

# Infrastructure Fund on Overseas Infra Projects

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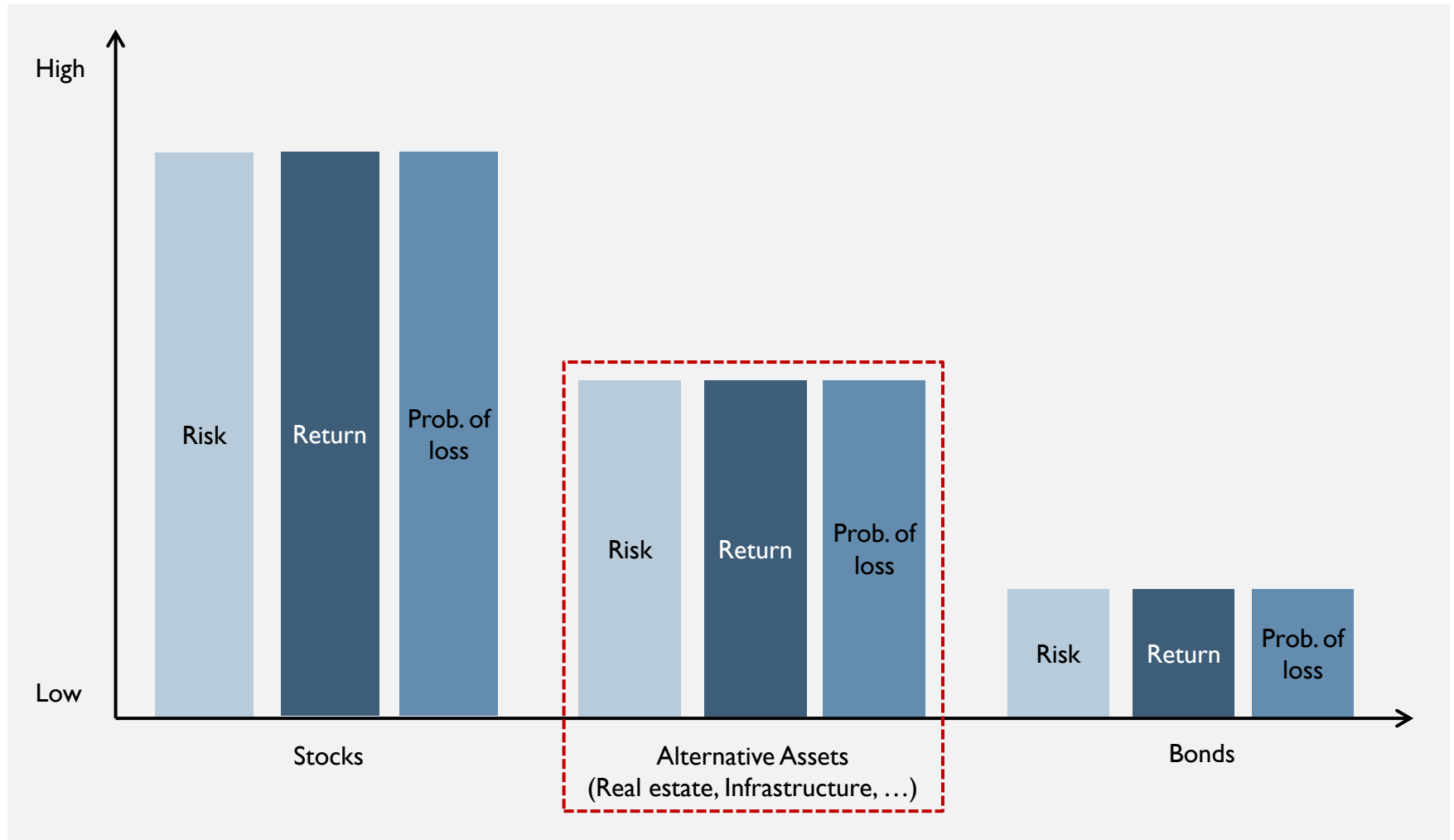
**Introduction to Infrastructure Finance Market**

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## ❖ Conceptual understanding of Alternative Assets



❖ Defining global infrastructure assets

**Key characteristics of infrastructure**

<p><b>1</b> Essential products &amp; services</p>	<p><b>Infrastructure assets are physical assets that are used to support</b></p> <ul style="list-style-type: none"> <li>• Economy (e.g. roads, utilities distribution)</li> <li>• Community (e.g. hospitals)</li> </ul>
<p><b>2</b> Monopolistic and regulated environment</p>	<p><b>Infrastructure assets are often underpinned by high barriers to entry and are difficult to replicate</b></p>
<p><b>3</b> Capital intensive</p>	<p><b>Initial development and construction costs tend to represent the biggest part of the asset value</b></p>
<p><b>4</b> Long operational life</p>	<p><b>Asset life is typically several decades and can potentially be infinite</b></p>

Source: RREEF, GSG analysis

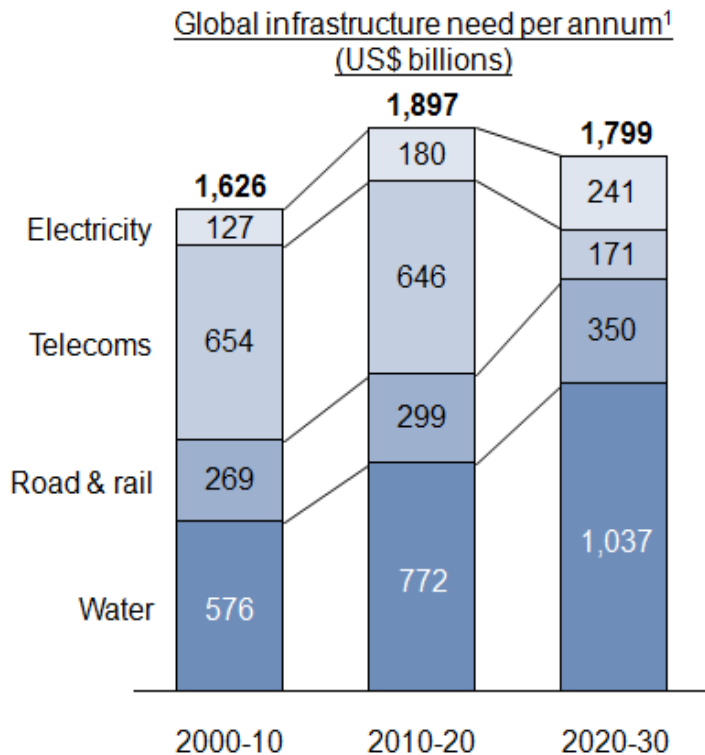
**Type of assets included within infrastructure**

Economic – infrastructure				Social – infrastructure
Energy	Utilities	Transports	Communication	
Extraction (oil/gas)	Electricity distribution	Bridges	Satellites	Hospitals
Power plants	Gas distribution	Tunnels	Television transmitters	Prisons
Oil and gas pipelines	Water distribution	Toll roads	Fiber cable and other networks	Schools / universities
Renewable energy	Water treatment	Railways / public transports	Mobile telephone virtual	Admin. Buildings (e.g. defense)
	Waste treatment	Seaports / airports		

❖ **Cumulative investments of at least US\$30 trillion between 2015 to 2030 will be required to finance global infrastructure needs**

