For professional investors only

Colonial First State Global Asset Management

First State Investments

Infrastructure Insight Series

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Contents

Introduction

Welcome to this compendium of our Infrastructure Insight series of papers.

Infrastructure now commands attention from institutional investors globally, having established itself as a major alternative asset class. Yet investors continue to grapple with a shortage of high-quality information upon which to base investment decisions.

For several years now, we have sought to close this gap, with research on topics as diverse as asset class performance and benchmarking, active management and sustainability at the asset level and mapping market activity in the core infrastructure space.

Our latest research insights come at an interesting time for the infrastructure market.

New investors face a potentially bewildering array of investment choices under the 'infrastructure' banner. Do they opt for greenfields or brownfields? Developed or emerging markets? Debt or equity? Listed or unlisted? Or a combination of these? Each option bears a different risk-return profile and performs differently in a portfolio.

Even seasoned investors are re-evaluating the efficacy of their strategies. With more participants in the market, how do they ensure they are able to deploy capital successfully? And how do they find value given hot competition in some segments of the market?

Our first paper, '**Infrastructure Comes of Age**', takes stock of the infrastructure investment market. We also profile investor appetite for various infrastructure strategies, discuss the case for core infrastructure and evaluate the performance of the asset class over the past 15 years.

The second paper, **'Shifting Sands'**, looks at the demand side of the equation, charting the changing investor base on a number of dimensions. One thing is clear: the new breed of investors bears little resemblance to their more established counterparts.

Finally, our third paper '**Bottlenecks and Bonanzas'** completes the picture with the supply side of the investment equation. We cover trends in deal activity from a core brownfield perspective, with some interesting findings. We also provide detail on the key opportunities and obstacles in each of the three main regions.

Together, these papers aim to paint a picture of the infrastructure universe from a core, brownfield standpoint. On behalf of the team here at First State Investments, we hope you find these of interest and look forward to sharing further insights with you.

Please do not hesitate to get in touch should you wish to provide feedback or discuss these further.

Ritesh Prasad

Direct Infrastructure Research

Infrastructure Comes of Age

Key points

- Infrastructure is rapidly ascending the ranks of alternative asset classes globally.
- We expect above-trend growth to continue, as global allocation levels approach those in historical market leaders Australia and Canada.
- Infrastructure encompasses a diverse range of infrastructure investment strategies, each with distinct risk and return characteristics.
- Conservative investors such as pension funds are finding that their investment objectives are best met by a 'core' or low-risk investment strategy.
- Based on available evidence, core infrastructure strategies have delivered excellent outcomes to investors over a number of market cycles.
- Infrastructure investors have enjoyed superior capital preservation, lower volatility and strong diversification compared with other asset classes.
- While more development remains, large institutional investors are already embracing infrastructure.

Institutionalisation of infrastructure investment

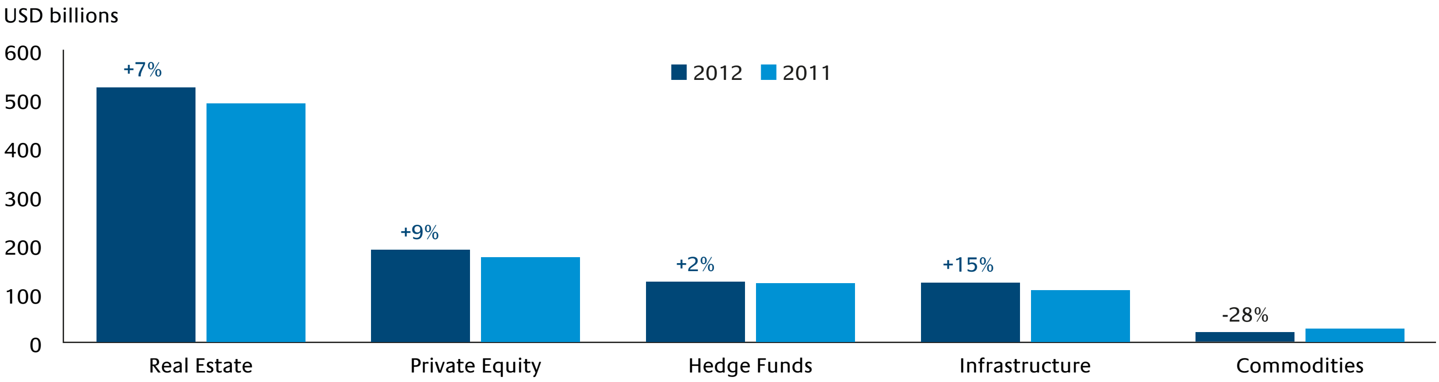
While the trend toward greater private ownership of infrastructure assets has been evident in the developed world for some time, the more recent financial pressure on corporates, in addition to intensifying fiscal pressure on governments, has encouraged new capital providers. Most notably, existing infrastructure assets are increasingly being held by institutional investors, such as pension, insurance and sovereign wealth funds, either directly or through dedicated infrastructure funds.

This model of stewardship can contribute to a virtuous cycle, whereby institutional demand for infrastructure investment directs capital towards building and maintaining the stock of infrastructure assets. This, in turn, allows services to be provided to the end-users of infrastructure assets, who are often also the underlying beneficiaries of vehicles such as pension funds and sovereign wealth funds. The long-term nature of these vehicles is also a good match for the long-term nature of infrastructure assets.

Growing institutional demand has helped develop the asset class from a 'cottage industry' to a major alternative asset class for institutional investors over the past two decades. Infrastructure is particularly popular with more conservative, liability-driven investors such as pension funds. According to a survey published in 2013 by consultant Towers Watson, infrastructure is now the fourth-largest externally-managed alternative asset class for pension funds globally behind real estate, private equity and hedge funds.

