Global Infrastructure Facility (GIF) Advisory Council Meeting
Washington D.C., 20 April 2017

Pension Investment in Emerging and Frontier Markets Infrastructure Assets
Foreword

The conclusions and opinions expressed here are the author’s at presentation date and do not necessarily reflect the views of the World Pensions Forum (WPiF) or the World Pensions Council (WPC) and its members.

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Some of the topics on pg. 18 ‘Domestic & South–South EMDE Investment’ (Asian ex. JP, Latin American and African pension & SWF investors), ‘North–South and Public/MDB–Pension Cooperation’ and ‘EMDE Investment as ESG/SDG Action’ (incl. role of pension board members) reflect forthcoming WPC research projects that require support from prospective grantors.
Part 1

The Quest for Yields: EMDE Infrastructure in the Broader Context of Pension Asset Allocation

I. Financial Economics Snapshots

II. How Pension CIOs View the (Investment) World

III. Look at Infra Within Alternative & Non-Listed Remit

IV. Understanding US Public Pensions (State & Local)

V. A Closer Look at Some US State Pensions
I. Financial Economics Snapshots (1)

- **Global Pension Assets (est.)**

<table>
<thead>
<tr>
<th>Est. Total PF Assets</th>
<th>2016</th>
<th>2027</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrialized Nations</td>
<td>$32.0 tr.</td>
<td>$44.3 tr.</td>
</tr>
<tr>
<td>EMDEs excl. SWFs</td>
<td>$2.5 tr.</td>
<td>$4.7 tr.</td>
</tr>
<tr>
<td></td>
<td>8%</td>
<td>11%</td>
</tr>
</tbody>
</table>

- Higher growth rate for EM PF assets \[\leftarrow\] Hyp: net $ transfer fr. govt. budget & SWFs in China, GCC etc.

- **Ann. Return for ‘Typical’ Northern Hemisphere PF Driving Quest for Yields**

Hyp: Simplified Ptf.: 60% Bonds + 40% Stocks (Listed Eq.)

- 2007-2016: ARR \approx 5.0% p.a. gross w/o counting asset management, admin & other fees
- Net return: \approx 3.0% p.a., barely > CPI Inflation… at time wn pension deficit \[\uparrow\] & demog. crisis looming
- **e.g.** The Guardian, Jan. 4 2017: “pension deficit of the UK’s largest companies more than trebled to reach £137bn in 2016, despite the stock market ending the year on a high…Bond yields fell by more than 100 basis points during 2016, increasing liabilities on companies’ balance sheets… Added to this, economists have warned that inflation is likely to rise in 2017, to around 3%.”
I. Financial Economics Snapshots (2)

- The preponderance of pension investors
  - Size of the infrastructure “asset class”: roughly $900 bn. (WPC est.)
  - Nº investors: Including AUS and NZ superannuation schemes, pension funds represents nearly 40% of institutional investors in the infrastructure asset class: private sector PF ≈ 17%, public sector PF ≈ 15%, multi-pension fund investors (PGGM, ABP/APG etc.) ≈ roughly 4% (Preqin est., Adj. by WPC)
  - AuM: Including AUS and NZ superannuation schemes, pension funds represents 30%+ of institutional investors $ in the infrastructure asset class: private sector PF ≈ 5%, public sector PF ≈ 12%, multi-pension fund investors (PGGM, ABP/APG) ≈ roughly 8% (Preqin est., Adj. by WPC)
  - Total: perhaps $300 bn. overall of “infra assets” owned by pension funds (WPC est.)
  - For large pension funds: ≈ 1/3 invested through infrastructure funds vs. ≈ 2/3 direct & co-investment
  - Midsize & small PFs access the asset class almost excl. thru infrastructure funds

- A versatile asset class, serving both sides of the balance sheet
  - Long-dated returns: good for asset-liability matching
  - Regular, ‘predictable’ returns: bond-like & (partial) hedge for inflation
  - Non-listed, physical asset: perceived as ‘more real’ than paper-money, esp. after the Lehman (US), RBS (UK), and Dexia + Fortis (Benelux) debacles
  - Diverse ESG aspects = satisfy trustees and labor organizations (and policy makers)
## I. Financial Economics Snapshots (3)