**Infrastructure demand is expected to increase tremendously...**

**... mainly driven by capacity expansion and quality improvement needs**



Note: This graph excludes a number of sub-sectors, particularly oil and gas distribution, electricity generation, airports and seaports, social infrastructure

**Global drivers**

- Population growth and ageing demographics
- Growth of GDP per capita
- Urbanization
- Climate change adaptation and mitigation (which entails additional infra investments)

**Developed market drivers**





- Fiscal stimulus
- Maintenance or replacement of ageing infrastructure
- Upgrade of existing infrastructure as demand for quality of infrastructure rise




**Emerging market drivers**

- General lack of infrastructure (e.g. sanitation, electricity, all-weather roads)
- Need to increase infrastructure capacity to sustain continued rapid development

Source: I. OECD Publishing (Infrastructure to 2030), GSG analysis

❖ Private sector participation is expected to increase and play a critical role to bridge the government funding gap

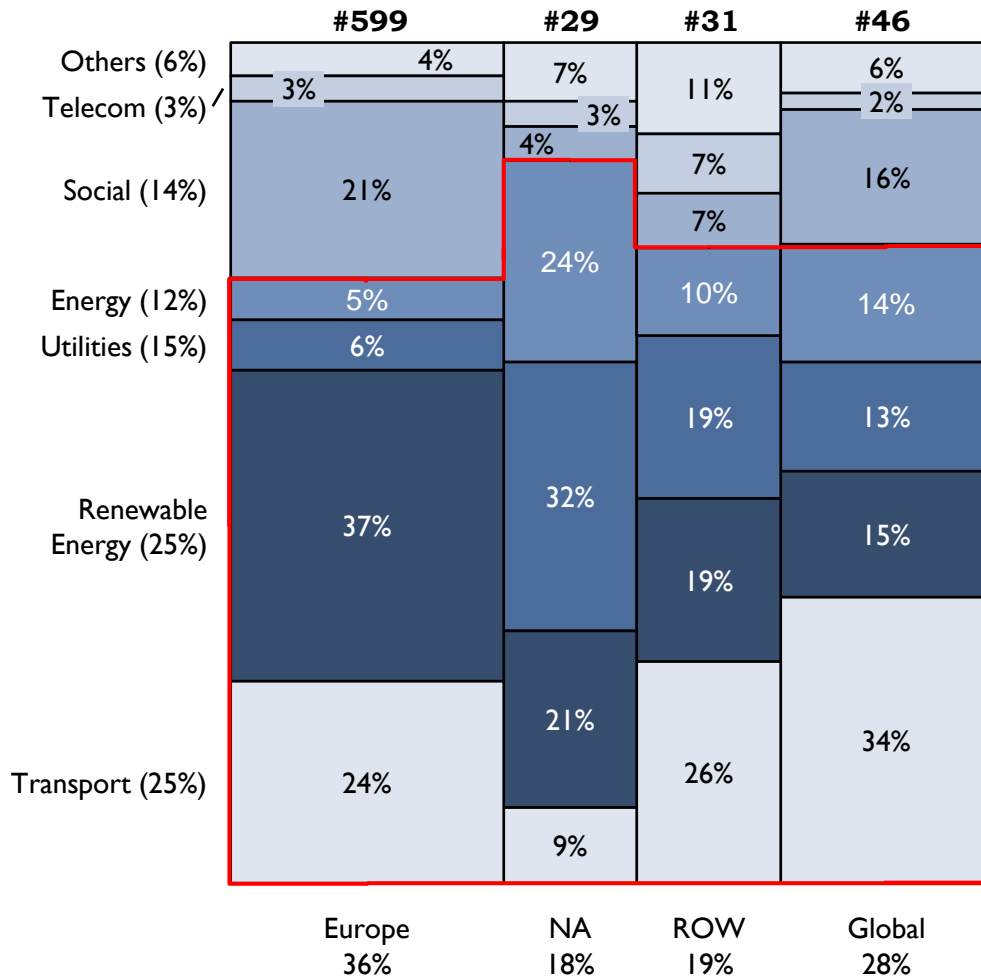
Key Drivers		Assessment	Rationale
Government Side	Constrained government budget		<ul style="list-style-type: none"> <li>Most developed market governments have huge fiscal and budget deficits and are therefore seeking to use private finance as an off-balance sheet financing</li> <li>In emerging markets, governments have limited access to capital markets</li> </ul>
	Need for efficiency gains		<ul style="list-style-type: none"> <li>Various studies have demonstrated that private sector tends to be more efficient in developing, constructing and managing infrastructure assets</li> </ul>
Private sector side	Investors' desire to enhance returns		<ul style="list-style-type: none"> <li>Investors are seeking alternative asset classes to enhance their portfolio returns due to the low growth economic environment, low bond yields, and increasing inflation concerns</li> </ul>
	Investors' desire for diversification		<ul style="list-style-type: none"> <li>Investors are allocating an increasing proportion of their portfolio in real assets and other alternative assets in order to achieve diversification benefits and weather market cycles</li> </ul>

**Legend:**  Significant  Medium  Non-significant

Source: Expert interviews, GSG analysis

❖ **Transport, energy and utilities represent ~75% of the deals closed by funds**

**Infrastructure deals completed by funds**



**Sector split depends on region**

**Transport and energy are by far the largest sectors and Europe and North America represent the vast majority of deals**

**Renewable energy dominates by number of deals but tend to be skewed towards relatively small deals and therefore would not dominate to the same extent by deal volume**

**Sector split varies by region, for example**

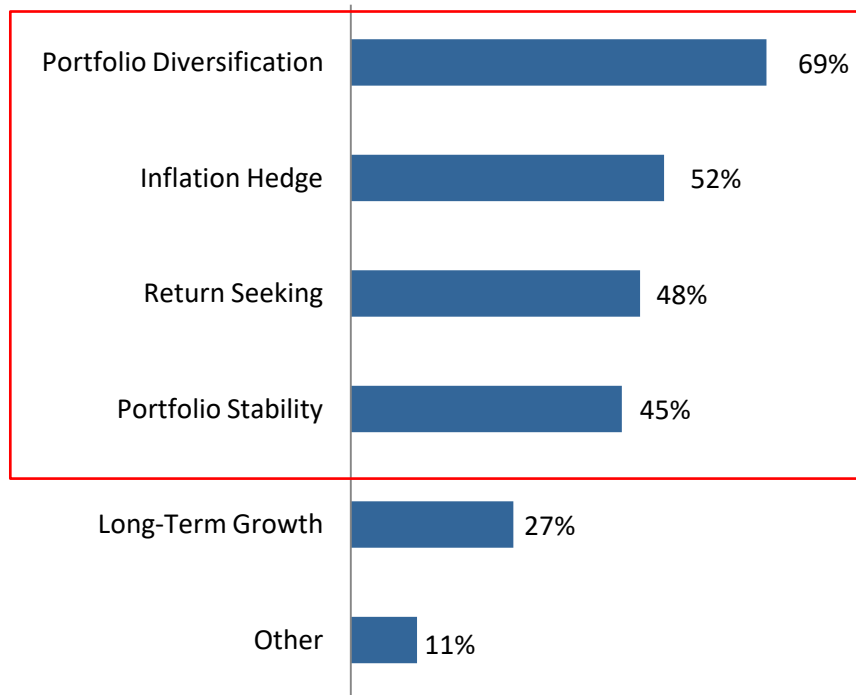
- Social infrastructure is only significant in Europe (especially in the UK)
- Transport is very limited in North America because the US States are hesitant to leverage PPPs or privatize assets

