the performance outlook for infrastructure requires considering the complex, long-term interaction between a number of factors, including entry valuations, operational fundamentals varying by sector, leverage, expectations around dividend yields growth, interest rates fluctuations driving cost of debt and discount rates, evolution in the competitive environment, and assumptions around exit valuations.

As at April 2019, we estimate that on average, levered private equity infrastructure entry returns assumptions in mature European markets should be in the range of 7.0% to 9.5% (IRR) for core assets.⁴² We continue to see a sound premium over government bond yields, but in the core space we expect spreads over long-term government bond yields to remain compressed, particularly for regulated networks.⁴³

Moreover, in the core plus space, particularly the middle market, we continue to see the opportunity for investors to acquire assets at a risk-adjusted premium over core strategies and to offset a potential long-term increase in interest rates on exit valuations in the long-term through more supportive dividend growth potential. Average, levered unlisted equity entry return assumptions are estimated in the range of 9.5% to 13.5% (IRR) in 2019.⁴⁴

UNLISTED INFRASTRUCTURE ENTRY IRR ASSUMPTIONS (%, 2019, ESTIMATE BY STRATEGY, LEVERED, AVERAGE)



Source: DWS proprietary database, Based on DWS proprietary methodology for ranking unlisted infrastructure sectors as at 30.04.2019. Valuations for 2019 are based on a ten year dividend discount model and a terminal value at exit. Dividend yields, leverage, growth, exit assumptions and discount rate vary by country and sector as at April 2019. There is no guarantee the forecast shown will materialise.

⁴¹ Any forecasts provided herein are based on DWS's opinion at the time of publication and are subject to change.

⁴² For indicative purposes only, returns vary by country, sector and asset.

⁴³ Based on DWS proprietary methodology for ranking unlisted infrastructure sectors as at 30 April 2019. Valuations for 2019 are based on a ten year dividend discount model and a terminal value at exit. Dividend yields, leverage, growth, exit assumptions and discount rate vary by country and sector. There is no guarantee the forecast shown will materialise.

⁴⁴ Based on DWS proprietary methodology for ranking unlisted infrastructure sectors as at 30 April 2019. Valuations for 2019 are based on a ten year dividend discount model and a terminal value at exit. Dividend yields, leverage, growth, exit assumptions and discount rate vary by country and sector. There is no guarantee the forecast shown will materialise.

Looking at entry performance expectations from a levered, total return perspective, we expect average annualized, ten-year total returns for core infrastructure to be at 6.5%, considering a leverage of 55%. In the core plus pace, we expect average annualized, ten-year total returns to be at 8.5%, considering a leverage of 45%.⁴⁵

**ENTRY TOTAL RETURN ASSUMPTIONS, CURRENCY-HEDGED
(%, AVERAGE TEN YEAR ESTIMATE, ANNUALIZED, LEVERED)**

	Investment Destination										
	France	Italy	Germany	UK	Spain	Portugal	Sweden	Norway	Finland	Denmark	
Investor Domicile Currency	AUD	8.5	10.0	7.8	7.1	9.3	9.9	6.9	5.7	8.4	7.6
	JPY	6.9	8.4	6.2	5.5	7.7	8.3	5.3	4.1	6.8	6.0
	KRW	8.0	9.5	7.3	6.7	8.8	9.5	6.4	5.2	7.9	7.1
	CNY	10.2	11.7	9.5	8.8	11.0	11.6	8.6	7.4	10.1	9.3
	EUR	6.8	8.3	6.1	5.4	7.6	8.2	5.2	4.0	6.7	5.9
	CHF	6.4	7.9	5.7	5.0	7.1	7.8	4.8	3.5	6.2	5.5
	GBP	8.1	9.6	7.4	6.7	8.8	9.5	6.4	5.2	7.9	7.2
	USD	9.4	10.9	8.7	8.0	10.1	10.8	7.7	6.5	9.2	8.5
	SEK	7.2	8.7	6.5	5.8	7.9	8.6	5.5	4.3	7.0	6.2
	NOK	8.8	10.3	8.1	7.4	9.5	10.2	7.2	5.9	8.7	7.9
	DKK	6.9	8.4	6.2	5.5	7.6	8.3	5.3	4.1	6.8	6.0

