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Transportation Finance

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A. Introduction

The last two decades have witnessed a renewed emphasis on long-term financing of major U.S. transportation infrastructure projects, especially in highways developed under long-term public-private partnership (PPP) concessions. In response, a new industry has emerged to provide debt and equity for such projects.

An infrastructure investment fund is an entity by which large investors (such as insurance companies, investment banks or pension funds) pool their resources and use experienced managers to seek out opportunities to invest equity into infrastructure of various kinds. Since it is not possible to invest equity into infrastructure that is owned and operated by governments, these funds seek to invest either in infrastructure that has been privatized (or has always been in the private sector) or in the special purpose entities created to operate and manage infrastructure under long-term public-private partnerships.

Infrastructure financing bottomed out during the credit-markets crunch with only $10.7 billion raised in 2009. The recovery began in 2010 with $19 billion raised, followed by annual increases since then. By the end of the third quarter of 2013, these investment funds raised $23 billion, increasing to $27 billion in the same period in 2014, according to the *Prequin Quarterly Update Infrastructure.* But when major infrastructure investment funds reported their year-end results for 2014, the total raised that year set a new record of $48.3 billion, according to a January 14, 2015 bulletin from *Infrastructure Investor*.

Pension funds have continued to increase their participation in infrastructure funds, seeing a good match between infrastructure assets that provide reasonably steady long-term income flows and the funds' long-term liabilities. The largest single amount raised in 2014 was by the Global Strategic Investment Alliance (described below in the Pension Funds section), which raised $12.8 billion in 2014. Other major 2014 totals included $5 billion by Energy Capital Partners, $3.75 billion by First Reserve Corporation, and $3 billion by Macquarie.

A mid-2014 survey by Probitas Partners found that 54% of institutional investors (of all types) now have a separate portfolio allocation for infrastructure. A number of large mutual fund families now offer individual investors an opportunity to invest in infrastructure via specialized funds, such as T. Rowe Price Global Infrastructure Fund, Nuveen Global Infrastructure Fund, and Macquarie Global Infrastructure Total Return Fund.

Since 2013 debt funds have been launched to target infrastructure. They seek to fill a niche largely vacated by major banks since the Great Recession, supplementing the debt provided by revenue bonds.

B. Infrastructure Investment Funds

By the beginning of the fourth quarter 2014, there were 148 infrastructure investment funds in the market, seeking to raise a total of $95 billion. Both figures are slightly higher than those of the comparable period of 2013, which were 136 funds seeking $86 billion.

In its November 2014 issue, *Infrastructure Investor* released its fifth annual ranking of global infrastructure funds, the "Infrastructure Investor 30." Over the most recent five-year period, these 30 large funds alone have raised a total of $153 billion (see Table 1). There is no definitive estimate of the total raised by all such funds during this period, but that sum likely exceeds $200 billion (since the next 20 funds combined raised $27.9 billion over the same five-year period). Equity funds such as these typically provide between 20% and 33% of an infrastructure project's cost, with the balance raised as various forms of debt (bank loans, revenue bonds, etc.). At a conservative leverage multiple of four times the equity amount, the equity available from the top-30 funds alone would finance $612 billion worth of projects. Others have estimated that over the full decade ending in 2014, infrastructure equity funds have raised something like $300 billion, which could support projects worth $1.2 trillion.