Source: Preqin, GSG analysis

## ❖ Infrastructure offers distinctive benefits and institutional investors plan to increase their allocations to this asset class

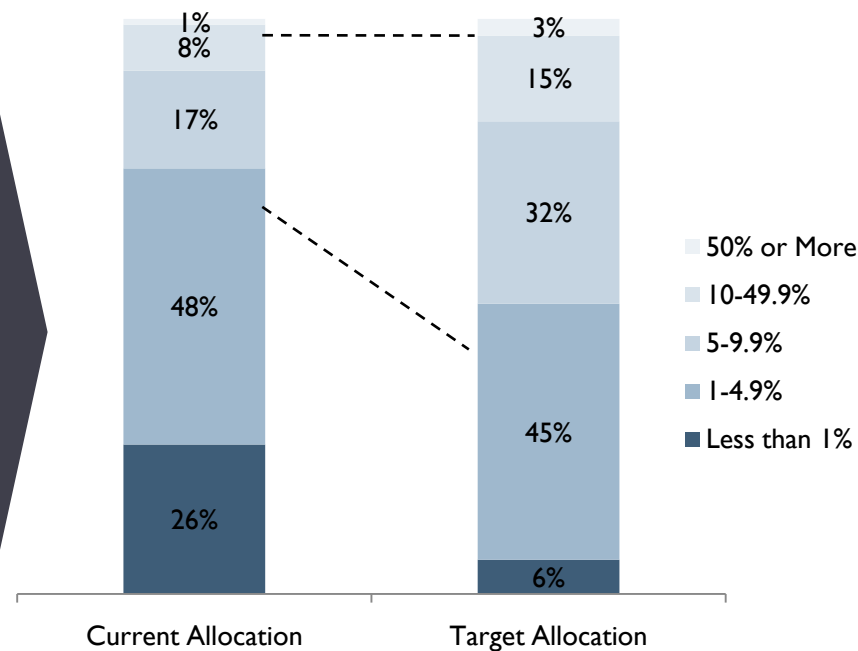
**Institutional investors believe infrastructure provides distinctive benefits...**

Investors' Reasons for Investing in Infrastructure



**...and they are planning to increase their allocations**

Current vs. Target Infrastructure Allocations



**Infrastructure's characteristics (stable, yield generating, long-term, inflation-linked assets) make it an attractive asset class for investors who focus on yield and/or inflation protection for long-term liability matching purposes**

Source: Preqin, JP Morgan, GSG Analysis, (I) Based on JP Morgan study



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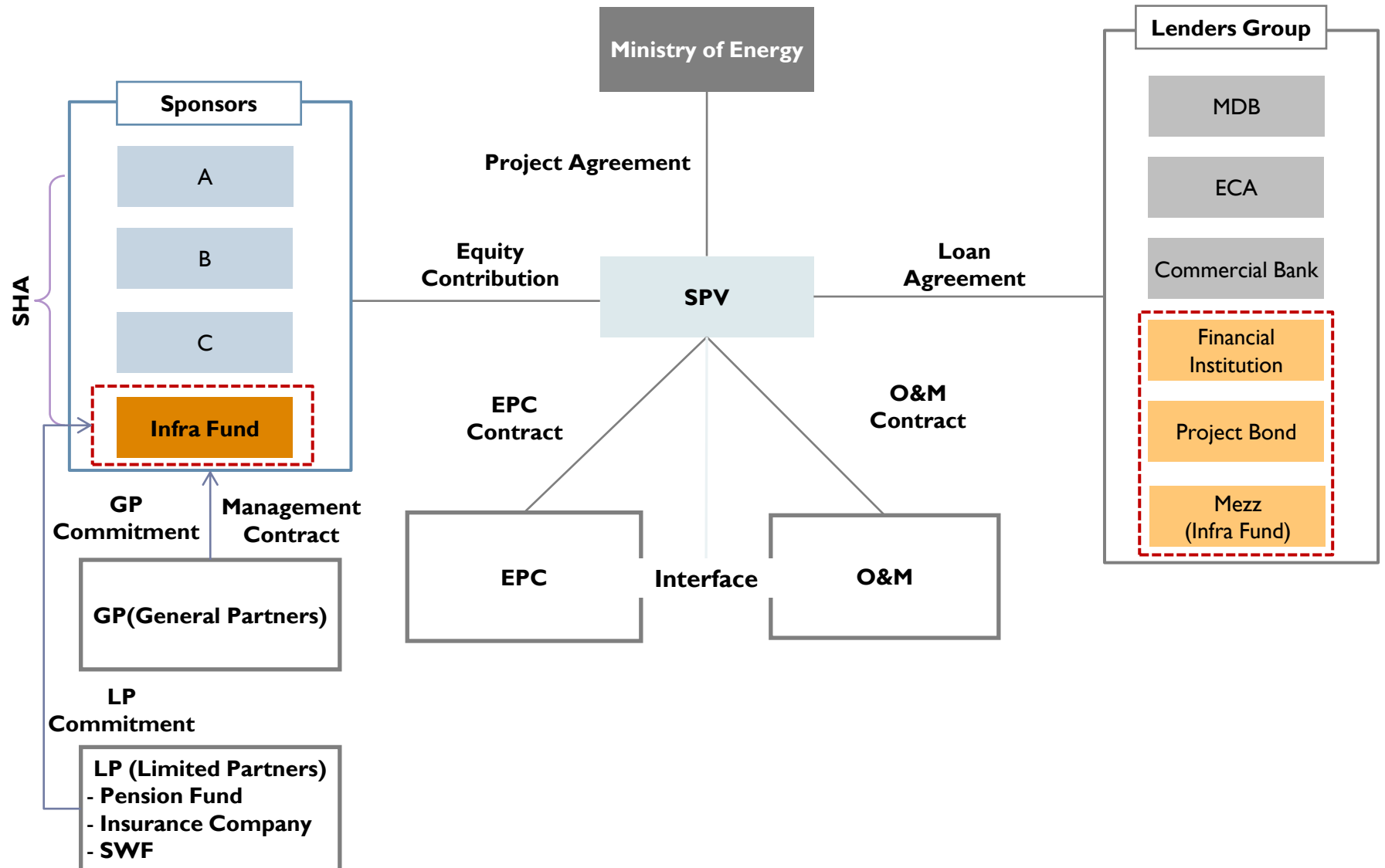
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## ❖ Investment Structure






