

Infrastruktur-Investments über die gesamte Kapitalstruktur: Megatrends, Strategien, Chancen & Risiken für Investoren

Referenten

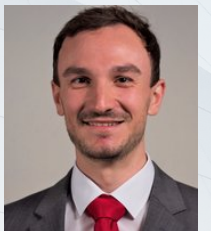
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19. Mai 2021

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Referent
Alternative Markets

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- **Equity** ~ 74%
- **Debt** ~ 43%

Beteiligungsrate



~ 2,7%
~ 1,1%

Allokation



~ 10%
~ 8%

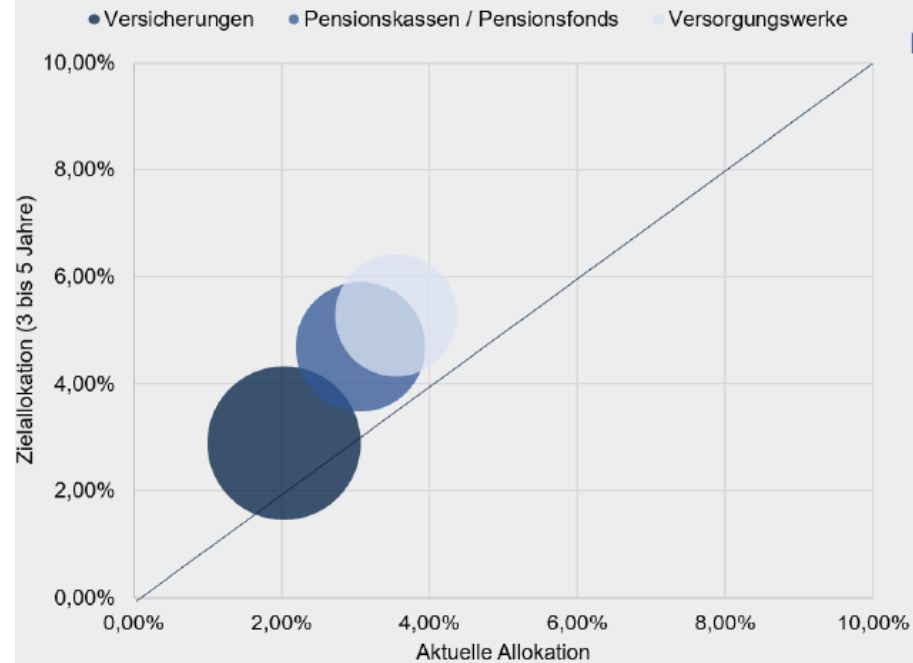
Erwartete CAGR



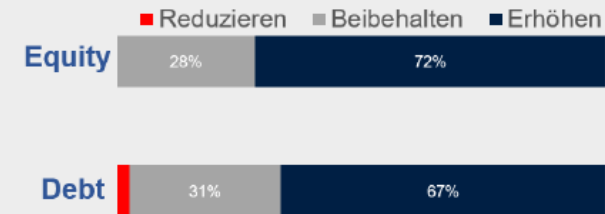
~ 7%
~ 3%

Erwartete Rendite

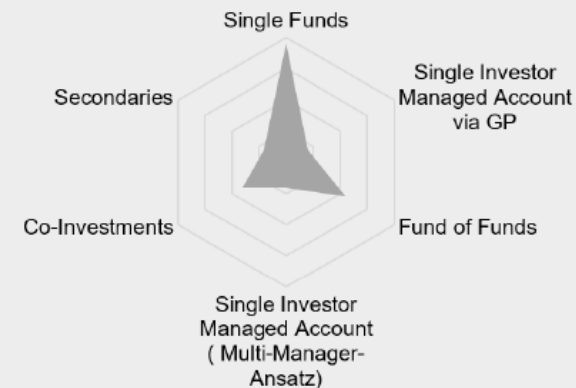
Allokation Status quo und Zielwert (Equity)



Veränderung der Allokation in 2021



Zugangswege

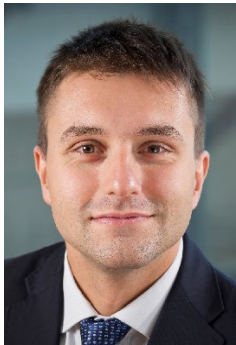




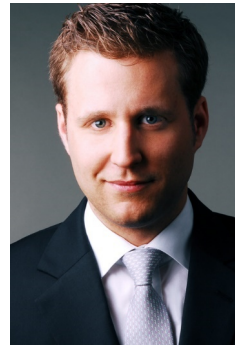
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PRIVATE INFRASTRUCTURE DEBT STRATEGIC OUTLOOK 2021

DWS Infrastructure Research & Strategy

May 2021

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01

MARKET ENVIRONMENT, FUNDRAISING, TRANSACTIONS AND RETURNS

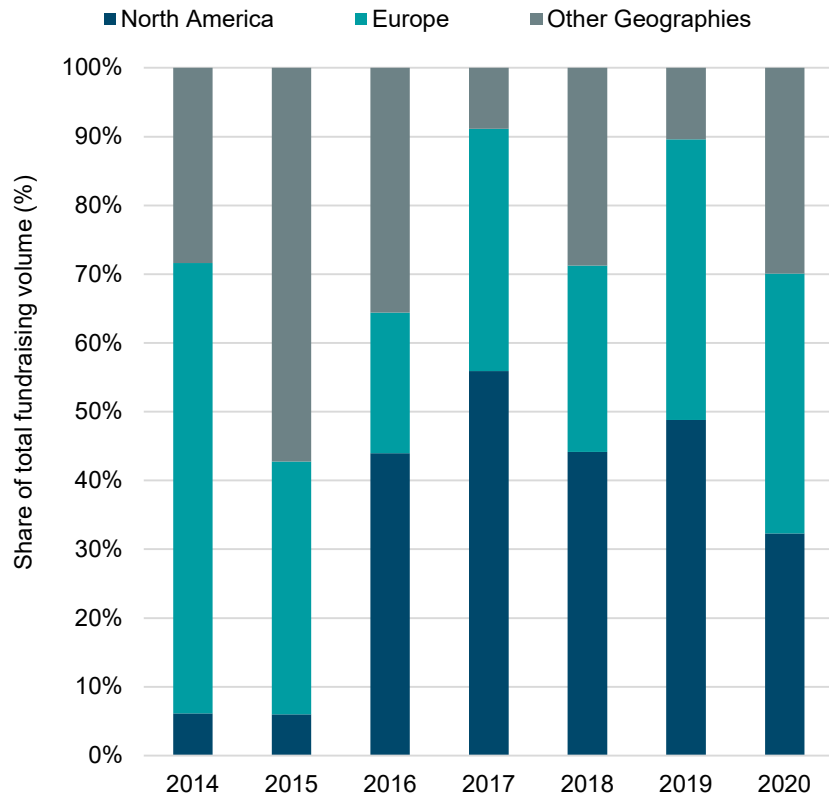
FUNDRAISING OVERVIEW



A growing market, gradually expanding from Investment Grade to High Yield

PRIVATE INFRASTRUCTURE DEBT FUNDRAISING

Global, % of Total Fundraising



SUMMARY VIEW

- **Market:** Private infrastructure debt gaining popularity among institutional investors.
- Demand supported by low interest rates, with investors looking for alternatives to listed debt, providing long duration and better risk-adjusted returns.
- **Fundraising:** Doubling to USD 33 billion in 2019/2020 combined from 2017/2018, excluding direct investments.
- North American and European strategies dominate, but APAC strategies growing, particularly for renewables.
- **Europe:** demand supported by (i) SII regulation reducing capital charges for insurance companies and DC pension funds increasingly focusing on secured income strategies.
- European strategies focus on investment grade (IG), but growing interest for strategies complementing IG portfolios with sub-investment grade (HY) and junior debt.
- **North America:** largest HY infrastructure debt market, but also IG opportunities.

Source: Preqin database, as at March 2021. Past performance is not indicative of future results.

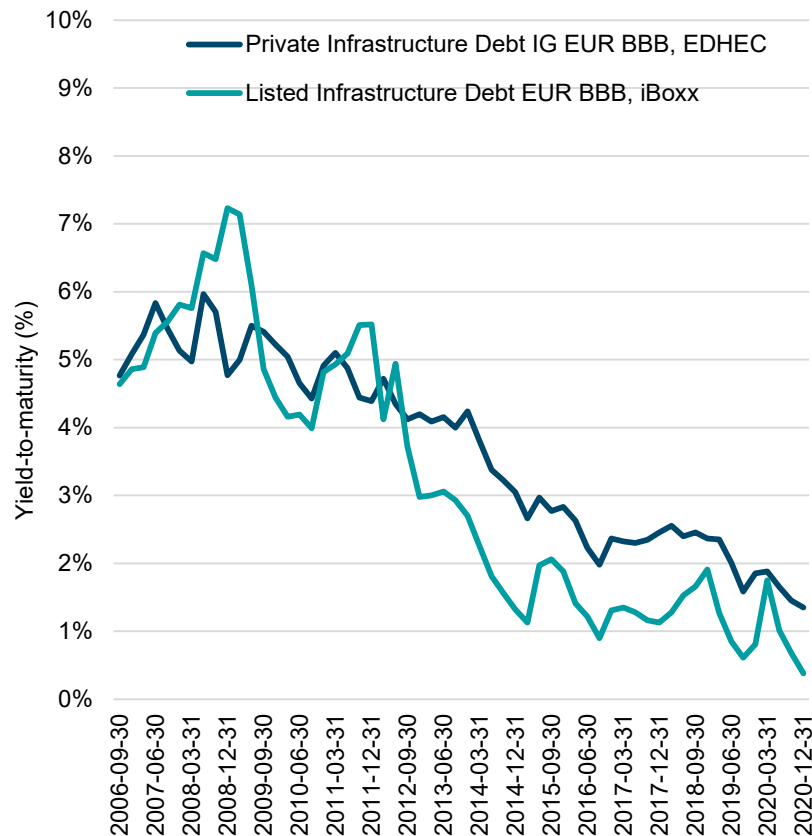
PRIVATE INFRASTRUCTURE DEBT RETURNS



Private infrastructure debt providing an entry yield premium over listed non financial corporate debt

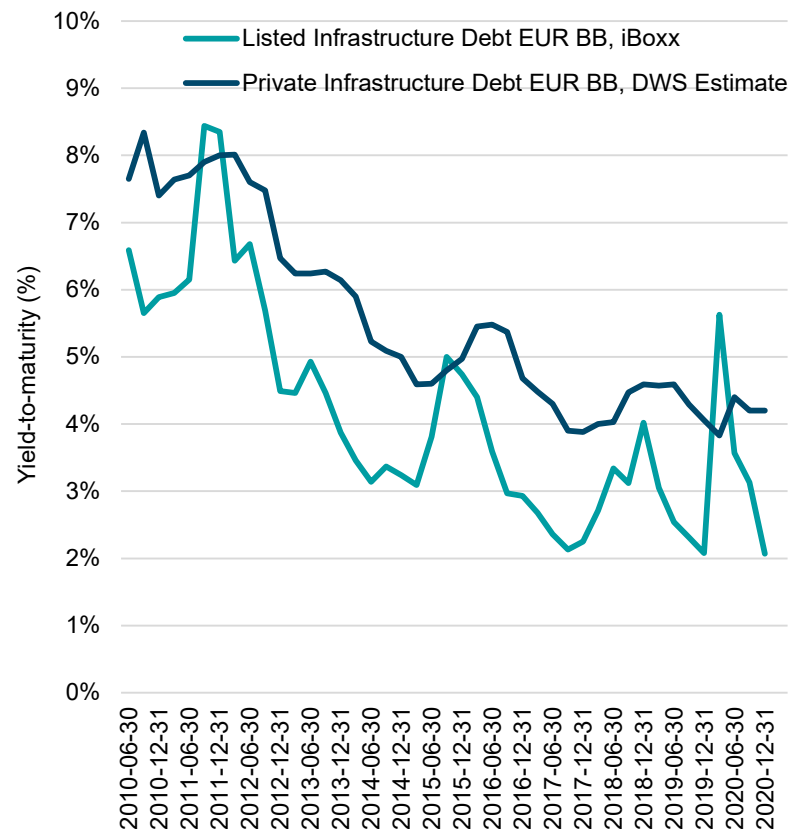
YIELD TO MATURITY COMPARISON – INVESTMENT GRADE

(BBB), 2006 - 2020



YIELD TO MATURITY COMPARISON – HIGH YIELD

(BB), 2010 - 2020



Source: IHS Markit, Edhec Infrastructure, * BB Private Infrastructure Yield to Maturity estimated on the basis of DWS database of transactions with publicly available information. DWS estimate, as at April 2021. Past performance is not indicative of future returns. Notes: Rating category for private infrastructure debt was broadly estimated on the basis of entry yield and default probability levels.

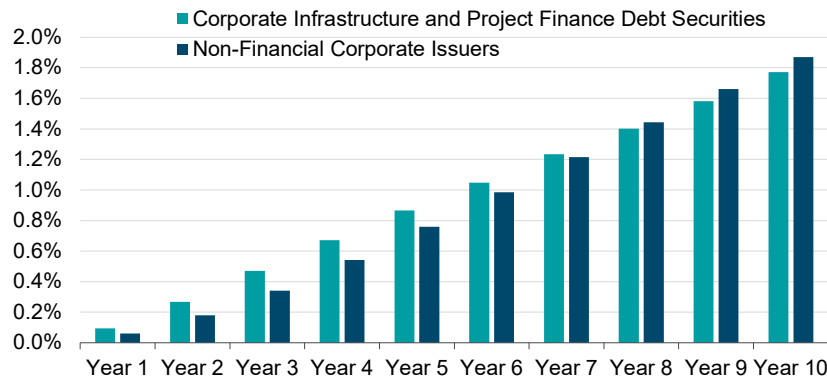


PRIVATE INFRASTRUCTURE DEBT RISK PROFILE

Infrastructure credit losses lower than non-financial corporates, particularly for high yield debt: supported by real asset and essential service nature

