FINANCING INFRASTRUCTURE

Session 2: Mapping Financing Channels in Infrastructure

Workshop on Data Collection for Long-term Investment
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OECD
BETTER POLICIES FOR BETTER LIVES

Recent work on Infrastructure Financing

- Recent OECD work on Infrastructure financing: Mobilising financing for the transition" Chapter 7 of the report "*Investing in Climate, Investing in Growth*" launched 23rd May 2017 , Berlin www.oecd.org/environment/cc/g20-climate/)
- Building on a Workshop on financing green infrastructure on November the 3rd 2016. (the summary of the discussions for further details)
- Policy action will be needed on many fronts in order for the financial system to support green investment and attract private capital:
  1. Carbon pricing – including emissions markets, trading schemes and taxation
  2. Technology – innovation and transformation is the only way to achieve deep cuts in global emissions
  3. Financial markets – regulation, climate change surveillance, and the free flow of information
  4. Mobilisation of resources – financial instruments, risk mitigation, transaction enablers, business models, green infrastructure pipelines

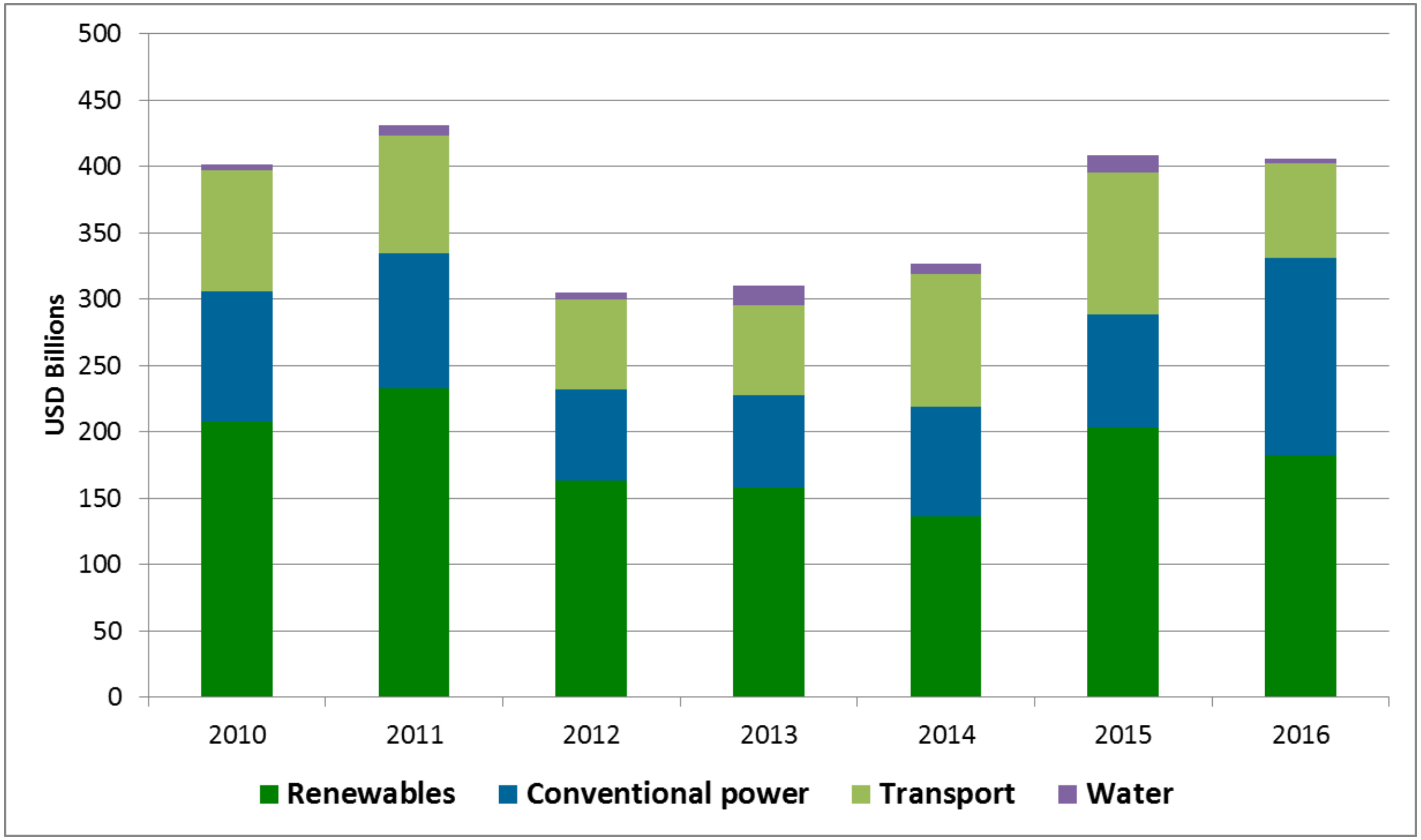
Key messages

- Policy action to mobilise investment in infrastructure
  - Building off of G20/OECD Guidance Note on Diversification of Financial Instruments for Infrastructure and SMEs, 2016
  - Instruments to mobilise investment in low-carbon infrastructure
  - Risk mitigation and allocation
- Despite availability, only a small fraction of institutional assets are being channeled into infrastructure
  - Take advantage of trends in capital markets to design policies for investment
- Alignment of Development Finance Institutions with the Paris Agreement goals

TRENDS

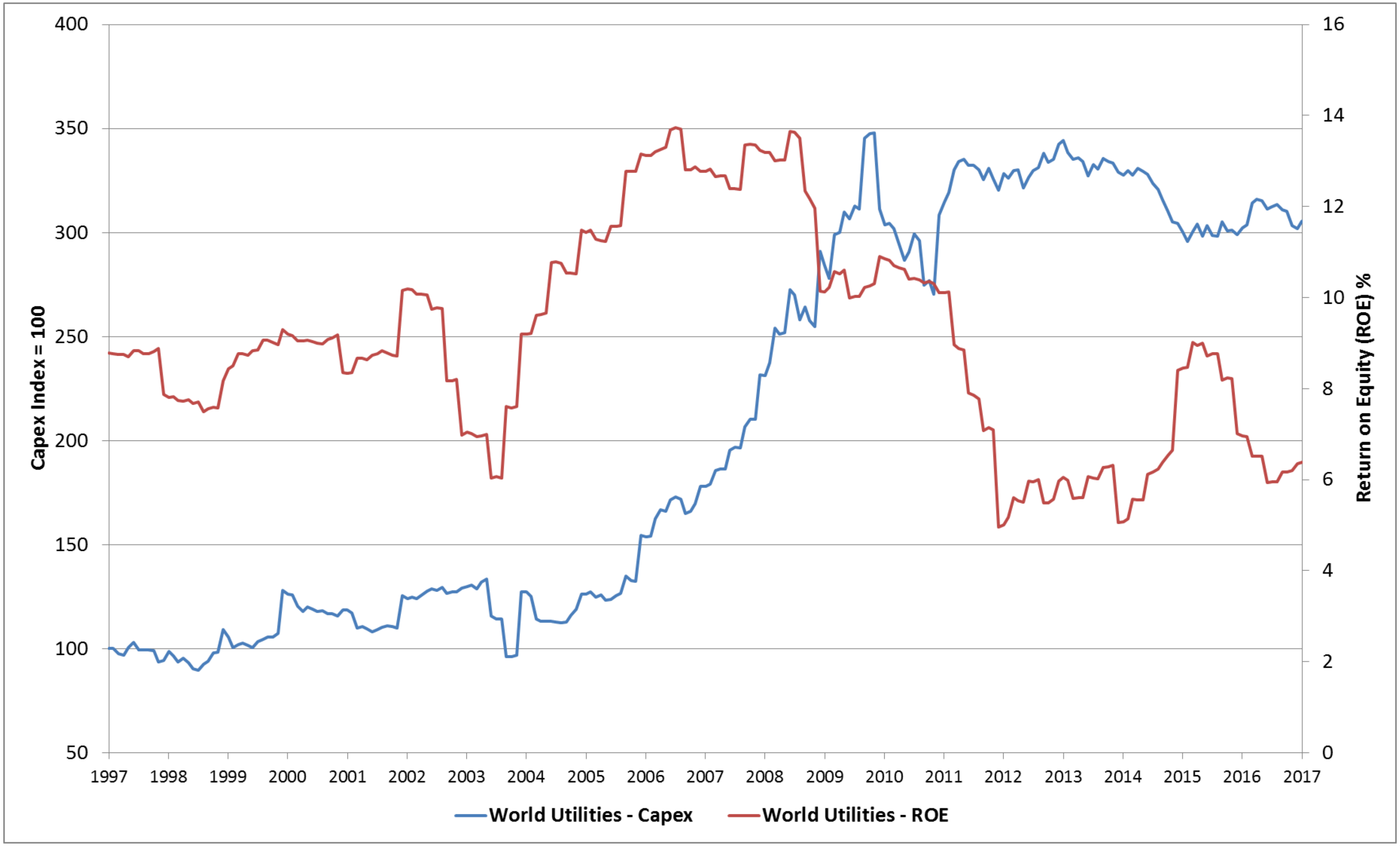
Infrastructure transaction trends – all financing activity

Renewables capture a high amount of infrastructure investment activity..