Among these alternative asset classes, institutional infrastructure investment is relatively young – real estate and private equity were well-established by the 1980s, while hedge funds grew significantly in the 1990s. By contrast, infrastructure remained largely the preserve of Canadian and Australian investors until the mid-2000s, which were marked by a proliferation of new managers launching dedicated infrastructure funds in the US and Europe.

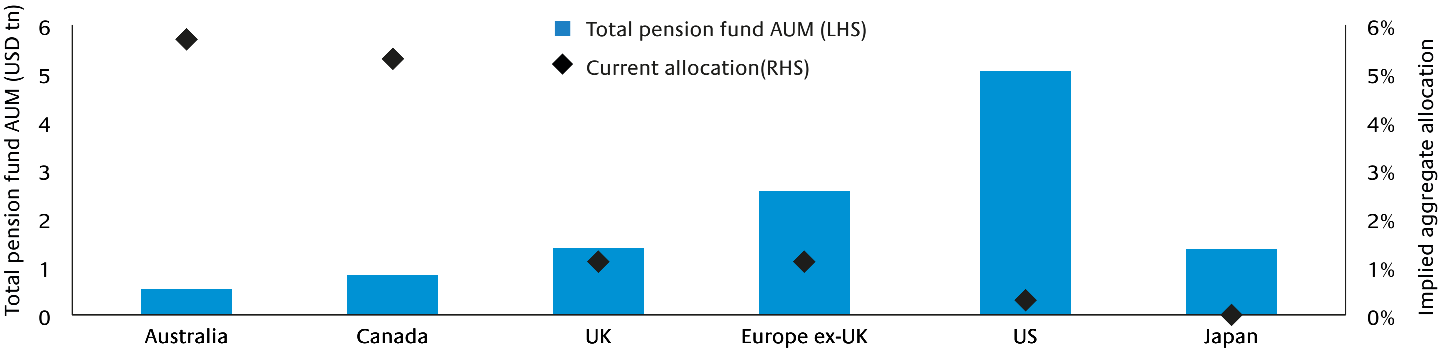
Top 100 alternative investment managers



Source: Towers Watson and Colonial First State Global Asset Management (CFSGAM) Research.

Infrastructure has since rapidly gained momentum. Pension fund assets under management (AUM) grew 15 per cent in 2012 – faster than any other alternative asset class. If it maintains this growth, infrastructure will leapfrog hedge funds to become the third largest alternative asset class in pension fund portfolios.

Current implied infrastructure allocations versus total potential capital. Pension fund AUM, as at December 2013.



Source: Preqin and CFSGAM Research estimates.

Is the prospect of this rapid growth continuing a realistic one? We believe so. Current infrastructure allocations for pension funds in developed markets remain far below the levels in Australia and Canada. The exhibit above shows that the latter markets have implied allocations of 5.7 and 5.3 per cent respectively, compared to the UK and continental Europe at just over 1 per cent, while US and Japanese pension funds are allocating less than half as much as their European counterparts.

In addition to pension funds, the other major categories of institutional investors are insurers and sovereign wealth funds (SWFs). Insurance funds are, at present, less prolific investors in infrastructure, but represent a larger overall pool of capital than pension funds. Of the three groups, SWFs are the smallest, but fastest-growing group. We explore the size and distribution of these capital pools in greater detail in the next chapter titled **'Shifting sands: the changing investor landscape'.**

The menu of infrastructure investment strategies

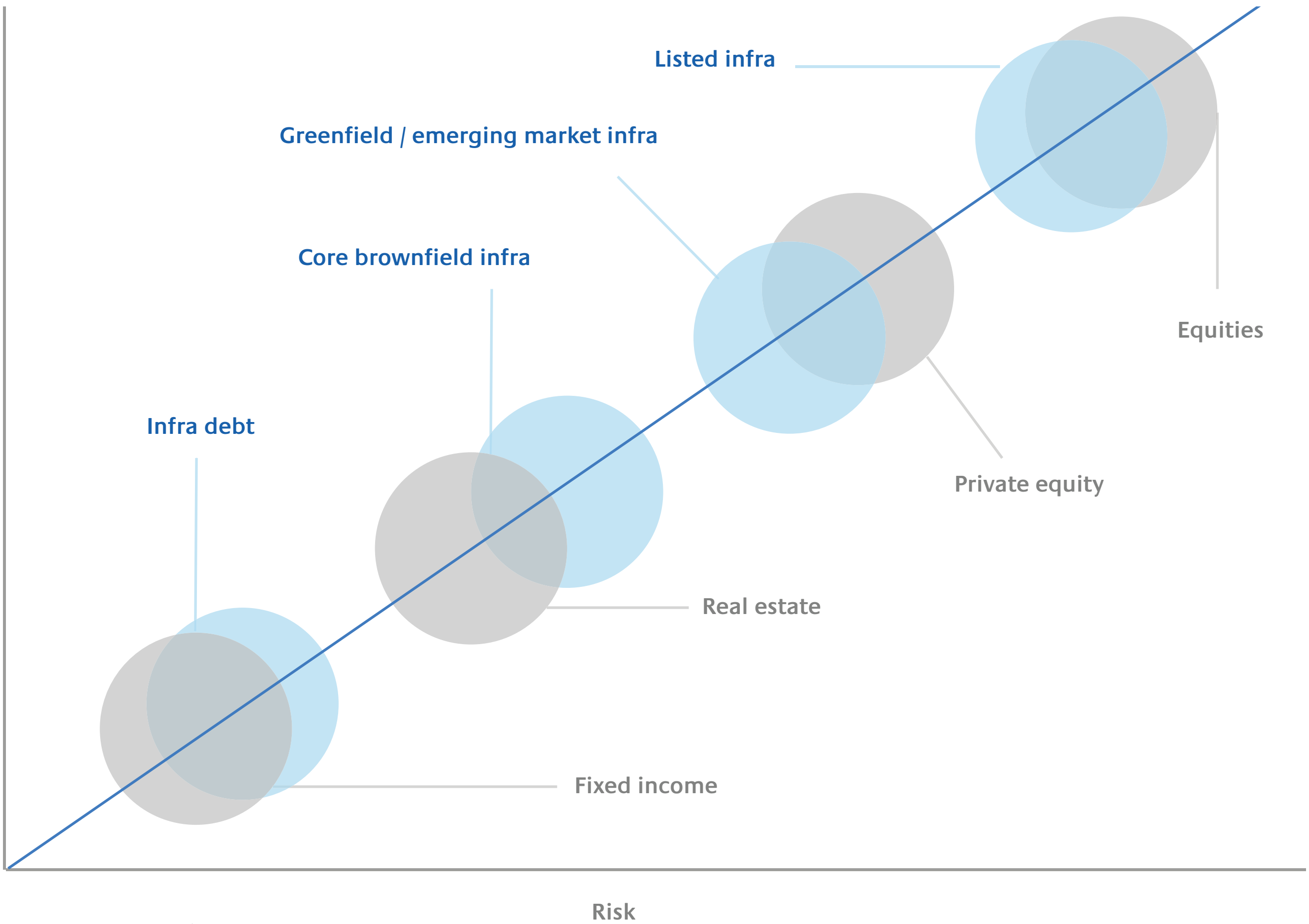
Much like infrastructure assets themselves, infrastructure investment is best viewed as a thematically-linked but disparate set of investment strategies. Factors such as whether an investor is:

- providing debt or equity
- investing in greenfield projects or brownfield assets
- focused on advanced economies or emerging markets, or
- accessing the assets via public (listed) markets or private (unlisted) markets

will dictate the expected returns, volatility, liquidity, portfolio diversification potential, requisite expertise and other risks of their infrastructure strategy.

Indeed, the differences in risk and return characteristics between strategies are arguably as much as those between asset classes themselves, depicted in an illustrative sense below. While market inefficiencies and inconsistencies can sometimes create situations that appear contrary to the idealised diagram presented here, the key point is that different strategies are best viewed as complements rather than substitutes[2].

Risk and return characteristics of infrastructure strategies



Source: CFSGAM Research.

2 For instance, investors may mis-price greenfield risk and demand little to no premium over brownfield internal rates of return (IRRs), or alternatively enjoy above-average rates of return on a particular strategy due to market dislocation/ favourable supply-demand dynamics.

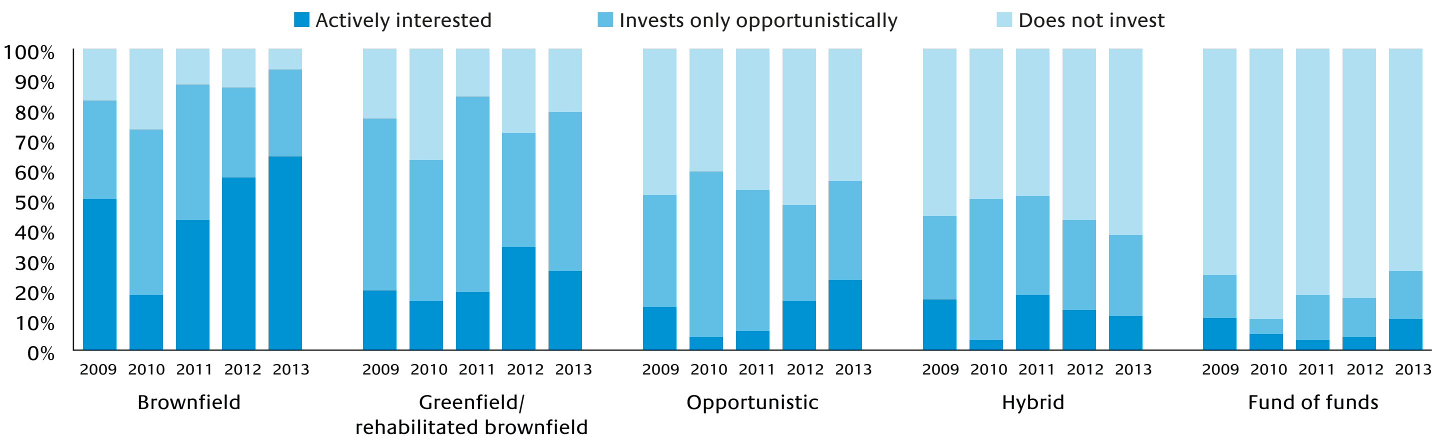
Of the diverse options available to access the infrastructure sector, which is the most appropriate? This will ultimately be governed by the motivation for investing in the asset class.

Pension funds are an obvious starting point, accounting for 70 per cent of global institutional infrastructure investment to date. A survey of US-based pension funds examined the strategic objectives of respondents[3]. They found strong support for the objectives of:

- generating stable, long-term yields
- preservation of capital, particularly in bear markets or economic downturns
- providing low correlation to other asset classes and contributing to portfolio diversification
- inflation protection
- hedging against long-term liabilities.

The strong support for these objectives suggests that the majority of investors view infrastructure as a defensive asset class with yield-oriented, stable growth and strong portfolio diversification potential. This also largely explains the relative popularity of brownfield strategies, as shown in the exhibit below from a separate investor survey[4].

Infrastructure strategies of interest. Surveyed institutional investors.



Source: Probitas Partners and CFSGAM Research.

The surveys, which allow investors to select multiple responses, show that brownfield strategies are the dominant strategy, with 93 per cent of investors actively interested or investing opportunistically.