Table 1: The 30 Largest Infrastructure Equity Funds, 2014

Rank	Name of Investor	Headquarters	Five-Year Total Raised ($B)
1	Macquarie Infrastructure and Real Assets	Australia	$27.35
2	Brookfield Asset Management	Canada	12.87
3	Global Infrastructure Partners	United States	10.83
4	Energy Capital Partners*	United States	9.94
5	IFM Investors	Australia	8.22
6	Borealis Infrastructure	Canada	6.86
7	Colonial First State Global Asset Management*	Australia	6.38
8	Korea Infrastructure Investments	South Korea	5.32
9	Caixa Economica Federal	Brazil	4.85
10	InfraRed Capital Partners	United Kingdom	4.57
11	Alinda Capital Partners	United States	4.44
12	Antin Infrastructure Partners*	France	4.20
13	First Reserve*	United States	3.77
14	Goldman Sachs Infrastructure Investment Group	United States	3.69
15	EnerVest*	United States	3.50
16	Hastings Fund Management	Australia	3.29
17	Kohlberg Kravis Roberts	United States	3.26
18	Meridiam Infrastructure	France	2.88
19	Ardian	France	2.87
20	EQT	Sweden	2.56
21	Highstar Capital	United States	2.53
22	JP Morgan Asset Management	United States	2.34
23	True Corporation*	Thailand	2.27
24	Actis*	United Kingdom	2.16
25	Hunt Power	United States	2.13
26	AMP Capital Investors	Australia	2.08
27	LS Power Group*	United States	2.08
28	Partners Group*	Switzerland	2.07
29	CPG Capital Partners	Singapore	2.00
30	Energy Investors Funds*	United States	1.92

Source: *Infrastructure Investor*, November 2014

*indicates a fund new to the top-30 list in 2014

As for the type of investment, some funds prefer long-established, low-risk acquisitions ("brownfield") while others prefer higher-risk, new projects ("greenfield"), but the largest fraction of funds seeks a mix. Probitas Partners' *Infrastructure Institutional Investor Trends for 2014 Survey* yielded the preferences shown in Table 2 among the investors responding to its annual survey.

Table 2: Types of Infrastructure Investments Sought, 2014 vs. 2013		
	2013 Results	**2014 Results**
Both greenfield and brownfield	37%	27%
Brownfield only	27%	17%
Debt only	12%	23%
Greenfield only	11%	8%
Flexible	9%	15%
Renewable energy	4%	10%

Source: Probitas Partners, Infrastructure Institutional Investor Trends for 2014 Survey

The most striking change is the continued growth in interest in debt funds, which was almost insignificant in 2012 (and is discussed further, below).

This same set of infrastructure investors continued to express strong interest in transportation infrastructure, ranking it second only to energy and power. The latter was an interest for 72% of the institutions, followed by transportation (64%), water and waste management (58%), and renewable energy (47%).

In the United States, rumblings about "foreign takeovers" of infrastructure persist. It is therefore worthwhile to compare the nationality of the funds providing equity for infrastructure projects with the nationality of the concession companies that are implementing the projects. Table 3 is based on *Infrastructure Investor*'s latest analysis of the 30 largest infrastructure funds. As can be seen, 33% of the capital comes from U.S-based institutions, with Australia's share at 31%. When you add Canada to the U.S. share, the total of North American investors is 46%. European institutions constitute 14% of the capital, while Asia (6%) and South America (3%) account for the balance.

Table 3: Nationality of Top 30 Infrastructure Funds, 2014		
Country or Region	**Capital Raised ($B)**	**Percentage of Capital**
United States	$50.44	32.9%
Australia	$47.32	30.9%
Canada	$19.74	12.9%
Europe	$21.32	13.9%
Asia	$ 9.58	6.3%
South America	$ 4.85	3.2%

Source: *Infrastructure Investor*, November 2014

Further, *Public Works Financing*, the newsletter of record in this industry, has maintained statistics on global PPP infrastructure projects in a database since 1991 that also includes figures on the world's leading PPP transportation companies as of 2014, ranked by the number of projects under construction or in operation as well as active proposals. For these data, shown in Table 4, the project types include airports, highways, ports and rail infrastructure.