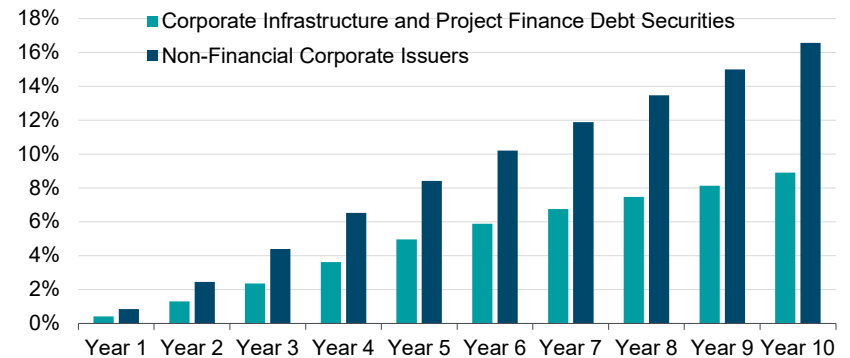
AVG. BBB CUMULATIVE DEFAULT RATES

1983-2019



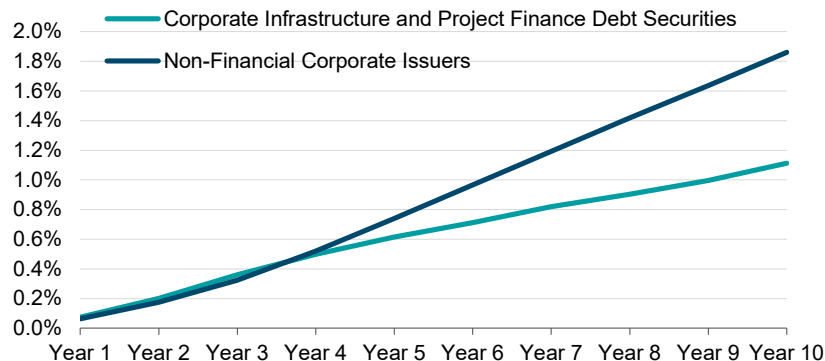
AVG. BB CUMULATIVE DEFAULT RATES

1983-2019



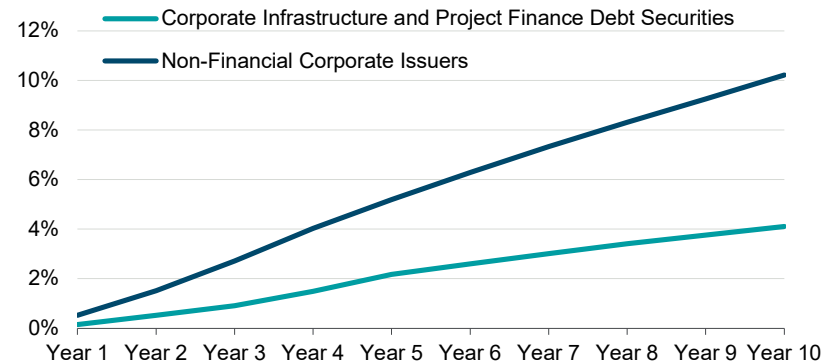
AVG. BBB CREDIT LOSS RATES

1983-2019



AVG. BB CREDIT LOSS RATES

1983-2019



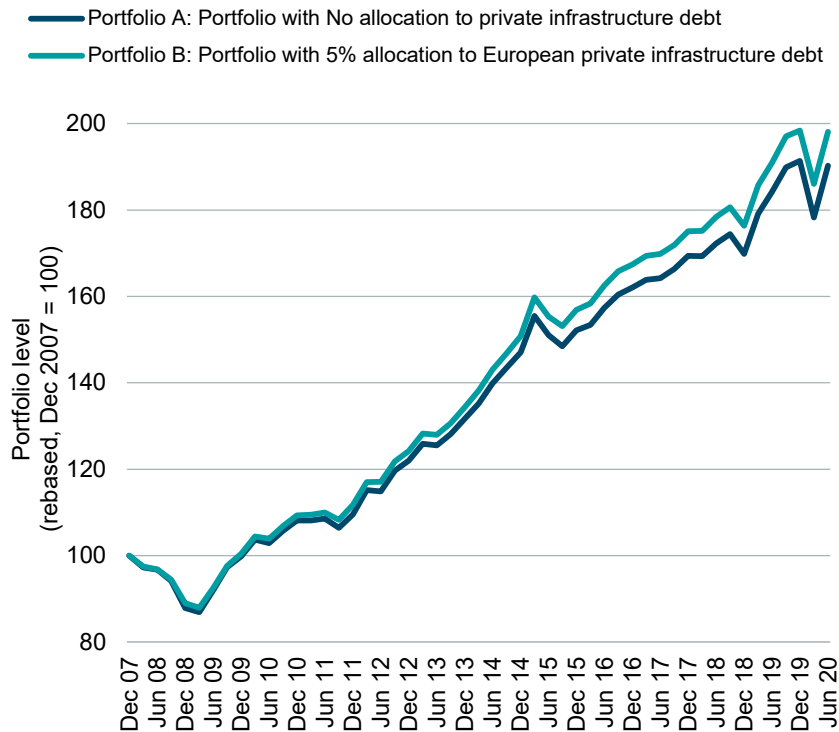
Source: Moody's Infrastructure Default and Recovery Rates, 1983-2019, 2020. Past performance is not indicative of future returns.

PRIVATE INFRASTRUCTURE DEBT IN A PORTFOLIO

Theoretical portfolio simulation: replacing listed BBB listed corporate debt with private infrastructure debt

HISTORICAL PORTFOLIO RETURN SIMULATION (NOT ACTUAL PORTFOLIO)

December 2007 – June 2020, Quarterly



HISTORICAL THEORETICAL PORTFOLIO SIMULATION ALLOCATIONS

December 2007 – June 2020, Quarterly

| Index | Portfolio A | Portfolio B |
|---|--|---|
| | No allocation to private infrastructure debt | 5% allocation to European private infrastructure debt |
| iBoxx EUR Sovereigns Index | 33% | 33% |
| iBoxx EUR Non-Financial Corporates Index | 21% | 16% |
| BBB | | |
| MSCI World Index | 22% | 22% |
| Cash | 2% | 2% |
| Preqin Private Equity Index | 7% | 7% |
| MSCI Global Property Fund Index | 4% | 4% |
| Bloomberg Commodity Index | 4% | 4% |
| HFRX Global Hedge Funds Index | 7% | 7% |
| EDHEC Europe Private Infrastructure Debt Index (EUR)* | 0% | 5% |
| Total portfolio | 100% | 100% |
| Annualised return | 5.3% | 5.6% |
| Annualised volatility | 5.8% | 5.5% |
| Sharpe Ratio (Rf=0%) | 0.91 | 1.03 |

Notes: * Estimated broadly at BBB based on entry yield and historical default data. Source: Mercer, DWS, MSCI, IHS Markit, Preqin, EDHEC (ScientificInfra), Bloomberg, as at June 2020. No assurance can be given that any forecast, target or opinion will materialise. This analysis is based on a simulation, not an actual portfolio. These model portfolios and percentage allocations are shown for illustrative purposes only and reflect hypothetical performance results and do not constitute investment advice, recommendation, an offer or solicitation. Analysis does not take into account fees and transaction costs. Rebalancing is assumed to be quarterly for liquid part, and no rebalancing is assumed for illiquid part of the portfolio.

PRIVATE INFRASTRUCTURE DEBT IN A PORTFOLIO

Buy-and-hold risk-adjusted perspective. Moving down the rating scale may provide stronger risk-adjusted returns than increasing duration (when possible)

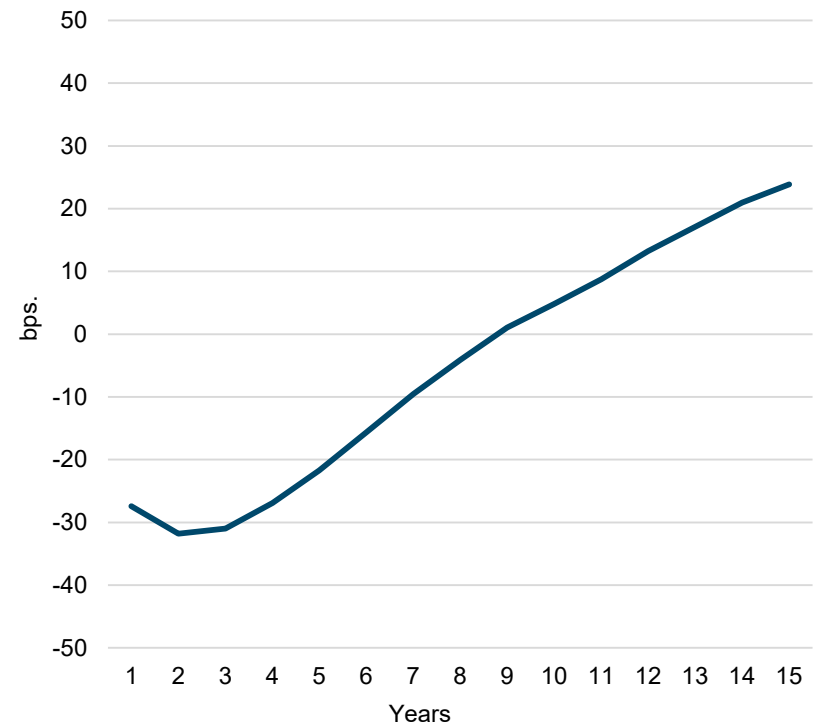
RISK-ADJUSTED RETURNS, BUY-AND-HOLD

As at December 2020, Estimate

| Asset class**** | Median estimated rating | Yield-to-Maturity as at Dec 2020 | Average expected annual credit loss | Annual risk-adjusted return estimate |
|---|-------------------------|----------------------------------|-------------------------------------|--------------------------------------|
| EUR Non-Financial Corporates IG | BBB | 0.5% | 0.16% | 0.3% |
| Europe Private Infrastructure Debt IG* | A | 1.2% | 0.04% | 1.2% |
| Europe Private Infrastructure Debt IG** | BBB | 1.3% | 0.12% | 1.2% |
| Europe Private Infrastructure Debt IG/HY*** | 90% BBB & 10% BB | 1.6% | 0.14% | 1.5% |
| Europe Private Infrastructure Debt HY | BB | 4.0% | 0.37% | 3.7% |

DURATION PREMIUM, PRIVATE INFRASTRUCTURE DEBT

As at December 2020, EUR, BBB Estimate



Source: DWS, IHS Markit, Moody's, EDHEC (ScientificInfra), as at December 2020. Past performance is not a reliable indicator of future returns. Hypothetical based upon assumed market conditions. Actual market conditions may prove to be materially different. No assurance can be given that any forecast, target or opinion will materialise. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation. Notes: *Includes regulated infrastructure assets, **Includes assets in the broad infrastructure sector, ***Includes contracted infrastructure assets, **** Rating category distribution broadly estimated on the basis of entry yield and default probability levels.

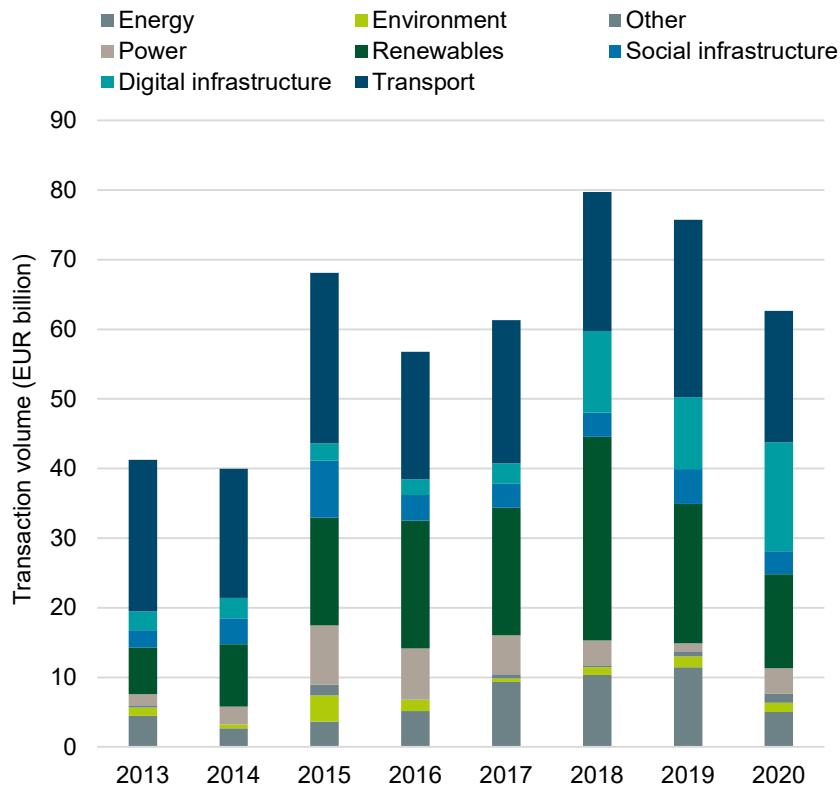
EUROPEAN PRIVATE INFRASTRUCTURE DEBT MARKET



Covid-19 led to a contraction in energy transactions and entry yields. Credit spreads in line with pre-Covid-19 period. Solid pipeline for renewables and digital infrastructure, supported by refinancing activity

TRANSACTION VOLUME

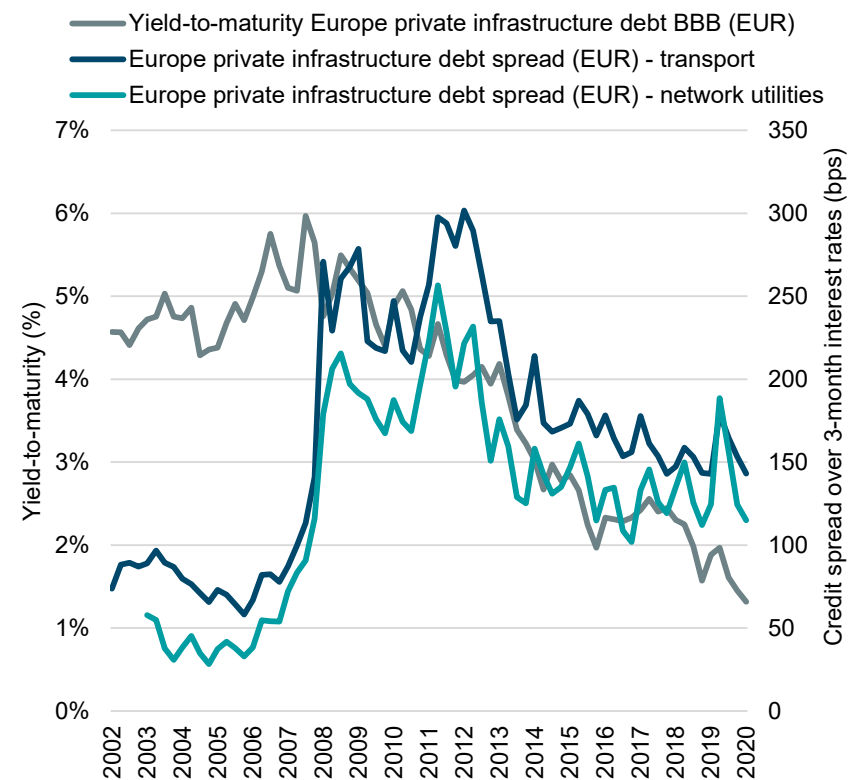
Europe, EUR bn



Source: Infraction database, as at January 2021. Past performance is not indicative of future results.

PRIVATE INFRASTRUCTURE DEBT YIELDS AND SPREADS

Europe, by sector



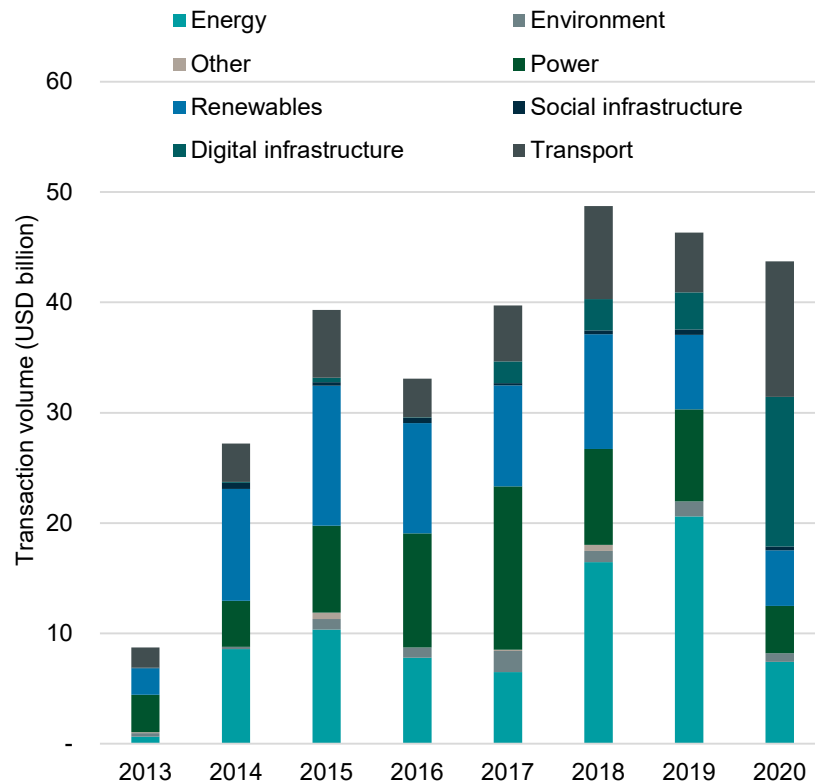
Sources: EDHEC (Scientific Infra) as at December 2020. For illustrative purposes only. Past performance is not a guide to future results.