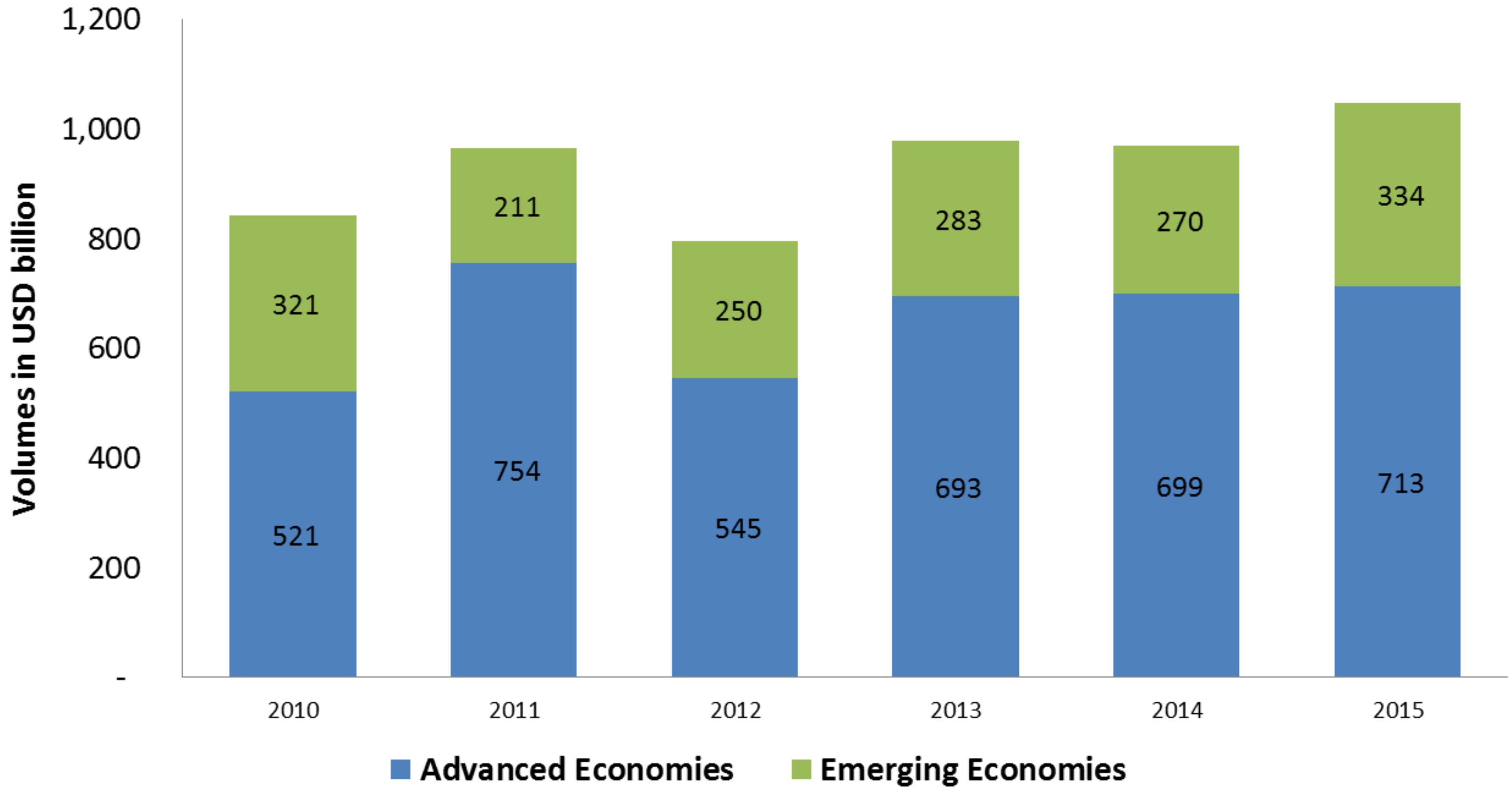
Source: IJGlobal Transactions and Bloomberg New Energy Finance, OECD Calculations. Note: For an important share of the renewables energy sector transactions, the transaction amounts are not disclosed. The above figures do not include estimates for these undisclosed amounts.