### Top Investors by Allocation to Infrastructure (USD) as of Jan 2017

<table>
<thead>
<tr>
<th>Rank</th>
<th>Firm</th>
<th>Type</th>
<th>Location</th>
<th>Alloc to Infra ($bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OMERS</td>
<td>Public Pension Fund</td>
<td>Canada</td>
<td>7.6</td>
</tr>
<tr>
<td>2</td>
<td>APG - All Pensions Group</td>
<td>Multi-Pension Fund investor</td>
<td>Netherlands</td>
<td>6.9</td>
</tr>
<tr>
<td>3</td>
<td>Ontario Teachers' Pension Plan</td>
<td>Public Pension Fund</td>
<td>Canada</td>
<td>6.8</td>
</tr>
<tr>
<td>4</td>
<td>Future Fund</td>
<td>SWF + Pension Reserve Fund</td>
<td>Australia</td>
<td>6.8</td>
</tr>
<tr>
<td>5</td>
<td>CPP Investment Board</td>
<td>Public Pension Fund</td>
<td>Canada</td>
<td>6.3</td>
</tr>
<tr>
<td>6</td>
<td>TIAA-CREF</td>
<td>Private Sector Pension Fund</td>
<td>US</td>
<td>5.6</td>
</tr>
<tr>
<td>7</td>
<td>Les Retraites Populaires</td>
<td>Multi-Pension Fund investor</td>
<td>Switzerland</td>
<td>4.1</td>
</tr>
<tr>
<td>8</td>
<td>AustralianSuper</td>
<td>Superannuation Scheme</td>
<td>Australia</td>
<td>4.0</td>
</tr>
<tr>
<td>9</td>
<td>ATP Lifelong Pension</td>
<td>Public Pension Fund</td>
<td>Denmark</td>
<td>3.5</td>
</tr>
<tr>
<td>10</td>
<td>Access Capital Advisers</td>
<td>Asset Manager</td>
<td>Australia</td>
<td>3.3</td>
</tr>
<tr>
<td>11</td>
<td>Prudential M&amp;G</td>
<td>Asset Manager</td>
<td>UK</td>
<td>3.1</td>
</tr>
<tr>
<td>12</td>
<td>QIC</td>
<td>Asset Manager</td>
<td>Australia</td>
<td>3.0</td>
</tr>
<tr>
<td>13</td>
<td>PGGM</td>
<td>Multi-Pension Fund investor</td>
<td>Netherlands</td>
<td>2.9</td>
</tr>
<tr>
<td>14</td>
<td>Public Sector Pension Investors</td>
<td>Public Pension Fund</td>
<td>Canada</td>
<td>2.1</td>
</tr>
<tr>
<td>15</td>
<td>Alberta Investment Management</td>
<td>Multi-Pension Fund investor + SWF</td>
<td>Canada</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Source: Preqin database as of December 31, 2016  
Asset owner taxonomy (“Type”) adjusted by WPC
II. How Pension CIOs View the (Investment) World (1)

- Balancing risks and returns v. carefully, holistically
  - ‘Economics’ from Gr. nemein: ‘to manage’ or ‘to allocate’ [assets]
  - Modern ‘Financial Economics’ and ‘Actuarial Science’ were developed by pension and insurance investors in FR, Scotland and Netherlands => thrift, risk-aversion: “1 dollar today better than 2 dollars tomorrow”
  - CEO, board members i.e. trustees and regulators (?) remind the CIO to stay focused/these notions
  - both sides of balance sheet: assets (usually) attached to liabilities φ ‘matching’ (tricky notion!)

- Home bias: domestic assets comfort zone... and regulatory/govt. zeal
  - Currency hedging is often expensive or impractical > eats away % returns
  - More generally, Country Risk is essential for pension investors across all asset classes ...
  - ... all more for (sovereign) bonds and infrastructure assets : ‘at the mercy’ of ‘remote’ governments
  - ‘Put yourself in PF CIO’s shoes’ ➔ percv. country attractiveness Σ political/legal risk & econ. return
II. How Pension CIOs View the (Investment) World (2)

- ‘Political/Legal Risk Assessment’ focuses on fairness and the **rule of law**
  - Key. esp. when “the government can act simultaneously as long-term landlord (as with concession contracts), co-investor and/or co-manager, sector regulator influencing both price levels and turnover, client (at municipal and local level), lawmaker and, in case of litigation, judge of last resort”

- ‘Institutional Risk’ “A measure of the independence and efficiency of state institutions. 10 = institutions are extremely efficient and totally independent. 0 = state institutions are non-existent.”

