Pension Fund Investment in Infrastructure: Lessons from Australia and Canada

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Australian and Canadian pension funds have been pioneers in infrastructure investing since the early 1990s. They also currently have the world's highest asset allocation to infrastructure. The article compares and contrasts the experience of institutional investors in the two countries, looking at factors such as infrastructure policies, the pension system, investment strategies, and the governance of pension funds. The respective organizational models of infrastructure investing in the two countries pose a challenge to the traditional "private equity model" that still dominates in Europe and the United States. The Australian and Canadian experiences offer important lessons for both policy makers and investors.

Keywords: Alternative Investments, Asset Allocation, Infrastructure Investment, Infrastructure Policy, Pension Fund

Learning from the Australian and Canadian Experiences

Australia and Canada are the two leaders in institutional infrastructure investing. Australian pension funds have been pioneers in this field since the early 1990s, when their financial industry invented infrastructure as an asset class; large Canadian pension plans have spearheaded direct investments in infrastructure since the early 2000s. Today, these two countries have the highest asset allocation dedicated to infrastructure by pension funds around the world: about 5%, against a global average of about 1%.

Many governments are now encouraging private capital to help finance infrastructure projects. Several failed public–private partnerships (PPP) in infrastructure sectors, however, demonstrate the challenges such projects face. These challenges are even more acute for pension funds, whose first responsibility is to provide adequate retirement income for their members.

At the same time, institutional investors have found their own reasons for looking at infrastructure more closely. They were keen buyers of privatized utility and transport companies in the United Kingdom, Australia and elsewhere in the 1980s and 1990s; today, faced with low interest rates and volatile markets, pension funds and insurance companies are trying to diversify their portfolios better and to enhance their long-term asset–liability management. In the process, they are increasingly attracted by infrastructure assets with (potentially) favorable investment characteristics such as long-term, stable, and often inflation-linked cash flows. However, infrastructure finance involves particularly complex contracts and regulatory frameworks, and many investors are concerned about the specific risks: construction, operational, financial, and especially political and regulatory risks.

Both investors and policy makers can learn interesting lessons from the Australian and Canadian experience. In a recent OECD working paper (Inderst and Della Croce 2013),[1] we compare and contrast the experience of pension funds investing in infrastructure projects in Canada and Australia, looking at factors such as infrastructure policies, the pension system, investment strategies, and the governance of pension funds. This article summarizes some key insights.

The Australian Experience

Australia's private infrastructure investment market began with several large-scale infrastructure privatizations in the early 1990s. Landmark transactions included electricity assets in the state of Victoria and airport privatizations by the federal government. Australia was also an early adopter of the PPP model; a vast proportion of such partnerships involved large transport projects, in particular urban toll roads and tunnels.

In recent years, infrastructure has moved high on the political agenda. In 2008, the Australian government announced a new

national approach to planning, funding, and implementing the nation's future infrastructure needs. A new government entity, Infrastructure Australia, was established to help Australian governments to develop a strategic blueprint for modernizing the nation's economic infrastructure. Several reform proposals are developed in the National Infrastructure Plan (Infrastructure Australia 2013).

There has been a broadening dialogue between the various levels of the federal state, the infrastructure and financial industries, and asset owners in recent years. A range of barriers have been identified that (potentially) prevent optimal investment in infrastructure assets. Issues include both supply- and demand-side factors, with different emphases across the political and industry spectrum.[2]

The federal government formed an Infrastructure Finance Working Group (IFWG 2012) to identify options to reform infrastructure financing. Among the IFWG's recommendations is that, on the supply side, a longer and clearer project pipeline should provide appropriate investment opportunities at home.

On the investor side, the key moment was the introduction of a compulsory occupational pension system in 1992. Total assets of the so-called superannuation system were over AU$1.5T in 2013 (ASFA 2013); they now exceed GDP, and their growth rate of 18.2% (in US$) over 10 years is the highest in the developed world (Towers Watson 2013a). In the global context, Australia held 6.7% of the total OECD pension assets of US$20.1T in 2011, ranking fourth behind the United States, Japan, and the United Kingdom (OECD 2012).