Utilities – Financial constraints ?



Source: Thomson Reuters Datastream

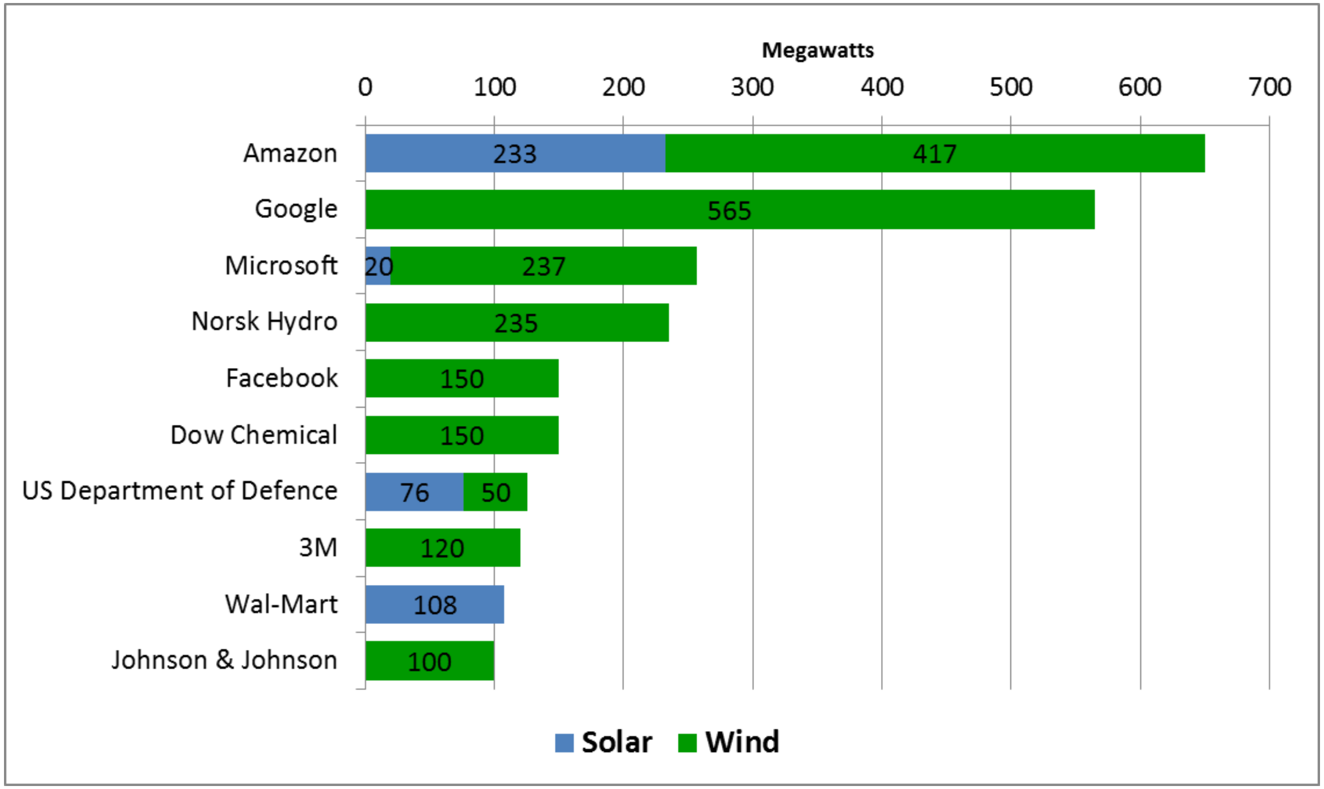
Bank lending a critical source of finance



Source: IJGlobal Transactions and Bloomberg New Energy Finance, OECD Calculations. Note: For an important share of the renewables energy sector transactions, the transaction amounts are not disclosed. The above figures do not include estimates for these undisclosed amounts.