- ‘Regulatory and Policy Environment’ “A measure of the quality of the regulatory environment and how well policy is formulated/implemented. 10 = v. well-enforced regulatory environment and benevolent government policies. 0 = no regulatory environment exists.”

- **Govt. Non-Payment/Non-Repatriation** “Risk govt. policies and actions pose to financial transfers. 10 = non-existent risk of govt. interfere. 0 = v. high risk.” **Also:** Corruption, Govt. stability, access etc.

- ‘Economic Return Assessment’ focuses on LT growth and healthy public finances
  - Economic-GDP outlook, Government finances, **Monetary policy/currency stability**, Bank stability/risk, Employment/unemployment
II. How Pension CIOs View the (Investment) World


(Modified) Rail Transportation Infrastructure Index (M-RTI) (WPC data/December 2014)
III. Infrastructure Within Alternative & Non-Listed Remit

(Circle size represents size of fund.)

Source: World Pensions Council (WPC) research with US State & Local Governance Excellence (SLGE)
Part 2

Learning From ‘Best-in-Class’ Pension Investors

I. Geographic Destination: G7/OECD vs. EMDEs

II. Sectorial Preferences Guided by LT P. power and ‘Enhanceability’

III. ‘Alternative Routes’? e.g. Shr. Listed EMDE-Oriented Concessionaires

IV. Early Sowers in the Field: Canadian Pension Investors
## I. EMDE Infrastructure*: Geographic & Project Stage Trends (1)

<table>
<thead>
<tr>
<th>Year of Final Close</th>
<th>No. of Emerging &amp; Frontier Markets Focused Funds Closed</th>
<th>No. of OECD Focused Funds</th>
<th>Aggregate Capital Raised By OECD Funds ($bn)</th>
<th>Aggregate Capital Raised by Emerging &amp; Frontier Markets ($bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>10</td>
<td>24</td>
<td>27.1</td>
<td>35.7</td>
</tr>
<tr>
<td>2008</td>
<td>16</td>
<td>22</td>
<td>29.2</td>
<td>38.9</td>
</tr>
<tr>
<td>2009</td>
<td>16</td>
<td>22</td>
<td>29.2</td>
<td>38.9</td>
</tr>
<tr>
<td>2010</td>
<td>26</td>
<td>22</td>
<td>29.2</td>
<td>38.9</td>
</tr>
<tr>
<td>2011</td>
<td>33</td>
<td>33</td>
<td>33.0</td>
<td>40.0</td>
</tr>
<tr>
<td>2012</td>
<td>31</td>
<td>31</td>
<td>31.0</td>
<td>40.0</td>
</tr>
<tr>
<td>2013</td>
<td>39</td>
<td>52</td>
<td>52.0</td>
<td>52.0</td>
</tr>
<tr>
<td>2014</td>
<td>25.5</td>
<td>45</td>
<td>45.0</td>
<td>45.0</td>
</tr>
<tr>
<td>2015</td>
<td>25.3</td>
<td>327.6</td>
<td>327.6</td>
<td>327.6</td>
</tr>
<tr>
<td>2016</td>
<td>26</td>
<td>41</td>
<td>41.0</td>
<td>41.0</td>
</tr>
<tr>
<td>2017</td>
<td>40</td>
<td>40</td>
<td>38.9</td>
<td>38.9</td>
</tr>
</tbody>
</table>

* Based on Infrastructure Funds Trends
Source: Preqin database 2007 – 2016,
World Pensions Council for 2017 est. (ext. Q1 2017 data)
## I. EMDE Infrastructure: Geographic & Project Stage Trends (2)

