INVESTING IN LOW CARBON INFRASTRUCTURE

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INTRODUCTION

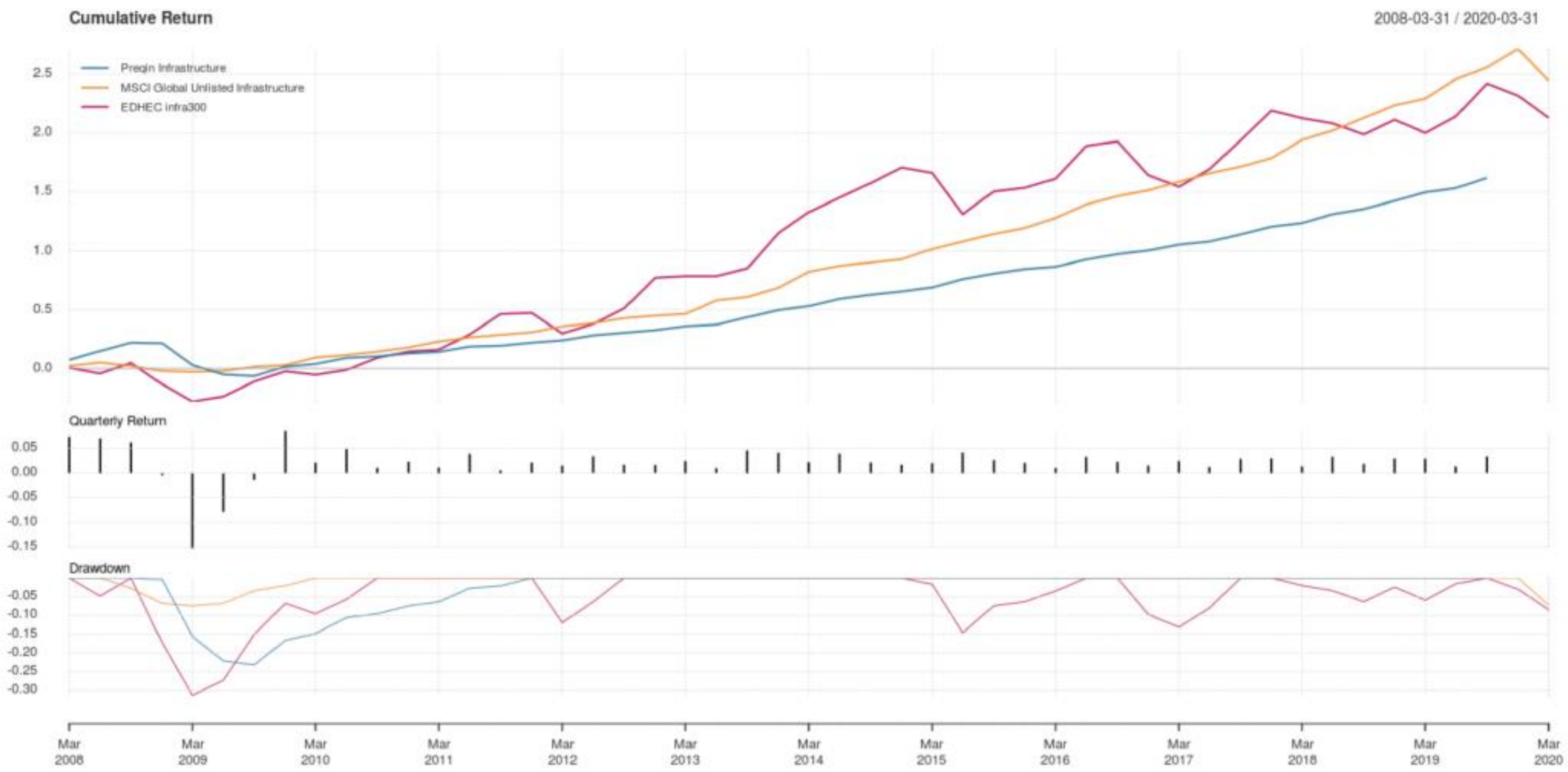
The need for Sustainable and Resilient Infrastructure

- Role of infrastructure in delivering the SDGs and a low carbon economy supporting the recovery in a post COVID era.
- Quality / sustainable infrastructure agenda, globally (G20, OECD (Reference Notes, Compendium),IDB, GIB, IIDD), regionally (e.g. EU), and nationally, which highlight ESG &R – why these factors are important for infrastructure, as a long-lived asset with considerable externalities.
- Private sector involvement and investment in infrastructure will be necessary for the scaling up of investment; role of private investors (see e.g. expected role in EU Green New Deal, Paris Agreement), including institutional investors.
- Institutional investors are increasingly identifying opportunities and risks in infrastructure projects using an ESG lens; ESG indicators and methodologies are being developed within the infrastructure sector also for investors.