Non-utility corporate investment in renewable energy

Top ten corporate renewable energy off-takers in 2016

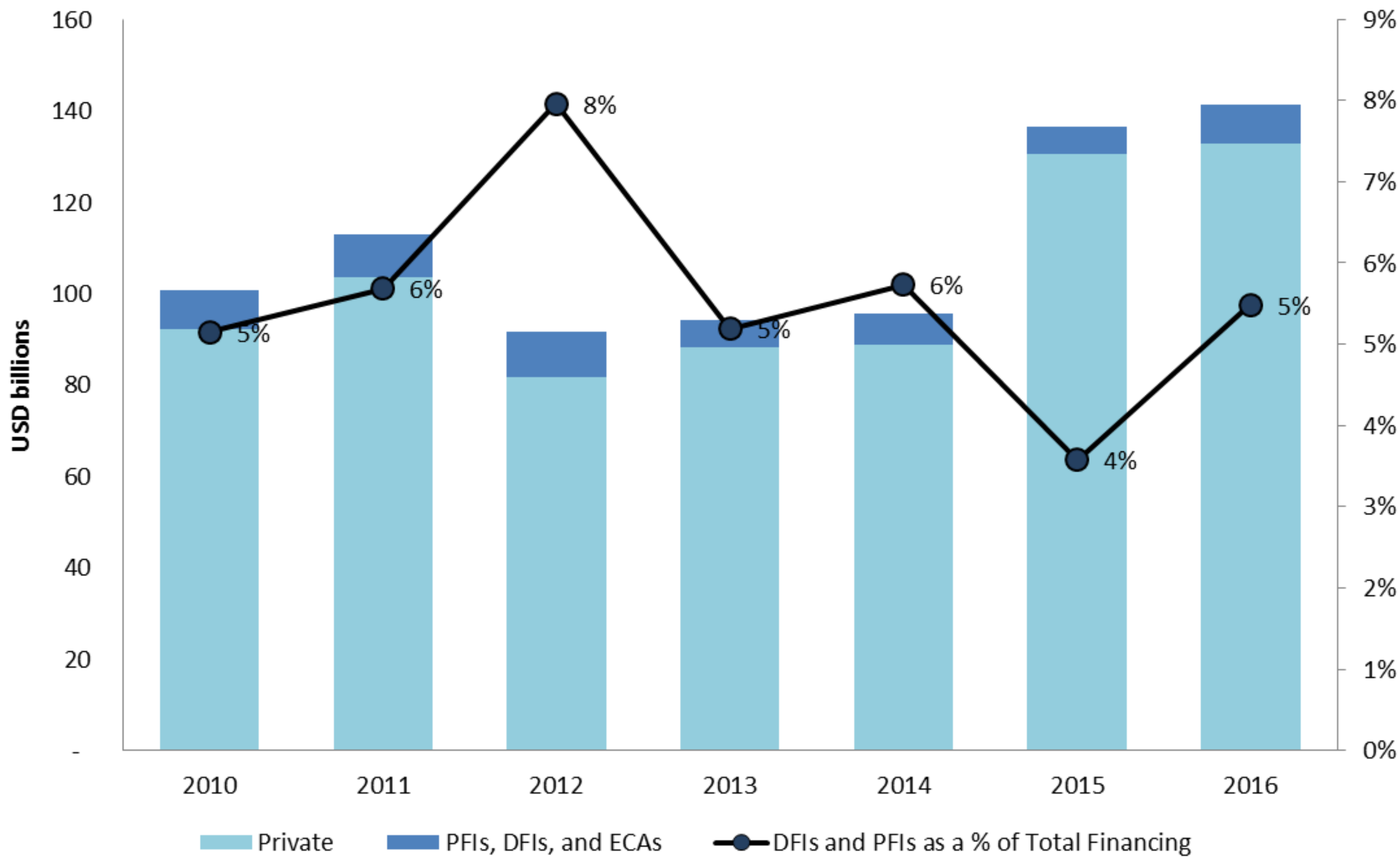


Non-utility corporate investment driven by desire to reduce carbon profile of core business operations through direct investment in PPAs, but also "pure equity" investments in other locations that can offset emissions in other geographies

Source: Bloomberg New Energy Finance, *Corporate Renewable Energy Procurement Monthly*

Emerging markets – DFIs, PFIs, ECAs as transaction enablers

Private, PFIs, DFIs and ECAs financing for developing countries infrastructure - Transport and Power sectors



Source: IJGlobal Transactions and Bloomberg New Energy Finance, OECD Calculations.