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Funds</th>
<th>Greenfield</th>
<th>Brownfield</th>
<th>2nd Stage</th>
<th>'Risk Appetite'</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>EMDEs</td>
<td>17</td>
<td>18</td>
<td>10</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>OECD</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>33%</td>
</tr>
<tr>
<td>2010</td>
<td>EMDEs</td>
<td>18</td>
<td>12</td>
<td>7</td>
<td>49%</td>
</tr>
<tr>
<td></td>
<td>OECD</td>
<td>26</td>
<td>26</td>
<td>18</td>
<td>37%</td>
</tr>
<tr>
<td>2011</td>
<td>EMDEs</td>
<td>30</td>
<td>19</td>
<td>15</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>OECD</td>
<td>32</td>
<td>22</td>
<td>18</td>
<td>44%</td>
</tr>
<tr>
<td>2012</td>
<td>EMDEs</td>
<td>26</td>
<td>26</td>
<td>18</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>OECD</td>
<td>37</td>
<td>37</td>
<td>30</td>
<td>36%</td>
</tr>
<tr>
<td>2013</td>
<td>EMDEs</td>
<td>34</td>
<td>20</td>
<td>12</td>
<td>52%</td>
</tr>
<tr>
<td></td>
<td>OECD</td>
<td>37</td>
<td>34</td>
<td>35</td>
<td>35%</td>
</tr>
<tr>
<td>2014</td>
<td>EMDEs</td>
<td>16</td>
<td>12</td>
<td>10</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>OECD</td>
<td>34</td>
<td>32</td>
<td>20</td>
<td>40%</td>
</tr>
<tr>
<td>2015</td>
<td>EMDEs</td>
<td>22</td>
<td>18</td>
<td>11</td>
<td>43%</td>
</tr>
<tr>
<td></td>
<td>OECD</td>
<td>29</td>
<td>29</td>
<td>22</td>
<td>36%</td>
</tr>
<tr>
<td>2016</td>
<td>EMDEs</td>
<td>12</td>
<td>12</td>
<td>10</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>OECD</td>
<td>32</td>
<td>29</td>
<td>23</td>
<td>38%</td>
</tr>
</tbody>
</table>

* Based on Infrastructure Funds Data
Source: Preqin database 2007 – 2016,
World Pensions Council for ‘Risk Appetite’ ratio
II. Sectorial preferences guided by LT P. power & ‘enhanceability’

- **Transportation**
  - Perhaps “the ideal infra sector” for many pension investors, esp. modern rail (‘HS’) and rolling-stock, well-located airports that can be improved & expanded (PE logic) and some highways…but not all!

- **Energy and mining**
  - May have profited ‘unduly’ from 1998 – 2015 secular rise in energy assets, esp. in the MENA area, Russia, Peru, Chile, Brazil, Mex., Malaysia = ‘easy returns’… non sustainable for both F. Econ and ESG reasons
  - But energy transportation & storage + renewables/ESG-driven infra still going strong, e.g. Asia + Eurasia, Latin America, Morocco

- **Water, wastewater and social infrastructure**
  - Clearly the ‘parents pauvres’ sectors, w/ a disaffection more marked than in OECD countries (think Flint, Michigan)... why?
  - Many pension funds think rightly that these sectors are the most susceptible to potential popular recriminations > pressure on govt. from the part of users/voters > pressure eventually transferred on asset owners/concessionaires
III. Alt. routes? e.g. shares listed EMDE-oriented concessionaires

- Perceived as appealing alternative by some (midsize) PF trustees, esp. UK, Spain, FR
  - ‘We know these companies well’ … ‘We know how to price them’ … ‘And they’re cheap too’!
  - Defying the laws of financial gravity? You can seemingly have your cake and eat it too: exposure to highly illiquid ‘exotic’ assets while staying home = in the OECD listed equity asset bucket
  - Cheaper, easier and less risky? than say e.g. an EMDE PE fund focusing on transportation sector

- The reality may be very different in many instances
  - Asset class clarity important: in spite of seeming ‘overlaps’ listed concessionaires & utilities and plain-vanilla muni bonds shouldn’t be counted as ‘infrastructure assets’ ➔ the distinction isn’t ‘academic’
  - risk of mis-selling e.g. Mozambique ‘Tuna Fishing Infrastructure Bond’
  - listed/liquid + well noted by CRAs doesn’t mean risk-free
    - Many UK and SPA pension funds bought shares of Abertis, an infrastructure concessionaire listed on the Bolsa de Madrid
    - But you can’t escape the country risk realities/metrics we mentioned earlier:
    - e.g. Bolivia, where President Evo Morales announced abruptly in 2013 his decision to nationalize the country’s main airports. These were owned and operated by Abertis. Morales argued that this foreign investor had made “an exorbitant profit with a derisory capital input”!
IV. Early Sowers in the Field: Canadian Pension Investors (1)