Unfortunately, the options available in the survey do not include a pure greenfield investment category. Instead it is combined with rehabilitated brownfield, making it difficult to ascertain the true appetite for pure greenfield investing. An earlier survey, from 2008, which only allowed one response and carried a pure greenfield option, provides some clue; it shows that only 3.4 per cent of investors chose pure greenfield exposure. Among more experienced respondents the corresponding figure fell to 1.8 per cent.

A lower-risk, or 'core' infrastructure strategy, appears to be a natural fit for most institutional investors, based on their stated preferences and dominant investment objectives. Brownfield, or operating assets, offer stable and predictable yields immediately, in contrast to the delayed and more uncertain yield profile that an investor in a greenfield asset would face. Similarly, a brownfield strategy minimises exposure to other risks. For example, by limiting greenfield exposure, an investor avoids construction risk and ramp-up patronage risk for certain assets such as toll-roads. A geographic focus on developed economies is also consistent with a core strategy, with emerging markets often seen as having unacceptably high levels of political and sovereign (e.g. expropriation) risk due to less developed legal and regulatory frameworks.

3 Beeferman, L. & Wain, A. '**Infrastructure - Defining matters**' (2013).

4 Probitas Partners. '**Infrastructure Institutional Investor Survey**' (statistics compiled from various editions).

Finally, adhering to a core strategy also means avoiding investment into 'peripheral' infrastructure. For example, shipping or ferry services are thematically linked to ports, but do not share the same monopolistic characteristics or regulated nature of ports, which is generally considered to be a core sector. Other examples of peripheral assets which expose investors to a higher risk-return profile include aircraft leasing, rolling stock and motorway service stations.

This is not to suggest that other strategies do not attract support – merely that core infrastructure has gained the most widespread interest among the existing investor base. Other investor types, such as insurers, are arguably more conservative than pension funds and may consequently have a greater propensity to invest in infrastructure debt. Likewise, some of the more growth-oriented SWFs may have proportionately higher allocations to greenfield and/or emerging market infrastructure. Finally, smaller investors such as endowments or family offices, are more likely to consider listed infrastructure due to liquidity requirements.

In the next section, we examine the performance characteristics that are broadly representative of a core infrastructure strategy. In particular, we test the capital preservation and diversification characteristics of core infrastructure based on historical data.

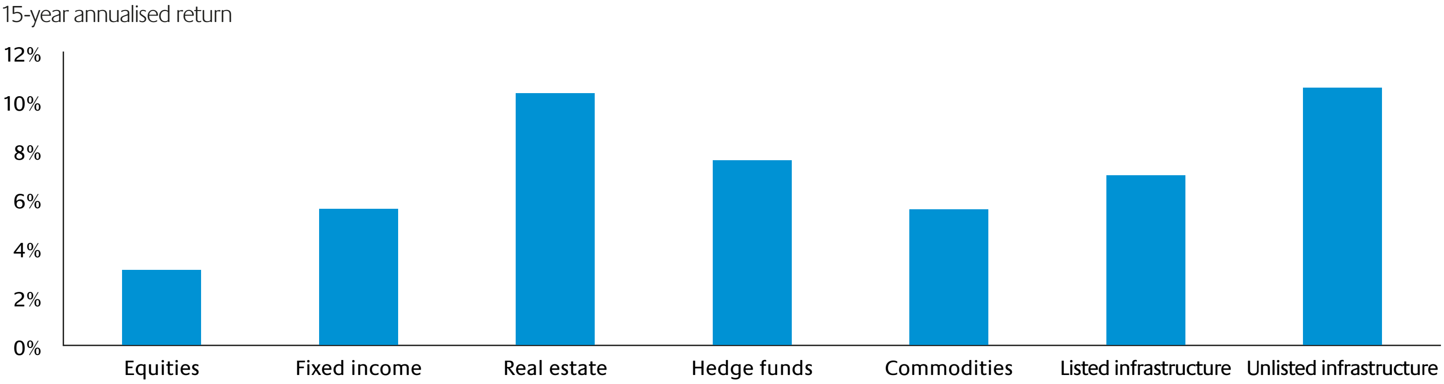
Infrastructure performance in context

There is limited available information on unlisted infrastructure performance. Index provider IPD calculates a quarterly unlisted index comprised of Australian-domiciled but globally-invested funds, which is similar to CFSGAM's internal monthly series, which extends further back. The constituent funds have both domestic and offshore exposure – nearly half the IPD index exposure is ex-Australia. More information on the two indices is available in an earlier research note.

The relevant point here is that both can be considered a reasonable approximation of a 'core' infrastructure strategy, with the caveat that some constituent assets are arguably riskier than others (for example energy generation assets versus regulated transmission and distribution network assets, or regional versus capital city airports)[5]. We use the CFSGAM index in the subsequent analysis.

For the 15 years to December 2013, unlisted infrastructure delivered an annualised total return of 10.5 per cent. This exceeded the returns of other major asset classes over the same period (see chart below), although the infrastructure number is not directly comparable due to it being AUD-denominated. Unlisted infrastructure also had the lowest volatility among these asset classes over the same period.

Long-term returns for selected global asset classes



Source: CFSGAM Research and Bloomberg.