Hedging Gain No Gain/ Loss Hedging Loss

Source: Based on DWS proprietary methodology for ranking unlisted infrastructure sectors as at 30.04.2019. Total returns for 2019 are based on a ten year dividend discount model and a terminal value terminal value at exit and assume a 50%/50% allocation across core and core plus infrastructure. Dividend yields, leverage, growth, exit assumptions and discount rate vary by country and sector. Hedging cost/ gain estimated on the basis of a three year interest rate swap differential between currency of investor domicile and currency of investment destination. There is no guarantee the forecast shown will materialise.

Looking at our estimate for hedged total returns, from an international investor perspective, and with the exception of Swiss investors, investing in European infrastructure denominated in EUR has potential to support returns by generating an additional hedging gain. For example, a U.S. investor may benefit from currency hedging by investing in Europe today.⁴⁶

4.2 Industry Update⁴⁷



Airports: In 2019, we have observed a moderation in passenger growth, but airports should continue to outperform other European transportation sectors. Over the past five years, European air passenger growth has on average exceeded GDP growth, and we forecast it to continue expanding above GDP growth in the long term.⁴⁸ We forecast growth to average 4% in continental Europe, while we see U.K. airports growing below 3%.

⁴⁵ Based on DWS proprietary methodology for ranking unlisted infrastructure sectors as at 30 April 2019. Valuations for 2019 are based on a ten year dividend discount model and a terminal value at exit. Dividend yields, leverage, growth, exit assumptions and discount rate vary by country and sector. There is no guarantee the forecast shown will materialise.

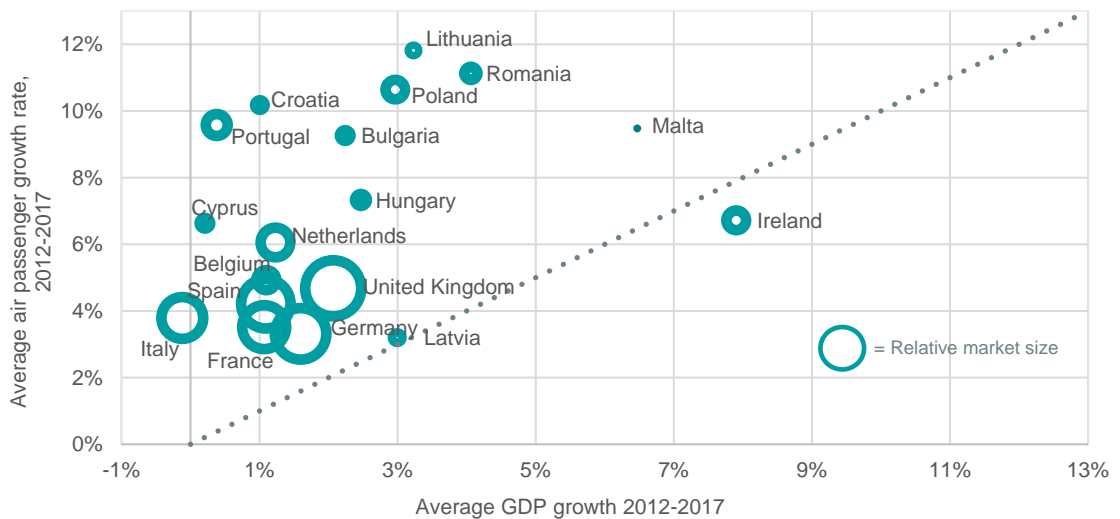
⁴⁶ Based on DWS, Bloomberg as at 30 April 2019.