Momentum in infrastructure

- Rising social pressure
- Pension Funds as Long Term Investors
- Infrastructure as an Asset Class
- ESG in Infrastructure

Infrastructure as An asset Class



USD Returns

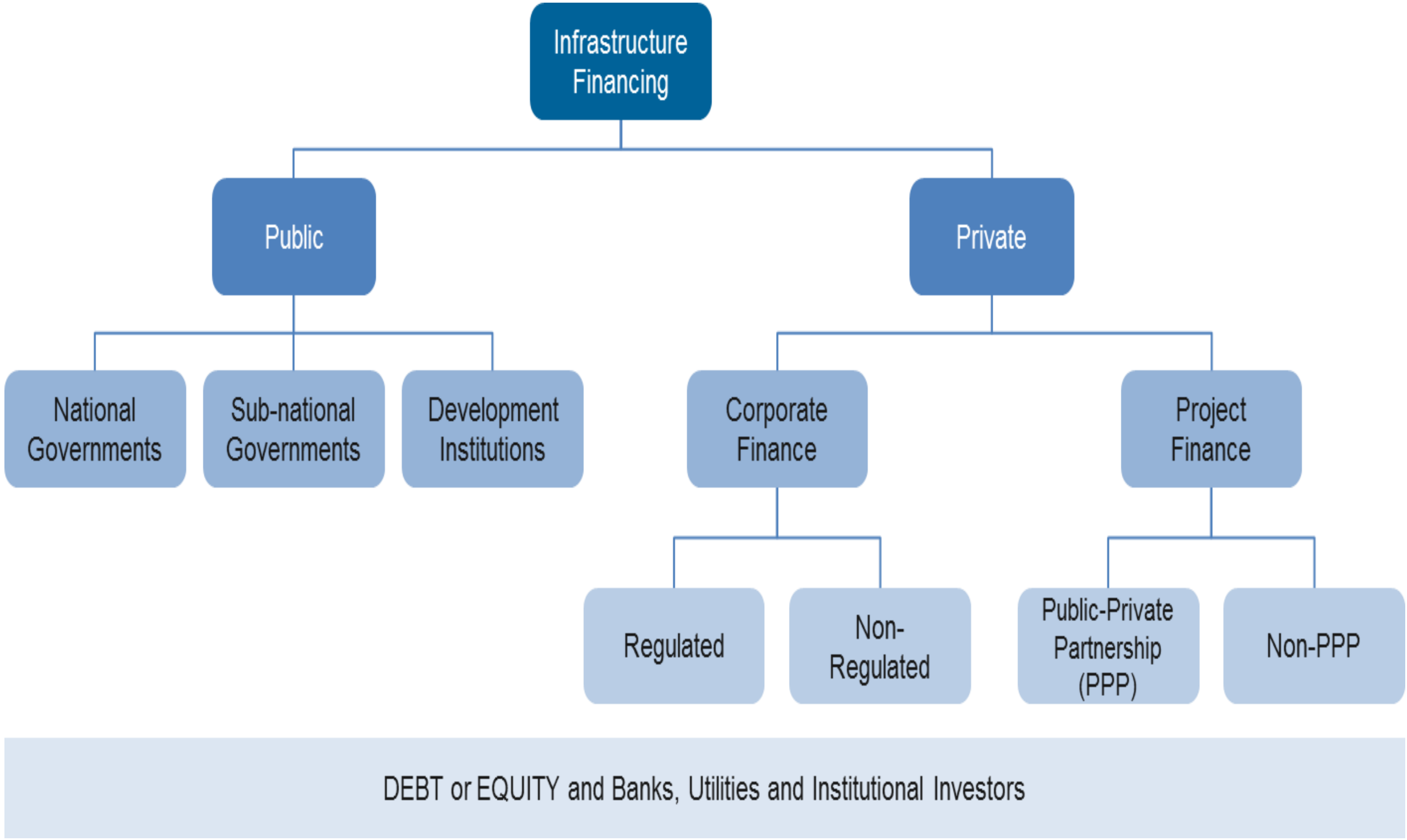
Appraisal-based indices (Preqin, MSCI) of unlisted infrastructure equity and the infra300 index – SOURCE EDHEC June 2020