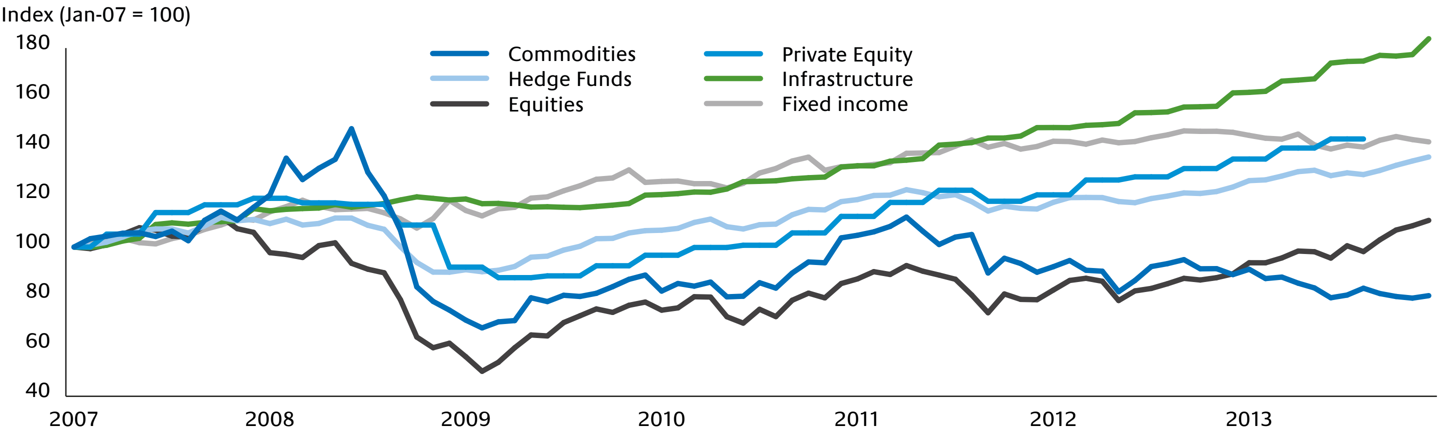
Unlisted infrastructure performed strongly during the global financial crisis (GFC) – a testing period for all asset classes. Overall, the peak-to-trough decline for unlisted infrastructure was less than 4 per cent[6]. This compared favourably to global fixed income (9 per cent), hedge funds (20 per cent), private equity (44 per cent), commodities (54 per cent) and global equities (55 per cent).

Consequently, infrastructure investors were less exposed to the crippling declines in portfolio value than their counterparts who allocated capital elsewhere. The chart below highlights infrastructure's superior capital preservation over the GFC period, even outperforming the relative 'safe haven' of fixed income.

5 Readers may also be interested to know that the selection of the CFSGAM index is somewhat conservative. Relative to the IPD index, which is NAV-weighted, the CFSGAM index has cumulatively underperformed in the 7 years since January 2007.

6 For the more pro-cyclical IPD Index, the corresponding figure is 7 per cent.

Cumulative performance for selected global asset classes



Source: Bloomberg, Preqin and CFSGAM Research.

Unlike fixed income, which was to some extent impacted by capital flows to and from riskier asset classes, infrastructure remained relatively steady, driven by fundamentals rather than capital flows. This is reflected in the low correlations with other asset classes, shown in the Australian context in the table below.

Crucially, correlations with other asset classes did not increase post-GFC. As an example, the correlation between listed infrastructure and equities increased from 0.43 pre-GFC to 0.67 post-GFC. By contrast, the correlation between unlisted infrastructure and equities fell over the same period, from 0.21 to -0.06.

Australian asset classes. Monthly total returns, 10 years ending December 2013.

Correlation matrix	Equities	Fixed income	Unlisted property	Listed property	Listed infra	Unlisted infra
Equities	1	-0.31	0.01	0.68	0.65	0.04
Fixed income		1	-0.18	0.01	-0.06	-0.13
Unlisted property			1	0.03	0.02	0.52
Listed property				1	0.50	0.06
Listed infrastructure					1	0.20
Unlisted infrastructure						1

Source: Bloomberg and CFSGAM Research.

Chapter summary

Infrastructure continues to evolve, but can no longer be dismissed as a niche asset class. Certainly, more needs to happen in areas such as greater interrogation and understanding of different investment strategies, performance benchmarking and market depth.

However, we see the emergence of infrastructure on the radar of the world's largest institutional investors as evidence that infrastructure has come of age as an asset class. Institutional investors as a whole appear to be well-placed to capitalise on some of the financial pressures that are leading traditional infrastructure owners (governments and corporates) to re-invent themselves.

Core infrastructure investment strategies, in particular, appear to be well-suited to the long-term, liability-driven nature of conservative institutional investors, such as pension funds and insurers. Based on available evidence, the performance of this strategy, particularly during the GFC, has been dependably true-to-label, unlike several other alternative asset classes. Core infrastructure, therefore, is an invaluable addition to institutional portfolios.

Shifting Sands: The Changing Investor Landscape

Key points

- In addition to the sheer increase in investor capital that is mobilising, the investor base is changing in several other key respects.
- Comparing infrastructure capital allocations to date with overall capital pools provides context and reveals latent potential.
- On a regional basis, the historical dominance of Australian and Canadian pioneers is giving way to US, Asian and Continental European investors.
- Pension funds have led infrastructure investment to date, but insurance funds are stepping up and represent a similar-sized pool of capital.
- Large investors have generally been late to adopt infrastructure investment. However, they are now embracing the asset class.

Institutional infrastructure investment in context

Institutional demand for infrastructure is undergoing a step-change, with the asset class appearing on the radar of some of the world's largest institutional investors, particularly as yields have become more elusive in traditional havens such as fixed income. In addition to the sheer increase in investor capital that is mobilising, the investor base is changing in several other key respects. This paper explores some of the key shifts in the institutional investor landscape.