FINANCING INFRASTRUCTURE AND MOBILIZING PRIVATE SECTOR

Issues with mobilising private capital

Despite availability, only a small fraction of institutional assets are being channeled into infrastructure

Infrastructure investment is associated with specific, asset-related risks which make its financing more difficult

Equity-return expectations and cost of debt also influence the cost of capital for infrastructure

Understanding Financing Flows in Infrastructure: the OECD Taxonomy 2015

In 2015 the OECD developed a taxonomy focusing on 2 key elements of financing infrastructure: financial structure and financing mix

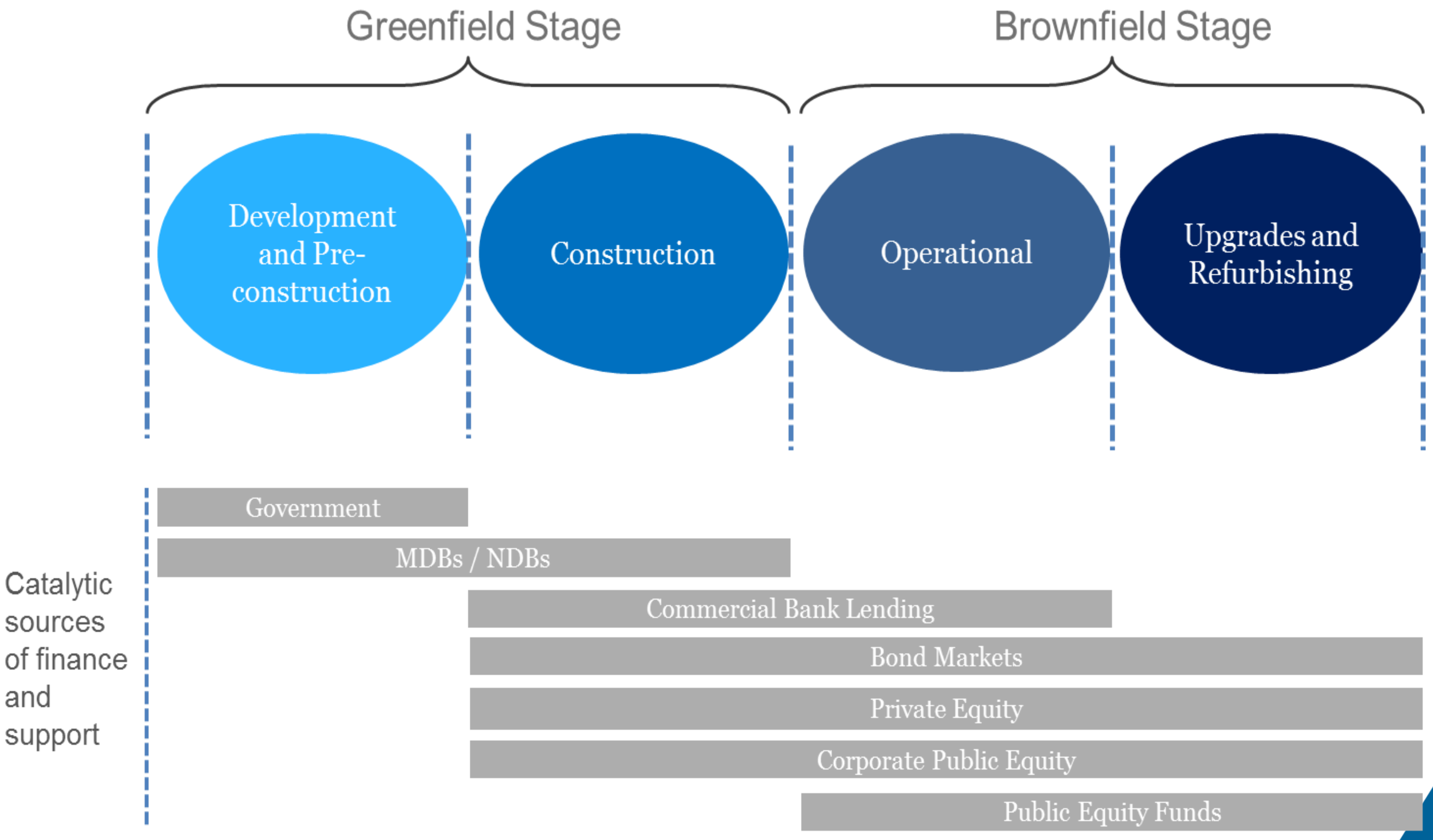
Modes		Infrastructure Finance Instruments		Market Channels
Asset Category	Instrument	Infrastructure Project	Corporate Balance Sheet / Broader Entities	Capital Pool
Fixed Income	Bonds	Project bonds	Corporate bonds, Green bonds	Bond indices, Bond funds, ETFs
		Municipal, Sub-sovereign bonds		
		Green bonds, 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)

The Financial Structure (Channels)

The Financing Mix (asset category/ instrumen t)

[OECD Taxonomy](#) [Infrastructure financing instruments and incentives](#)

Mobilizing Private Sector Financing: What is the role of Private Sector, what the need for catalytic finance and support?