Table 4: Top PPP Transportation Infrastructure Companies, 2014

Rank	Company	HQ Country	# Projects in Construction or Operation	#Active Prospects
1	ACS Group/Hochtief	Spain	56	49
2	Macaquarie Group	Australia	43	14
3	Global Via/FCC/Bankia	Spain	43	2
4	Abertis	Spain	38	na
5	Vinci/Cofiroute	France	36	16
6	Hutchison Whampoa	China	34	na
7	Ferrovial/Cintra	Spain	33	35
8	Bouygues	France	27	11
9	NWS Holdings	China	26	na
10	Egis Projects	France	25	16
11	Sacyr	Spain	22	9
12	OHL	Spain	21	23
13	Meridiam	France	21	13
14	Odebrecht	Brazil	21	8
15	John Laing	United Kingdom	19	4
16	IL & FS	India	18	6
17	Camargo Correa	Brazil	16	2
18	Andrade Gutierrez	Brazil	15	10
19	Acciona	Spain	15	9
20	SNC-Lavalin	Canada	15	7
21	Alstom	France	15	6
22	Atlantia	Italy	15	2
23	Transurban	Australia	15	2
24	Empresas ICA	Mexico	13	2
25	Reliance	India	13	na
26	Strabag	Austria	11	13
27	IRB Infrastructure	India	11	4
28	Road King	China	11	na
29	Eiffage	France	9	4
30	Isolux Corsan	Spain	9	8
31	Impregilo	Italy	8	8
32	Balfour Beatty	United Kingdom	8	3
33	BRISA	Portugal	8	na
34	Ideal	Mexico	8	na
35	Skanska	Sweden	7	8
36	Itinere	Spain	6	na
37	Plenary	Australia	5	6
38	Fluor	United States	5	4
39	Bilfinger	Germany	4	na

Source: *Public Works Finance* 2014 Survey of Public-Private Partnerships, October 2014

As can be seen from a quick check of Table 4, the large majority of project experience is European, which should not be surprising given the long history of PPP concessions in France, Italy and Spain in particular. Of the top 10 companies, seven are from Europe, one from Australia, and two from China. Of the top 20 companies, 12 are from Europe, three from Brazil, two from China, and one each from Australia, Canada, and India. A U.S. firm does not show up until position 38.

Thus, by comparing Tables 3 and 4, we can see that while the large majority of infrastructure development and operational expertise currently resides with European firms, the majority of the *capital* is coming from North American and Australian investment funds. Those who raise political concerns about foreigners "buying our toll roads" seem to have missed the difference between those who are building and operating these infrastructure projects and those who are financing them. The fact is that nearly half of all the equity investment is coming from North American funds.

While Table 4 ranked firms by numbers of projects, Table 5 lists the 10 largest transportation PPP firms by *total investments* in projects since 1985. Except for Australia-based Macquarie, all the rest of the top 10 are based in Europe. This is not surprising since the majority of Europe's transportation projects are developed through PPPs. In aggregate, these 10 firms have financed transportation projects worth $434 billion since 1985.

Table 5: Top 10 PPP Transportation Firms by Invested Capital

Company	Country	Transportation PPP Investment ($B)
ACS (Iridium+Hochtief)	Spain	$75.2 billion
Ferrovial/Cintra	Spain	$74.3
Vinci/Cofiroute	France	$70.8
Macquarie	Australia	$48.2
Bouygues	France	$44.7
John Laing	United Kingdom	$32.9
Egis Projects	France	$24.1
Sacyr	Spain	$22.9
Global Via	Spain	$21.2
OHL	Spain	$19.9

C. Growing Public Awareness of Infrastructure Investment Funds

Non-financial media began to take greater notice of the role of infrastructure investment funds in 2014. *The Economist* (March 22, 2014) was among a number of major media to cite a study by McKinsey estimating a global need for $57 trillion in infrastructure investment between now and 2030, which would mean increasing current annual investment by about $1 trillion per year. It pointed out the good fit between long-lived investments in infrastructure and the long-term investing needs of insurance companies and pension funds.