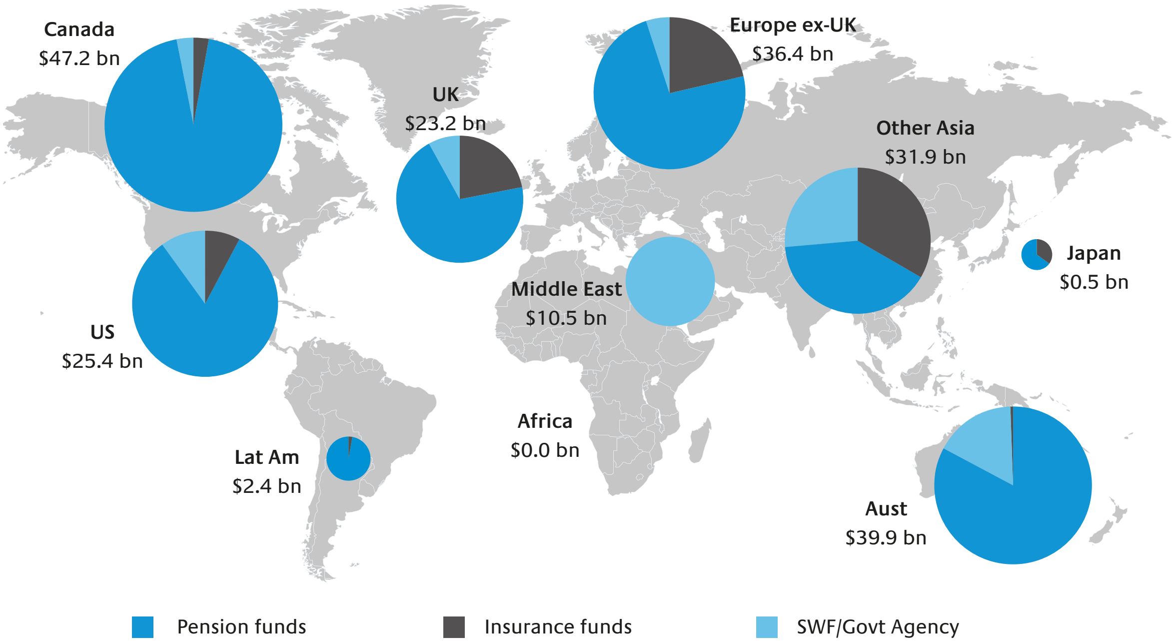
The two maps on the next page set the scene. The first shows the distribution of current infrastructure allocations on a regional basis. The second shows the potential for further inflows, by mapping total funds under management (FUM) of the three main institutional investor types. The latter is a bottom-up aggregation of institutional investors based on Preqin's online database. It excludes smaller funds which are unlikely to make an allocation to infrastructure[1].

Viewing these in tandem provides a sense of whether a particular market is under or over-represented in an infrastructure investment context relative to its overall capital base. For example, Australia and Canada 'punch above their weight' as infrastructure investors, accounting for 40 per cent of historical allocations despite only representing 7 per cent of total potential capital. Conversely Japan, the country with the second largest institutional capital base, is conspicuous by its modest contribution to the infrastructure investment pool thus far.

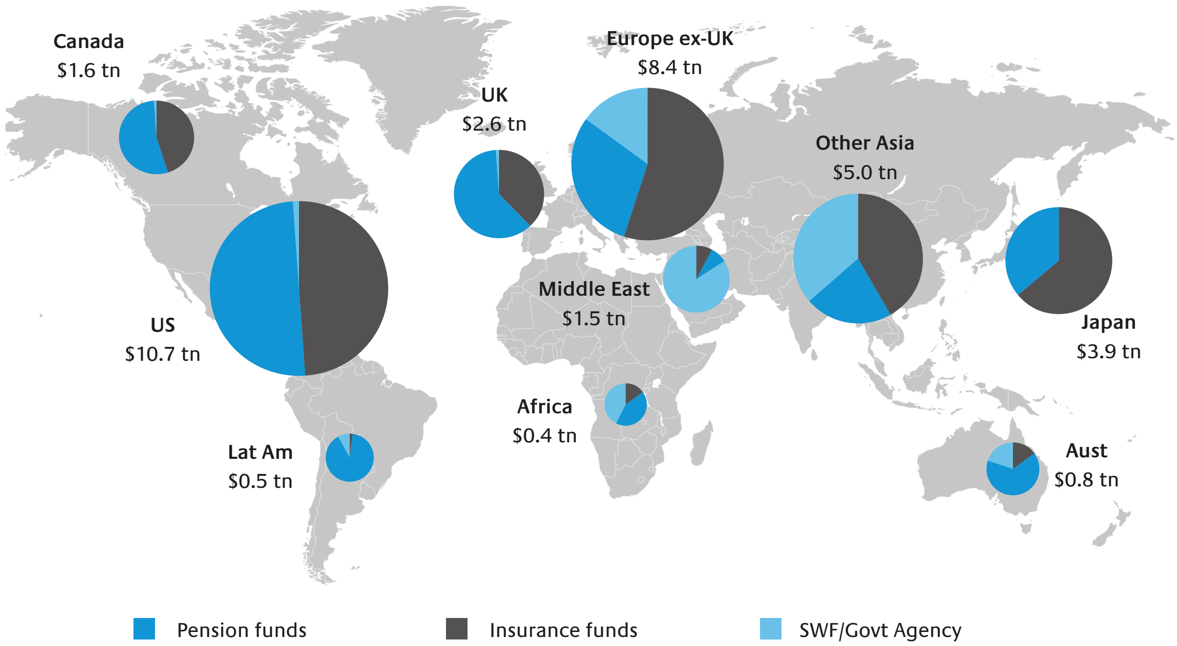
Over time, we expect the regional balance in the first map to more closely approximate those in the second. In short – more capital from the UK, Europe and Asia; and more capital from insurance and sovereign wealth funds (SWF) in particular. We examine the available evidence of these shifting sands in more detail over the following pages.