G20/OECD Guidance Note on Diversification of Financial Instruments for Infrastructure and SMEs

Mobilizing Private Sector Financing: What are the Risks in Infrastructure?

Public Sector

<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="8">Political and regulatory</td><td>Environmental review</td><td>Cancellation of permits</td><td rowspan="3">Change in tariff 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">Enforceability of contracts, collateral and security</td></tr>
<tr><td rowspan="7">Macroeconomic and business</td><td>Prefunding</td><td colspan="3">Default of counterparty</td></tr>
<tr><td colspan="2" rowspan="3">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="4">Inflation</td></tr>
<tr><td colspan="4">Real interest rates</td></tr>
<tr><td colspan="4">Exchange rate fluctuation</td></tr>
<tr><td rowspan="6">Technical</td><td colspan="3">Governance and management of the project</td><td rowspan="5">Termination value different from expected</td></tr>
<tr><td colspan="3">Environmental</td></tr>
<tr><td>Project feasibility</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">Technology and obsolescence</td></tr>
<tr><td colspan="4">Force Majeure</td></tr>
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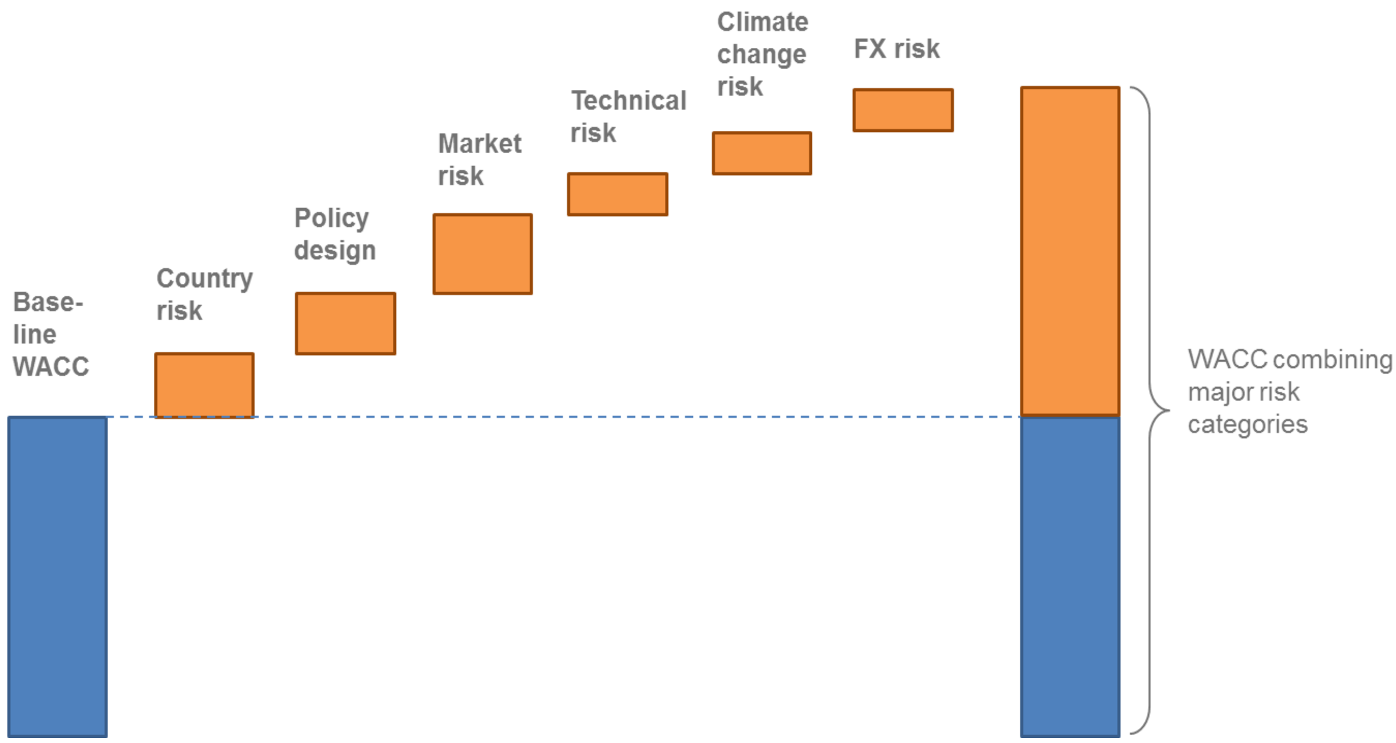
Private Sector