## Features Of Infrastructure Fund

### ❖ General Partners

Firm Name	Location	AUM (US\$ million)	Geographic focus	Raising
<b>International managers</b>				
Alinda Capital Partners	US	7,097	International (focus on North America and Europe)	1st close on a US\$3,000 million target fund raising
Citi Infrastructure Investors	US	3,400	International (focus on OECD)	n/a
Global Infrastructure Partners	US	13,140	International (focus on OECD)	3rd close on a US\$5,000 million target fund raising
GS Infrastructure Investment Group	US	9,600	International (focus on North America and Europe)	n/a
InfraRed Capital Partners	UK	2,030	International (focus on OECD)	n/a
JPMorgan - Infrastructure Investments Group	US	1,639	International	n/a
Morgan Stanley Infrastructure	US	4,000	International	n/a
UBS Infrastructure Asset Management	UK	1,520	International	US\$2,000 million target fund raising for a new fund
<b>Regional and multiregional managers</b>				
AMP Capital Investors	Australia	1,179	Multiregional (Europe, Asia)	1st close on a US\$1,000 million target fund raising
Antin Infrastructure Partners	France	1,539	Europe	US\$1,000 million target fund raising announced
Arcus Infrastructure Partners	UK	3,169	Europe	n/a
AXA Private Equity	France	2,865	Europe	6th close on a US\$1,500 million target fund raising
Brookfield Asset Management	Canada	4,863	Multiregional (North America, South America)	n/a
First State Investments	Australia	1,358	Multiregional (Europe, Asia)	3rd close on a US\$1,500 million target fund raising
DIF	Netherlands	1,467	Europe	1st close on a US\$600 million target fund raising
EISER Infrastructure Partners	UK	1,901	Europe	1st close on a US\$1,000 million target fund raising
Highstar Capital	US	6,300	North America	n/a
Macquarie Infrastructure and Real Assets (MIRA)	Australia	24,048	Multiregional and International	US\$2,000 million target fund raising for a new international fund 2nd close on a US\$2,000 million target fund raising in Europe
Meridiam Infrastructure	France	2,366	Multiregional (North America and Europe)	2nd close on a US\$1,000 million target fund raising in North America
Natixis Environnement & Infrastructures	Luxembourg	1,359	Europe	US\$1,000 million target fund raising announced
RREEF Infrastructure	UK	3,691	Europe	1st close on a US\$2,500 million target fund raising
SteelRiver Infrastructure Partners	US	1,913	North America	US\$2,000 million target fund raising for a new fund

Source: GSG Analysis

## ❖ Limited Partners

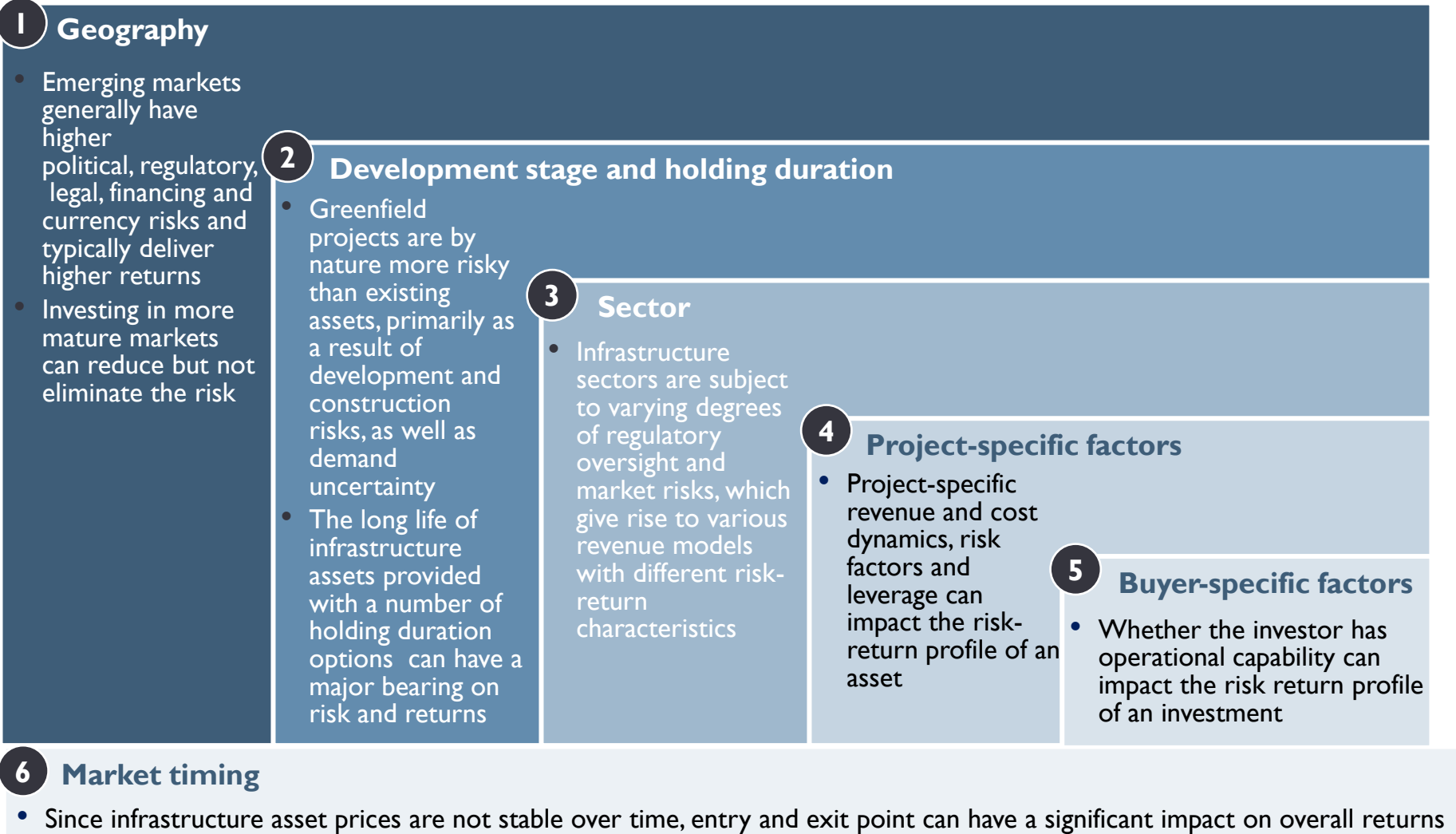
	ALM	Investment Philosophy and Goals	Absolute Returns
	<p><b>Insurers</b></p> 	<p><b>Pension Funds</b></p> 	<p><b>SWFs and Endowments</b></p> 
<b>Investment Objectives</b>	<ul style="list-style-type: none"> <li>• Liability-matching, with long durations</li> <li>• Yield pickup</li> <li>• Stable returns</li> <li>• Inflation-hedging</li> <li>• Risk averse</li> </ul>	<ul style="list-style-type: none"> <li>• Risk-adjusted return seeking</li> <li>• Inflation-hedging</li> <li>• Moderate risk appetite</li> <li>• Potentially liability-driven, but no ALM focus</li> </ul>	<ul style="list-style-type: none"> <li>• Absolute return-seeking</li> <li>• Very aggressive</li> <li>• Long to infinite time horizons</li> <li>• High flexibility</li> </ul>
<b>Investment Strategy</b>	<ul style="list-style-type: none"> <li>• Mainly safer brownfield assets in OECD countries</li> <li>• Mostly debt, but invest in safe equity as well</li> <li>• Home bias, investing mainly in countries where they have liabilities</li> </ul>	<ul style="list-style-type: none"> <li>• Mainly low to moderate risk assets in OECD countries</li> <li>• Willing to take greenfield and emerging market risk opportunistically</li> <li>• Mostly equity, or higher risk debt</li> <li>• Home bias varies</li> </ul>	<ul style="list-style-type: none"> <li>• Invest across the risk spectrum</li> <li>• Both developed and emerging markets</li> <li>• Mostly equity, higher risk debt</li> <li>• Rarely have home bias</li> </ul>

### ❖ Sample Infra Fund Terms

- An Infra Fund is seeking to raise US\$500m in global commitments to focus on essential energy infrastructure opportunities in a growing and under-invested market. This Infra Fund will target a mix of highly advanced development stage and yielding assets.