1 As an example, self-managed super funds (SMSFs) are not included in the Australian total.

Infrastructure allocations by region



Total institutional FUM by region



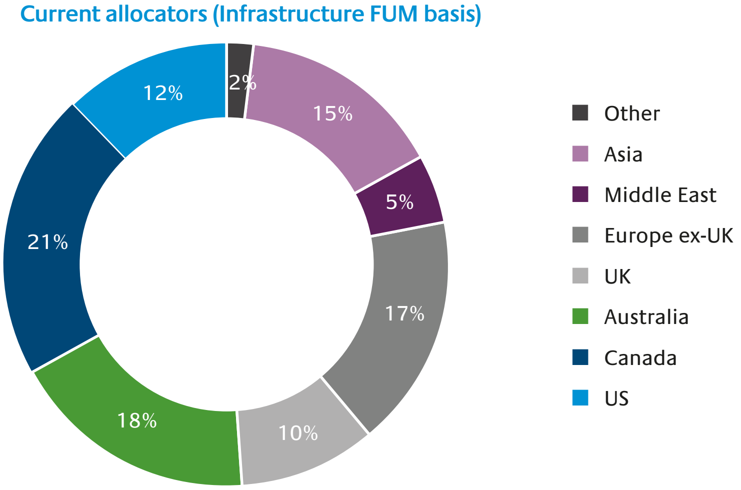
Source: Preqin and CFSGAM Research estimates as at December 2013. All figures in this report are in USD unless otherwise indicated.

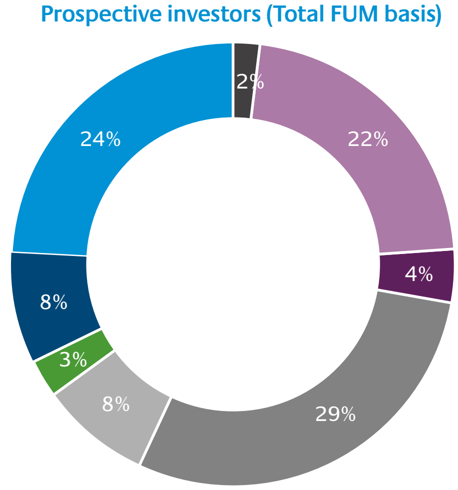
Investor location

The chart below, on the left, shows the implied split of institutional infrastructure FUM based on current allocations, while the chart on the right shows the split by total FUM of those investors who have indicated they plan to invest in infrastructure. The latter group includes prospective investors who have not yet made an allocation to infrastructure, hence the split on a total FUM basis. The figures are based on data from research and consultancy firm Preqin along with our additional internal estimates and classifications.

While not an apples-with-apples comparison, the two charts can loosely be interpreted as the current and prospective sources of institutional capital respectively. As we pointed out earlier, we would naturally expect the currently skewed distribution of infrastructure investors to be more representative of the overall capital base over time.

Current versus prospective sources of capital - region





Source: Preqin and CFSGAM Research estimates.

Several tectonic shifts are evident. The combined share of Australia and Canada falls from 40 per cent on a historical basis to only 10 per cent on a forward-looking basis. Meanwhile, the US and Asia combined rises from 26 per cent of capital to 45 per cent. Asian institutional demand is driven predominantly by three markets: South Korea, China and Japan, with South Korean investor appetite growing particularly strongly in the past 12 months.

In the US, state-based pension funds are leading a wave of institutional investment – with many of them making their maiden commitments to the asset class in the last two years. Leading investors include Teacher Retirement System of Texas with a $3.2 billion allocation, California Public Employees' Retirement System ($1.4 billion), Virginia Retirement System ($1.2 billion), California State Teachers' Retirement System ($1 billion), Oregon State Treasury ($600 million) and Florida State Board of Administration ($550 million). The momentum in the US is particularly significant as it is the world's largest pension fund market.

European demand is also becoming more broad-based, with the UK's dominance shrinking due to the rise of investors from France (e.g. CNP Assurances, Caisse des Dépôts et Consignations), the Netherlands (ABP, PGGM) and Germany (the investment arms of insurers Allianz and Munich Re). Together, investors from these three countries account for over three-quarters of Continental European demand.

Investor type

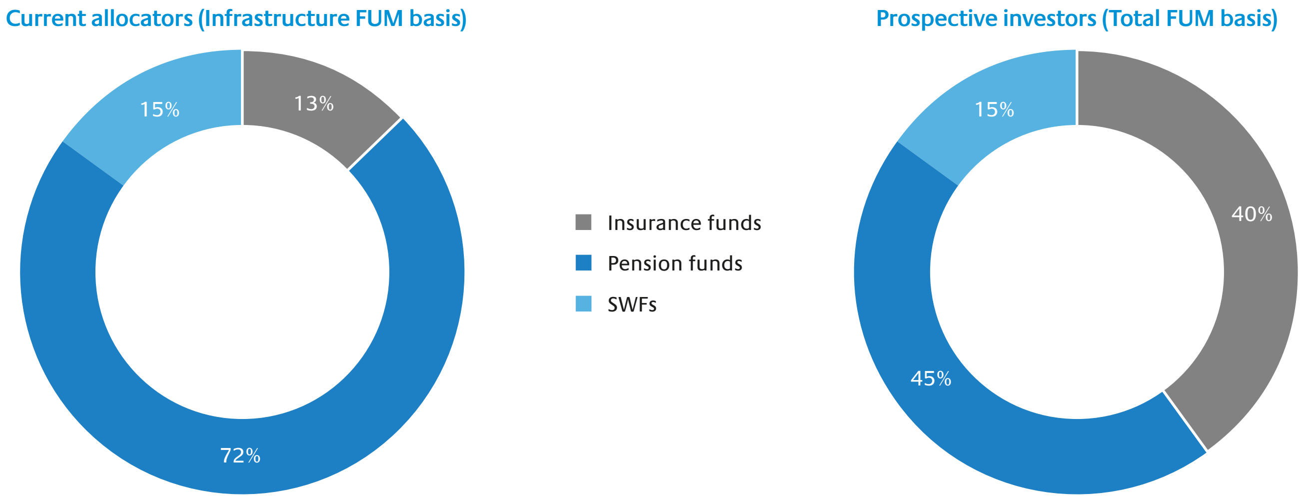
The second dimension that reflects the changing investor base is the type of institutional investor. The three largest groups – pension funds, insurance funds and SWFs – have total assets of nearly $36 trillion (we exclude smaller groups such as endowments and foundations from our analysis).