NORTH AMERICA PRIVATE INFRASTRUCTURE DEBT MARKET DWS

Covid-19 led to a contraction in energy transactions and entry yields. Credit spreads still above pre-Covid-19 period. Solid digital infrastructure activity, acceleration in renewables deals anticipated

TRANSACTION VOLUME

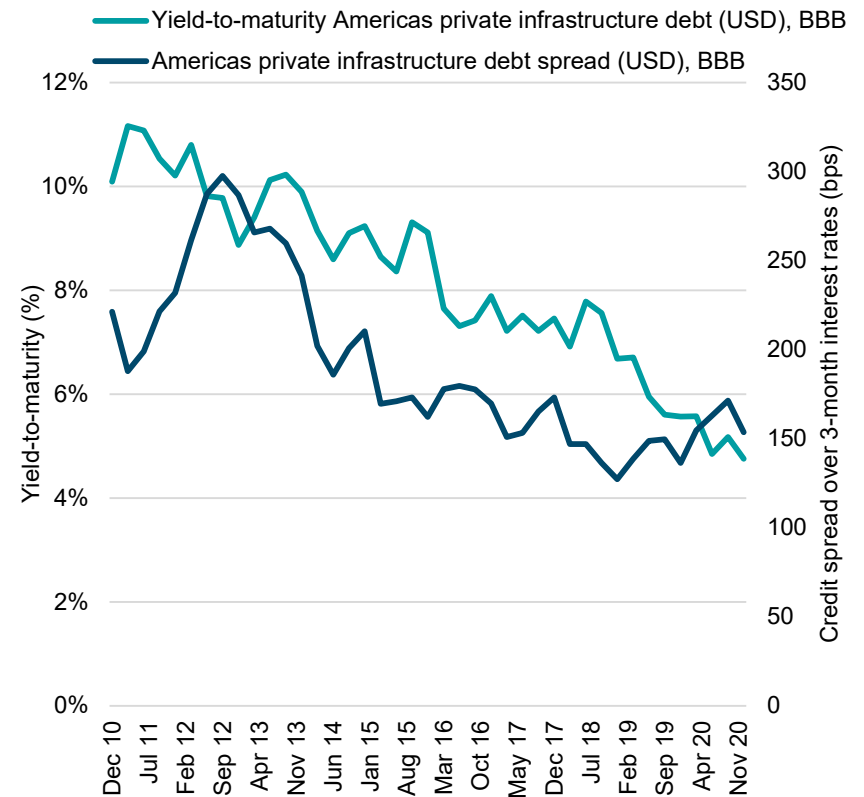
North America, USD bn



Source: Inframark database, as at January 2021. Past performance is not indicative of future results.

PRIVATE INFRASTRUCTURE DEBT YIELDS AND SPREADS

Americas



Sources: EDHEC (Scientific Infra) as at December 2020. For illustrative purposes only. Past performance is not a guide to future results.

02

MACROECONOMIC ENVIRONMENT AND INFRASTRUCTURE CREDIT CYCLE

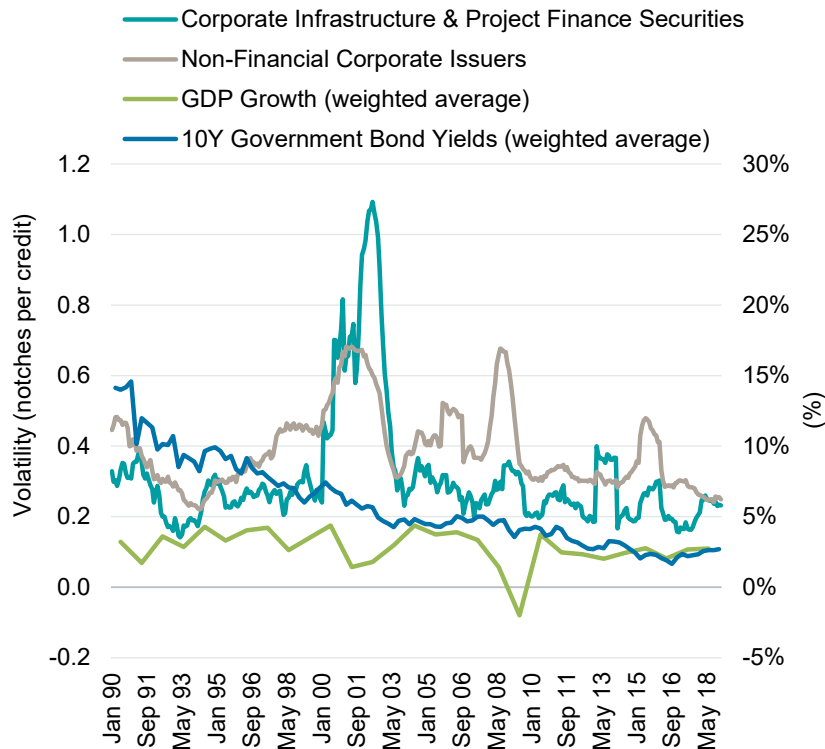
INFRA RATINGS VOLATILITY IN THE MACRO CYCLE



Historically, infrastructure ratings were on average 16% less volatile than non-financial corporates. Ratings of merchant infrastructure assets more volatile.

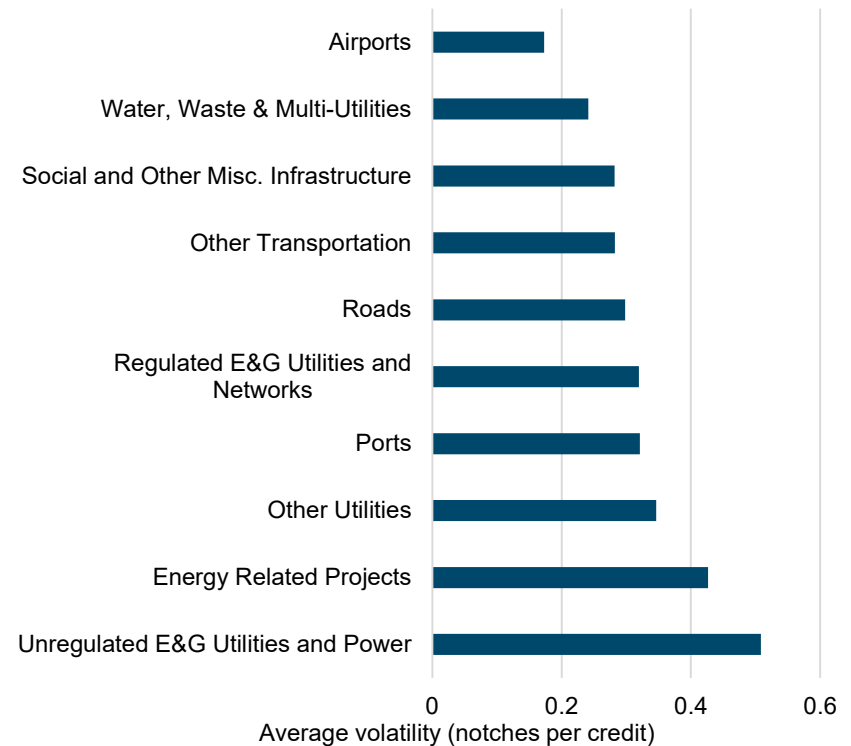
RATING VOLATILITY AND MACROECONOMIC CYCLE

Global, 1990-2019



AVERAGE ONE-YEAR RATING VOLATILITY

Corporate infrastructure & project finance securities, 1983-2019



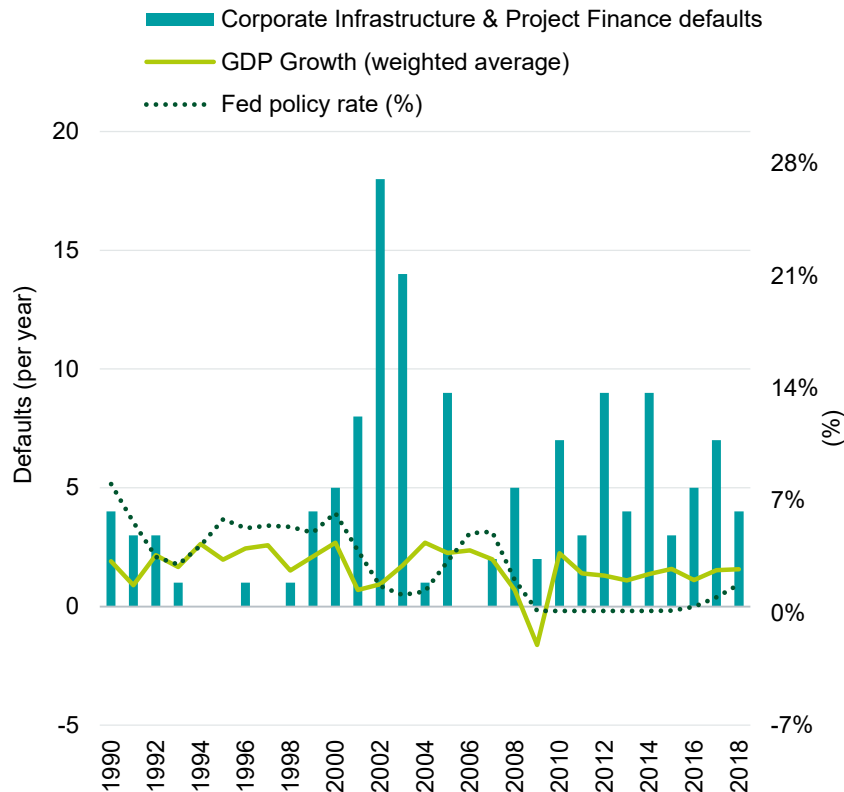
Sources: Moody's, Infrastructure Default and Recovery Rates 1983-2019, October 2020. For illustrative purposes only. Past performance is not a guide to future results. Notes: Rating volatility is one-year average rating volatility as defined by Moody's. GDP growth is weighted in accordance to regional exposure of Moody's data. Long-term government bond yield is a weighted average of largest economies in the region.

INFRASTRUCTURE DEFAULTS IN MACRO CYCLE

Regulation, technological risk, counterparty risk, and merchant exposure appear key factors leading to defaults for infrastructure debt

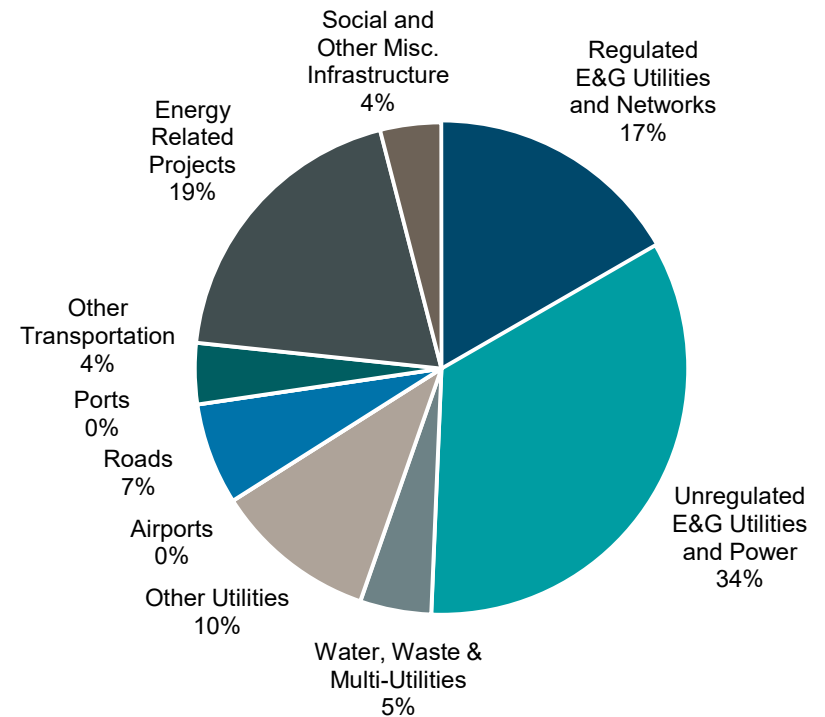
INFRASTRUCTURE DEFAULTS AND MACROECONOMIC CYCLE

Global, 1990-2018



SECTOR DISTRIBUTION OF INFRASTRUCTURE DEFAULTS

Global, by count, 1983-2019



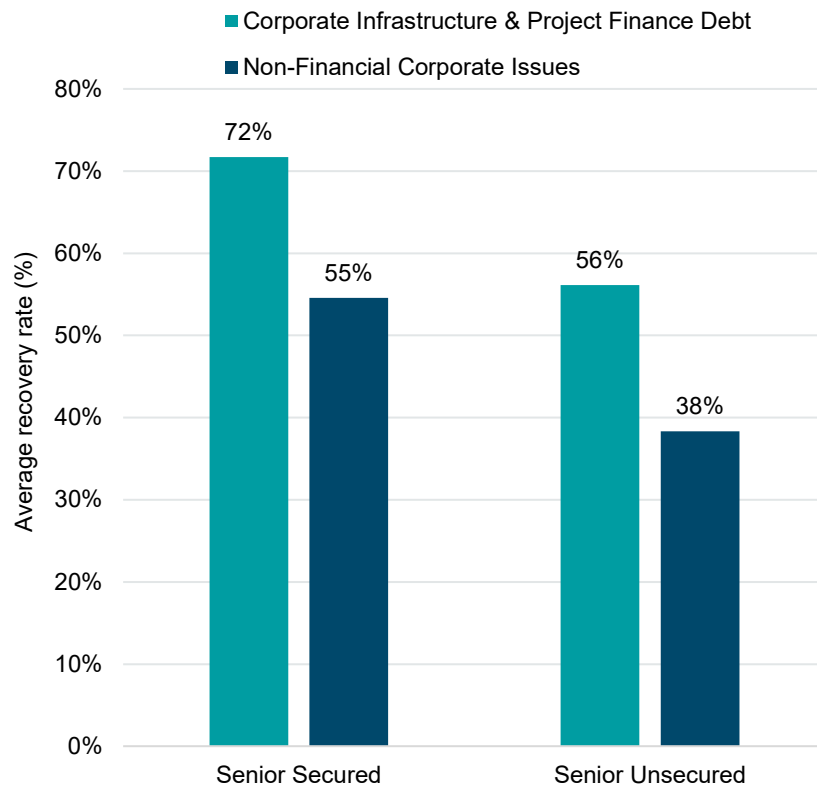
Sources: Moody's, Infrastructure Default and Recovery Rates, as at October 2020, Oxford Economics, as at March 2021. Notes: GDP Growth rate is weighted in accordance to regional exposure of Moody's data. For illustrative purposes only. Past performance is not a guide to future results.

INFRA RECOVERY RATES IN THE MACRO CYCLE

**Infrastructure supported by higher recovery rates than non-financial corporates.
Resilient private infrastructure equity valuations support recovery rates**

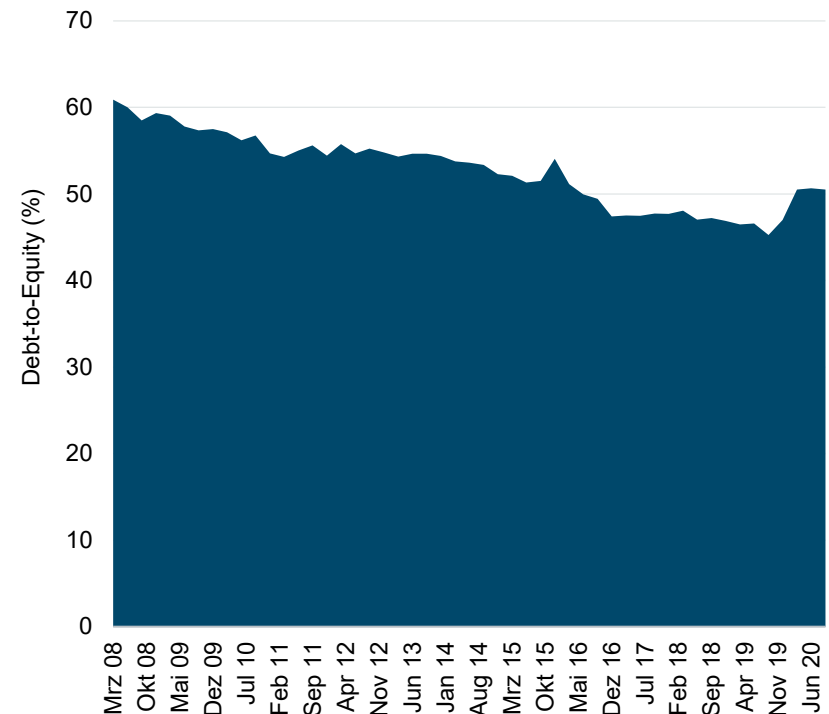
AVERAGE RECOVERY RATES

Global, 1983-2019



GLOBAL PRIVATE INFRASTRUCTURE EQUITY VALUE

Debt-to-Equity ratio, 2008-2020



Sources: Moody's, Infrastructure Default and Recovery Rates, October 2020, equity value based on MSCI Global Quarterly Private Infrastructure Index, September 2020. Notes: GDP Growth rate is weighted in accordance to regional exposure of Moody's data. For illustrative purposes only. Past performance is not a guide to future results.