The majority of Australian pension funds are defined contribution (DC) schemes, and nearly 90% of pension fund assets are in DC funds. It is important to note that the superannuation system comprises a range of different vehicles: industry, public sector, corporate, retail, and very small funds, including the strongly growing "self-managed funds" (APRA 2012).

Given the relatively short history of the Australian DC superannuation system, funds are often considered relatively small in international comparison, but some have grown to considerable size. Australia now has 5 pension funds in the global top 100 and 15 in the top 300 rankings, twice as many as 5 years ago (Towers Watson 2013b). The combined assets under management of these 15 funds are close to US$500B.

In 2009, the Australian government established the Super System Review (2010), or Cooper Review, to examine the governance, efficiency, structure, and operations of the superannuation system. The review's final report recommended fewer and larger pension funds, but several controversial issues remain (Gray and Bird 2011). The pensions sector is expected to consolidate further.

Infrastructure Investing in a DC Pension System

In the international context, Australia, with Canada, is the country with the highest allocation to equities and the highest allocation to "alternatives" (23%).[3] The allocation to infrastructure is estimated to be 5–6% on average; this figure is driven by the substantial allocations of larger funds (roughly 8% on average; see Table 1).

Table 1: Infrastructure Allocation in the Top 10 Australian Pension Funds

	Pension Fund	Market Segment	Fund Size (US$B)	Allocation to infrastructure (%) – default option
1	Future Fund	Sovereign	73	5.2**
2	AustralianSuper	Industry fund	43	14.0
3	QSuper	Government	32	6.2
4	State Super	Government	32	13.8*
5	First State SA	Industry fund	31	3.5*
6	UniSuper	Industry fund	29	5.0
7	Retail Employees	Industry fund	20	6.0
8	Australian Reward	Government	20	13.8*
9	HESTA Super	Industry fund	18	10.0
10	Sunsuper	industry fund	18	5.0

** Alternative allocation that may include non-infrastructure investments* *** Conservative option*
Source: AMP, from 2010/11 Annual Reports

It is often argued that the DC pension model is (almost) prohibitive for infrastructure investing, given such hurdles as

- illiquid, bulky assets,
- a large number of (often small) individual accounts,
- the requirement of frequent valuations (that are more difficult for less liquid assets), and
- a precautionary liquidity preference.

Since 2005, members of Australian pension funds have had the right to switch funds on 30 days' notice; therefore, many schemes, particularly smaller and weaker ones, are cautious about illiquid asset holdings, as is the Australian Prudential Regulation Authority (APRA). And yet, perhaps paradoxically, Australia's industry-wide DC superannuation funds have produced a remarkable infrastructure investment history. Key factors contributing to Australia's infrastructure investment story are

- the coincident privatization of public assets by the government and the introduction of a compulsory pensions system in the early 1990s;
- the rapid accumulation of pension assets on the back of economic growth and favorable (at least for now) demographic trends;
- the emergence of financial intermediaries, such as investment banks and asset managers, that fuelled the private investment boom in infrastructure;
- the commitment of trustee boards, especially those of industry-wide pension plans, to infrastructure as a useful asset class for their plans and members; and
- the use of default funds and a small range of standard investment options, which facilitates the management of liquidity reserves in DC schemes.

The "New Australian Model"

Infrastructure investing in Australia was traditionally outsourced to external fund managers. Australian investment banks were pioneers in packaging privatized and other infrastructure assets into mainly listed fund vehicles. After several disappointments with this "old Australian model" during the financial crisis, however, the preferred route for most pension funds has become unlisted, open-ended funds. In the "new Australian model," infrastructure funds like to portray themselves as "investor friendly," as they tend to have lower fees than the closed-end, private equity–type funds that are most commonly used for infrastructure investment in Europe and the United States. Some funds are owned by pension funds (e.g., IFM) or governments (e.g., QIC).

