

# What is infrastructure?

- **Physical structures and networks used to provide essential services to a society**
- **Tangible assets and the businesses set up to manage them can be viewed as the backbone of the economy**
- **Historically, governments provided infrastructure**
- **Broadly speaking infrastructure falls into two categories - economic infrastructure and social infrastructure**

- Infrastructure is the basis for economic growth
- Supports many aspects of a country's economic and social activities and is crucial for business development
- Funding gap is world-wide and funding problems are the most significant hurdle to progress
- Significant institutional constraints ranging from issues of sovereignty and security to legislative and regulatory barriers and politics
- Progress cannot be achieved with only government funding - requires private capital from home and abroad
- Increasing global competition for funds, particularly from China and India

Economic infrastructure consists of assets and services that have weak positive externalities<sup>1</sup>, such as transport, utilities and communications – private agents can easily provide these goods efficiently

Social infrastructure consists of assets and services with strong positive externalities that for political reasons are provided either as a free or subsidized good

---

## Economic Infrastructure

## Social Infrastructure

Transportation

Energy & Utilities

Communications

Healthcare facilities

Toll roads

Gas - storage and distribution

Cable networks

Education facilities

Bridges

Electricity – generation and distribution

Satellite systems

Social housing

Tunnels

Water – treatment and distribution

Sea ports

Airports

Rail

Ferries

Judicial and correctional facilities

---

Source: RREEF Infrastructure

1. An externality is an effect that occurs to third parties not directly involved in a transaction. In the market, a positive externality leads to too little investment in this activity as private contracts would not cover this positive externality **3**

- Positive externality – benefit accrues to someone outside of the production or consumption of a good
- Social marginal benefit from consumption of a good or service exceeds the private marginal benefit
- Examples include education, health care, affordable housing, arts/culture
- Positive externalities lead to under consumption since the free market fails to account for the social benefits
- Social benefits  $>$  private marginal benefits
- Leads to under investment in these goods and services

## International Infrastructure Quality

1. Switzerland
2. Hong Kong
3. France
4. Denmark
5. Singapore
6. Japan
7. Netherlands
8. Sweden
9. Finland
10. Belgium
11. U.S.
12. **Canada**
13. U.K.
14. Australia

60. China
62. India

## Global Competitiveness

1. Switzerland
2. Finland
3. Sweden
4. Denmark
5. Singapore
6. U.S.
7. Japan
8. Germany
9. Netherlands
10. U.K
11. Hong Kong
12. Norway
13. **Canada**
14. France