<b>Vehicle</b>	<ul style="list-style-type: none"> <li>Private equity investment fund established in Guernsey</li> </ul>
<b>Manager</b>	<ul style="list-style-type: none"> <li>An entity established in Guernsey</li> </ul>
<b>Investment Committee</b>	<ul style="list-style-type: none"> <li>Majority vote of independent members required for investment approval</li> </ul>
<b>Geographical Remit</b>	<ul style="list-style-type: none"> <li>Central &amp; Eastern Europe: active pipeline opportunities in Slovakia, Czech Republic, Poland, Croatia, Romania, Montenegro, Turkey and Georgia.</li> </ul>
<b>Sectors</b>	<ul style="list-style-type: none"> <li>Focus on core energy infrastructure</li> </ul>
<b>Investment Approach</b>	<ul style="list-style-type: none"> <li>Asset allocation spread across highly advanced development stage and yielding projects</li> <li>Partner with other top-tier international and local developers and operators</li> <li>Majority / Active significant minority positions</li> <li>Board participation and strong minority protection rights</li> </ul>
<b>Target Fund IRR</b>	<ul style="list-style-type: none"> <li>[ ]%, blended across all sectors/lifecycles (after costs, management fees, sale/exit proceeds, etc.)</li> </ul>
<b>Target Fund Size</b>	<ul style="list-style-type: none"> <li>US\$500m</li> </ul>
<b>Target Asset Ticket Size</b>	<ul style="list-style-type: none"> <li>US\$10m – US\$50m</li> </ul>
<b>Minimum Investor Commitment</b>	<ul style="list-style-type: none"> <li>US\$10m</li> </ul>
<b>Fund Life</b>	<ul style="list-style-type: none"> <li>10 years with an optional extension of 2 years; 4 years Investment Period</li> </ul>
<b>First/Final Close</b>	<ul style="list-style-type: none"> <li>Q1 2016 (US\$200m in AUM)/Q1 2017 (US\$500m in AUM)</li> </ul>
<b>Management Fees</b>	<ul style="list-style-type: none"> <li>Management Fees during Investment Period: [ ]% of committed capital</li> <li>Management Fees after Investment Period: [ ]% on invested capital</li> <li>Performance Fee: [ ]% above [ ]% hurdle rate</li> </ul>

### ❖ Infrastructure investments' risk-return profile is driven by six key factors



❖ The revenue model associated with a specific investment is a key driver of risk-return profile

	Revenue model <sup>1</sup>	Definition	Typical sectors	Pros	Cons	Indic. IRR <sup>2</sup>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Risk &amp; return</p> <p>Low</p> <p>High</p>	Availability payments (AP) concession	<ul style="list-style-type: none"> <li>The public <b>project sponsor guarantees a payment (usually inflation-linked)</b> over the life of the agreement based on project milestones or facility operating and maintenance performance standards</li> </ul>	<ul style="list-style-type: none"> <li>Roads with AP</li> <li>Social infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Public authority retains revenue risk</li> <li>Limited construction risk</li> </ul>	<ul style="list-style-type: none"> <li>Cash inflows are capped</li> </ul>	6-9%
	Contracted assets	<ul style="list-style-type: none"> <li>Long-term contracts (generally 20+ years) between generator and distributors determine <b>payment conditions, which typically depend on availability and can be indexed to inflation</b></li> </ul>	<ul style="list-style-type: none"> <li>Power generation</li> </ul>	<ul style="list-style-type: none"> <li>Fairly predictable return</li> <li>Operating upsides</li> </ul>	<ul style="list-style-type: none"> <li>Upside is capped</li> <li>Contract negotiation risk</li> </ul>	10-12%
	Regulated asset	<ul style="list-style-type: none"> <li><b>A regulator periodically determines revenue</b> based on capital and operating expenses necessary for the private entity to keep the facilities in good working conditions and make necessary investments</li> </ul>	<ul style="list-style-type: none"> <li>Utility and energy distribution</li> </ul>	<ul style="list-style-type: none"> <li>Predictable return</li> <li>Potential to increase investment</li> </ul>	<ul style="list-style-type: none"> <li>Returns depend heavily on regulator</li> </ul>	10-15%
	Assets with full demand risk	<ul style="list-style-type: none"> <li>Investor bears the risk that <b>actual end-users demand does not meet the forecast demand</b></li> <li>On these assets, there is generally <b>no minimum revenue guaranteed</b>. Instead revenues are typically directly derived from users</li> </ul>	<ul style="list-style-type: none"> <li>Unregulated airports in small hubs</li> <li>User-fee toll roads</li> </ul>	<ul style="list-style-type: none"> <li>Significant upside in a growing economy</li> </ul>	<ul style="list-style-type: none"> <li>Impact of external factors (e.g. GDP growth) on returns</li> <li>Model risk</li> </ul>	15+%

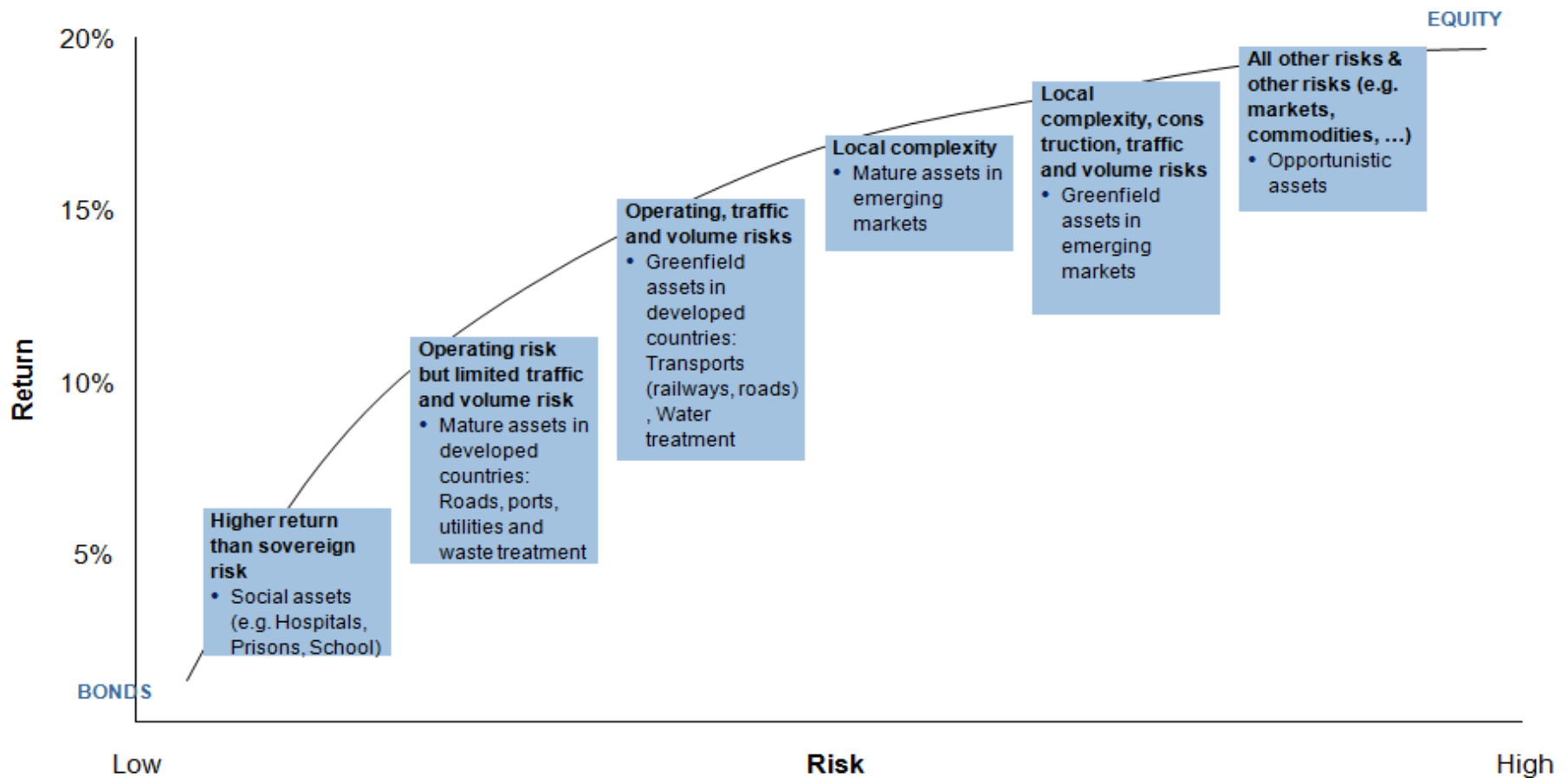
Note: 1. The revenue models described here are not exhaustive; there are a number of variations for each model;

