Case Study # 2
Investing in Infrastructure

IFSWF Subcommittee II: Investment & Risk Management
Presented by the New Zealand Superannuation Fund

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Outline

• Context for infrastructure investment
• Landscape of infrastructure investment
• A possible SWF method
  – Analysis of sources of return
  – Risk analysis
  – Empirical assessments
  – Accessing investments
• Special topics
  – Working with government
  – Bids and tenders
• Appendix
  – NZSF infrastructure holdings
  – WEF infrastructure blueprint
The Context
Why we invest in infrastructure

- Infrastructure increasingly recognised as a distinct asset class, with definitive and risk and return characteristics separable from other assets
  - Stable, inflation-linked cashflows
  - Cashflows defined by essential nature of service, limited competition, long-lived assets
  - Low market exposure (equity beta)
  - Moderate to high interest rate sensitivity (fixed interest beta)

- Natural sellers
  - Fiscally-constrained governments with attractive assets or ambitious growth agendas that require these assets

- Natural buyers
  - Long-horizon pension funds and SWFs

- Natural (often, but not always) monopolies
  - High barriers to entry
  - Long-term contracts
  - Regulated pricing, delivery standards, etc.
  - Stable demand base that is relatively insensitive to price and income
The landscape
Infrastructure assets suited to SWFs and the long-term investor

<table>
<thead>
<tr>
<th>Utilities</th>
<th>Transport</th>
<th>Social</th>
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</thead>
<tbody>
<tr>
<td>Power</td>
<td>Roads</td>
<td>Health</td>
</tr>
<tr>
<td>Water</td>
<td>Airports</td>
<td>Law and order</td>
</tr>
<tr>
<td>Gas</td>
<td>Rail</td>
<td>Education</td>
</tr>
<tr>
<td>Communications</td>
<td>Ports</td>
<td>Community facilities</td>
</tr>
<tr>
<td>Transmission &amp; Distribution</td>
<td>Logistics</td>
<td></td>
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</tbody>
</table>

- The classification of an asset as ‘infrastructure’ is best determined by market structure, the nature of the business and resulting cashflows rather than the sector in which it operates.
  - For example, airport revenues should be substantially aeronautical (regulated or not); if they are non-aeronautical, analysis should take a real estate/commercial property lens.
  - Alternatively, for utilities, the majority of revenue and EBITDA should come from regulated or take-or-pay contracts, with minimal potential for competitive market deregulation in the future.
Sources of return
And implications for a long-term investment strategy

1. Market inefficiencies
   a) Listed index alternatives poorly representative of desired infra characteristics, i.e. benchmark inefficiency → prefer active, concentrated, strategy
   b) Immature asset class; few specialist managers; small allocations (if any); variation in institutional owner capacity → prefer active, concentrated, strategy
   c) Opportunistic deals available → prefer strategic stakes; peer partnerships
   d) Insufficient differentiation of various sub-types of infrastructure → prefer highly experienced managers and a concentrated strategy
   e) Mismatched demand and supply motivations for infra assets → be the marginal purchaser of greenfield, higher-risk, and ‘partnership’ assets; deploy sovereign advantage
   f) Mispricing: low-risk assets with lower ‘headline’ returns not favoured → prefer core assets
   g) Infra offers a large matrix of risk characteristics, all often borne by the same party (i.e. government) → prefer public partnerships, strategic stakes, non-competitive processes

2. Diversification
   a) Infrastructure assets provide inflation protection (from contracts, pricing power, or CPI-linked pricing) → prefer inflation-proof assets
   b) Infrastructure not in policy portfolio → prefer assets that are least equity-like
Sources of risk
And implications for SWF strategy

- **Standard portfolio risks**: duration and illiquidity, agency risks.
- **Acquisition risks** – transition management, overstaffing and unionised labour.
- **Demand or patronage risks** – Toll roads and airports vulnerable to economic cycle through reduced patronage. A long term investor should be comfortable holding an established asset through a cycle; structural changes in patronage have altogether different effects.
- **Regulatory and political risks** – Infrastructure assets usually regulated by governments. Pricing and competition changes also change underlying investment assumptions. Applicable in both EMs and DMs.
- **Refinancing risk** – Stable cash flows make infra suited to supporting higher leverage. Over-levered assets extremely vulnerable to credit market gyrations → focus on unlevered returns.
- **Illiquidity risk** – A relatively new asset class for the institutional investor; most investments held by primary purchaser; limited data on exits.
- **Greenfield risks**. Development, construction , ramp-up, and forecasting risk.
- **ESG risks** (next slide)
Investing responsibly

Of special relevance for SWF investment in infrastructure

- Infrastructure is different from other assets (for ESG purposes) because:
  - Large asset footprint implying significant impact on local community
  - Provision of essential service → reputational loss from failure to provide
  - Extra scrutiny of owners and managers from public and regulators in a monopoly environment

- **Environmental risks**
  - Ecosystem impact from asset footprint (including noise, traffic)
  - Climate change impact and resilience to severe weather
  - Waste, pollution, recycling; impact of spills, accidents and equipment failure