⁴⁷ Any forecasts provided herein are based on DWS's opinion at the time of publication and are subject to change.

⁴⁸ Based on Eurostat, air passenger growth is calculated on an annual basis over 2012-2017, as at 1 May 2019.

European airport hubs will benefit from supportive domestic demand, but European airport hubs supported by Asian markets will continue to experience long-haul passenger and commercial revenues growth. Asia's air-passenger count could more than double by 2035, compared to 2018 levels, driven by urbanization, middle-class proliferation, and greater affordability, and is unlikely to be undermined by economic slowdown or trade tensions.⁴⁹ However, unexpected, material increases in oil prices could cap passenger growth.⁵⁰

AIR PASSENGER GROWTH RATE IN EUROPEAN MACRO ENVIRONMENT
 (% , ANNUAL, AVERAGE, 2012-2017)



Source: DWS, Eurostat, as at 1 May 2019. Size of the circle represents the relative size of the market. The largest market in the sample is the United Kingdom with an average number of air passengers of 226 million, and the smallest market is Luxembourg with an average number of air passengers per annum of 2.5 million. For illustrative purpose only. Past performance is not indicative of future returns.



Toll roads: European toll roads are positioned for growth in 2019; however, traffic growth is moderating and reverting to trend, averaging 2%. Private consumption is expected to support private vehicles volumes, while sluggish industrial production will cap growth for heavy vehicles. We continue to see traffic volumes in Spain outperforming European peers, while Italy seems positioned for flat traffic growth in 2019.⁵¹



Ports: Ports traffic volumes have historically demonstrated correlation to global growth. The outlook for European ports remains largely stable on the back of supportive global trade. Yet, after two years of robust growth, global freight transportation faces increased uncertainty from rising trade barriers and slowing economic activity as also indicated by the recent compression of the Baltic Dry Index,⁵² representing a traditional barometer of the health of the dry-bulk industry and of global trade.

Moreover, containerization seems to be an increasingly maturing trend. We see ports in strategic locations proving more resilient to medium-term risks, including a potential further slowdown in global trade driven by a further unexpected deceleration of Chinese GDP growth, or additional trade barriers.⁵³ Moreover, ship owners may face growing uncertainty and higher pressure on costs and from the new emission regulations IMO 2020, requiring vessels to be retrofitted with exhaust-gas scrubbers or burn more costly low sulphur fuel.

⁴⁹ Bloomberg, Asia Air Travel Boom, December 2018.

⁵⁰ Based on Bloomberg, Eurostat and Moody's Investors Service data, as at April 2019.

⁵¹ Based on Oxford Economics and Moody's Investors Service data, as at 1 May 2019.

⁵² The Baltic Dry Index (BDI), is issued daily by the London-based Baltic Exchange. The BDI is a composite of the Capesize, Panamax and Supramax Timecharter averages. It is reported around the world as a proxy for dry bulk shipping stocks as well as a general shipping market indicator.

⁵³ Based on Bloomberg, Oxford Economics and Moody's Investors Service data, as at April 2019.

KEY SHIPPING INDICATORS (APRIL 2014 – MARCH 2019)