2. Indicative IRR for brownfield assets

Source: JP Morgan asset management (Infrastructure investing, Key benefits and risks, January 2010), GSG analysis

❖ **Bringing all together: Risk-return profile for main types of infrastructure investments**

**Illustrative risk/return spectrum for different types of infrastructure investments**



Source: GSG Analysis



❖ Stage of development has critical impact on infrastructure asset’s risk-return profile

		Greenfield	Brownfield
<b>Nature of stage</b>		<ul style="list-style-type: none"> <li>Initial stages from the design to the securing of public authorizations to the construction of the project itself and its start-up phase</li> <li>Cash flows are generally negative in the short-term and positive yet relatively uncertain in the long-term</li> </ul>	<ul style="list-style-type: none"> <li>Assets already constructed and having a history of operation provide good visibility into revenue, usage rates and operating costs</li> <li>Cash flows are generally positive, stable and more predictable</li> </ul>
<b>Risks</b>	<b>Development</b>	<p><b>High</b></p> <ul style="list-style-type: none"> <li>Significant design, technological and environmental risks</li> <li>Higher construction cost than forecast risk</li> <li>Significant, especially for develop and hold strategy</li> <li>N.A.</li> </ul>	<p><b>Low to moderate</b></p> <ul style="list-style-type: none"> <li>Very limited or non-existent</li> <li>Very limited or non-existent</li> <li>Traffic and rate risks vary depending on revenue model</li> <li>Output volume, operational efficiency and maintenance risks</li> </ul>
	<b>Construction</b>		
	<b>Demand</b>		
	<b>Operational / performance</b>		
<b>Indicative returns (IRR)</b>		<p><b>10%-15%</b></p> <p>Skewed towards capital gains</p>	<p><b>6%-12%</b></p> <p>Skewed towards cash yield</p>




Source: GSG Analysis

### ❖ Infrastructure investments outside OECD are generally more risky due to legal and regulatory uncertainty and greater difficulty in forecasting demand

		OECD/developed markets	Emerging markets
<b>Nature of market</b>		<ul style="list-style-type: none"> <li>Mainly brownfield opportunities through ownership transfers</li> <li>Needs largely related to the maintenance, improvement and expansion of asset returns                             <ul style="list-style-type: none"> <li>- Refinancing</li> <li>- Operational efficiency</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Opportunities skewed towards greenfield projects as infrastructure assets are yet to be built</li> <li>Fragmented ownership of assets offering consolidation opportunities</li> <li>Access to debt financing can be a major challenge</li> </ul>
<b>Risks</b>	<b>Legal, regulatory &amp; political</b>	<b>Low to moderate</b>	<b>Medium to high</b>
	<b>Demand</b>		
	<b>Currency</b>		
<b>Indicative returns (IRR)</b>		<b>Emerging markets typically deliver a risk premium of 5+%</b>	

Source: GSG Analysis

❖ **Senior debt is the largest and safest debt segment whereas mezzanine offers an intermediate risk/return profile between equity and senior debt**

	<u>Claim to cash flow</u>	<u>Priority in default</u>	<u>Tenor</u>	<u>Upside participation</u>	<u>Return drivers</u>	<u>Achievable return</u>
<b>Equity</b>	Residual claim to cash flow after all other capital holders have been paid	Last	Contract or concession duration; potentially infinite if going concern		Capital gain and cash yield	Wide range (please refer to the previous section)
<b>Mezzanine</b>	Mezzanine is a hybrid instrument between equity and debt; Claim to cash flow can be either senior debt like or more equity like depending on the existence of an equity kicker	Second	Short-to medium (e.g. 5-10yrs)	 <i>Depending on existence of equity kicker</i>	Mainly cash yield – potentially capital gains in case of equity kicker	High yield (typically 400 to 800bps over LIBOR!) Significant IRR achievable in case of equity kicker
<b>Senior debt</b>	First ranking claim over cash flows; Additionally, senior loans are secured by assets	First	Generally very long (e.g. 10-30 years)		Pure cash yield	Moderate yield (typically 200 to 400 bps over LIBOR!)

Source: GSG Analysis

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### ❖ Key questions on Co-Investment with Infrastructure Funds

#### Key questions

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What are the Pros and Cons on Co-Investment with Infrastructure Funds?

Can the Infrastructure Fund bear sponsor's obligations?

In which stage can the Infrastructure Fund be involved in the project?

Can the Infrastructure Fund be covered by ECA?