CNBC's Lawrence Delevingne's major article (Aug. 20, 2014) titled "How Big Investors Are Shaping the (Boring) Future of Transportation" provided lists of the top 10 transport-only infrastructure funds and the 10 institutional investors most active in transportation infrastructure. He, too, cited the McKinsey study and pointed to infrastructure funds and institutional investors as increasingly important players in helping to close the $1 trillion a year gap. As examples of the growing trend, he cited recent deals such as Industry Funds Management's purchase of a major stake in London Stansted Airport and the purchase of a large stake in the Port of Brisbane by Canadian pension fund La Caisse de depot et placement du Quebec. He also quoted Benjamin Gordon of BG Strategic Advisors, estimating that private equity firms alone will invest at least $100 billion in the next five to seven years in transportation infrastructure.

By citing a study by Standard & Poor's Ratings Service, *Engineering News-Record* (Jan. 24, 2015) highlighted the trend that pension funds, insurance companies and other institutional investors could help shrink the infrastructure funding gap between now and 2030. S&P's conservative estimate was that such investments might average $200 billion per year between now and 2030, about 20% of the annual gap estimated by McKinsey.

Several of these articles noted that in addition to meeting part of the infrastructure funding need, this kind of investment could also improve the quality of investment via better project selection and management. David Haarmeyer in *Regulation* (Winter 2013–14) summarized this view as follows:

> *What is transformative about these investors is that they bring with them something that is absent in the present publicly financed model: clear ownership that assigns responsibility, provides an economic interest, and encourages good stewardship. Capital that has a fiduciary responsibility to its underlying fund contributors (e.g., pensioners, payers of insurance premiums) is productive capital—it has an incentive to address poor maintenance and user fees that don't cover costs, and thus it provides more sustainable investment and job creation than one-off, public debt, or tax-increasing schemes.*

D. Robust Growth of Debt Funds

Infrastructure debt funds, like their counterpart equity funds, have emerged to provide long-term bonds and other forms of debt for PPP concessions. Debt funds appeared to be no more than a blip in 2011 and most of 2012, but since 2013 that sector has taken off. In a 2014 white paper for *Infrastructure Investor*, the head of Hastings Fund Management's North American infrastructure debt business, Nick Cleary, offered an overview of the increasing role played by this sector. He pointed out that debt funds' initial niche was sub-investment grade debt, which has been increasingly important since the demise of the "monoline" bond insurers who previously "wrapped" sub-investment grade infrastructure bonds to bring them up to investment-grade ratings.

Cleary noted that a 2014 *Infrastructure Default and Recovery Study* by Moody's found that over a 30-year period, defaults on infrastructure debt occur less often than in other sectors, and that when defaults do occur, the recoveries are higher relative to corporate bonds and private loans in other sectors. He also noted that, "Infrastructure debt's lower volatility and default risk can offer improved risk-adjusted returns that often take on a higher significance for sub-investment grade investors."

Hastings was a pioneer in infrastructure debt funds, introducing its first one in 1999, focusing on "junior" (sub-investment grade) debt. But today, with bank capital constrained by new global regulatory requirements such as Basel III, "bank capital is no longer the most efficient source of long-term senior debt financing" of the kind needed for infrastructure projects, wrote Cleary. And in the same article, his colleague Steve Rankine added, "As banks have withdrawn from the long end of infrastructure debt, the door has been opened to institutional investors to invest at a time when these assets are in high demand."

Thus, 2014 saw major new infrastructure debt funds entering the market. For example, Global Infrastructure Partners (number 3 in Table 1) in mid-2014 announced that it was seeking to raise $2.5 billion for its first infrastructure debt fund. Shortly thereafter, Allianz Global Investors announced the launch of its first infrastructure debt fund, whose initial focus will be on the U.K. market. Number 1-rated Macquarie's first debt fund was Macquarie Infrastructure Debt Investment Solutions. In December 2014, it reached the initial fund-raising target for a new U.K. debt fund, with a final 2015 target of $2 billion. The ECM European Infrastructure debt fund, backed by Wells Fargo, launched in November 2014 and seeks to raise €750 million. Also in November, AMP Capital announced that it had reached its $1.1 billion target for its second such fund, AMP Capital Infrastructure Debt Fund II. This follows its 2012 debt fund, which raised $500 million.