The Australian financial industry has accumulated substantial expertise in this field over a few cycles, and has reached global importance: 8 of the world's top 20 infrastructure fund managers are based in Australia, and their assets under management of US$92B constitute around two-thirds of the top 20 funds' assets (Towers Watson 2012).[4] In contrast, only one of these funds, Brookfield, is based in Canada.

In summary, we can consider the following as major "exports" from Australia:

- strong appetite for privatized assets with long-term commitment by pensions funds
- methods of substantial infrastructure investment in a DC pension system, under certain conditions
- open-ended infrastructure funds, or "aligned asset managers," at comparatively low cost
- an experienced financial industry that is exporting its expertise to other regions.

Now we turn to the Canadian case.

The Canadian Experience

Historically, Canada's infrastructure has been predominantly built and maintained with public money. Pure privatization of public assets has been politically unpopular in Canada, although large transport assets such as ports and airports have been "commercialized" and run as not-for-profit enterprises. Energy networks, too, remain in public hands.

Canada is a federal state, and the responsibility for infrastructure investment is shared between the different levels of government. The federal institution Infrastructure Canada is complemented by a range of provincial infrastructure bodies. In 2006, the government of Canada launched a C$33B infrastructure plan, Building Canada (Infrastructure Canada 2011); the C$53B New Building Canada Plan of was announced in 2013.

Despite closing some high-profile projects in the early 1990s, Canada has generally lagged behind the United Kingdom and Australia in the use of PPPs. In recent years, however, the PPP market has picked up, not only in health care and transport but also in other sectors (PPP Canada 2013).

Both Canadian and foreign banks have continued to be active in financing Canadian infrastructure since the global financial crisis. Canadian banks have been more conservatively managed than their European counterparts, and also took a more cautious approach to infrastructure lending (typically making only shorter-term loans, up to 5–7 years). Furthermore, Canada relies less on bank finance than other countries. It has one of the most developed project bond markets in the world, with infrastructure bonds often structured to be investment grade. Canada never adopted the "monoline" bond insurance model. Its life-insurance industry has traditionally played an important role in providing longer-term finance (Bridgecourt 2010).

Total Canadian pension fund assets were over US$1.5T in 2013, about two-thirds of GDP; the growth rate of 7% over 10 years is in line with the international average (Towers Watson 2013a).

Canada held 5.6% of OECD pension assets in 2011, ranking sixth behind the United States, Japan, the United Kingdom, Australia, and the Netherlands (OECD 2012). Most pension assets (95%) are held by defined benefit (DB) schemes. The mandatory national pension plans (the Canada and Quebec Pension Plans) continue to see growing contributions. For voluntary schemes, the situation has become more difficult: most DB plans are maturing, and most private-sector DB plans have been closed.

There are said to be more than 5,000 pension schemes in Canada, ranging from funds with a few million dollars under management to a few over US$100B in size (Aegon 2012; Archer 2011). Canada has 7 pension funds in the global top 100 and 19 in the top 300, with combined assets under management of close to US$800B (Towers Watson 2013b).

Infrastructure Investing in Mature DB Plans

As is true in other mature pension systems, many of Canada's DB pension plans are underfunded. Mercer's Pension Health Index indicates that funding ratios are volatile: a typical pension plan was 94% funded in mid-2013, up from levels below 80% in 2009 and 2012. The remedial actions taken include cash contributions, changes to benefit design, and de-risking of the investment portfolio (especially by reducing equities; see Figure 1). In addition, provincial pension supervisors have granted "solvency relief" in various forms.