[Mapping of Instruments and Incentives for Infrastructure Financing: A Taxonomy]

Emerging markets infrastructure IRR build-up



3. Mobilizing Private Sector Financing: Approaches to Mobilise Private Investment

Instrument / approach	Usage	Example
Guarantees	Political risk guarantees can enable investment in higher risk countries.	The Multilateral Investment Guarantee Agency (MIGA) provided a guarantee against risks related to expropriation, war and civil disobedience to a Dutch solar company (SunE Solar) to cover investment in the development of three solar power plants in Honduras.
	Credit guarantees can incentivise institutional investment.	MIGA provided a guarantee to cover the non-honouring of financial obligations issued to back a USD 361 million loan by Banco Santander S.A. of Spain to the state of São Paulo, Brazil, to improve the sustainability of São Paulo's transport system.
Currency hedging	Currency hedging mitigates the risk of currency fluctuations for foreign investors, important for infrastructure investment in developing countries.	The Currency Exchange Fund (TCX), supported by the German and Dutch governments, is a currency hedging fund. When the private fund manager ResponsAbility Investments provided local currency-indexed loans to M-Kopa, a Kenya-based solar home system company that provides decentralised solar solutions in Kenya, Tanzania and Uganda, it used a hedging contract with a specialist currency hedging provider, that either passes on the currency risks to commercial counterparties or to TCX, if the former do not exist.
Loan syndication	Loan syndication mitigates business risks for private investors and builds on due diligence capacity of development banks	MDBs usually take the role of lead arrangers, and the private sector steps in to provide additional capital. The division of the loan amount leads to risk diversification, and it builds on the due diligence capabilities and reputation of the public sector (MDB) arrangers. By doing this, the MDBs boost investor confidence and reduce transaction costs.
Debt subordination	Debt subordination diversifies risks through structuring and facilitates private investment.	The Green for Growth fund was launched by KfW and the EIB with the financial support of the European Commission, the German Federal Ministry for Economic Co-operation and Development (BMZ), and the EBRD.[35] The fund invests in energy efficiency projects as well as projects increasing renewable energy sources in Southeast Europe. The public donors are invested in the most junior tranche, while private institutional investors invest in the most senior tranches, thereby benefiting from the risk cushion provided by the public (donor) investment.
Co-investment platforms and funds	Co-investment vehicles pool investor capital to deploy directly in infrastructure projects, bypassing intermediaries.	The Marguerite/2020 European Fund for Energy, Climate Change and Infrastructure brings together several NDBs and financing institutions, including CDC, CDP, EIB, KfW and PKO Banco Polski, to co-invest in renewable energy and sustainable transport infrastructure in Europe, with a focus on greenfield projects (minimum 65% of the fund) (Della Croce and Sharma, 2014).
	Blended finance funds pool public and private capital to mobilise additional capital	Climate Investor One, launched by FMO and Phoenix InfraWorks and supported by funding from the government of the Netherlands, is a new fund of funds structure designed to invest at the development, construction and refinancing stage of large-scale solar, wind and hydro projects, with initial projects financed in Rwanda and Zambia.
Project development facilities and technical assistance	Supports the development of bankable infrastructure projects.	The Asia Pacific Project Preparation Facility, funded by Australia, Canada and Japan, supports AsDB member country governments and their public-sector agencies in preparing and structuring PPP transactions for infrastructure, prioritising infrastructure with climate change and sustainable development elements. AsDB will provide the technical assistance.[37]

There are a Range of tools risk mitigation instruments, blended finance, being used by governments, DBs and DFIs

The OECD hasrecently been looking at instruments to mobilise private finance for low carbon infrastructure

Source: Chapter 7 of the report "*Investing in Climate, Investing in Growth*" launched 23rd May 2017 , Berlin www.oecd.org/environment/cc/g20-climate/)