E. Continued Growth of Pension Fund Investment in Infrastructure

Several of the top 30 infrastructure funds in Table 1 are pension funds, which are increasingly important players in infrastructure finance. This trend began two decades ago with pension funds in Australia and Canada, and two of the largest funds in Table 1 are Canada's Borealis Infrastructure (owned by the Ontario Municipal Employees Retirement System—OMERS) and Australia's Industry Funds Management (owned by 30 Australian public-sector pension funds).

Very large public pension funds (or groups of funds in the case of IFM) that have developed expertise in infrastructure generally make direct investments, assembling a portfolio of brownfield and greenfield infrastructure projects. Smaller pension funds (and large ones just getting into this category of investment) generally take the less-risky approach of investing via one or more of the infrastructure investment funds, such as those in Table 1. A recent study by Harvard University and Hastings Fund Management identified growing interest in infrastructure investment by the $14 trillion U.S. pension sector. Infrastructure investment was a key topic at an October 2013 conference of state treasurers, meeting in Asheville, NC. And a study by the Center for American Progress ("Using Pension Funds to Build Infrastructure to Put Americans to Work," March 2013) estimated that $60 billion per year in U.S. infrastructure improvements could be financed with private capital, particularly in the transport sector.

The pioneering role of Australian and Canadian pension fund investments in infrastructure was the subject of a study by the Organization for Economic Cooperation and Development (OECD). "Pension Fund Investment in Infrastructure: A Comparison between Australia and Canada," by Georg Inderst and Raffaele Della Croce, identified similarities and differences in the evolution of pension fund investment. In both cases, the pension funds allocate about 5% of their portfolios to infrastructure, the highest in the world. And while about 50% of Australian investment has been domestic, in Canada the majority of such investment has been overseas. Both tend to be direct investors, in contrast with the large reliance on infrastructure investment funds in Europe and the United States. And the most recent OECD annual survey of large pension funds worldwide found that, over all, such funds were investing only 0.9% of their portfolios in infrastructure (excluding their traditional investments in publicly traded utilities such as electricity and water companies).

Several key overseas transactions illustrate the dynamics of pension fund investments in infrastructure. Australia's Future Fund, set up by its national government in 2006 to assist future governments in meeting their pension obligations, made a $2 billion direct investment in 2013, purchasing a portfolio of airport investments from transport infrastructure fund AIX. The package includes part-interests in nine Australian airports plus 40% of the equity in the former Hochtief Airport Capital, including stakes in the airports of Athens, Düsseldorf, Hamburg and Sydney. The large U.K. pension fund USS (Universities Superannuation Scheme) made two direct investments in aviation infrastructure in 2013, buying an 8.65% stake in London Heathrow Airport for $636 million, and acquiring 21% of U.K. air navigation service provider NATS for $229 million. And the Manchester Pension Fund, teamed with two commercial partners, committed $1.28 billion to the Manchester Airport City development project.

Two of the most significant pension fund developments in 2014 concerned Canada's Borealis and Japan's $1.25 trillion Government Pension Investment Fund (GPIF), which had hitherto been extremely conservative in its investments. Several years ago, Borealis's parent, the $65 billion OMERS, launched a global effort to raise $20 billion for infrastructure investment, to be managed by Borealis, called the Global Strategic Infrastructure Alliance (GSIA). Its initial investors included a consortium of Japanese investors led by Mitsubishi Corporation. The big news in 2014 was a $2.5 billion pledge from Japan's pension giant GPIF, the latter's first-ever commitment to infrastructure investment. As of mid-2014, OMERS's GSIA had raised $11.25 billion of its $20 billion goal.