FORECASTING INFRA SPREADS BY MACRO SCENARIO



Based on the historical relationship between macro variables and private infrastructure credit spreads, we provide a forecast of credit spreads across three scenarios

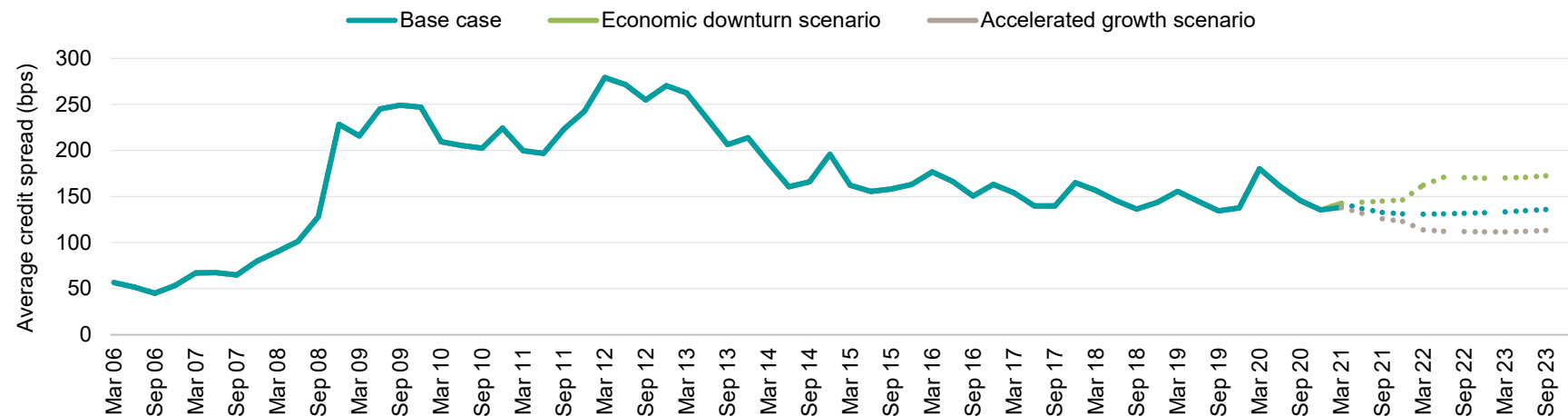
THEORETICAL MACROECONOMIC SCENARIOS

Europe, 2021F-2023F

| Scenario | GDP growth (%) | | | Interest rate (%) | | |
|---|----------------|-------|-------|-------------------|--------|--------|
| | 2021F | 2022F | 2023F | 2021F | 2022F | 2023F |
| Base case | 5% | 4.5% | 1.9% | 0% | 0% | 0% |
| Accelerated growth and interest rate hike | 8.2% | 7.7% | 2.5% | 0% | 0.25% | 0.25% |
| Economic downturn and even lower interest rates | 0% | -1% | 2.5% | 0% | -0.25% | -0.25% |

FORCASTING PRIVATE INFRASTRUCTURE CREDIT SPREADS (IG)

Europe, 2006-2023F



Source: DWS, EDHECinfra, as at March 2021. Past performance is not a reliable indicator of future returns. No assurance can be given that any forecast, target or opinion will materialise. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation. Notes: F=forecast.

03

CREDIT OUTLOOK BY SECTOR AND IMPACT OF SUPERCYCLE

PRIVATE INFRASTRUCTURE DEBT CREDIT OUTLOOK

Credit Outlook Dynamic Varies By Sector

PRIVATE INFRASTRUCTURE CREDIT PERFORMANCE OUTLOOK

| Estimate by sector | Credit Outlook | Industry Credit Trends |
|---------------------------------------|---------------------------|------------------------|
| Sector | Short-Term (12-18 months) | Long-Term (5-10 Years) |
| Transportation | | |
| Airports | Negative | Stable/Positive |
| Toll Roads | Stable/Negative | Stable/Negative |
| Ports | Stable | Stable |
| Rail (Passenger and Freight) | Stable/Negative | Stable/Positive |
| Public Transportation | Stable/Negative | Stable |
| Logistics | Stable/Positive | Stable/Positive |
| Energy & Utilities | | |
| Electricity Generation Coal | Negative | Negative |
| Electricity Generation Gas | Stable | Stable/Negative |
| Electricity Generation Renewables | Stable | Stable |
| Regulated Networks | Stable/Negative | Stable |
| Integrated Utilities | Stable | Stable/Negative |
| Oil & Gas Midstream Energy | Stable/Negative | Stable/Negative |
| Circular Economy | | |
| Waste Management (EfW & Recycling) | Stable | Stable |
| Digital Infrastructure | | |
| Data Centres | Positive | Positive |
| Fibre Networks | Stable/Positive | Positive |
| Telecom Towers | Stable | Stable |
| Social Infrastructure and PPPs | | |
| Social Housing | Stable | Stable |
| Higher Education Accommodation | Negative | Stable/Negative |
| Healthcare | Stable | Stable |

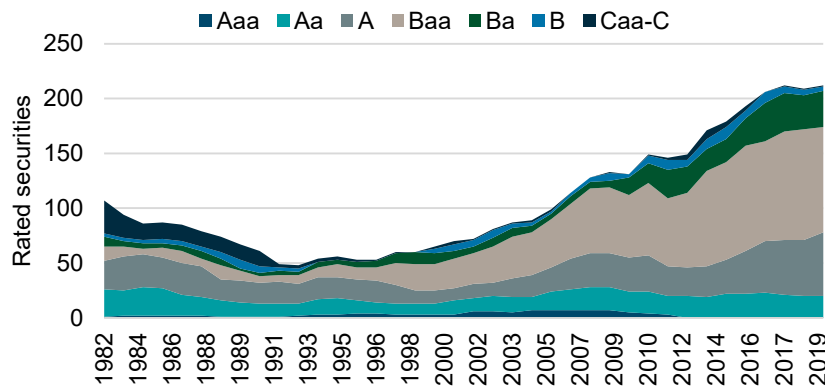
Source: DWS, as at March 2021. Past performance is not a reliable indicator of future returns. No assurance can be given that any forecast, target or opinion will materialise. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.

CREDIT OUTLOOK - TRANSPORTATION

Credit profile deterioration in the short-term, and normalisation in the medium-term

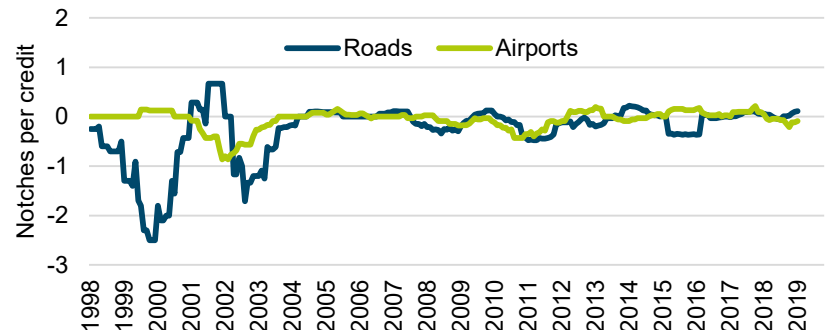
TRANSPORTATION RATINGS DISTRIBUTION

Corporate infrastructure & project finance, global, 1982-2019



ONE-YEAR CREDIT RATING DRIFT

Corporate infrastructure & project finance, global, 1998-2019



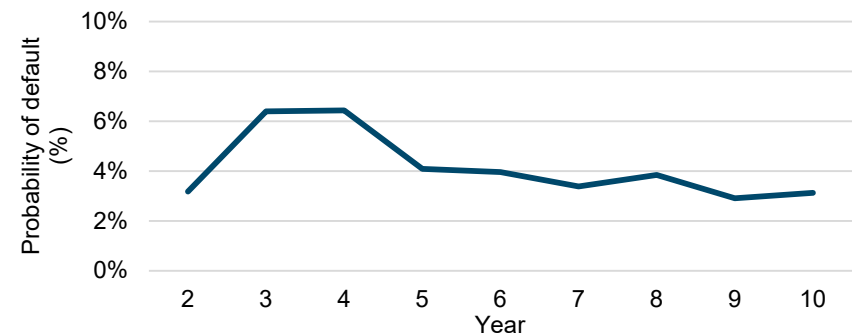
CREDIT PERFORMANCE OUTLOOK

Estimate by sector

| Sector | Credit Outlook | Industry Credit Trends |
|------------------------------|------------------------------|---------------------------|
| | Short-Term (12-18 months) | Long-Term (5-10 Years) |
| Airports | Negative | Stable/Positive |
| Toll Roads | Stable/Negative | Stable/Negative |
| Ports | Stable | Stable |
| Rail (Passenger and Freight) | Stable/Negative | Stable/Positive |
| Public Transportation | Stable/Negative | Stable |
| Logistics | Stable/Positive | Stable/Positive |

TRANSPORT DEFAULT PROBABILITY (EDHEC)

Average, global



Sources: DWS, Moody's, Infrastructure Default and Recovery Rates, as at October 2020, EDHECinfra, as at March 2021. Past performance is not a reliable indicator of future returns. No assurance can be given that any forecast, target or opinion will materialise. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.

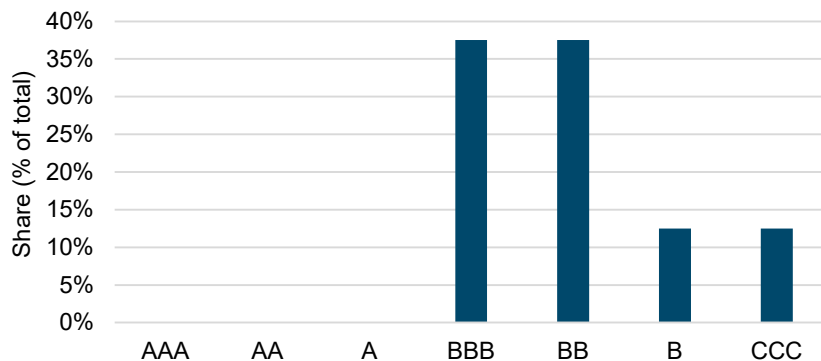
CREDIT OUTLOOK – DIGITAL INFRASTRUCTURE



A relatively new sector for infrastructure debt investors, with a wide-ranging credit risk profile. Positive industry trends and solid transaction pipeline may lead to increased leverage and risk complacency in the sector

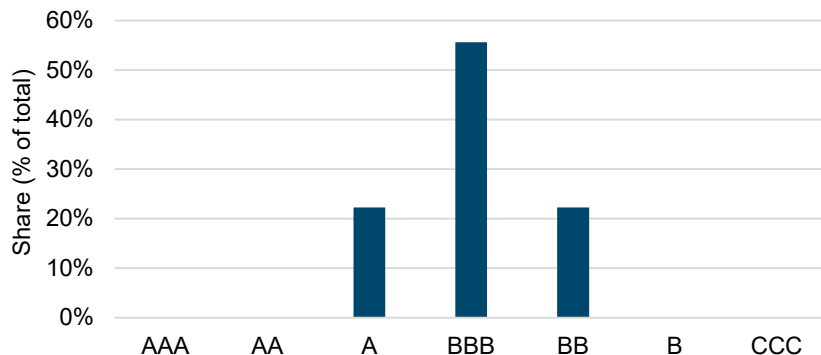
RATING DISTRIBUTION – DATA CENTRES

Estimate based on rated bonds, as at April 2021*



RATING DISTRIBUTION – FIBRE NETWORKS

Estimate based on rated bonds, as at April 2021*



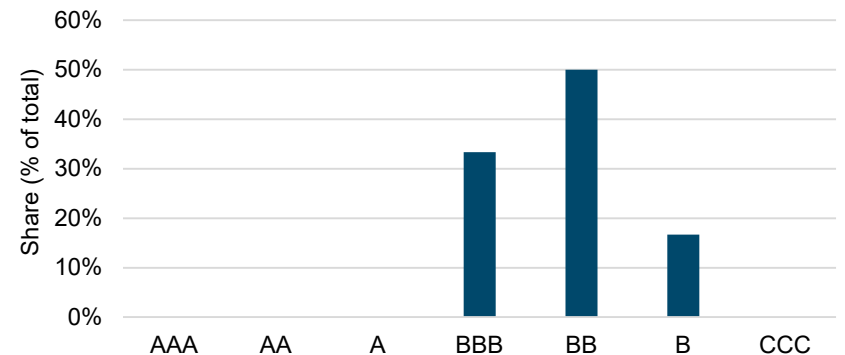
CREDIT PERFORMANCE OUTLOOK

Estimate by sector

| Sector | Credit Outlook | Industry Credit Trends |
|----------------|---------------------------|------------------------|
| | Short-Term (12-18 months) | Long-Term (5-10 Years) |
| Data Centres | Positive | Positive |
| Fibre Networks | Stable/Positive | Positive |
| Telecom Towers | Stable | Stable |

RATING DISTRIBUTION – TELECOM TOWERS

Estimate based on rated bonds, as at April 2021*



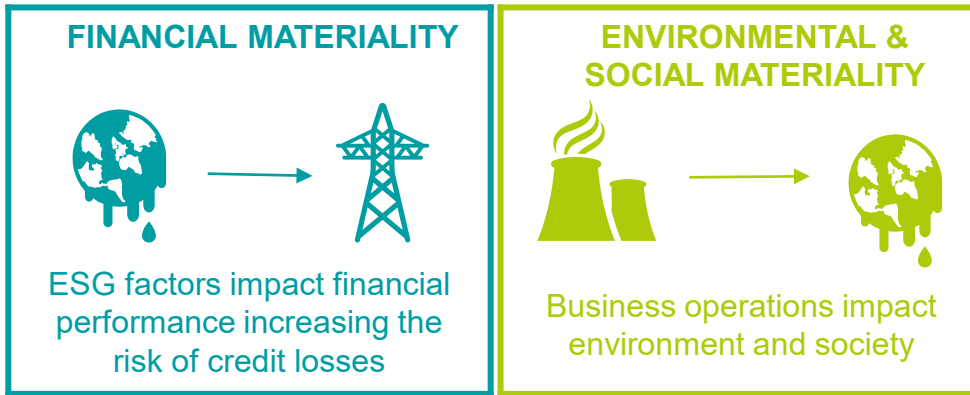
Sources: DWS, *Bloomberg, as at April 2021. Past performance is not a reliable indicator of future returns. No assurance can be given that any forecast, target or opinion will materialise. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation.

04

ESG AND INFRASTRUCTURE CREDIT RISK


ESG RISKS AND INFRASTRUCTURE DEBT

Infra debt investors initially focusing on financial/ credit materiality of ESG risks, but double materiality focus expected to grow



← ESG impact can be financially material

DOUBLE MATERIALITY CHALLENGE



- Policymakers are taking a range of actions to steer capital and reporting towards the achievement of ESG objectives.
- Gradual focus on setting lending conditions linked to ESG real world outcomes (e.g. UN SDGs) and reporting.
- Consensus lack on ESG impact criteria/ data: a challenge today, but standards to emerge over time (e.g. PRI, GRESB, CCRI).
- EU SFDR and Taxonomy for sustainable activities provide a classification tool to establish if an investment may promote (Article 8) or have a sustainable objective (Article 9) based on substantial contribution to six environmental objectives.*
- EU regulation initially focusing on environmental aspects, but may expand to social and governance factors over time.
- Today, significant divergence of ESG impact methodologies on: (i) measurement scope, (ii) factors, (iii) weights (iv) factor aggregations. Divergence may be a risk for investors.
- ESG impact strategies overly reliant on renewables, leading to sub-optimal market pricing?

| ESG Standard | Example of Scope Divergence by methodology: Social pillar** | | | | | | | | |
|--------------|---|----------------------|----------------------|--------------|----------------------|----------------|------------|-------------------|---------------|
| | Impacts | | | | Risks | | | | |
| | Human well-being | | Economic development | | Social acceptability | | | Workforce | |
| | Collective welfare | Workforce well-being | Human development | Assets value | Customer | General public | Regulators | Industrial action | Labour market |
| SURE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| CEEQUAL | ✓ | | | ✓ | | | | | |
| GRESB | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | |
| GRI | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | |
| ENVISION | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | |
| SASB | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |

Source: DWS, **EDHECinfra "Towards a Scientific Approach to ESG for Infrastructure Investors", as at March 2021. Notes: * European Commission, "Sustainable finance taxonomy – Regulation (EU), 2020/852. Environmental, social, and governance (ESG) criteria are a set of standards for a company's operations that socially conscious investors use to screen potential investments: Environmental (how a company performs as a steward of nature); Social (how a company manages relationships with employee, suppliers, customers, and communities); Governance (company's leadership, executive pay, shareholder rights, etc). Environmental, Social responsibility and corporate Governance (ESG) is a term used for related strategies/investments seeking assets that meet responsible investment criteria and take this into account when analyzing companies in order to identify non-financial risks and opportunities. Investing in securities that meet ESG criteria may result in foregoing otherwise attractive opportunities, which may result in underperformance when compared to products that do not consider ESG factors.