MAPPING RISKS AND FINANCING FOR LOW CARBON INFRASTRUCTURE

Infrastructure Financing

- **Availability and cost of financing are influenced by the risks involved in infrastructure investment.**
- **Financial markets support the infrastructure sector through a variety of investors (e.g. utilities, banks or institutional investors) and asset classes (such as debt, equity or mezzanine).**
- **The OECD has developed a taxonomy of financial instruments - empirical mapping in the low carbon sector by the OECD and the IEA.**
- **Funding vs financing**
- **Macro conditions**
- **Private infrastructure financing is influenced by the potential revenues earned by the project**

Infrastructure Financing Structure



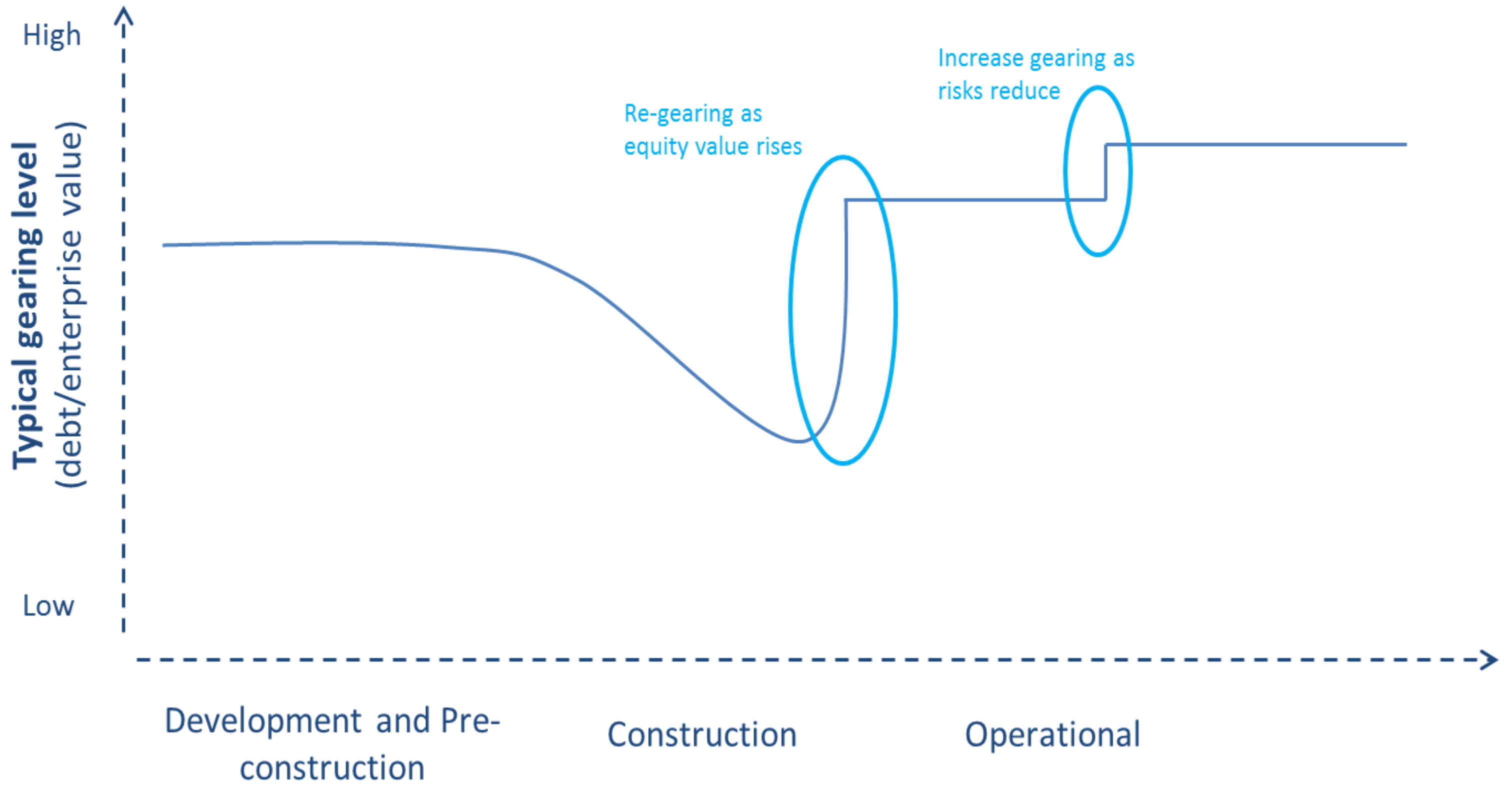
investment and financing activity for low carbon infrastructure, from **the private sector point of view**, at different levels:

Financial structures

Delivery models:

Financing phase

The Infrastructure project development cycle



Source: OECD based on RREEF

INSTITUTIONAL INVESTOR’S ROLE

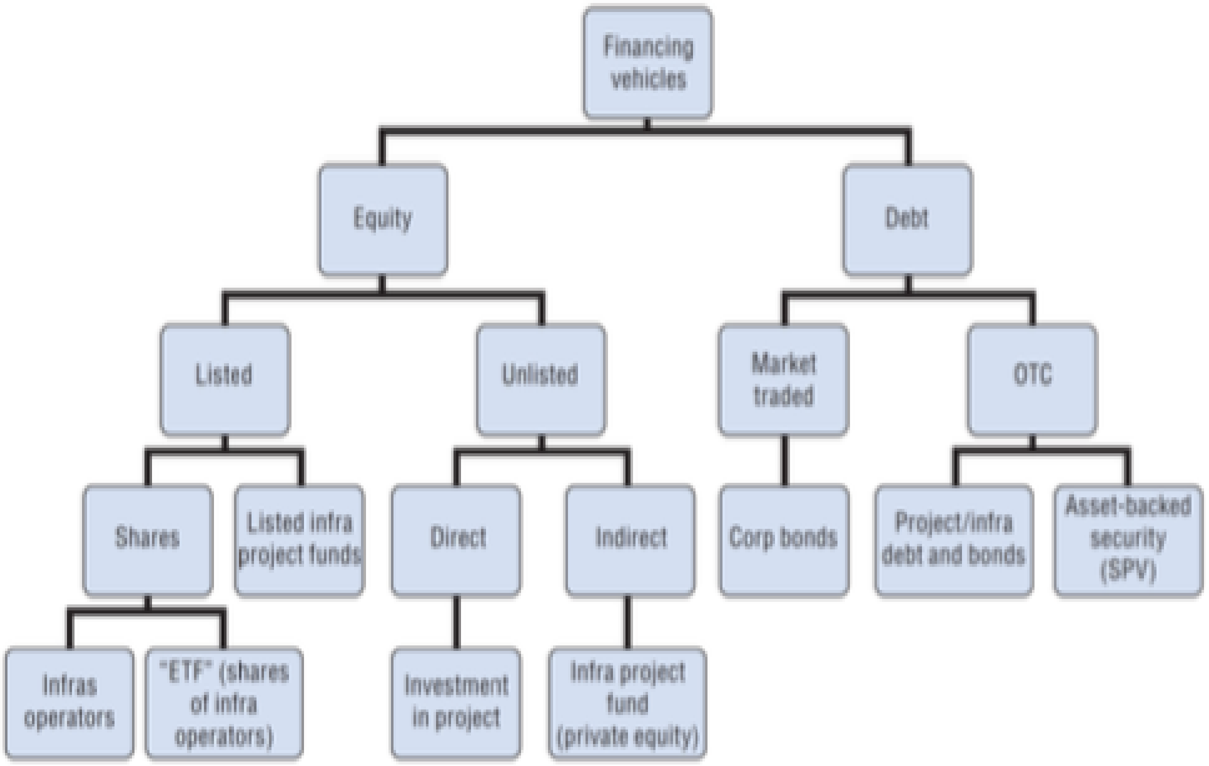
Private investment in infrastructure: Asset Managers as Gate Keepers

Sustainability approaches and investment strategies adopted by investors will vary depending on how the infrastructure investment is accessed.

In private markets, for funds not capable of investing directly, hiring external consultants and asset managers to manage infrastructure investment is the preferred route to access this asset class.