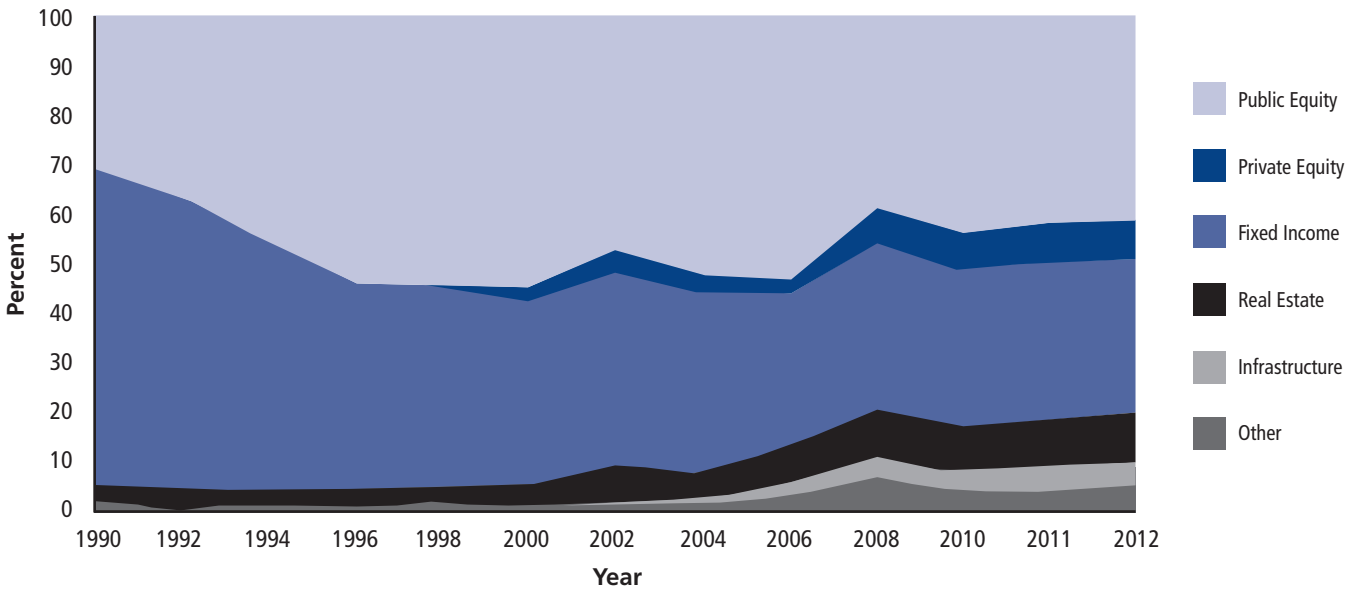
Canada's allocation to equities is broadly in line with the international experience; allocation to alternative assets rose from 13% in 2002 to 23% in 2012 (Towers Watson 2013a). Hindrances to infrastructure investments in mature DB schemes typically include

- increased liquidity needs because of negative net cash flows,
- liability-driven investment strategy focusing on bonds and swaps,
- the effect of regulatory solvency requirements and accounting rules on long-term investing (Severinson and Yermo 2012), and
- risk aversion on the part of trustees and sponsors in a difficult environment.

Nonetheless, some Canadian pension plans, notably the Ontario Teachers' Pension Plan (OTPP) and the Ontario Municipal Employees Retirement System (OMERS), were early investors in infrastructure in the late 1990s and early 2000s, second only to Australian superannuation funds. Other funds followed, and the average allocation has been growing steadily since, reaching C$57B by the end of 2012 (5% of total assets). Here, too, there is a heavy "size effect" across pension funds: bigger pension plans have made substantial inroads into infrastructure assets in recent years (see Table 2), while small and medium-sized pension funds have little or no private infrastructure allocation.

The main driver for infrastructure investing appears to be the wish to diversify pension funds' assets beyond the traditional asset classes. While Canadian pension funds have been de-risking at the expense of listed equities, regulators have not forced them into bonds, as was the case in some European countries. Real estate and infrastructure assets are also used in liability-driven investing (LDI) to cover long-term liabilities.

