Discussion of “The Subsidy to Infrastructure as an Asset Class”

By Andonov, Kraussl, and Rauh

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I have taught a Private Equity course for 10 years with Geoff Chatas, a former GP with the JP Morgan Infrastructure Fund, a very large open end infrastructure fund.

Everything I knew about infrastructure funds prior to reading this paper is from listening to Geoff’s lectures.

I had bought into the story told by investors in the paper.
What is infrastructure?

- **Essential facilities and services, upon which the economic productivity of a community depends**
- **Assets involved in the movement of goods, people, water and energy**

<table>
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<th>Transportation Assets</th>
<th>Regulated Assets</th>
<th>Communications Assets</th>
<th>Social Infrastructure</th>
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<tr>
<td>Bridges and tunnels</td>
<td>Electricity transmission</td>
<td>Radio/TV broadcast towers</td>
<td>Schools</td>
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<td>Toll roads</td>
<td>Oil and gas pipelines</td>
<td>Wireless towers</td>
<td>Hospitals</td>
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<td>Railroads</td>
<td>Electricity and gas distribution</td>
<td>Cable systems</td>
<td>Prisons</td>
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<td>Rapid transit links</td>
<td>Water distribution</td>
<td>Satellite networks</td>
<td>Courthouses</td>
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<td>Airports, Seaports</td>
<td>Waste water collection and processing systems</td>
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New Jersey Turnpike:
An example of demand inelasticity and low volatility

- 1952 – 2002: 7% annual revenue growth
- 1952 – 2002: annual toll / revenue volatility of 7.9%
- Excluding 1991, the volatility for the 50-years was 4.8%

- Between 1981 - 2002 (ex 1991), the volatility was 3.1%
- For miles driven on the turnpike over the 50 year period, volatility was 4.0%, and ~ 3.0% for the 22 year period ending 2002

1991: 100% toll increase for commercial vehicles; 70% toll increase for passenger vehicles

Source: New Jersey Turnpike Authority
**Investment strategy – Risk/Return**

- The Fund invests across the risk-return spectrum in OECD countries, with a primary focus on core to value-added assets.

<table>
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<th>Core and Core Plus</th>
<th>Value-Added</th>
<th>Opportunistic</th>
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<td>Bridges, tunnels, toll roads</td>
<td>Airports, seaports</td>
<td>Development projects</td>
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<td>Pipelines, energy transmission and distribution</td>
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<td>Water and waste-water systems</td>
<td>Contracted power generation</td>
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<td></td>
<td>Rapid rail transit</td>
<td>Non-OECD country infrastructure</td>
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Less risk  
Less return

More risk  
More return

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1 Infrastructure investments are subject to significant risks — see the “Risks and Disclosures” Appendix.
In 2013, Ohio State University contracted with QIC Global (an Australian Infrastructure) to manage their parking assets for 50 years.

QIC paid Ohio State $483m in 2013 and receive cash flows from parking operations for 50 years.

Parking fees are allowed to increase at moderate rates that are specified in the 2013 contract.

Since 2013, efficiency seems to have been improved.
My Prior View of Infrastructure

- Invest in long-lived, relative safe assets.
- Deals almost never lose money and average 10 – 12% net of fees.
- Compared to bonds, this seems like a good deal.
My Prior was not Consistent with Paper’s findings

- Why?
- A lot has to do with the sample.
- Paper has only 29 Open End (infinite life) funds.
- Has 421 Closed End (Finite Life) Funds.
  - All return results are from these funds.
- Deals I described are long-lived deals – could not have been done by closed end fund.
Closed end funds are probably smaller than open end.
- Geoff’s fund was $5-6 billion when he ran it 10 years ago. Today is more than $10 billion.
- Paper does not give statistics on AUM of closed end funds but are probably MUCH smaller, and probably much riskier.

Example:
- Investment infrastructure often finance wind farms.
- But different funds do different stages
  - Smaller, closed end funds are more likely to develop new wind farms. – High Risk/High Return.
  - Larger, open end funds (like Geoff’s) would manage the wind farm – Low Risk/Low Return.
Equal vs. Value Weighting

- All Returns reported in paper are equally weighted.
- Closed end funds are likely smaller and riskier.
- From perspective of investors, value weighting is more appropriate. Probably they are referring to megafunds like Geoff’s when making statements like those in Appendix 1.
- Risk and Return of infrastructure funds look very much like real estate funds in Table 2.
  - Closed end infrastructure funds have PME of .951, real estate funds .963, VC .999
  - Infrastructure funds didn’t do that badly on an absolute scale – IRR is around 11%. PME is calculated relative to public markets.
Things I’m confused about

- **Exit rates:**
  - Why relevant for closed end funds when know IRR and PME?
  - For Open End funds, why relevant for deals that are intended to be held for 50 years?

- **Subsidies:**
  - Closed End Infrastructure funds underperform ex post.
  - So do Real Estate funds and VC funds.
  - Are they subsidized, or did they just underperform?
  - Since most deals are not ”home” deals, why would pension plans want to subsidize anyway?
Suggestions for Authors

- Value Weight returns and break up by closed end, open end and publicly listed.
- Present results for different types of funds.
- Table 1 has nice statistics about greenfield/brownfield/secondary deals. But these classifications aren’t discussed later on and returns aren’t broken down by type of investment.
- My prediction is that greenfield deals will have risk/return profiles like buyout funds, while secondary deals are much less risky and fit the descriptions of investors quoted in the paper.
Suggestion for Policy Makers

- Could finance “The Wall” from one of the sample firms, maybe one with Mexican investors.
- Then Mexico would “Pay for the Wall”!