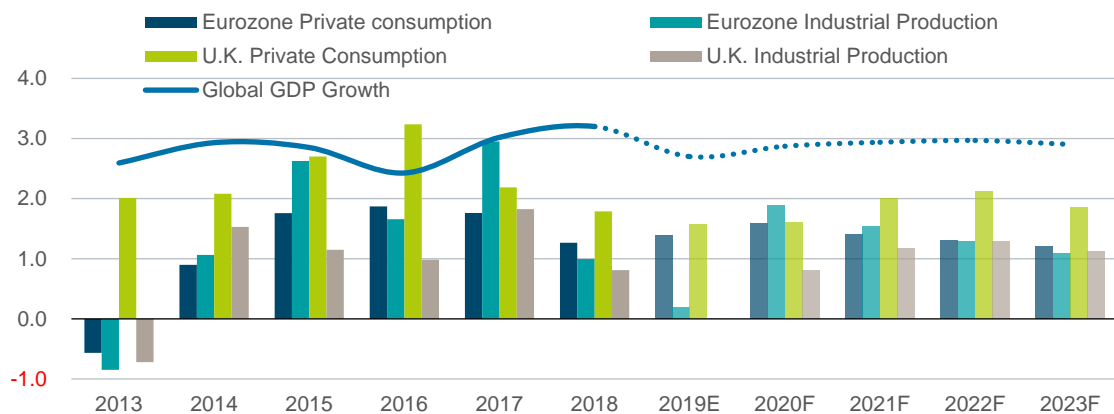


Source: Bloomberg, as at 18 April 2019. The Baltic Dry Index (BDI) is a general shipping market indicator, and measures the demand for shipping capacity versus the supply of dry bulk carriers. The China (Export) Containerized Freight Index (CCFI) tracks spot and contractual freight rates from Chinese container ports for 12 shipping routes across the globe, based on data from 20 international carriers. For illustrative purpose only. Past performance is not indicative of future returns.



Rail freight: In 2019, rail should continue to grow around trend, driven by demographics and capacity increases, while rail freight seems to be supported by internal consumption levels but may also discount sluggish industrial production going forward. In the medium term, we expect more rolling stock investment opportunities across a number of national and local transport markets, as the process of liberalization of European transportation continues.⁵⁴

KEY MACROECONOMIC TRANSPORTATION VOLUME DRIVERS (% P.A., 2013-23F)



Source: Oxford Economics, as at 1 May 2019. Notes: F = forecast. Past performance is not indicative of future returns. There is no guarantee the forecast shown will materialise. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect.



Power Generation: In the beginning of 2019, we observed a stabilization of power prices, but demand has continued to remain sluggish in most markets, on the back of rising energy efficiency and weak industrial production growth. We expect the picture to remain largely unchanged for the rest of 2019, and in the medium term, market fundamentals point to a more volatile energy price environment.⁵⁵

⁵⁴ Railway Gazette "European Parliament approves Fourth Railway Package technical pillar", 28 Apr 2016.

⁵⁵ Based on Bloomberg, as at 28 April 2019.

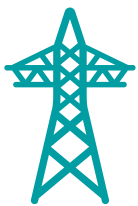
However, some structural factors continue to drive a change in the European power markets. In Germany, plans to phase out coal and lignite by 2031 will already lead to material capacity reductions between 2019-2022 (Phase 1), the Netherlands and France are also planning to phase out coal by 2022 and 2029 respectively, while the United Kingdom has committed to phasing out coal plants without carbon capture and storage facilities by 2025.⁵⁶

Policymakers will need to balance the need to reduce coal generation with maintaining security of supply, and we expect renewables and gas to compensate for the coal and lignite power closures. Therefore, in the medium term, we see improving fundamentals for efficient Combined Cycle Gas Turbines (CCGTs), also supported by a further development of capacity markets, as a potential investment opportunity, while rising CO₂ prices and battery storage increases may somewhat offset this dynamic.



Renewables: Market conditions, falling equipment costs, incentive mechanisms increasingly based on auctions and contract for difference mechanisms (CfD) continue to drive renewables capacity increases. In 2019, capacity growth is expected to be driven by off-shore wind. In the medium term, market conditions, decarbonisation policies and falling equipment costs for renewables and energy storage should continue to drive renewables capacity, particularly across photovoltaic (PV) renewable energy.⁵⁷ We see the sector maturing and expect the share of subsidy-free renewable projects to increase gradually, particularly in Southern Europe. We continue to see renewables as a potential target in Europe, particularly with strategies aiming at consolidating existing brownfield projects to increase efficiency levels.