Figure 1: Asset Allocation of Canadian Pension Funds



Source: PIAC (2013)

Table 2: Large Canadian Pension Funds' Allocation to Infrastructure

Pension Fund	Fiscal Year	Total Assets	Infrastructure Assets	
		C$B	C$B	%
OTTP	31/12/2012	129.5	9.6	7.4
PSP	31/03/2012	64.5	3.6	5.6
CPP	31/03/2013	183.3	11.2	6.1
OMERS	31/12/2012	61.5	9.8	14.8
Alberta	31/03/2012	69.7	3.1	4.4
Total		**508.5**	**37.3**	**7.3**

Source: Annual Reports, latest available

The "Canadian Model" of Direct Investing

According to Preqin (2011), 51% of Canadian infrastructure investors make direct investments, the highest figure in the world. This approach (known as the "Canadian Model") has attracted considerable attention around the world, for several reasons:

- lower cost than external infrastructure funds[5]
- agency issues with fund managers
- direct control over assets (including entry and exit decisions)
- long-term investment horizon to optimize value and liability matching

This direct approach to infrastructure investment must be seen in the context of a more general approach to pension plan governance and investment.[6] Notable characteristics of the "Maple Revolutionaries" (*The Economist* 2012) include

- ***Governance:*** Strong governance models, based on independent and professional boards.
- ***Internal management:*** Sophisticated internal investment teams built up over years; the top 10 Canadian pension plans outsource only about 20% of their assets (BCG 2013).
- ***Scale:*** Sizable funds, particularly important for large-scale infrastructure projects.

Potential challenges for the direct investing approach include insufficient internal resources, reputational and legal issues when things go wrong, and the need to offer staff market-based compensation in high-compensation labor pools.

Despite these challenges, however, the direct internal investment approach of large Canadian pension funds is now being tried in other countries. Other lessons from the Canadian experience include the existence of a well-functioning PPP model, a robust project bond market, and long-term involvement of the insurance sector.

Canada's infrastructure growth story can be summed up by two paradoxes. First, Canada's large pension funds are major infrastructure investors, but most of their capital is allocated outside Canada. Second, Canada has a well-functioning PPP model, yet pension funds are not major investors in it. The key reasons for these paradoxes are the relatively small sizes of Canadian infrastructure investment opportunities and the high leverage embedded in many PPP projects, which leads to equity shares of less than 20%.

Comparing the Australian and Canadian Experiences

There are a many commonalties between Australia's experience and Canada's. Both countries have a trust-based pension system, neither has restrictive investment regulation, and both use prudent-person principles. Their pension assets are of similar size – about US$1.5T – and both achieve high rankings for the overall quality of their pension systems: Australia is in third place, behind Denmark and the Netherlands, and Canada in sixth, behind Switzerland and Sweden (ACFS Mercer 2013).[7]

Both Canada and Australia were, with the United Kingdom, early adopters of PPP. They are both federal states with delegated responsibilities for infrastructure at different levels of states/provinces and municipalities (albeit not distributed in the same way; Blain 2012). New infrastructure plans have been developed in recent years, and new public infrastructure institutions have been set up.

There are also some marked differences. Australia's infrastructure industry started with a bang of large-scale privatizations in the 1990, while Canada is still largely abstaining from privatizations at home. Canada has a well-functioning project bond market, while Australia does not. Their occupational pension systems are at the opposite ends of the design spectrum: defined benefit (DB) in Canada and compulsory defined contribution (DC) in Australia.

Lessons learned include the following:

- Substantial infrastructure investments are possible in very different pension systems, with different histories and even different motivations.
- Infrastructure investment vehicles can evolve and adjust according to investors' needs. In Australia, listed infrastructure funds were most popular initially, but that is longer the case.

- Pension plan size matters when investing in less liquid assets. Private infrastructure investing is driven primarily by large-scale funds, while smaller funds mostly invest little to nothing in infrastructure. In Australia, two-thirds of pension funds do not invest in unlisted infrastructure at all.[8]
- Asset owners need adequate resources when investing in new and difficult asset classes. Some Canadian plans admit that their own estimates of time and other inputs were too optimistic at the outset.
- New investor platforms, clubs, syndicates, or alliances are being developed that should also attract smaller pension funds, such as the Pension Infrastructure Platform (PIP) in the United Kingdom or OMERS' Global Strategic Investment Alliance (GSIA). However, industry experts stress the difficulties of such alliances with larger numbers of players, often with little experience and few resources. Decision time is also a critical factor.