- **Social risks**
  - Safety of labour and end-users; managing relationships with labour (and unions)
  - Land management

- **Governance risks**
  - Bribery and corruption
  - Management incentives for long-term returns; alignment of owners, managers, government
  - Accountability, transparency and accounting compliance
  - Regulatory overlay
Managing communications
Associated with investing responsibility, and delivering essential service

• Private participation in infrastructure finance, construction and service delivery remains novel in many jurisdictions
• The concept of ‘pay for use’ may be received with suspicion, especially if service delivery does not match perceived value for money.
• For brownfield assets especially, it is difficult to imagine paying for use of infrastructure which has been previously free
• These issues make proper communications on the roles of all parties, the risks borne by each, change management, etc. essential.
• Again, there is little substitute for transparency, proper governance, and regulatory clarity.
Analysing infrastructure

- Empirical analysis difficult given few listed indices, poor benchmark representation, only one (and perhaps two) market cycles in available data, → estimates are likely to be imprecise
- High frequency data is less useful as we can only answer if high frequency returns are correlated with market factors. Infrastructure investments are long-term holdings.

**NZSF analysis**
- We estimate unlevered infra asset betas to be around 0.35
- Weak evidence that market beta has increased over time
- See evidence for a size (-ve) and value (+ve) bias
- Inflation and duration not significant
  - would only expect this in very long time series data
  - stronger results when universe narrowed to core infrastructure
- Lower volatility observed in infrastructure c.f. global equities

### 9. Illustrative asset risk assessment

<table>
<thead>
<tr>
<th>Asset type</th>
<th>Relative risk</th>
<th>Unlevered asset β</th>
<th>Potential for operational improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity market</td>
<td>High</td>
<td>0.7</td>
<td>..</td>
</tr>
<tr>
<td>Social PPPs, PFI concessions</td>
<td>Low</td>
<td>0.2</td>
<td>Very limited</td>
</tr>
<tr>
<td>Toll road</td>
<td>Low</td>
<td>0.2</td>
<td>Very limited</td>
</tr>
<tr>
<td>Water plant</td>
<td>Low-Medium</td>
<td>0.3</td>
<td>Limited</td>
</tr>
<tr>
<td>Airport - single till</td>
<td>Low-Medium</td>
<td>0.3</td>
<td>Limited</td>
</tr>
<tr>
<td>Regulated assets</td>
<td>Low-Medium</td>
<td>0.3</td>
<td>Limited</td>
</tr>
<tr>
<td>Power - with take or pay contract</td>
<td>Low-Medium</td>
<td>0.3</td>
<td>Limited</td>
</tr>
<tr>
<td>Pipelines</td>
<td>Low-Medium</td>
<td>0.3</td>
<td>Limited</td>
</tr>
<tr>
<td>Airport - dual till</td>
<td>Medium</td>
<td>0.5</td>
<td>Yes</td>
</tr>
<tr>
<td>Rail</td>
<td>Medium</td>
<td>0.5</td>
<td>Yes</td>
</tr>
<tr>
<td>Ports</td>
<td>Medium</td>
<td>0.5</td>
<td>Yes</td>
</tr>
<tr>
<td>Communications networks</td>
<td>Medium-High</td>
<td>0.6</td>
<td>Yes</td>
</tr>
<tr>
<td>Power - merchant plant</td>
<td>High</td>
<td>0.7</td>
<td>Yes</td>
</tr>
<tr>
<td>Telecom provider</td>
<td>High</td>
<td>0.7</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>Medium</td>
<td><strong>0.3 - 0.4</strong></td>
<td>Modest</td>
</tr>
</tbody>
</table>

Source: NZSF
Accessing infrastructure

• **Passive listed equity exposure**
  – Few listed, liquid, infrastructure assets and uncompetitive management fees

• **Active listed infra funds**
  – Expensive, unproven, idiosyncratic definitions and targeting of ‘infrastructure’

• **Unlisted infra funds**
  – Mostly focused on brownfield infrastructure in the major OECD economies; close-ended, ten-year PE-style governance and fee structures
  – Fund horizon mismatch with asset horizon; focus on medium-term exit rather than long-term value; assets must be sold to earn performance fees; incentives to increase leverage to increase performance fees; poor governance
    • Open-ended funds do not solve the problem; governance issues can be worse
    • Cash-yield funds blunt incentive to transact at right time and to invest in maintenance

• **ETFs**
  – Limited availability; can be expensive relative to equity ETFs

• **Segregated accounts**
  – Better alignment, more intensive relationship management

• **Direct investing**
  – Intensive staff capacity and capability required, but best alignment
Working with government: funding decision cycle

1. Identify infrastructure and other capital needs
2. Understand balance sheet implications of funding choices
3. Develop decision framework
4. Develop a pipeline of opportunities
5. Develop investor ready information packs
6. Develop tender process
7. Go to market

Source: NZIER
Working with government

• Traditional infrastructure finance through government’s own balance sheet. New understanding that governments do not necessarily need to build, own, operate; all that’s relevant is service provision.