New subsidy regimes expose greenfield projects to weaker profitability, while existing brownfield projects are generally exposed to tail risk due to expiring subsidies. As technology evolves, new equipment might also be exposed to untested operational assumptions, a risk that we see particularly for off-shore wind.



Utilities & Networks: European utilities have now largely completed their multi-year asset disposal programs and refocused their business profiles, mainly on networks and renewables. However, utilities will continue to face significant structural changes, driven by sluggish power demand, renewables and energy storage installed by third parties, and digitalization generating new opportunities such as in grid balancing, and demand response services, but also increasing competition.

As a result, European utilities continue to revise strategic plans. We expect larger utilities to remain acquisitive, targeting smaller players in the energy efficiency, demand-response, smart grid and electric vehicle recharging technologies sectors to acquire innovative technology, and expand their operations across new businesses, including telecommunications.⁵⁸ In the long term, we expect new winners and losers to emerge in the utilities space, and do not exclude a wave of M&A activity.

In this context, we continue to expect municipal utilities to target industrial and financial partnerships to redefine their business models and unlock potential investment opportunities. Looking at networks, a number of regulatory determinations will continue to take place during 2019, with frameworks expected to remain fundamentally unchanged. However, allowed regulated returns are expected to continue to decline, compressing the spread with long-term government bond yields further, in line with what has been observed historically.⁵⁹

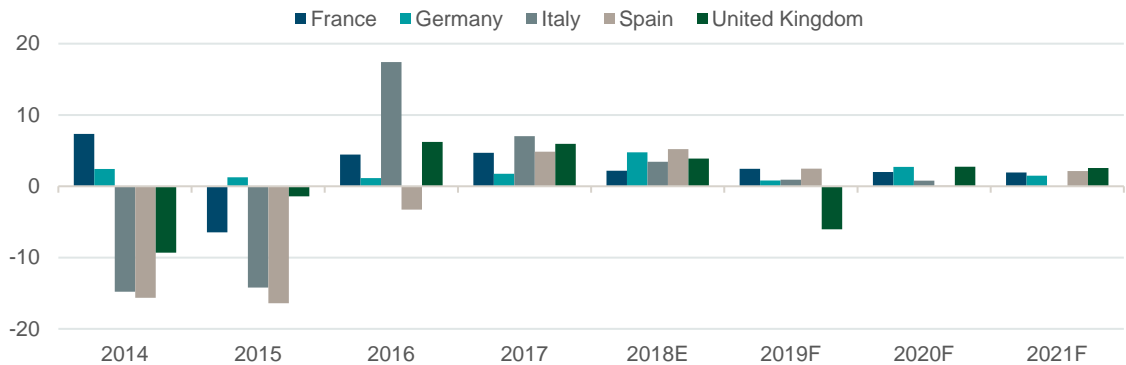
⁵⁶ Based on Bloomberg, as at 28 April 2019.

⁵⁷ Based on Fitch Ratings and Moody's Investors Service data, as at March 2019.

⁵⁸ Based on Bloomberg, as at 28 April 2019.

⁵⁹ Moody's Investors Service, "Regulated electric and gas networks", 21 November 2018.

CAPEX CHANGES OF EUROPEAN UTILITIES (% P.A., 2014-2021F)