- **Alberta Province Public Pension & SWF: AIMCo**
  - Total AuM: $90.2 bn., only 36% non-domestic… overall only 22% outside of North America
  - Most of assets managed internally => IM “repatriation” under Leo de Bever, but also through funds
  - Infra: mostly “LT equity positions in assets with regulated returns or long-term contracted revenues”
  - Infra: 5.8% of AuM: Chile 37%, UK 27%, Canada 5%, India 0.5%, Other EM 0.7%
  - Sectors: Transportation, Integrated Utilities incl. gas* & to lesser ext. Telco, Water, Pipelines and Ren. ξ 5% but ↑
  - FY 2015: Infra Ptf. “returned 16.0% net of fees, exceeding its benchmark by 10.0%” Yes, but …
  - Diversification? Alberta provides 15% of all natural gas used in the US…
  - Over the years, the fund has invested in several infrastructure and private equity assets directly dependent on the fortunes of the Albertan oil & gas sector, the backbone of the province’s economy and a rather volatile boom-and-bust industry.

- **Good Governance**: The Alberta Heritage Savings Trust Fund has argued that “this is not an aid project, this is an investment” insisting that, to avoid any potential conflict of interests that may arise, the province’s finance minister himself is never told about a financial choice until the decision has already been made by the fund’s CIO
IV. Early Sowers in the Field: Canadian Pension Investors (2)

Public Sector Pension Investment Board: PSP IB

NB: CPP IB has a very similar investment philosophy & asset allocation

- Total AuM: $116.8 bn., more than 70% non-domestic w/ sizeable US exposure re listed assets
- Infra: PSP “co-invests globally on a long-term basis, primarily in transportation, power generation”
- Infra: $8.7 bn. = 7.4% of AuM: Europe 36% US + Canada 21%, UK 18%, Lat-Am 18%, Asia ex Aus. 6%
- Sectors: Transportation, Integrated Utilities focusing on Electrical Power generation & transmission
- FY 2016, Infrastructure Ptf. disbursed + $1.6 billion in direct investments and existing platforms
- July 2016: acquired Cubico w/ Ontario Teachers as Santander realized it couldn’t commit LT capital needed for growth: 22 wind, solar and water infrastructure assets in operation, construction or under development across 8 countries incl. Brazil, Mexico, Uruguay ≈ 50% EMDE
- Many of these board members = TRUSTEES are (former) school teachers, academics and mid-ranking municipal and federal civil servants > progressive worldview, often ESG/SDG driven
Part 3
The Way Forward

I. Size Matters: Pension Superpowers Can Shift More Assets

II. ‘Cura Te Ipsum’: Domestic & South–South EMDE Investment

III. Original Forms of North–South and Public & MDB–PF Cooperation

IV. EMDE Investment as ‘ESG/SDG Action’ and (Pension) Statesmen–CEOs

V. Concluding Remarks: Beyond Financial Economics . . .
I. Size Matters: Pension ‘Superpowers’ Can Shift More Assets

Flag size representing national pension assets; the relative size of US and UK pensions being actually larger than represented here.

Source: World Pensions Council (WPC) research – initially published in France (Revue Analyse Financière) and the UK (Pensions Age)
V. Concluding Remarks

- Fiduciary capitalism = patience: “Investing should be more like watching paint dry or watching grass grow. If you want excitement, take $800 and go to Vegas” Paul Samuelson

  e.g. a North American state/local pension trustee (board member) told the author: “We have a distinct definition of ‘Long Term’ = we perceive and practice asset valuation differently. Some Wall Street investment banks may think we overpay... They’ve been proven wrong: look at high-speed rail and airport assets in the UK!”

- Stable laws are essential: Property rights should be perceived as sacred by the public sector
  In case of expropriation, govt. have to compensate investors fairly & amicably ≠ Evo Morales

- Strong judiciary branch independent from both Gov. and Big-Business: “All our experiences tell us that the process of expropriation, which started with the rise of capitalism, does not stop... only legal and political institutions independent of economic forces and their automatism can control and check the monstrous potentialities of this process” Hannah Arendt

- Beyond finance: Pension investors must be (more) willing to experiment early on, train trustees + hire civil engineers and legal experts to complement the work of financial analysts: “Many pension funds lack the vision...or the will... to incur the cost of building staff expertise to play successfully in this asset class. Trustees are nervous about trespassing too far from what they think they know best [bonds, listed stocks].... I understand their anxieties...I suggest, however, that infrastructure is an almost perfect asset class for large pensions funds” Michael Nobrega, fmr. CEO, OMERS
Thank you for your attention / Contact i

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Some of our publically-available research primers are accessible on https://worldpensions.academia.edu/MNFirzli