43. India
54. China

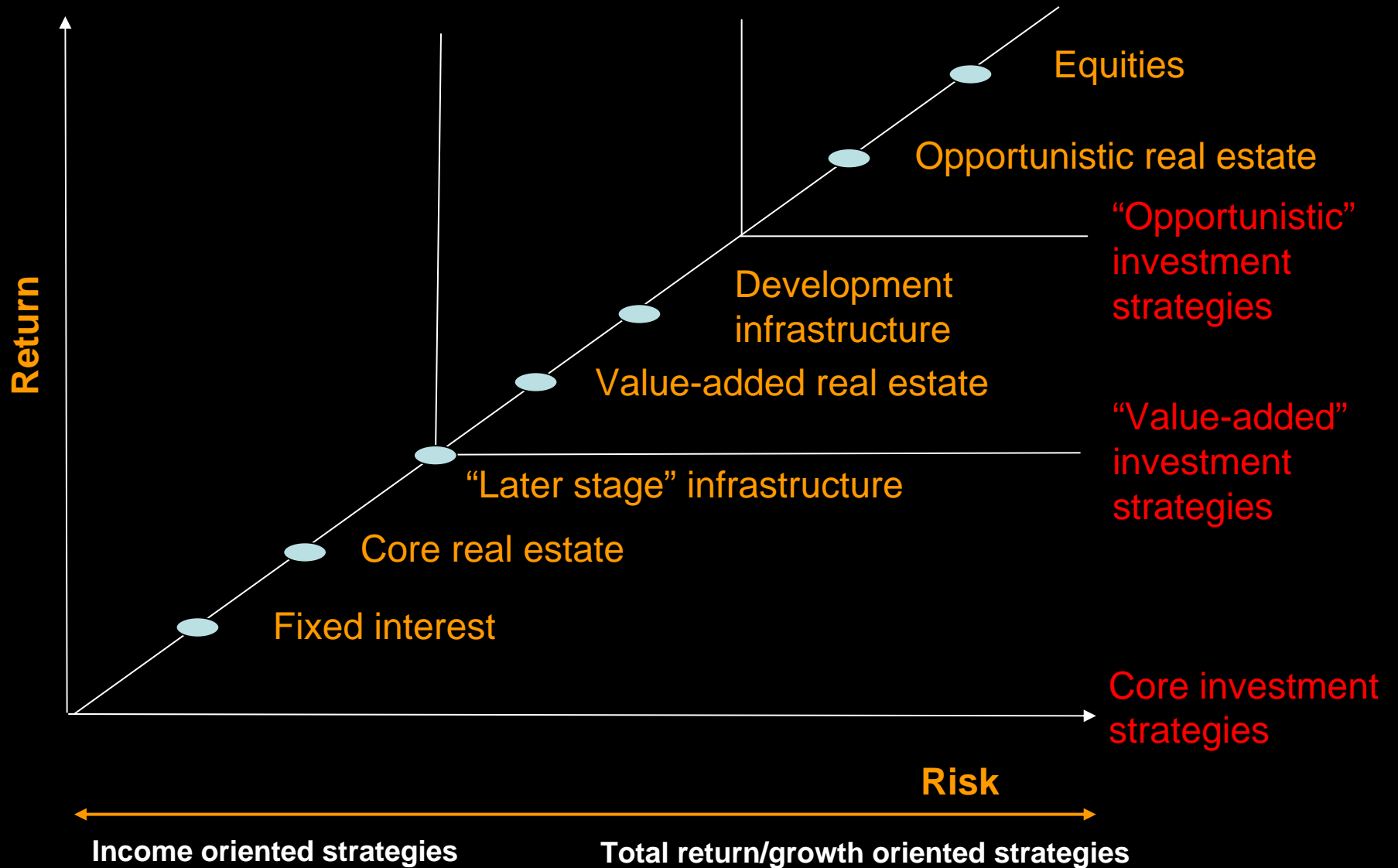
## Leading Global Infrastructure Companies/Funds: August 2006

Company/Fund	Sector	Country	Market Cap \$B
Vinci	Toll roads	France	22.6
Abertis Infraestructuras	Toll roads	Spain	8.3
Autostrada	Toll roads	Italy	6.9
Macquarie Infrastructure Group	Toll roads	Australia	6.1
Crown Castle International	Communications	USA	4.9
Grupo Ferrovía	Toll roads	Spain	4.5
Transurban	Toll roads	Australia	4.3
American Tower	Communications	USA	3.8
Brisa-Auto Estradas de Portugal	Toll roads	Portugal	3.6
Fraport	Airports	Germany	3.3
Macquarie Airports	Airports	Australia	3.2
SBA Communications	Communications	USA	2.7
Societe Des Autoroutes Paris-Rhone	Toll roads	France	2.5

# Is infrastructure real estate?

- The consensus industry view is that, while they have some similar investment characteristics and infrastructure is real estate related, they have significant differences and hence infrastructure should be treated as a separate asset class with a separate allocation in a portfolio<sup>1</sup>
- Similarities include predictable cash flows, high yields, strong competition for quality assets, limited liquidity, and valuation-based performance
- Differences are significant and include different structures and investment packaging, ownership versus right to operate, and the larger scale.
- Infrastructure and real estate expected to behave differently bringing diversification benefits to a mixed-asset portfolio
- Re-rating of the infrastructure sector by institutional investor globally will be the catalyst for future growth in infrastructure investment in both developed and developing countries
- Will attract significant pension fund investment as a separate asset class (over \$16 trillion in pension funds globally in search of alternative investment opportunities)
- 1. Graeme Newell and Hsu Wen Peng, 2008

# Risk Return Context for Infrastructure and Real Estate



Source: RREEF 2005