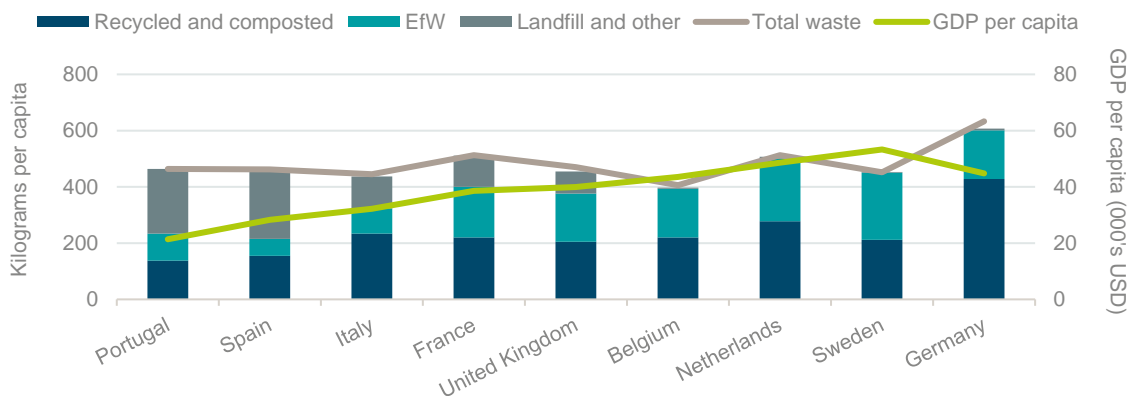
Source: Oxford Economics, as at 14 March 2019. Notes: F = forecast, E = expected. Past performance is not indicative of future returns. There is no guarantee the forecast shown will materialise. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect.



Energy-from-Waste (EfW): Waste volumes have historically been correlated to GDP growth. We expect favourable market fundamentals for EfW projects in several European markets. The European Commission aims to reduce landfill to a maximum of 10% for municipal waste by 2030,⁶⁰ 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 2030.⁶¹ However, historical evidence demonstrates that recycling rates can reach a cap that becomes progressively more difficult to overcome.⁶²

We believe that a diversified profile of waste supply contracts, a plant located strategically to benefit from waste imports, and a diversified revenue profile across gate fees, electricity, steam and heat sale can support long-term cash-flow visibility and preserve long-term value. Municipal waste contracts with local authorities and private counterparties can support long-term revenue visibility over merchant waste.⁶³

MUNICIPAL WASTE TREATMENT AND NOMINAL GDP PER CAPITA IN EUROPE (KILOGRAMS PER CAPITA VS. USD PER CAPITA, 2017)



Source: DWS, Eurostat, Oxford Economics, March 2019. Notes: F = forecast, E = expected. Past performance is not indicative of future returns.

⁶⁰ European Commission, "Review of Waste Policy and Legislation", December 2017.

⁶¹ European Commission, "Review of Waste Policy and Legislation", December 2017.

⁶² McKinsey, June 2015.

⁶³ Roland Berger, July 2018.



Telecom Infrastructure: The telecom sector continues to enjoy high growth, underpinned by strong data demand supporting fundamentals for fibre networks, telecom towers and data centres. In 2019, industry growth rates are expected to reduce slightly due to the moderation in economic growth, but should remain strong relative to other sectors.⁶⁴ Investment volumes in telecom infrastructure should remain high, supported by favourable industry dynamics, digitalisation and consumer trends. Capital spending should remain high and M&A activity should continue, particularly for towers, fibre networks, and fifth-generation (5G) mobile technology. As these technologies mature, more investment opportunities may emerge in this space.