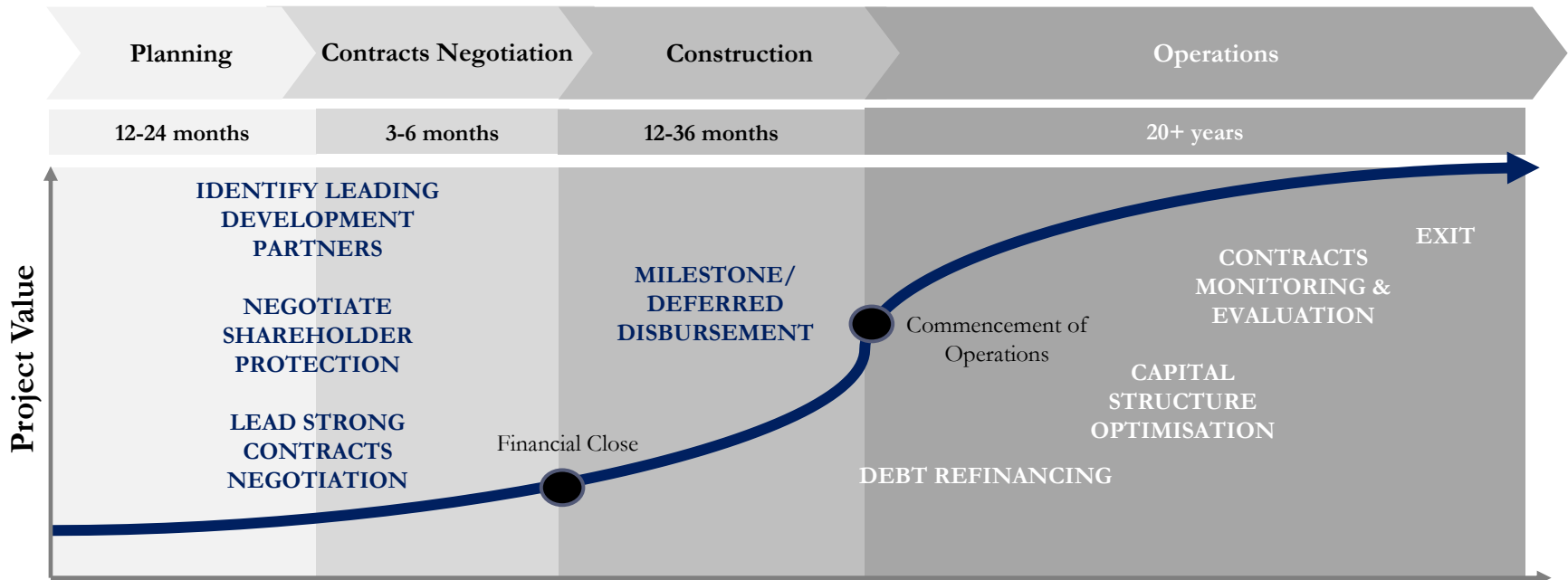
Can the Infrastructure Fund make equity contributions over 50% of total equity?

How can cash yield be generated during the construction period?

How can the political risk be hedged when investing in emerging markets?

### ❖ Why Infrastructure Fund ?

#### Investment Management Across The Infrastructure Project Lifecycle



#### Reduction Of Capital

- Co-Investment with an Infrastructure Fund would reduce the capital amount from Strategic Investors

#### Bankability Check

- Before financial close, the Infrastructure Fund will review all related documents to make it bankable

#### Enhancement Of Financial Strength

- Mezzanine Financing boost up the Sponsor's IRR
- Long-term Fixed Senior Loan from Financial Institutions (e.g., Coal Fired Power Plant)

#### Exit Plan

- Infrastructure Fund can take the stakes of Strategic Investors after the Financial Completion

❖ **Issues on Greenfield Co-Investments with Strategic Investors**

<b>Factor</b>		<b>Description</b>
<b>Sponsor Obligations</b>	<b>Completion Guarantee</b>	<p><b>Cost Overrun can be taken by the Infrastructure Fund</b></p> <ul style="list-style-type: none"> <li>• The Cost Overrun should be within the fund's Target IRR</li> <li>• The Cost Overrun amount to 2~5% of EPC price decreasing Equity IRR 0.2~0.5%</li> </ul>
	<b>Performance Guarantee to Off-taker</b>	<p><b>Construction Period</b></p> <ul style="list-style-type: none"> <li>• Pass-through to EPC provider</li> </ul> <p><b>Operation Period</b></p> <ul style="list-style-type: none"> <li>• Pass-through to O&amp;M provider</li> </ul>
	<b>DSRA Guarantee to Lenders</b>	<b>Reserve from Project Cashflow</b>
<b>No Cash-yield during Construction Period</b>		<b>Blended Investment with Senior Loan Overfunding</b>
<b>SHA with Other Sponsors</b>		<b>Board Member, Tag Along, Drag Along, Termination Payment Ranking</b>
<b>Ranking Issues when there is PRI Coverage</b>		<b>In the event an insurance company (MIGA, private insurer) provides political risk insurance, there can be ranking issues with senior lenders</b>

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## ❖ Tafila Wild Farm

### Investment Background & Highlights

The Tafila Wind Farm is a 117MW wind farm in Jordan, the first project of its kind to be developed under the Government of Jordan's ("GoJ") 1200MW renewable energy initiative and the largest onshore wind farm in the Middle East.

- InfraMed Infrastructure Fund invested 50% via the project SPV, Jordan Wind Project Company.
- Only blue-chip contractors applied to the EIB tender process for EPC and O&M, with Vestas being awarded the final contracts, ensuring cost competitiveness and optimised operational margins.
- Offtake risk limited via a 20-year Power Purchase Agreement with the GoJ.
- High levels of operational efficiency derived from the exceptional wind site potential, one of the best in the region with high capacity factors.
- The project received a high level of recognition due to its strong attributes and achieving a number of industry firsts. It was awarded **Middle Eastern Renewables Deal of the Year** by Infrastructure Journal.
- Jordan currently imports around 96% of its total energy needs, accounting for over 20% of its GDP. Representing 8% of Jordan's envisioned total installed capacity in renewable energy, the project directly addresses the country's looming power deficit and dependence on imported energy. The cost of power delivered by the project is expected to be significantly lower than the current electricity prices in the country.



<b>Status:</b>	Operational	<b>Financial Close</b>	Q4 2013
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<b>Sector:</b>	Renewables	<b>Project Cost:</b>	US\$300m
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**Contractors & Consultants:**