All this raises the issue of measuring and benchmarking infrastructure investment results.

Benchmarking Performance

Average investment performance has been mixed to fairly positive in both countries so far, but with considerable variance across investors. General investor perception is that most assets and products more or less produce the expected income and return profile, but there have been disappointments during and since the global financial crisis, which can weigh heavily in highly concentrated portfolios.

Performance data are still surprisingly poor, and little research has been undertaken anywhere, although Australia is something of an exception. IPD, a benchmarking service, recently created an index of Australian unlisted infrastructure based on a small number of infrastructure funds (IPD 2013). Over five years, to mid-2013, the calculated average annualized total return was 8.6% (net of fees), despite a heavy setback during the financial crisis.

Some academic and industry studies have tried to analyze the virtues of unlisted infrastructure using data from Australia, the only country with substantial longer-term fund data (e.g., Peng and Newell 2007; Newell et al. 2011; Finkenzeller et al. 2010; Bird et al. 2012; CFS 2009; Russell Investment 2012). These studies tend to report relatively high risk-adjusted returns, low correlations to other asset classes, and relatively good downward resilience. However, it is still early days, and several supposed characteristics of infrastructure investments are called into question by early academic research.[9]

A major issue is the benchmarks selected for comparing infrastructure investments. In Australia, superannuation funds typically use an absolute benchmark, such as CPI + 3%/4%, or a nominal target such as 10%. In Canada, pension funds use a broad variety of benchmarks, including absolute benchmarks (e.g., a nominal 8%; CPI, cash, or bond yields plus margin; capital cost plus margin), relative benchmarks (e.g., mix of equity and bond indices), or even peer investor groups.

Concluding Observations

The experience of most investors with infrastructure investors is still relatively new. Some lessons have already been learned the hard way. There are some critical areas that need to be addressed appropriately going forward, including

- periods of overly optimistic demand projections and overvaluation of assets (as in the mid-2000s and perhaps again these days in some places)
- poor risk assessment (e.g., demand risk of transport assets) and risk management (e.g., excessive leverage)
- market volatility of *listed* infrastructure stocks and funds
- governance and fee issues with infrastructure funds
- high degree of portfolio concentration
- pitfalls in investing in less-known overseas jurisdictions.

Policy makers, too, can learn important lessons:

- Investors, actual and potential, regularly complain about the lack of suitable projects to invest in. In recent years, Australia and Canada have tried to improve their infrastructure policies, and have intensified the dialogue with institutional investors and the industry.
- Clear procurement processes are considered essential by most investors. The Canadian PPP process is now characterized as comparatively clear and competitive; in Australia, a reform process is underway to identify weaknesses and to "retune" the PPP model.
- Governments in many countries would like to see more private capital flow into *new* (preferably domestic) infrastructure projects, but insurance companies and pension funds are mainly interested (or able to invest) in low-risk, already operating assets. Therefore, the idea of "asset recycling" (i.e., selling old public assets to finance new projects) is being discussed in Australia and elsewhere.

Implications for regulators:

- Australia and Canada abstain from restrictive *investment regulation* that would limit the allocation to illiquid asset classes.
- In DB systems, *solvency and funding regulation* can make long-term investing more difficult. Canada's solvency rules are relatively flexible, and the supervisors are only minimally involved in investment matters.
- In a DC system, investment in illiquid asset classes can potentially be difficult. In Australia, the preference for

liquid assets is still considered a hindrance, given members' easy switching options. There were some issues during the global financial crisis, but the effects were reportedly limited. However, the potential for "bank runs" remains, and it would be important to be prepared when they occur.