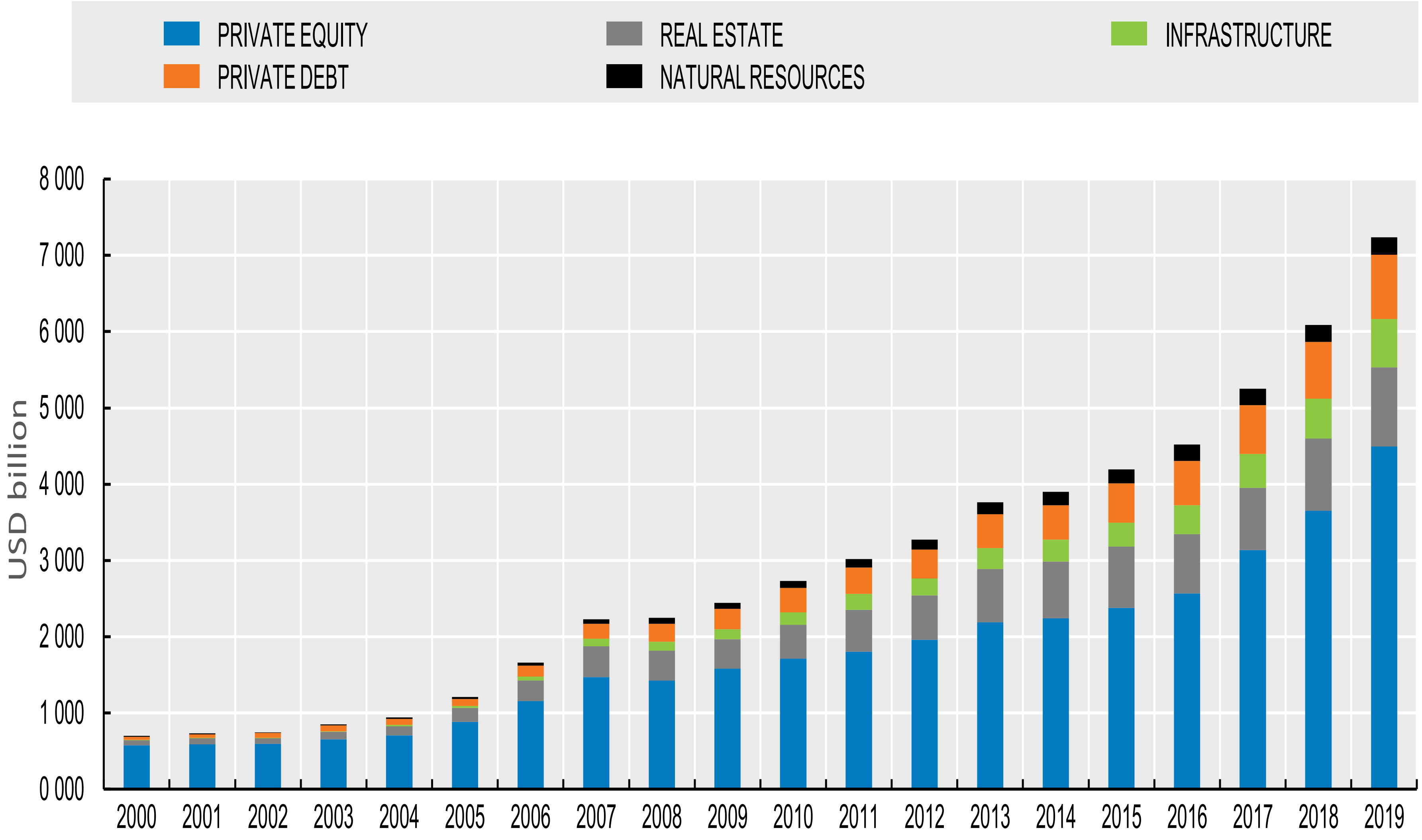
New fund structures try to align asset owner’s long-term horizon with asset managers, to achieve specific ESG goals.

In some cases, institutional investors are evolving their investment frameworks to align their investment activities with broader environmental or development objectives



Source: Della Croce and Gatti (2014)