Historically, U.S. pension funds, to the extent they invested in infrastructure, generally focused on investor-owned utilities (electricity, gas, water). But with the emergence of public-private partnerships (PPPs) for such traditionally government-run assets as airports, highways and ports, U.S. pension funds gained an additional opportunity for equity investments. Some public employee unions initially raised concerns about their pension funds investing in infrastructure, due to their ideological opposition to PPPs. Because these pension funds are tax-exempt, they typically do not buy tax-exempt bonds, such as those typically issued by public-sector airports and toll roads. And since there is no equity in state-owned infrastructure, the only way to invest equity in infrastructure is with investor-owned infrastructure.

But those union objections seem to be fading. Illustrating this evolution is the pledge of $10.2 billion from public employee pension funds for infrastructure investment, brokered by the Clinton Global Initiative America. The investment commitments were led by America's largest public employee pension fund, CalPERS ($2.8 billion), along with $2.85 billion from the California State Teachers' Retirement System (CalSTRS). At the fourth annual conference of the Clinton project, in 2014, it was announced that more than $5 billion of the total had been allocated to specific projects, including the PPP project for a new courthouse in Long Beach, California, the PPP project adding express toll lanes to I-635 (LBJ freeway) in Dallas, and the Presidio Parkway PPP project in San Francisco. The initiative has the backing of the AFL-CIO and individual unions, including those that are part of its Building and Construction Trades Department, and also the American Federation of Teachers. Thus, it would appear that previous ideological objections by unions and their pension funds are being overcome by the need to diversify these pension funds' investments and the good fit provided by infrastructure.

Other notable public employee pension fund investment announcements in 2014 included:

- The Employees Retirement System of Texas announcing a new commitment to work with infrastructure investment funds so as to diversify its portfolio;
- CalPERS launching a $500 million infrastructure investment partnership with UBS Global Asset Management; in December it announced that over the next three years it will add another $4 billion to its infrastructure program, which earned a 13.4% return in 2014.
- MainePERS, a much smaller pension fund, committing $75 million to IFM Investors' Global Infrastructure Fund.
- Dutch pension fund APG announcing a $265 million joint venture with China Resources Capital Holdings to develop car parking facilities in Chinese city centers; and,
- The Alaska Permanent Fund (not a pension fund, but more of a sovereign wealth fund) announcing that its infrastructure investments had generated a 12.9% return for the fiscal year that ended June 30, 2014.

About the Author

Robert Poole is Director of Transportation Policy and the Searle Freedom Trust Transportation Fellow at Reason Foundation. He co-founded Reason Foundation with Manny Klausner and Tibor Machan in 1978, and served as its president and CEO from then until the end of 2000. He was a member of the Bush-Cheney transition team in 2000. Over the years, he has advised the Reagan, George H.W. Bush, Clinton and George W. Bush administrations on privatization and transportation policy.

Poole is credited as the first person to use the term “privatization” to refer to the contracting-out of public services and is the author of the first-ever book on privatization, *Cutting Back City Hall*, published by Universe Books in 1980. He is also editor of the books *Instead of Regulation: Alternatives to Federal Regulatory Agencies* (Lexington Books, 1981), *Defending a Free Society* (Lexington Books, 1984), and *Unnatural Monopolies* (Lexington Books, 1985). He also co-edited the book *Free Minds & Free Markets: 25 Years of Reason* (Pacific Research Institute, 1993).

Poole has written hundreds of articles, papers and policy studies on privatization and transportation issues. His popular writings have appeared in national newspapers, including *The New York Times, The Wall Street Journal, USA Today, Forbes* and numerous other publications. He has also been a guest on network television programs such as Good Morning America, NBC's Nightly News, ABC's World News Tonight, and the CBS Evening News. Poole writes a monthly column on transportation issues for *Public Works Financing*.