FINANCIAL MATERIALITY AND INFRASTRUCTURE DEBT

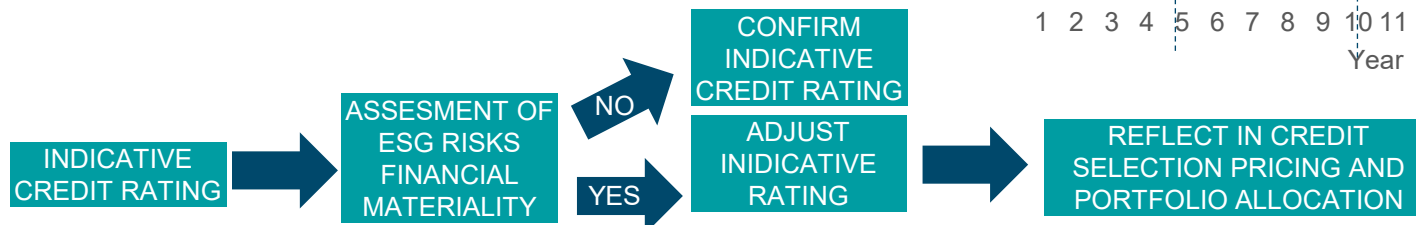


Impact of ESG risks on credit quality – analytical approach and importance for pricing and credit selection

METHODOLOGICAL APPROACH

- **ESG Financial Risk Materiality:** focus on impact of ESG risks on asset's future cash flow in relation to ability to service financial obligations (e.g. Debt Maturity B) and obtain liquidity for refinancing purposes to minimise risk of credit losses (Debt Maturity A).
- **Impact on Credit Quality:** If ESG factors represent a material credit risk, this information may be used to adjust the credit rating and reflected in underwriting conditions, pricing and return expectations.
- If ESG risks do not appear to pose a material cash-flow risk, for financial obligations, they may impact on credit quality.
- **Importance of Stress Cases:** While it may be hard to quantify ESG risks impact on base cases, a probabilistic approach and stress testing may support the credit analysis process.
- **Upside Potential:** Generally, ESG factors may have greater downside risks than upside potential on credit quality and cost of borrowing. However, ESG factors may also provide an indication of upside potential to the credit performance (e.g. good governance).
- **Time Horizon:** There appears to be no ideal time horizon for assessing ESG risks for private infrastructure debt, as these depend on the nature of the factors considered.

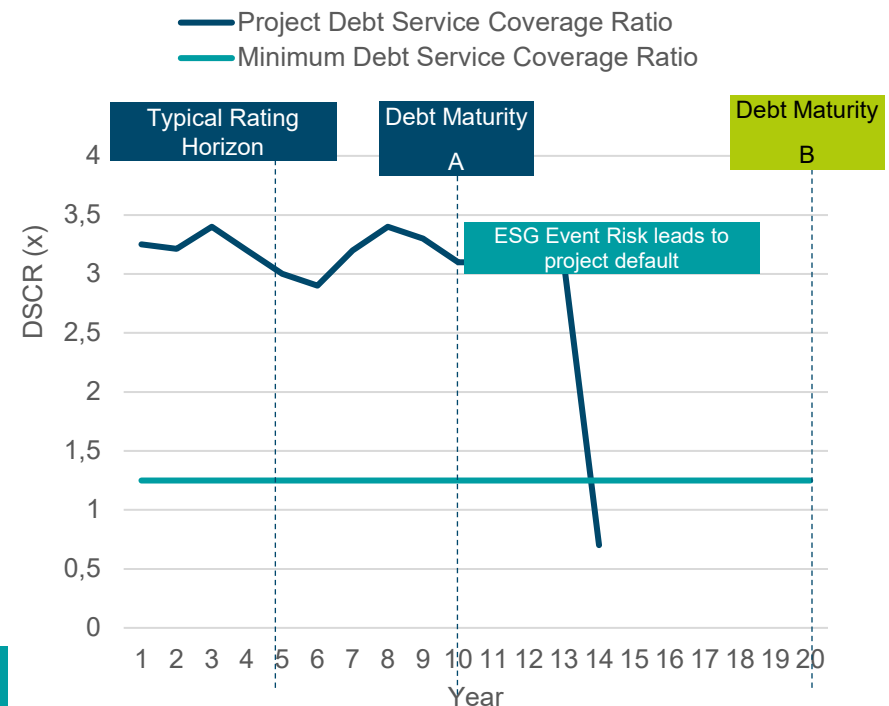
ESG FINANCIAL MATERIALITY AND CREDIT RISK



Source: DWS. Past performance is not a reliable indicator of future returns. No assurance can be given that any forecast, target or opinion will materialise. This information is intended for informational purposes only and does not constitute investment advice, recommendation, an offer or solicitation. Environmental, social, and governance (ESG) criteria are a set of standards for a company's operations that socially conscious investors use to screen potential investments: Environmental (how a company performs as a steward of nature); Social (how a company manages relationships with employee, suppliers, customers, and communities); Governance (company's leadership, executive pay, shareholder rights, etc). Environmental, Social responsibility and corporate Governance (ESG) is a term used for related strategies/investments seeking assets that meet responsible investment criteria and take this into account when analyzing companies in order to identify non-financial risks and opportunities. Investing in securities that meet ESG criteria may result in foregoing otherwise attractive opportunities, which may result in underperformance when compared to products that do not consider ESG factors.

IMPACT OF ESG EVENT ON INFRA PROJECT CREDIT QUALITY

Theoretical Example



05

APPENDIX

2450

INDEX PERFORMANCE

Calendar annual performance

| Index | 2015 | 2016 | 2017 | 2018 | 2019 | YTD Dec-20 |
|---|--------|-------|-------|--------|-------|---------------|
| iBoxx Sovereigns Index (EUR) | 1.6% | 3.3% | 0.1% | 1.0% | 6.7% | 5.0% |
| iBoxx Non-Financial Corporates Index BBB (EUR) | -1.7% | 5.9% | 2.3% | -1.6% | 7.2% | 3.1% |
| MSCI World TR Index | 10.4% | 10.7% | 7.5% | -4.1% | 30.0% | 6.3% |
| Preqin Private Equity Index | 10.5% | 10.6% | 19.2% | 10.9% | 15.2% | - |
| MSCI Global Property Fund Index | 12.2% | 7.9% | 8.6% | 8.1% | 6.3% | - |
| Bloomberg Commodity Index | -24.7% | 11.8% | 1.7% | -11.2% | 7.7% | -3.1% |
| HFRX Global Hedge Funds Index | -3.6% | 2.5% | 6.0% | -6.7% | 8.6% | 6.8% |
| EDHEC Europe Private Infrastructure Debt Index, value-weighted (EUR) | 7.0% | 8.6% | 3.8% | 5.1% | 7.2% | 8.2% |
| iBoxx Infrastructure debt BBB (EUR) | -0.5% | 5.0% | 3.0% | -2.1% | 7.3% | 2.9% |
| Bloomberg Barclays Global-Aggregate Total Return Index (USD) | -3.2% | 2.1% | 7.4% | -1.2% | 6.8% | 9.2% |
| MSCI ACWI TR Index | 1.8% | 9.7% | 20.4% | -7.2% | 26.9% | 14.8% |
| EDHEC Europe Private Regulated Infrastructure Debt Index, value-weighted (EUR) | 6.3% | 10.9% | 3.8% | 4.6% | 7.7% | 10.2% |
| EDHEC Europe Private Contracted Infrastructure Debt Index, value-weighted (EUR) | 8.2% | 6.5% | 2.7% | 7.5% | 6.9% | 5.8% |

Source: Bloomberg, MSCI, EDHECinfra (Scientific Infra), IHS Markit, Preqin, as at December 2020.

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Index performance assumes dividend reinvestment; however these figures do not include fees, transaction costs, taxes, brokerage costs or other charges, which would reduce returns. It is not possible to invest directly in an index.

INDEX PERFORMANCE

Rolling annual performance

| Index | Dec-2015 | Dec-2016 | Dec-2017 | Dec-2018 | Dec-2019 | Dec-2020 |
|---|----------|----------|----------|----------|----------|----------|
| iBoxx Sovereigns Index (EUR) | 1.6% | 3.3% | 0.1% | 1.0% | 6.7% | 5.0% |
| iBoxx Non-Financial Corporates Index BBB (EUR) | -1.7% | 5.9% | 2.3% | -1.6% | 7.2% | 3.1% |
| MSCI World TR Index | 10.4% | 10.7% | 7.5% | -4.1% | 30.0% | 6.3% |
| Preqin Private Equity Index | 10.5% | 10.6% | 19.2% | 10.9% | 15.2% | - |
| MSCI Global Property Fund Index | 12.2% | 7.9% | 8.6% | 8.1% | 6.3% | - |
| Bloomberg Commodity Index | -24.7% | 11.8% | 1.7% | -11.2% | 7.7% | -3.1% |
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| EDHEC Europe Private Infrastructure Debt Index, value-weighted (EUR) | 7.0% | 8.6% | 3.8% | 5.1% | 7.2% | 8.2% |
| iBoxx Infrastructure debt BBB (EUR) | -0.5% | 5.0% | 3.0% | -2.1% | 7.3% | 2.9% |
| Bloomberg Barclays Global-Aggregate Total Return Index (USD) | -3.2% | 2.1% | 7.4% | -1.2% | 6.8% | 9.2% |
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Source: Bloomberg, MSCI, EDHECinfra (Scientific Infra), IHS Markit, Preqin, as at December 2020.

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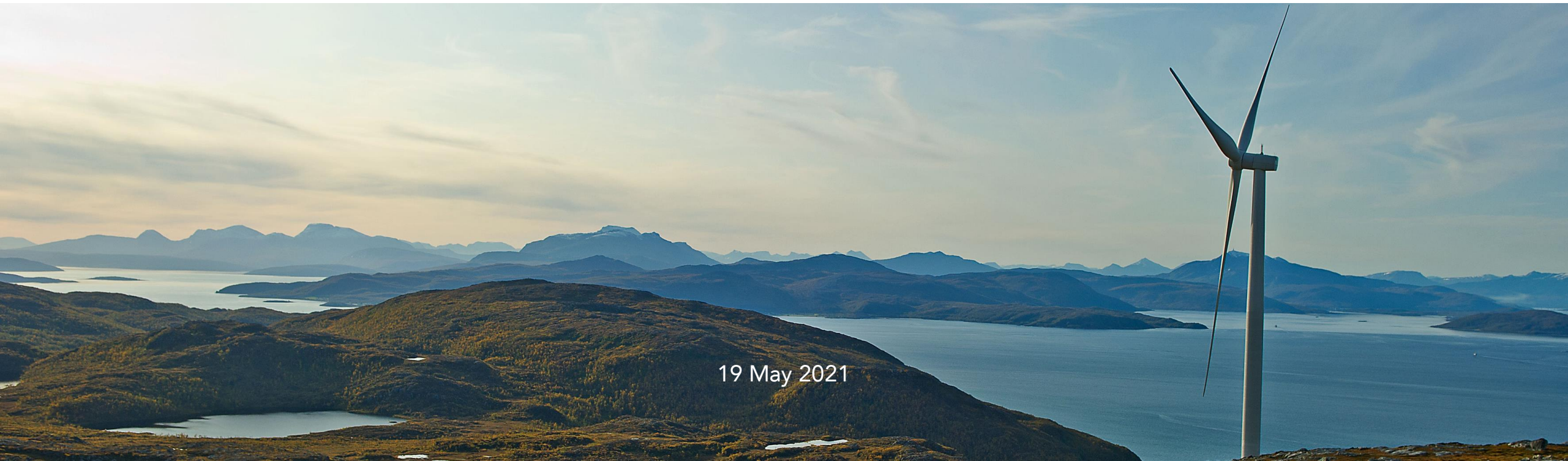
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Green Hydrogen: A Megatrend Becomes Investable

BAI-Webinar



19 May 2021

| | | |
|---|---|---|
| 1 | Renewable Energy Market in Transition and Power Purchase Agreements | 2 |
| 2 | Combining Wind Power and Green Hydrogen | 7 |

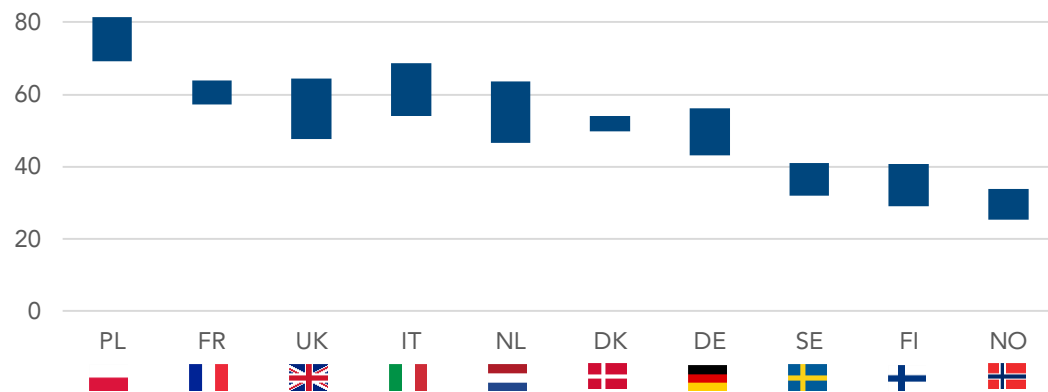
An Attractive Levelized Cost of Electricity

The LCOE of renewable energies has been gradually decreasing over time

Development of LCOE

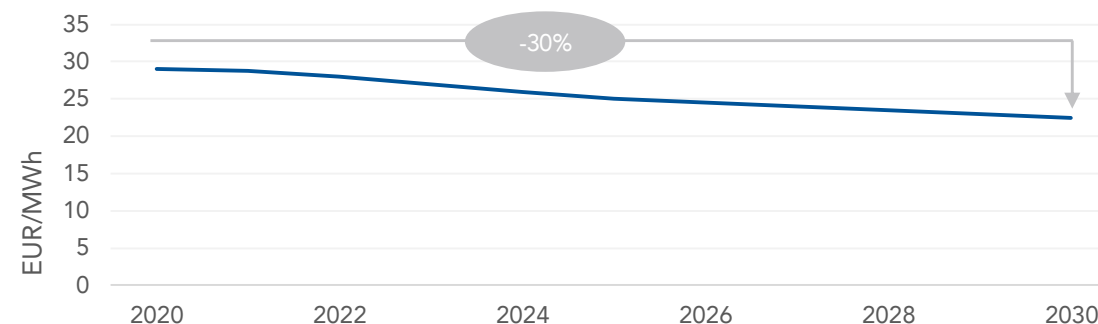
- Renewable energies achieved **grid parity** and can nowadays produce **cheaper** electricity than conventional power forms
- Onshore wind has experienced a **strong decrease in LCOE over the last 5 years**. This trend is mainly driven by significant **technical improvements**
- As of today, **onshore wind in Scandinavia is the most cost-efficient technology** for electricity generation and offers the **lowest LCOE in Europe**

LCOE of Onshore Wind Power in 2020 (EUR/MWh)