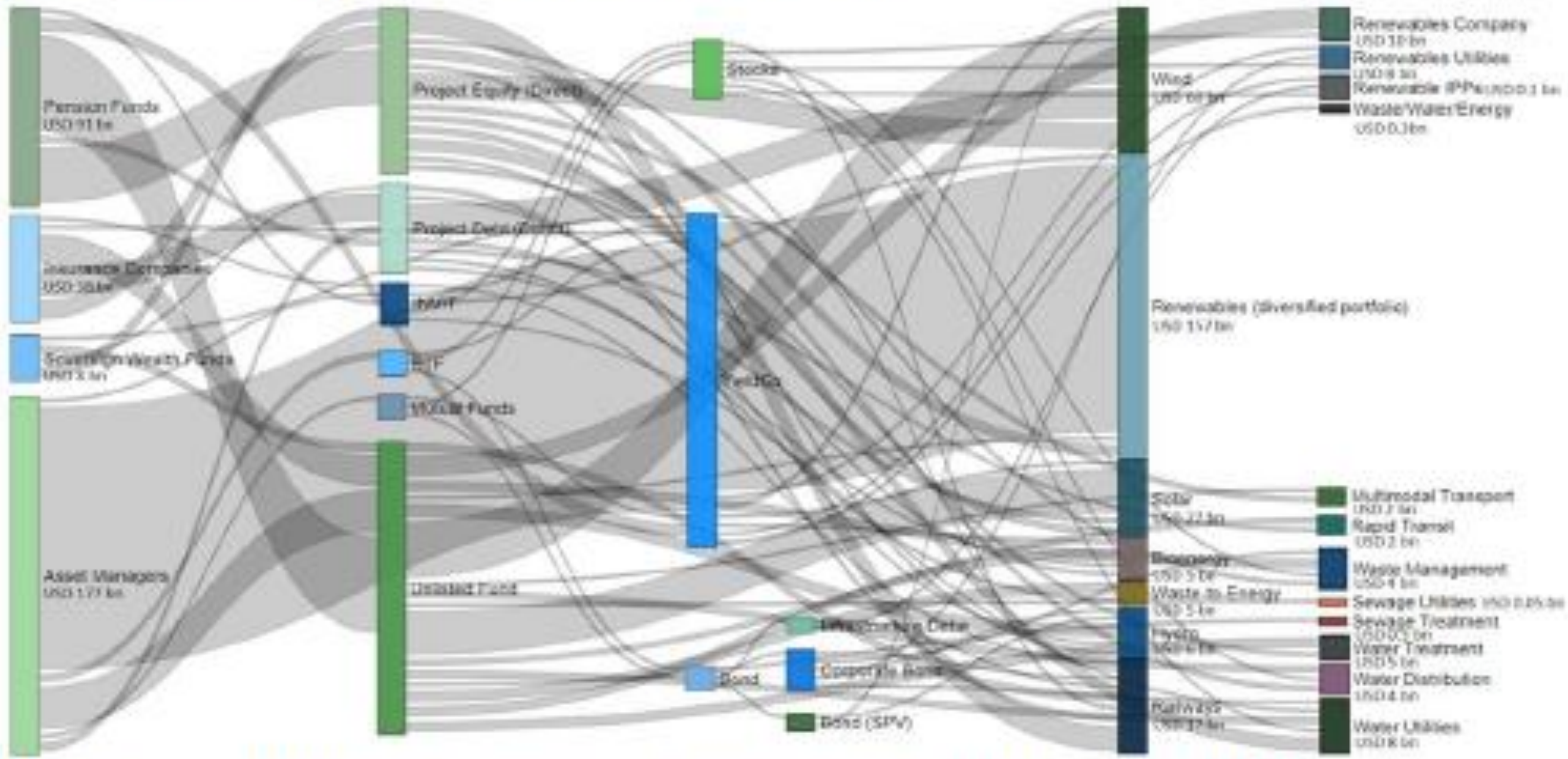
Private Capital Assets under Management by Asset Class, 2009 - 2019



Source Preqin - 2020 Preqin Global Infrastructure Report

Institutional investment in green infrastructure (excl. direct investment in stocks) - USD 314 billion

Holdings of institutional investors domiciled in OECD and G20 countries (as on February 2020



Note: The figure excludes direct stock holdings. Further, while some nodes appear to have unequal left and right sides, this is just a visual effect and they are always balanced.
Source: Authors

OECD 2020 Green Infrastructure in the Decade for Delivery: Assessing Institutional Investment
https://www.oecd.org/environment/cc/policy-highlights-green-infrastructure-in-the-decade-for-delivery-assessing-institutional-investment.pdf

CONCLUSIONS

NEW MODELS TO INVEST IN INFRASTRUCTURE

Re-conceptualization of intermediation: Looking for a new Era of Investing

Matching the evolution in the nature of risks with different types of financing: attracting Institutional Investors and Recycling Capital

Pooling Institutional Investors Capital for low carbon infrastructure

Major structures in the market include:

- utilities/construction companies and financial investors
- co-investment platforms
- infrastructure unlisted funds
- government-led equity fund initiatives

Developing Secondary markets for low carbon infrastructure

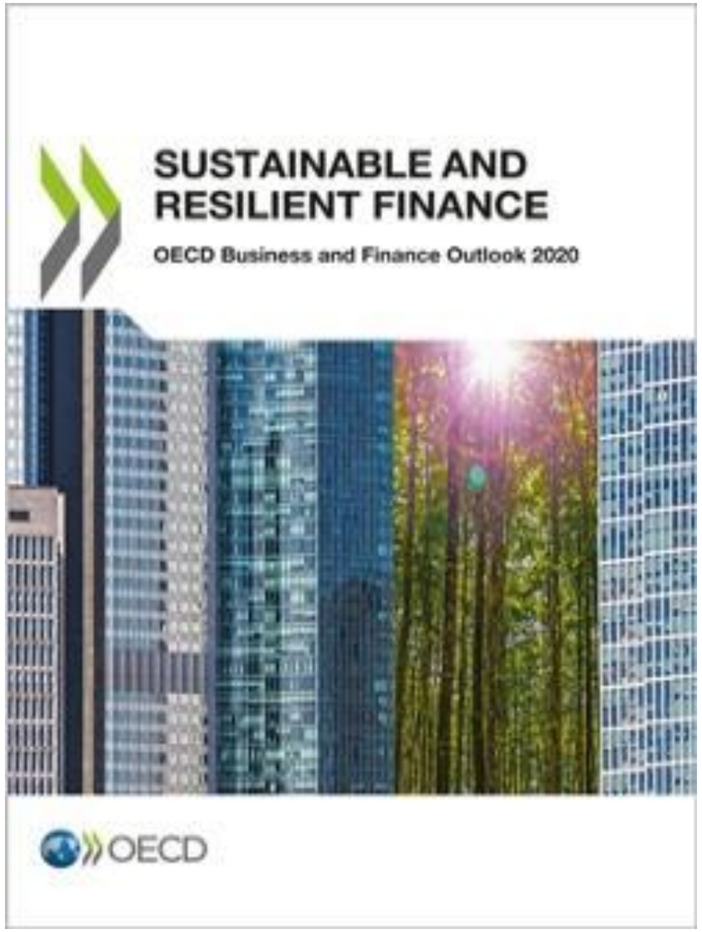
Catalyse institutional investors for low carbon infrastructure

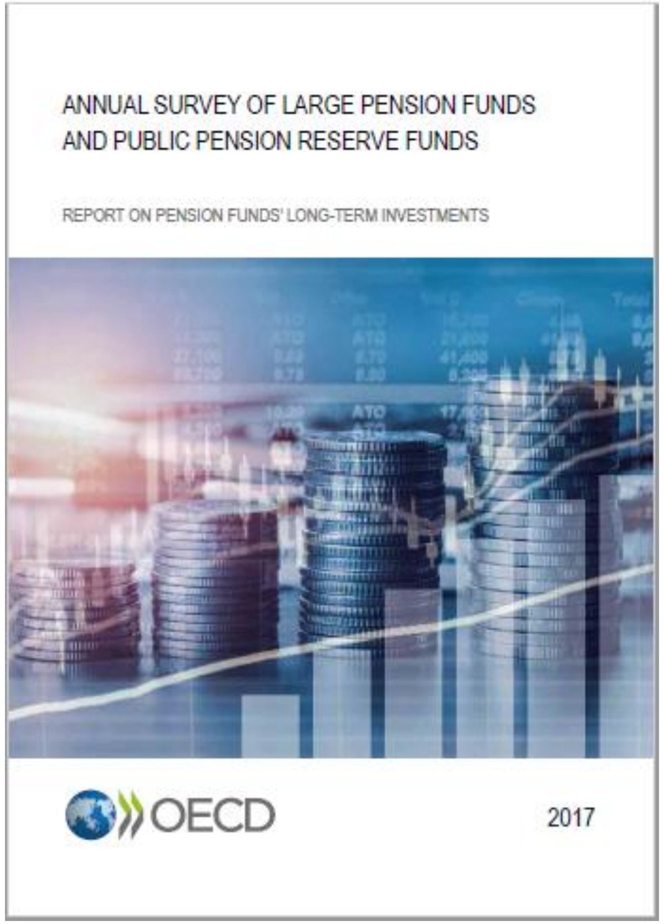
Financial and energy reforms to create a Secondary Markets for low carbon infrastructure