**Key Lenders:**

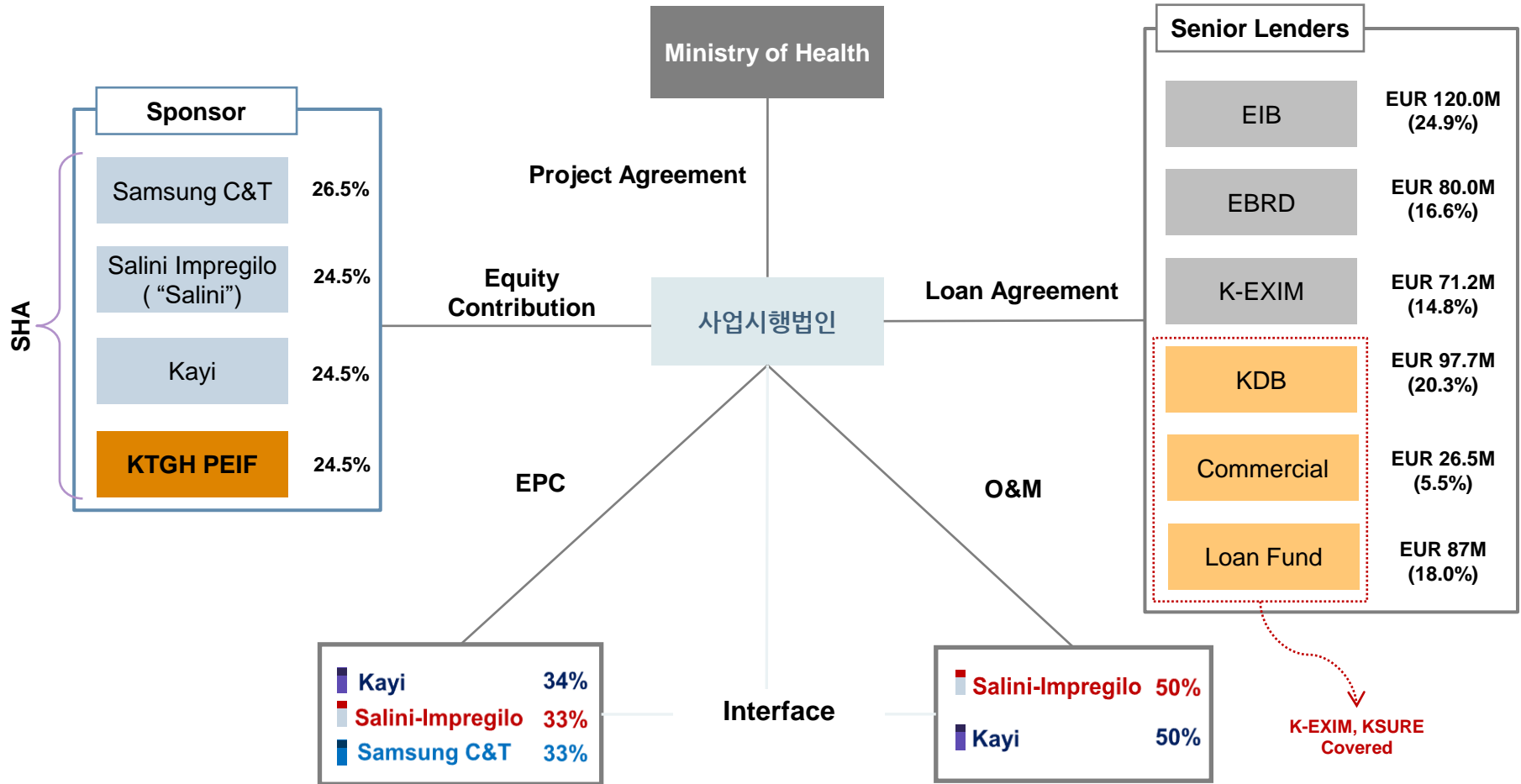


- The project achieved its commercial operations date in September 2015, as scheduled.

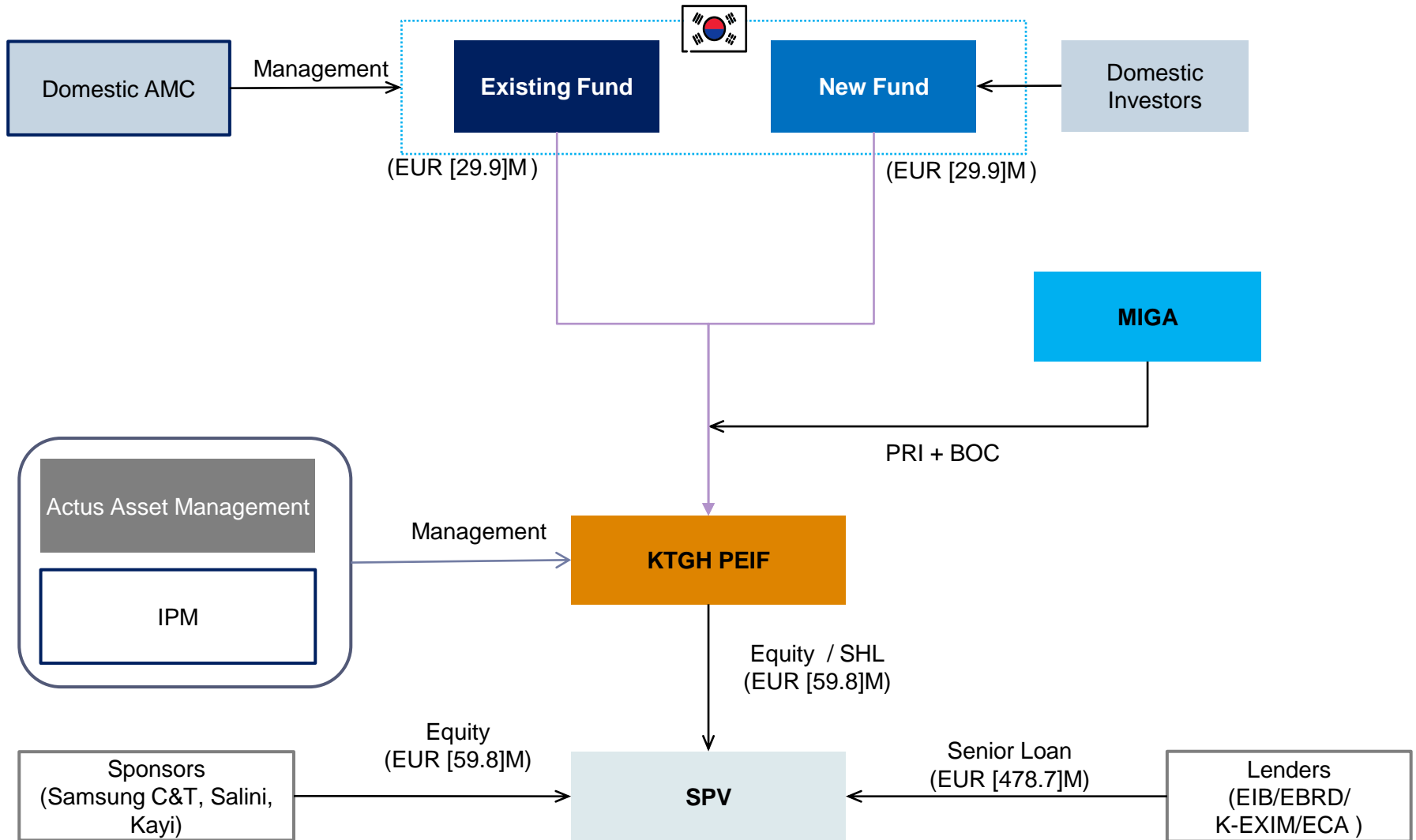
### Infrafund Value-Added

<b>Early involvement and development support</b>	Investors benefited from a first-mover advantage as a co-developer in the project alongside the initial sponsor. The investors will participate in early upside and put limited development capital at risk through the structuring of development milestones.
<b>EPC structuring and project financing experience</b>	The investment team played a key role in structuring the EPC, and negotiating the financing package with the IFC-led senior debt and EKF ECA cover, resulting in the most optimal milestone payment structure and leveraged returns to equity.
<b>Ability to work with government entities</b>	The project relies heavily on the GoJ and its affiliates' support for the offtake of its electricity output. The investment team, working with the IFC and EIB, helped to mitigate this risk by negotiating the power purchase and interconnection agreements with the GoJ and bringing these documents in line with market standards. Moreover, the strategic dimension of the project for Jordan's energy security gives greater comfort that the GoJ will honour its off-take obligations.

## ❖ Turkey Gaziantep Hospital PPP



## ❖ Turkey Gaziantep Hospital PPP



# Thank You

## Key Contacts

jurae.kang@ipmkor.com / +82-2-6671-0507 / +82-10-4306-9110

richard.park@ipmkor.com / +82-2-6671-0502 / +82-10-4224-6270

sebin.lim@ipmkor.com / +82-2-6671-0504 / +82-10-5235-2535

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