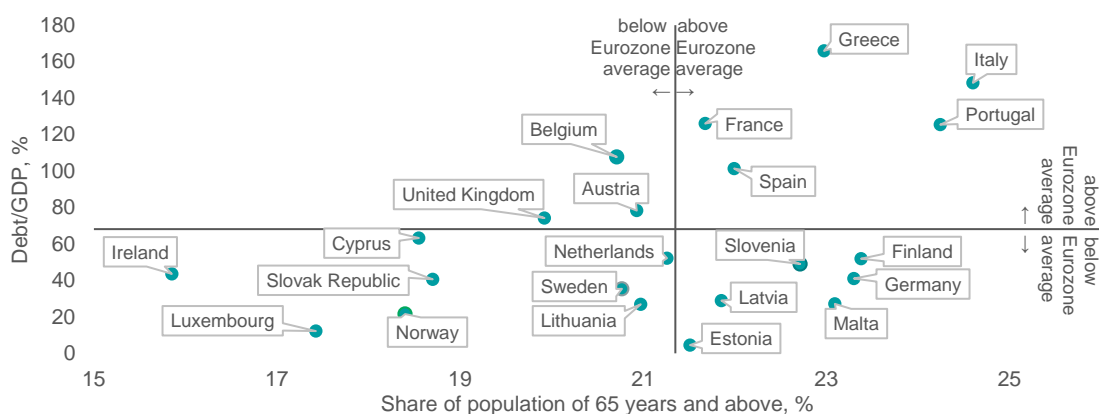
In our view, this remains a sector exposed to technological risk and limited revenue visibility in the long-term. However, telecom infrastructure has the potential to offer adequate medium-term cash flow visibility and diversified contract profiles supporting income return. Moreover, telecom infrastructure can provide a platform for growth through asset acquisition and consolidation, supporting capital appreciation in the medium-term.⁶⁵



Private Healthcare: European population is ageing. Over the next twenty years, by 2038, the share of population over 65 years should reach 27% from 20% in 2019, driven by sluggish birth growth rates and medical advances improving longevity.⁶⁶ An ageing population will have substantial consequences for the growth of different sectors in the economy, reshaping consumer spending.

Our view is that spending on healthcare infrastructure, including hospitals, in-home health services, elderly care and nursing homes should increase and require substantial infrastructure investment over the coming years. Healthcare expenditure will represent a challenge for governments, putting pressure on public budgets, and requiring a substantial involvement of private investors. We observe a growing interest from private investors in the healthcare sector.⁶⁷ Initial opportunities may arise in Italy, Portugal, Spain and France given higher levels of public debt and a comparatively older population.⁶⁸ A fragmented market structure and regulation across Europe represent a risk and require detailed understanding when considering an investment.

DEBT-TO-GDP AND SHARE OF POPULATION 65 AND ABOVE IN EUROPE (AVERAGE, %, 2019F – 2029F)



Source: DWS, Oxford Economics, March 2019. Notes: F = forecast, E = expected. There is no guarantee the forecast shown will materialise. Past performance is not a guide for future results.

⁶⁴ Based on Oxford Economics, Bloomberg and Moody's Investors Service data, as at March 2019.

⁶⁵ Based on InfraNews and Moody's Investors Service data, as at March 2019.

⁶⁶ Oxford Economics, European Union, Population 65+ divided by Population, total, as at 7 May 2019.

⁶⁷ Based on InfraNews, as at April 2019.

⁶⁸ Based on Oxford Economics, as at March 2019.

5 / Appendix

Index	Calendar Annual Performance					YTD Sep-2018
	2013	2014	2015	2016	2017	
MSCI Global Infrastructure Direct Asset Index - Power, Total Return	11.44%	13.08%	7.34%	12.02%	12.60%	7.3%
MSCI Global Infrastructure Direct Asset Index - Power, Capital Return	6.02%	6.80%	3.10%	7.47%	4.80%	1.2%
MSCI Global Infrastructure Direct Asset Index - Power, Income Return	5.22%	5.96%	4.14%	4.32%	7.52%	6.1%
MSCI Global Infrastructure Direct Asset Index - Transportation, Total Return	15.13%	19.14%	23.81%	17.50%	14.59%	10.1%
MSCI Global Infrastructure Direct Asset Index - Transportation, Capital Return	11.18%	14.95%	19.32%	11.66%	9.78%	6.6%
MSCI Global Infrastructure Direct Asset Index - Transportation, Income Return	3.67%	3.77%	3.94%	5.39%	4.49%	3.3%
MSCI Global Infrastructure Direct Asset Index - Low Risk, Total Return	12.33%	13.23%	8.38%	12.16%	8.86%	6.9%
MSCI Global Infrastructure Direct Asset Index - Low Risk, Capital Return	7.21%	7.76%	4.35%	5.96%	3.34%	2.4%
MSCI Global Infrastructure Direct Asset Index - Low Risk, Income Return	4.87%	5.17%	3.90%	5.93%	5.39%	4.5%
MSCI Global Infrastructure Direct Asset Index - Moderate Risk, Total Return	14.43%	17.27%	21.41%	17.59%	14.53%	8.6%
MSCI Global Infrastructure Direct Asset Index - Moderate Risk, Capital Return	10.68%	13.24%	17.24%	12.79%	8.69%	4.2%
MSCI Global Infrastructure Direct Asset Index - Moderate Risk, Income Return	3.50%	3.67%	3.72%	4.39%	5.48%	4.2%
MSCI Global Infrastructure Direct Asset Index - High Risk, Total Return	-3.74%	3.23%	24.46%	0.42%	46.73%	-
MSCI Global Infrastructure Direct Asset Index - High Risk, Capital Return	-5.00%	1.81%	22.93%	-0.77%	43.32%	-
MSCI Global Infrastructure Direct Asset Index - High Risk, Income Return	1.30%	1.40%	1.30%	1.19%	2.55%	-