• Outright purchase of strategic assets by foreign SWFs has proved problematic
  – Santiago principles are best counter-argument
  – Transparency and accountability
  – Strong governance and commercial decisions
  – Repeated games and mutual trust

• New funding models – e.g. PPPs – can have their own problems.
  – Inappropriate/unsustainable risk and cost sharing
  – Viability finance

• Governments increasingly taking non-financial considerations must be taken into account: economic and social and environmental costs and benefits inform the whole-of-life assessment

• These non-financial considerations can include: standing of investor/buyer, quality of product, health and safety practices, training and development opportunities
Non-competitive processes for long-term investors

- Contested tenders work best in competitive markets. Characterised by homogeneity of goods/assets, and complete and symmetric information.

- Competitive process can result in investors shading down their expectations (lower confidence) and requiring a higher uncertainty (as opposed to risk) premium.
  - For example, if the infrastructure asset is homogenous and non-rival (e.g. mobile phone spectrum) then the uncertainty risk premium able to be achieved is narrow.

- One solution for governments therefore to offer more and better quality information.

- A non-competitive tender creates more opportunities for vendor and investor to reveal information to mutual benefit

- There is also more incentive for both participants to reveal information if there is a long-term strategic partnership. Repeated game scenario offers very different cumulative incentives relative to a one-off game.
  - Meaningful fee savings on due diligence
  - Stronger alignment of interests
  - Efficient processing of strategic and tactical opportunities
  - Broader diversification from considering a menu of current and future opportunities
  - Extensive interaction with senior decision makers – training and development etc
NZSF infrastructure portfolio

- NZ$1.05bn (3.5% of the Fund) currently invested in infrastructure
- Largest individual exposures to Z Energy ($410m, domestic petroleum retail) and ConnectEast ($234m, Australian toll roads)
- Geographically, largest exposures in Australia and New Zealand.
- Other exposures:
  - Listed airports ~$200m
  - Listed energy positions ~$70m
  - Balance as Fund exposures
- Combination of access points used
  - Investment Management Agreements (segregated accounts) primary method
  - Traditional Fund (GP / LP relationships)
  - Some direct stakes
- Challenges going forward are:
  - Have we got too much (or too little)
  - Have we got the right mix of investments
  - How do we access as effectively as possible
## The Infrastructure Blueprint

<table>
<thead>
<tr>
<th>Jurisdictions that exhibit particularly attractive to SWFs…</th>
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</thead>
<tbody>
<tr>
<td><strong>A.1 Integrated infrastructure pipeline</strong></td>
</tr>
<tr>
<td>• Long-term vision with matching and pre-defined pipeline of projects → better project prioritisation by vendor; higher quality bids from investors → long-term multi-project repeated games, founded on trust and mutual benefit, better alignment of interest</td>
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<tr>
<td>• Regular project stream encourages investors to build local expertise &amp; capacity; provides scale economies on diligence</td>
</tr>
<tr>
<td><strong>A.2 Clear and viable role for investors</strong></td>
</tr>
<tr>
<td>• Identify projects that benefit from private sector finance and are politically feasible; separate sources of risk and ensure private sector is called on to shoulder the most relevant ones for cost efficiency and project sustainability</td>
</tr>
<tr>
<td><strong>A.3 Communications strategy</strong></td>
</tr>
<tr>
<td>• Comprehensive public disclosure of costs and benefits for each project to all parties: government, investors, and public</td>
</tr>
<tr>
<td>• Explicitly separate ownership from control</td>
</tr>
<tr>
<td><strong>B.1 Limit re-negotiation risk</strong></td>
</tr>
<tr>
<td>• Are investors protected from regulatory and administrative risk? → more competitive bids</td>
</tr>
<tr>
<td><strong>B.2 Standardised procurement process</strong></td>
</tr>
<tr>
<td>• Standardise bidding, award, and documentation across projects → reduced diligence, greater investor interest</td>
</tr>
<tr>
<td><strong>B.3 Predictable project approvals process</strong></td>
</tr>
<tr>
<td>• Clear project roadmap detailing environmental &amp; other approvals; commercial agency for tenders and permitting</td>
</tr>
<tr>
<td><strong>B.4 Tax policy</strong></td>
</tr>
<tr>
<td>• Bias-free across investor base and stable over time</td>
</tr>
<tr>
<td><strong>C.1 Assess financial returns for investors</strong></td>
</tr>
<tr>
<td>• Provide consistent and market-oriented risk-return forecasts and benchmarks</td>
</tr>
<tr>
<td><strong>C.2 Risk allocation</strong></td>
</tr>
<tr>
<td>• Framework to divide and allocate all project risks between government and investors; allocation of financing and demand risk of particular importance</td>
</tr>
<tr>
<td><strong>C.3 Market sounding</strong></td>
</tr>
<tr>
<td>• Gauge interest &amp; collect feedback on past/future projects; investor preferences should be always acknowledged</td>
</tr>
</tbody>
</table>

Source: World Economic Forum