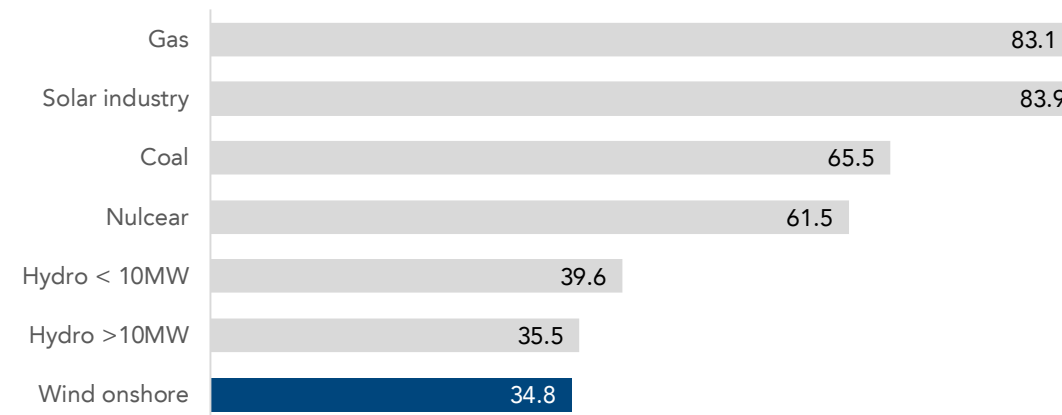


Source: BNEF and Prime Capital AG estimates

LCOE Forecast for Onshore Wind in Scandinavia (EUR/MWh)



LCOE Overview for Norway and Sweden in 2020 (EUR/MWh)



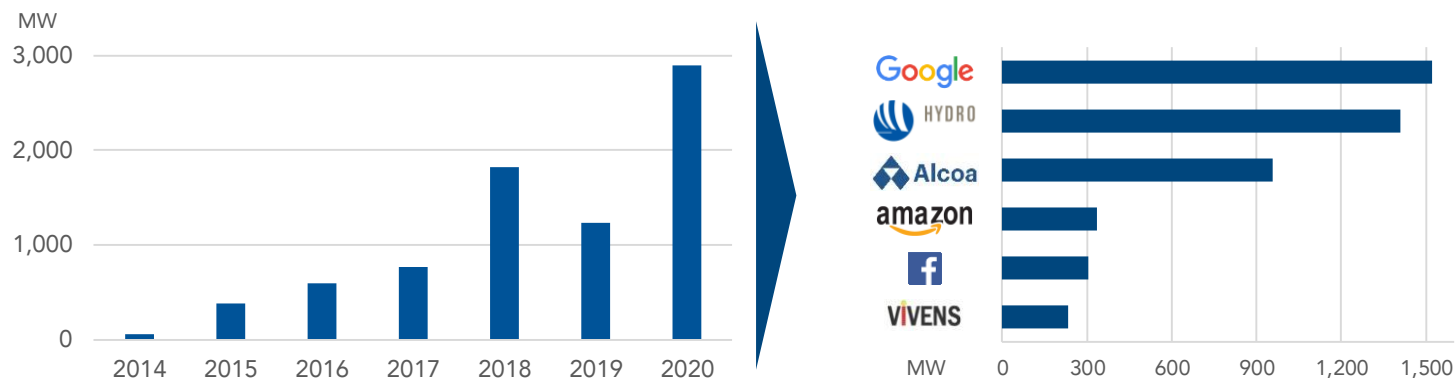
Development of the PPA Market in the Nordics

PPA opportunities for investors looking to mitigate merchant power price risk

Innovative PPA Solutions

- A number of wind farms across the Nordics have secured revenues through **corporate-backed PPAs**
- With a relatively high density of power-intensive industries, there is a **well-developed market for PPAs in the Nordics**
- Corporates enter into PPAs with wind farms to **hedge the power price risk** and often to secure and market a sustainable power consumption
- PPAs can be **flexible** in terms of structure – wind project and offtaker do not even need to be connected to the same grid
- However, reputable and financially strong offtakers have a strong negotiation position which is reflected in a **discount of PPA prices** compared to average market prices

Corporate PPAs in the Nordics quadrupled from 2017 to 2020



Potential for Tailor-Made Solutions from Broad Universe of Offtakers

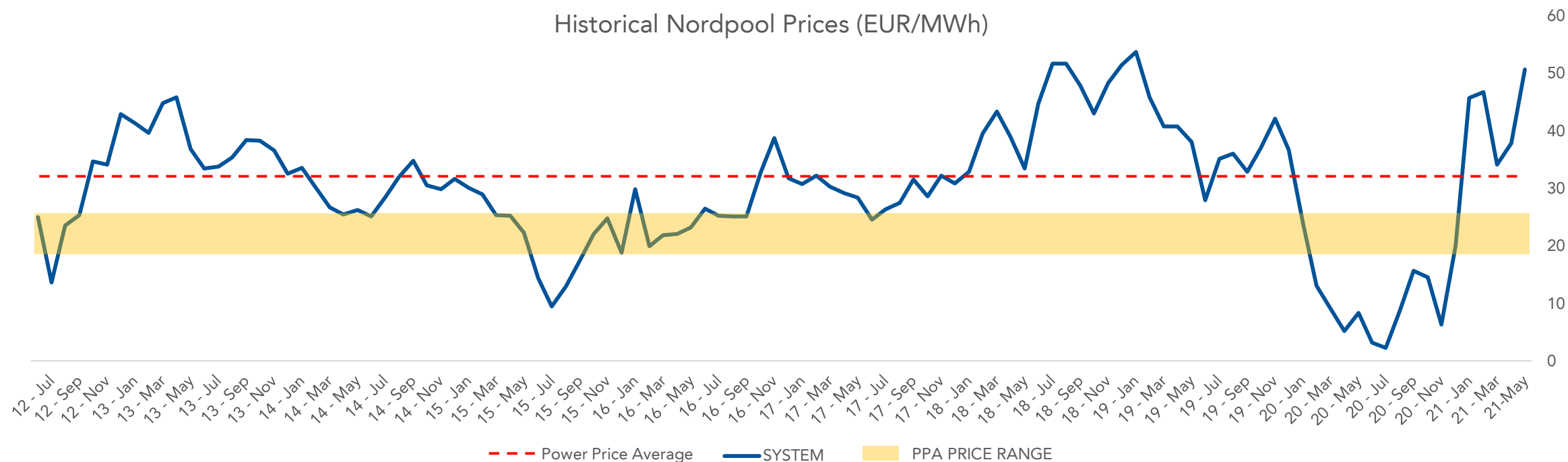


Source: BNEF

Development of Electricity Prices in Scandinavia

Overview of the Scandinavian electricity market

Development of Electricity Prices in the Past



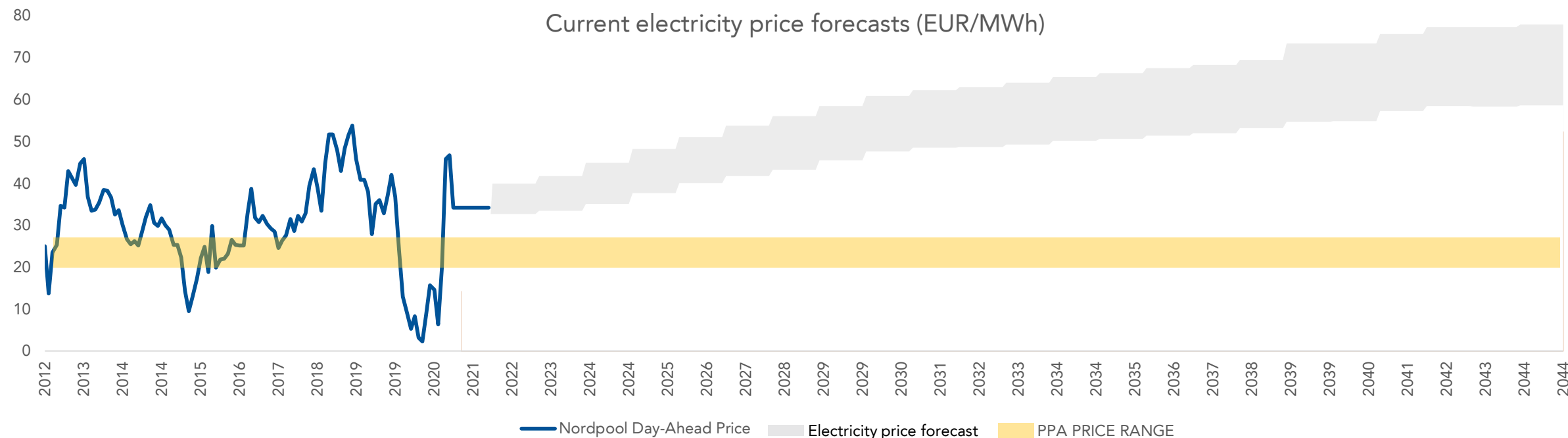
- PPA prices trade at a **discount of 30%** compared to the average market price in the Nordics
- **Strong recovery** of the electricity market in 2021 after the "Corona shock" in 2020

Source: BNEF

Expected Development of Electricity Prices in Scandinavia

Overview of the Scandinavian electricity market

Electricity Price Forecasts for Scandinavia



- All prognosis institutes forecast **rising electricity prices** driven by inter alia a continuously **increasing electricity demand**
- **Discounted PPA prices** allow for an “intelligent” use of **green electricity** by **combining wind power and hydrogen**
- An **extension of the value chain into hydrogen**, allows good wind resources to become a **low-cost electricity supply for hydrogen**

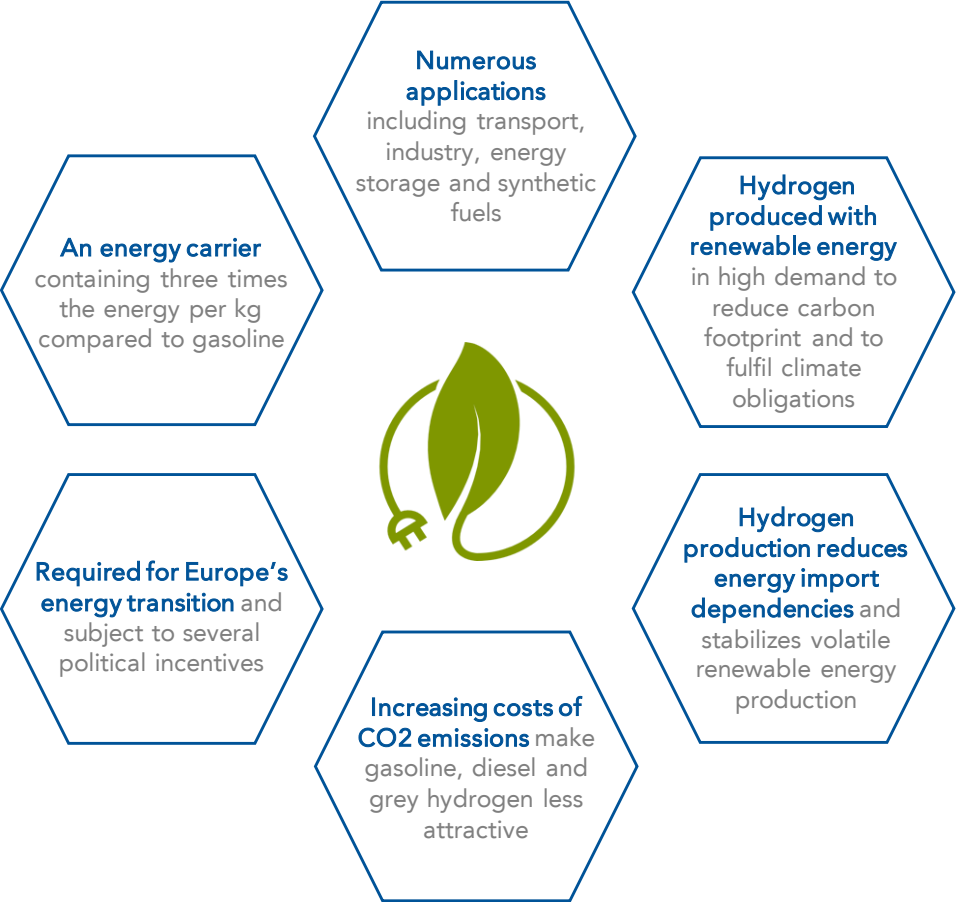
Source: BNEF

| | | |
|---|---|---|
| 1 | Renewable Energy Market in Transition and Power Purchase Agreements | 2 |
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Hydrogen: A Quickly Growing Market

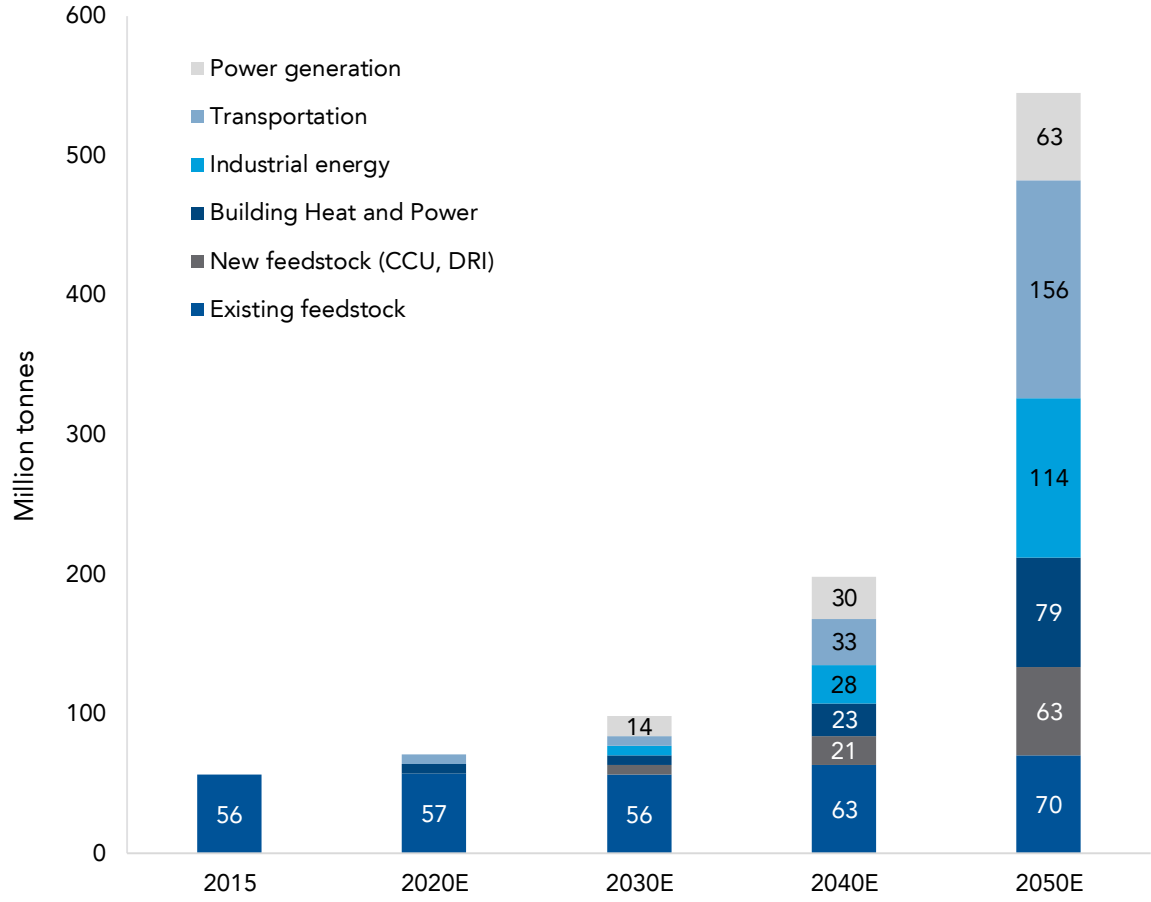
With widespread usage, hydrogen has the potential to revolutionize the energy landscape across the world