ANNEX

OECD Recent work

JUST RELEASED! The 2020 edition of the OECD Business and Finance Outlook focuses on sustainable and resilient finance, in particular the environmental, social and governance (ESG) factors that are rapidly becoming a part of mainstream finance





http://www.oecd.org/finance/Sustainable-and-resilient-finance.htm

https://www.oecd.org/finance/private-pensions/survey-large-pension-funds.htm

Instruments and vehicles for infrastructure financing: a Taxonomy Part I

Modes		Infrastructure Finance Instruments		Market Channels
Asset Category	**Instrument**	**Infrastructure Project**	**Corporate Balance Sheet / Broader Entities**	**Capital Pool**
Fixed Income	Bonds	Project bonds	Corporate bonds, Green bonds	Bond indices, Bond funds, ETFs
		Municipal, Sub-sovereign bonds		
		Green bonds, Sukuk	Subordinate bonds	
	Loans	Direct/Co-investment lending to Infrastructure project, Syndicated project loans	Direct/Co-investment lending to infrastructure corporate	Debt funds (GPs)
			Syndicated loans, Securitized loans (ABS), CLOs	Loan indices, Loan funds
Mixed	Hybrid	Subordinated loans/bonds, Mezzanine finance	Subordinated bonds, Convertible bonds, Preferred stock	Mezzanine debt funds (GPs), Hyrbid debt funds
Equity	Listed	YieldCos, Closed-end funds	Listed infrastructure & utilities stocks, Closed-end funds, REITs, IITs, MLPs	Listed infrastructure equity funds, Indices, Trusts, ETFs
	Unlisted	Direct/Co-investment in infrastructure project equity, PPP	Direct/Co-investment in infrastructure corporate equity	Unlisted infrastructure funds (GPs)

Risks Linked to Infrastructure Assets over the project lifecycle: a Taxonomy Part II

<table>
<tr><th>Risk Categories</th><th>Development Phase</th><th>Construction Phase</th><th>Operation Phase</th><th>Termination Phase</th></tr>
<tr><td rowspan="9">Political and regulatory</td><td>Environmental review, land acquisition</td><td>Cancellation of permits</td><td rowspan="3">Change in tarriff regulation</td><td>Contract duration</td></tr>
<tr><td rowspan="3">Rise in pre-construction costs (longer permitting process)</td><td rowspan="3">Contract renegotiation</td><td>Decommission</td></tr>
<tr><td>Asset transfer</td></tr>
<tr><td colspan="2">Currency convertibility</td></tr>
<tr><td colspan="4">Change in taxation</td></tr>
<tr><td colspan="4">Social acceptance</td></tr>
<tr><td colspan="4">Change in regulatory or legal environment</td></tr>
<tr><td colspan="4">Changes in climate change policy and support schemes</td></tr>
<tr><td colspan="4">Enforceability of contracts, collateral and security</td></tr>
<tr><td rowspan="9">Macroeconomic and business</td><td>Prefunding</td><td colspan="3">Default of counterparty</td></tr>
<tr><td colspan="2" rowspan="4">Financing availability</td><td colspan="2">Refinancing risk</td></tr>
<tr><td colspan="2">Liquidity</td></tr>
<tr><td colspan="2">Volatility of demand/market risk</td></tr>
<tr><td colspan="2">Liability risks - compensation from victims of climate change</td></tr>
<tr><td colspan="4">Inflation</td></tr>
<tr><td colspan="4">Real interest rates</td></tr>
<tr><td colspan="4">Exchange rate fluctuation</td></tr>
<tr><td colspan="4">Long pay-back period for climate change mitigation investment</td></tr>
<tr><td rowspan="6">Technical</td><td colspan="3">Governance of the project</td><td rowspan="5">Termination value different from expected / stranded assets</td></tr>
<tr><td colspan="3">Environmental</td></tr>
<tr><td>Project feasibility and inclusion in investments plan*</td><td rowspan="2">Reliability of forecasts for construction costs and delivery time</td><td rowspan="2">Qualitative deficit of the physical structure/ service</td></tr>
<tr><td>Archaeological</td></tr>
<tr><td colspan="3">obsolescence</td></tr>
<tr><td colspan="4">Force Majeure</td></tr>
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