Source: DWS, MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending September 2018", January 2019. Past performance is not a guide for future results.

Rolling Annual Performance						
Index	Sep-2013	Sep-2014	Sep-2015	Sep-2016	Sep-2017	Sep-2018
MSCI Global Infrastructure Direct Asset Index - Power, Total Return	8.00%	17.99%	6.80%	10.06%	13.32%	10.20%
MSCI Global Infrastructure Direct Asset Index - Power, Capital Return	2.69%	12.78%	0.41%	6.63%	6.34%	1.05%
MSCI Global Infrastructure Direct Asset Index - Power, Income Return	5.21%	4.83%	6.31%	3.27%	6.67%	9.05%
MSCI Global Infrastructure Direct Asset Index - Transportation, Total Return	15.87%	18.81%	24.10%	20.23%	13.67%	14.93%
MSCI Global Infrastructure Direct Asset Index - Transportation, Capital Return	11.81%	14.10%	19.74%	14.07%	9.25%	9.81%
MSCI Global Infrastructure Direct Asset Index - Transportation, Income Return	3.75%	4.27%	3.83%	5.59%	4.14%	4.77%
MSCI Global Infrastructure Direct Asset Index - Low Risk, Total Return	13.35%	14.76%	8.75%	11.31%	8.97%	9.40%
MSCI Global Infrastructure Direct Asset Index - Low Risk, Capital Return	8.09%	9.61%	3.56%	5.71%	3.22%	3.40%
MSCI Global Infrastructure Direct Asset Index - Low Risk, Income Return	4.99%	4.83%	5.05%	5.38%	5.62%	5.84%
MSCI Global Infrastructure Direct Asset Index - Moderate Risk, Total Return	14.47%	17.54%	21.52%	19.46%	14.88%	12.68%
MSCI Global Infrastructure Direct Asset Index - Moderate Risk, Capital Return	10.68%	13.28%	17.09%	14.87%	9.75%	6.13%
MSCI Global Infrastructure Direct Asset Index - Moderate Risk, Income Return	3.54%	3.89%	3.96%	4.15%	4.79%	6.25%
MSCI Global Infrastructure Direct Asset Index - High Risk, Total Return	-0.36%	-2.33%	27.96%	3.78%	20.56%	-
MSCI Global Infrastructure Direct Asset Index - High Risk, Capital Return	-2.30%	-3.70%	26.51%	2.33%	18.02%	-
MSCI Global Infrastructure Direct Asset Index - High Risk, Income Return	1.97%	1.41%	1.21%	1.42%	2.23%	-

Source: DWS, MSCI Global Quarterly Infrastructure Asset Index, "Summary - Period ending September 2018", January 2019. Past performance is not a guide for future results.

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