Advantages of Hydrogen over Traditional Power Sources



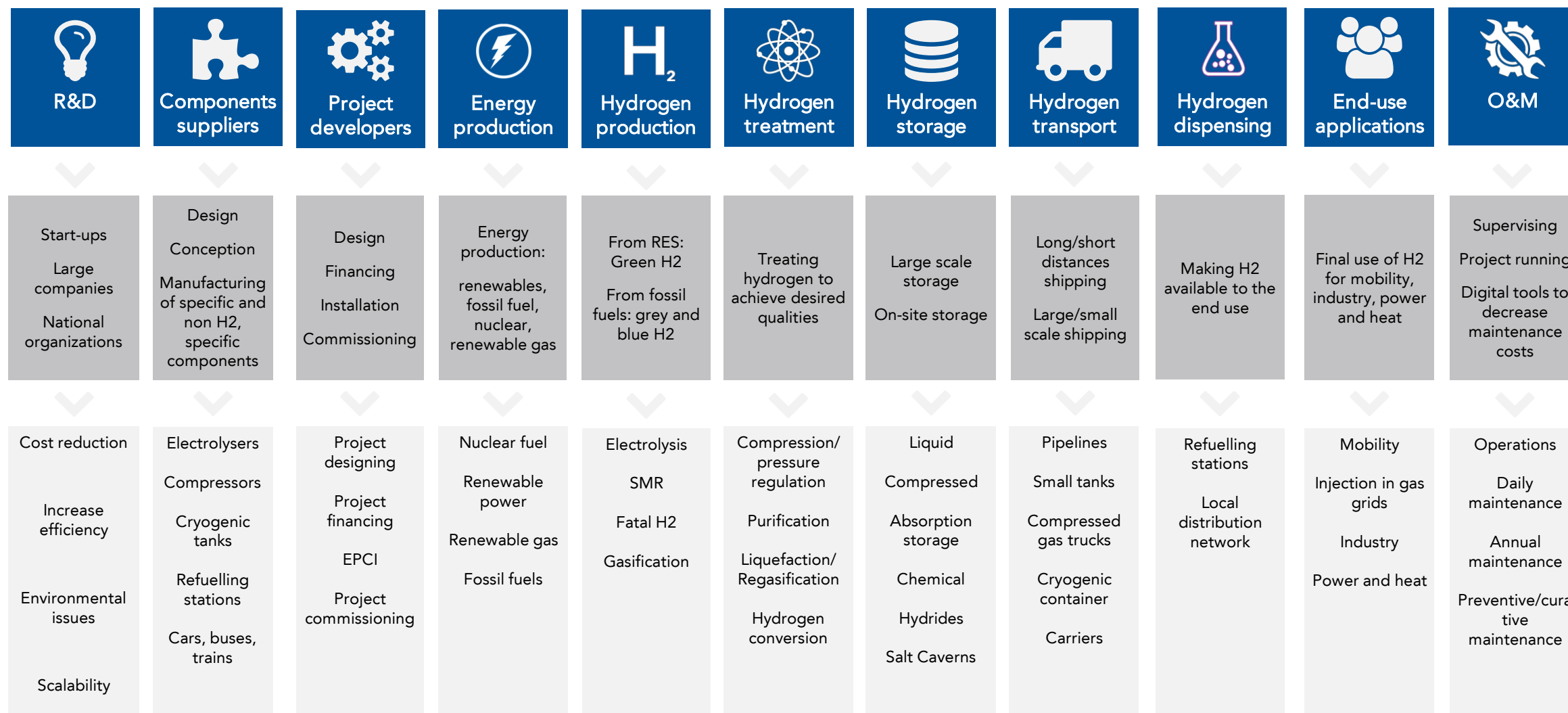
Source: BNEF

Market Outlook: Global Hydrogen Demand per Year



Hydrogen Value Chain

Components of the Hydrogen Value Chain



Source: AFRY

EU Hydrogen Approach

EU Hydrogen Strategy provides ambitious targets travel for Green Hydrogen

PRIME
CAPITAL

EU Hydrogen Strategy

The EU investment agenda to support the hydrogen roadmap by 2030 includes:

- **RES for electrolysis** €220-340B to deliver 80-120GW capacity
- **Electrolysers** €24-42 Billion
- **Retrofitting CCS** to 50% existing production €11 Billion
- **Transport, Distribution and Storage** and Refuelling €65 Billion
- An **European Clean Hydrogen Alliance** to provide coordination across all stakeholders by building up a clear pipeline of “viable investment projects”

Initiatives and funds to kickstart an Hydrogen economy

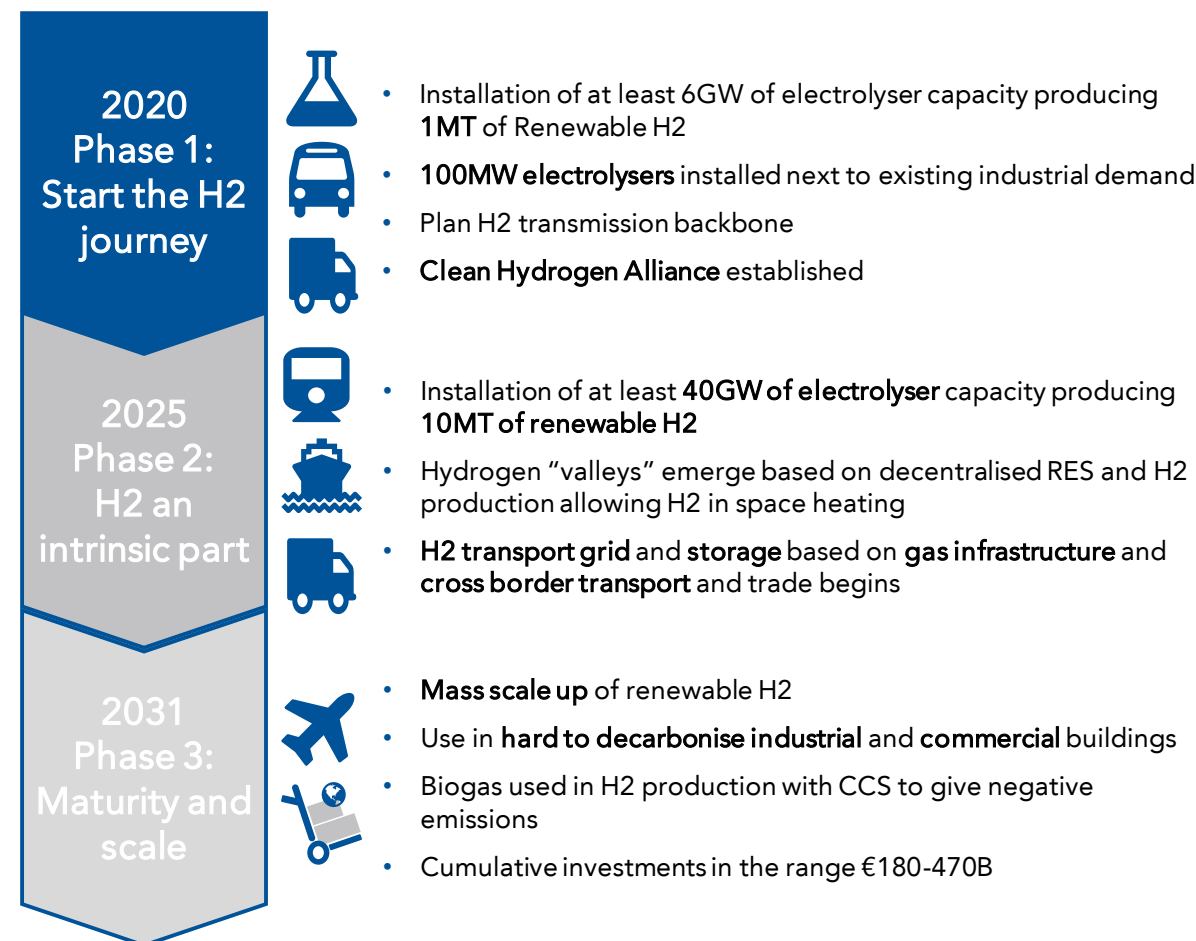
European Green Deal (April 2020): plan for “smart sector integration”, bridging electricity, gas and heating sectors “in one system”.

European Industrial Strategy (April 2020): measures to decarbonize energy-intensive industries, promote energy efficiency, strengthen current carbon leakage tools and secure a sufficient and constant supply of low-carbon energy at competitive prices



Source: AFRY

3-phases roadmap aiming at achieving 40GW of electrolysis by 2030

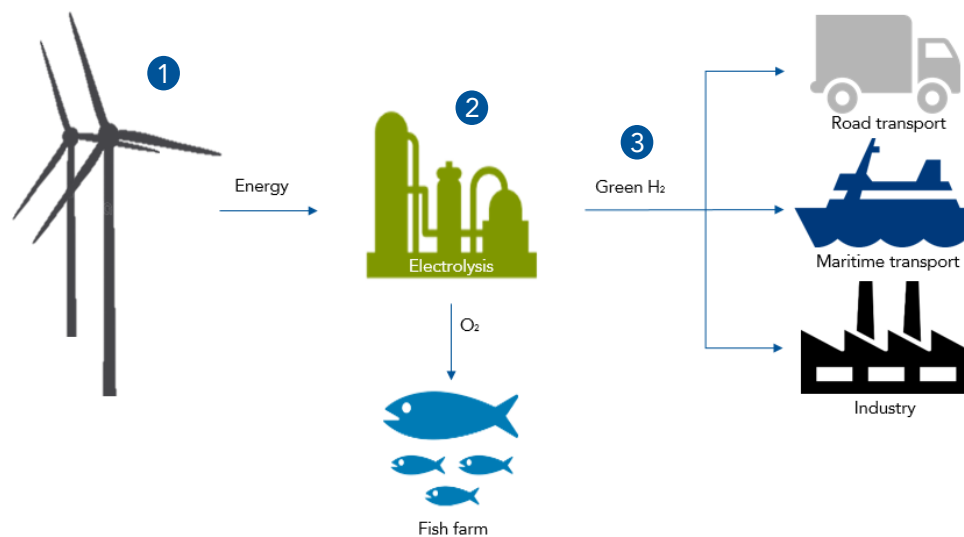


Combining Wind Energy and Hydrogen

Using renewable energies in the production of green hydrogen has numerous benefits

Production Process of Green Hydrogen

- 1 Wind power replaces fossil fuels
- 2 Hydrogen production through water electrolysis instead of gas reformation
- 3 End product: Green hydrogen (+ oxygen)



Source: BNEF

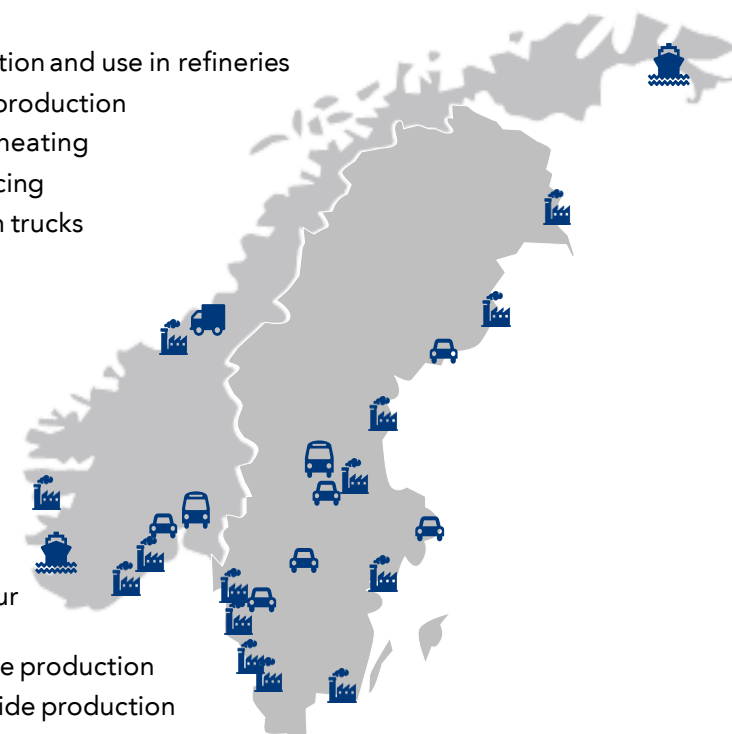
Current Hydrogen Users in Norway and Sweden

Norway

- **Equinor:** Methanol production and use in refineries
- **Yara:** Ammonia / fertilizer production
- **ExxonMobil:** Refinery and heating
- **Varanger kraft:** Grid balancing
- **ASKO:** Fuel for distribution trucks
- **Ruter:** Bus fuel
- **Hynion:** Fuelling station for public road transport
- **Norled:** Liquid H₂ for ferry operation

Sweden

- **Borealis:** Cracker fuel
- **Preem:** Biofuel production
- **Nynäs:** Reduction of sulphur and nitrogen in fuel
- **Kemira:** Hydrogen peroxide production
- **Noryoun:** Hydrogen peroxide production
- **Sandvik:** Heating and steel refining
- **Liquid Wind 1:** Production of eMethanol
- **Ovako:** Hydrogen to be used for iron rolling
- **AAK:** Adding H₂ to oil to saturate fatty acids
- **H2GS:** Production of fossil free steel by 2024
- **LKAB SSAB Vattenfall (Hybrit):** convert iron ore and produce green crude steel



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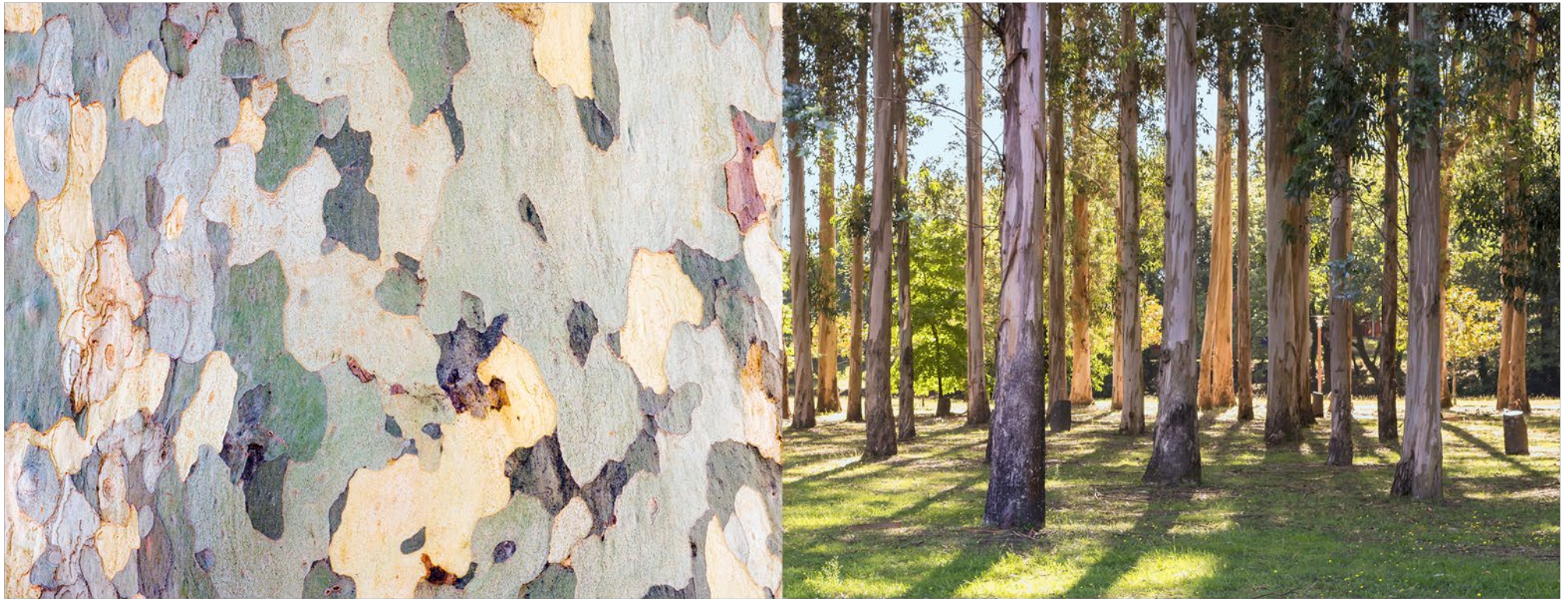
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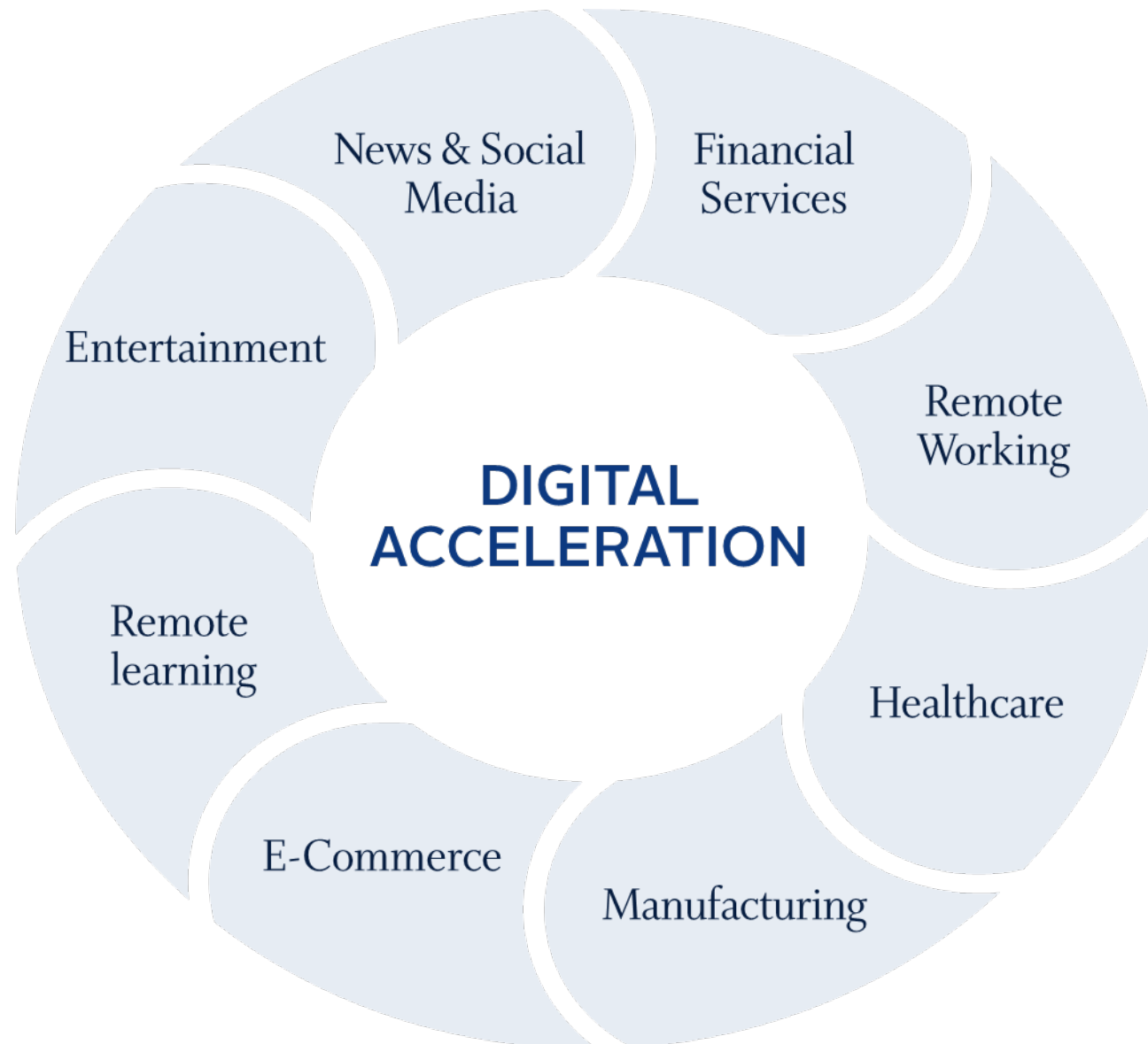
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CAPTURING DIGITAL INVESTMENT OPPORTUNITIES