Lessons for designers of funding structures:

- Although the focus of Australian and Canadian pension funds has so far been primarily on equity, interest in debt financing is rising. Canadian infrastructure bonds tend to be investment grade, and hence suitable for conservative institutional investors. Other countries could learn more about these funding structures.
- The same is true for Canadian insurance companies' long experience with long-term infrastructure debt. Governments in other regions need to realize that such project bond markets need the right institutional environment and trust to develop, and cannot be jump-started overnight.

Infrastructure has been a global asset class from the outset, with surprisingly little home bias. Canadian pension plans had to find big infrastructure tickets in Europe or elsewhere from the beginning. Australia's growing pension funds need to seek opportunities overseas. At the same time, their experienced infrastructure investment industry can export their services in other regions.

The Jury Is Still Out

If investors around the world follow the example of institutional investors in Australia and Canada, the demand for infrastructure assets could be very high. However, this statement comes with a significant caveat: political stability is paramount for the attraction of domestic and international capital. Investors express increasing concerns about regulatory risks, such as inconsistent infrastructure policies and retroactive changes of rules – for example, in the energy sector in Europe.

Yet many countries are also recognizing that they need to compete for private capital, sometimes offering attractive sweeteners as a result. It will remain a challenge for long-term investors to find the right path between the traps of political opportunism and the cyclical overvaluation of infrastructure assets. Thus, the jury on the long-term prospects for infrastructure investing is still out.

Endnotes

1. The working paper builds on a number of interviews with policy makers, investors, and industry experts in Australia and Canada. For a general background on international pension fund investment in infrastructure see, e.g., OECD (2011, 2013); Della Croce (2011); Inderst (2009, 2010).

2. For a more detailed discussion see, e.g., ASFA (2011a); Ernst &Young (2011); Infrastructure Australia (2012); Infrastructure Partnerships Australia (2010); Deloitte (2013).

3. The asset allocation to "other assets" (i.e., other than the traditional equities, bonds, and cash) rose from 14% in 2002 to 23% in 2012. That portion includes real estate, infrastructure, private equity, hedge funds, commodities, timber and land, and other assets and strategies (Towers Watson 2013a). In this paper, 'infrastructure investment' refers to private (or unlisted) investments. It is clear that pension funds, in addition, keep investing substantially in traditional stocks and (corporate) bonds of listed utilities and other infrastructure companies.

4. Clearly, these figures are determined primarily by the number 1 manager in the table, Macquarie Group, which is reported to have market share of well over 40%. Note that these figures relate to the base of the fund managers and not of the infrastructure assets; a major proportion is invested abroad.

5. Closed-end fund fees tend to be around 2%. In contrast, expenses for direct investing are reported at a much lower level: Dyck and Virani (2012) report a mean figure of 0.44%, while the Canada Pension Plan Annual Report (2012) reports a mean of 0.39%. Such a gap raises a lot of questions.

6. See, e.g., case studies of Canada's Canada Pension Plan Investment Board (CPPIB), Australia's Future Fund, and other sovereign wealth funds (Clark and Monk 2011).

7. The Melbourne Mercer Global Pensions Index's ratings of B+ for Australia and B for Canada indicate a "system that has a sound structure, with many good features, but has some areas for improvement that differentiates it from an A-grade system."

8. The size of pension funds is a much-discussed topic in Australia, particularly in relation to investment performance (e.g., ASFA 2011b). The best-performing funds within the overall universe are large funds with a high exposure to unlisted assets. Other research seems to confirm the existence of a general illiquidity premium, not specific to infrastructure, at least for the period in question in Australia (e.g., Cummings and Ellis 2011; Cummings 2012).

9. Strong caveats are necessary with all historic risk, return, and diversification figures for infrastructure: the sample of funds is small, most have a short history, and the valuation of unlisted infrastructure and direct property is based on appraisal, which tends to underestimate volatility and correlations with listed instruments and overestimate their diversification potential. Results strongly depend on the specific period analyzed, and there may have been a classic first-mover advantage.

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