Digital Connectivity is accelerating



Which is driving the following digital trends

EXPONENTIAL DATA
GROWTH

MORE CONNECTED
DEVICES EVERYWHERE

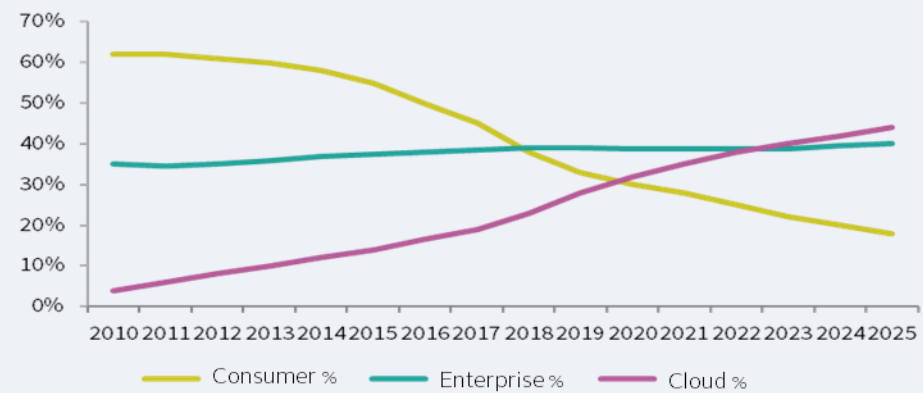
MOVING TO
'THE CLOUD'

Global Growth of the Datasphere
2015 - 2025



Source: Cisco VNI Study, 2018

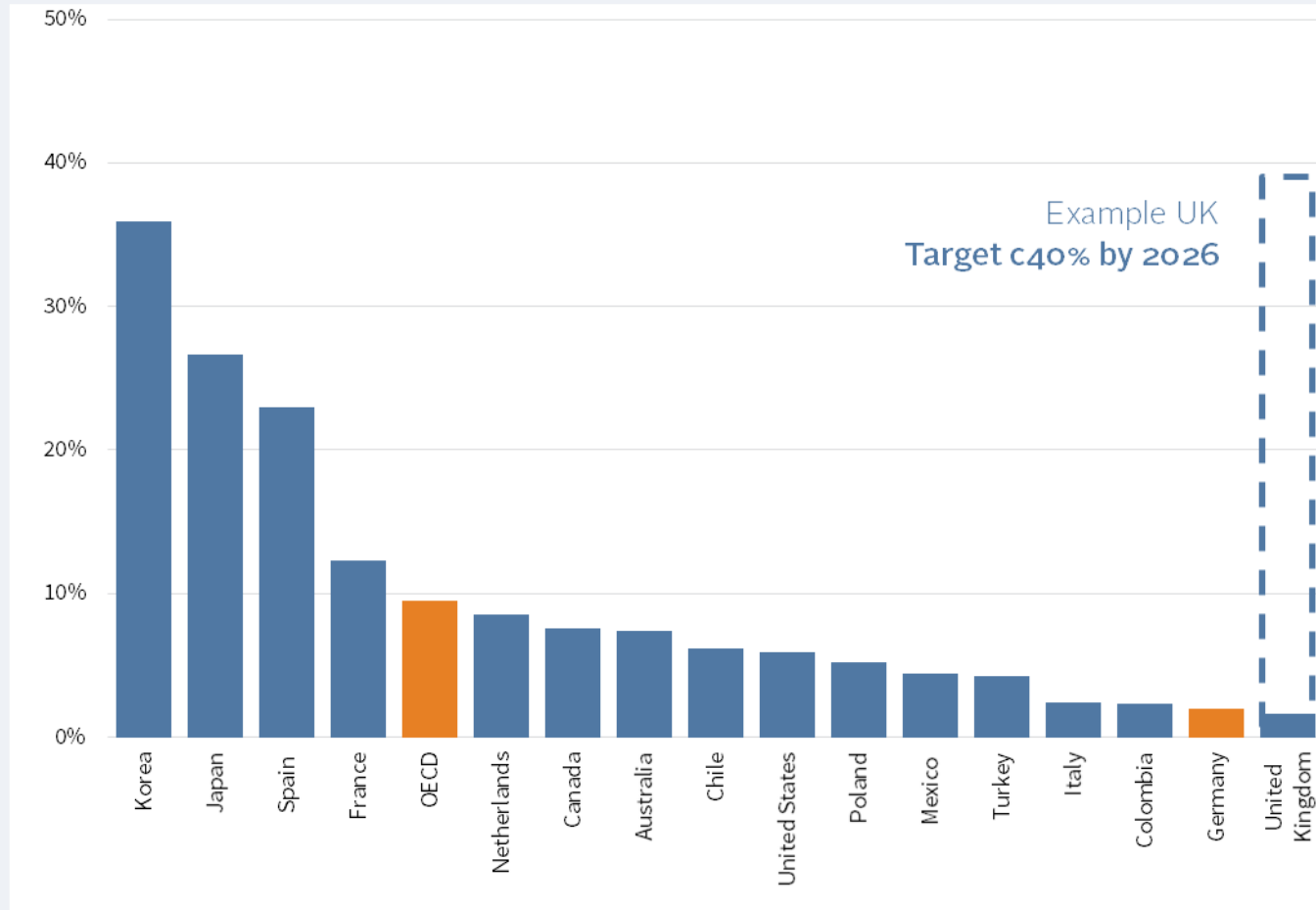
Data Storage Destinations Over Time
2010 - 2025



Source: Digital Colony, International Data Corporation (IDC)

Who will fill the funding gap?

Fiber penetration rates in OECD countries
June 2020, (% of population)



Telecom providers

- Overleveraged and high 5G costs













Government

- COVID crisis costs

Tech Companies

- Sufficient ROI?

Diverse set of opportunities

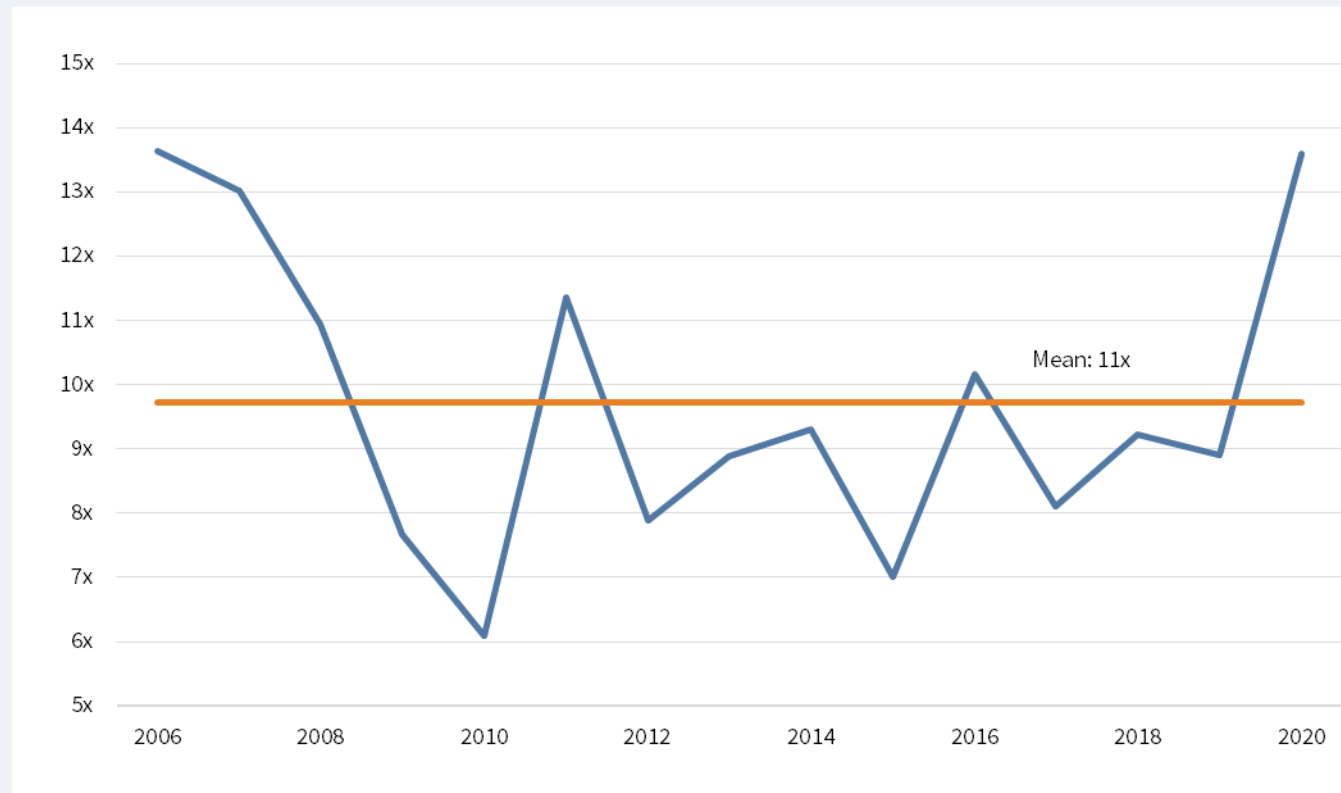
| | Sector | Yield | Target Returns (Net IRR) | Scale of Opportunity | Go or No-go |
|------------------------|----------------------------------|--------|-----------------------------|---|---|
| Real Asset Focused | Fiber | Medium | 10-15%+ |  |  |
| | DATA Centers | Medium | 10-15%+ |  |  |
| | Towers | High | 8-12%+ |  |  |
| Private Equity Focused | Spectrum | Low | 15%+ |  |  |
| | End-point Enablers | Low | 15%+ |  |  |
| | Developer (Towers, Data Centers) | Low | 16-18%+ |  |  |

Words of caution (1)

Investment Risks

Telecommunications

2006 – 2021 (EV/EBITDA)



Investment Risks

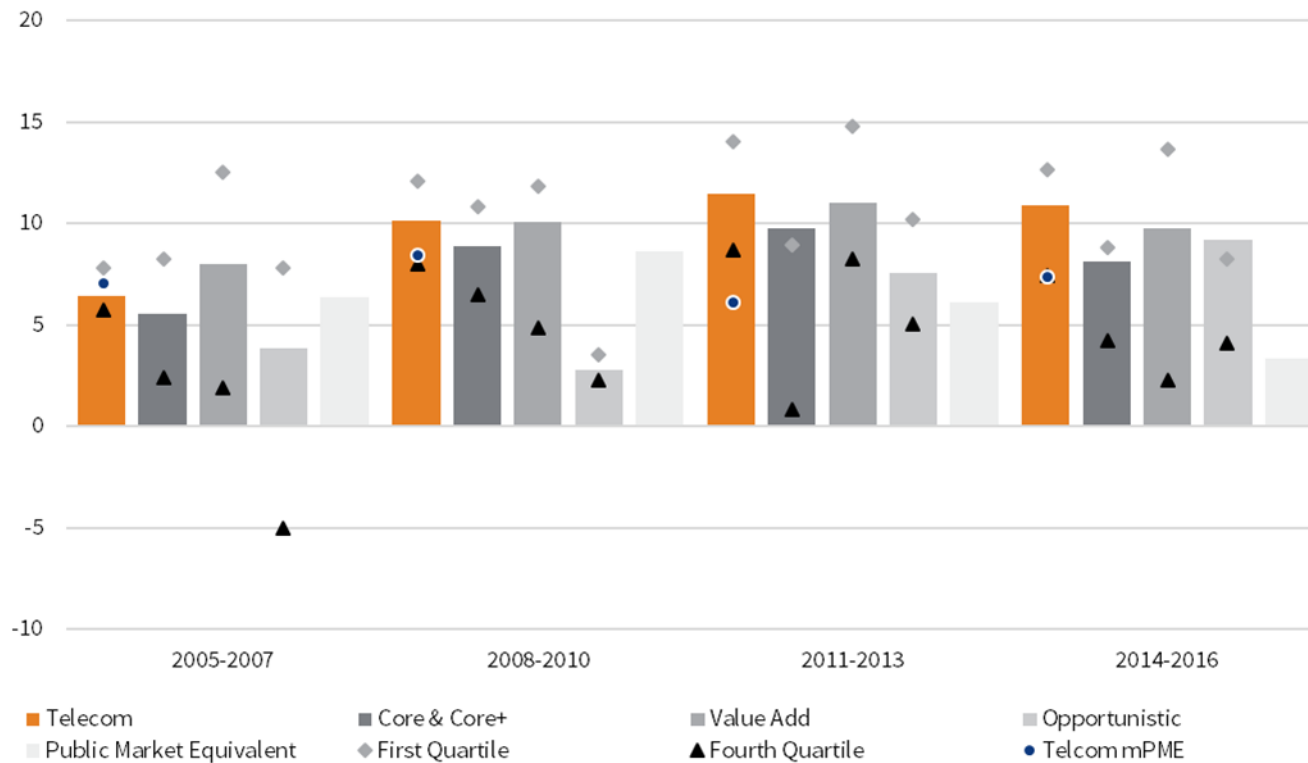
- Valuation
- Political
- Regulatory
- Competition and obsolescence
- Operational risks

Words of caution (2)

Implementation Risk

Infrastructure Returns by Style and Vintage Year (%)

As of 30 June 2020



Implementation risks

- Investment Selection
- Access due to oversubscribed opportunities
- Diversification

Summary

**“Digital”
becoming a
utility**

**Expected
returns
and yield**

**Investment and
implementation
risks**

**Can be additive
to institutional
portfolios**



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