The charts below are prepared on the same basis as the regional charts shown previously, i.e. current allocations versus prospective investors.

To date, institutional investment into infrastructure has been led by pension funds, which account for 72 per cent of current infrastructure FUM. SWFs are the next most prolific with 15 per cent, rounded out by insurance funds at 12 per cent.

On a forward-looking basis the picture is quite different, with insurance funds (40 per cent) rivalling pension funds (45 per cent), which is broadly proportional to their share of global capital pools (46 and 39 per cent respectively).

Current versus prospective sources of capital - investor type



Source: Preqin and CFSGAM Research estimates.

Like pension funds, insurance funds are defensive investors (arguably more so than pension funds), which would suggest that they could support similar portfolio allocations to infrastructure (with a bias to defensive strategies such as 'core' infrastructure equity or infrastructure debt).

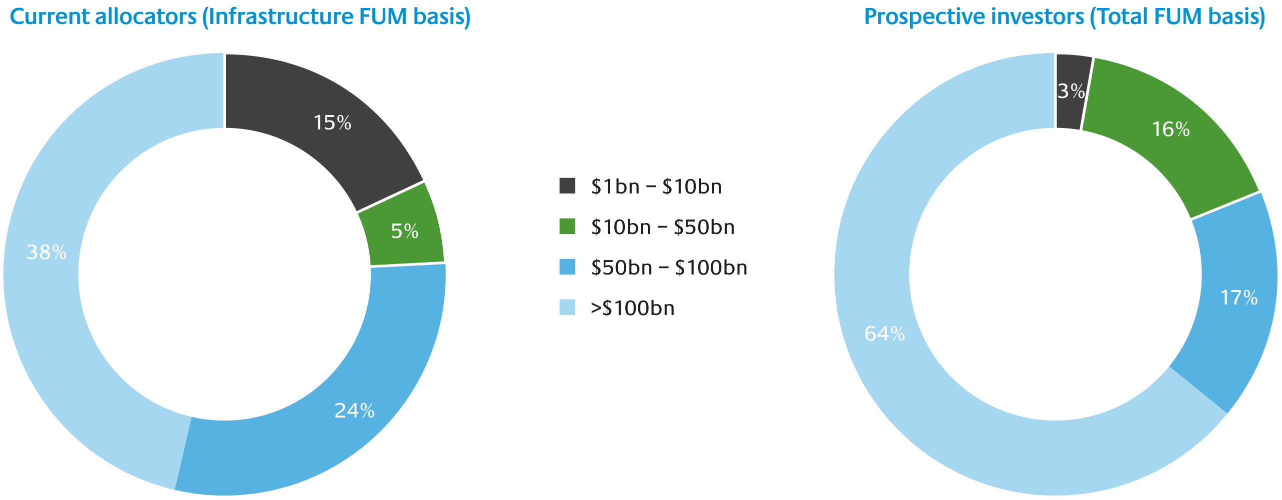
In Japan, where insurance funds have the highest share of institutional capital (63 per cent), insurers such as Mitsui Sumitomo, Dai-Ichi Life and Sompo have announced maiden commitments to infrastructure since 2012. In Continental Europe, another insurer-dominated market – German-based insurer Allianz, has rapidly amassed $2.4 billion in infrastructure FUM comprising both debt and equity investments. French insurer AXA has also increased its target allocation.

The current implied aggregate infrastructure allocation for insurance funds is only 0.4 per cent, well below the 1.1 per cent of pension funds. However, the ultimate allocation levels of insurance funds may be shaped by regulatory developments such as the Solvency II directive in Europe.

Investor size

Generally speaking, the world's largest investors have been late adopters of infrastructure investment. The world's largest individual pension fund – Japan's $1.1 trillion Government Pension Investment Fund (GPIF), only made its maiden infrastructure allocation in February 2014. Moreover, assuming it successfully manages to invest the planned $2.7 billion over the next five years, this would only amount to a 0.2% allocation.

Current versus prospective sources of capital – investor size



Source: Preqin and CFSGAM Research estimates.

The world's largest SWF, Norway's $830 billion Government Pension Fund has not yet invested in infrastructure, but is coming under increasing pressure to do so, and thereby diversify its investment base[2]. Having decided to invest in real estate for the first time in 2010, infrastructure is a logical extension of its real assets portfolio.

The implied aggregate allocation of investors with over $100 billion in total FUM is approximately 1 per cent, compared to nearly 2 per cent for investors with between $50 and $100 billion in FUM. This is perhaps a counterintuitive result as larger investors are theoretically better able to support allocations to illiquid asset classes such as unlisted infrastructure.

Based on current allocations, very large investors (>$100 billion FUM) make up 38 per cent of the total. On a forward-looking basis, however, they make up nearly two-thirds of prospective investors (based on share of total FUM). At the smaller end of the scale, the combined share of investors with less than $50 billion in FUM halves from 38 to 19 per cent.

The average size of prospective investors is $47.8 billion – more than double the current average of $23.6 billion. To a certain extent, this is tied to the type of institution (insurance and sovereign wealth tend to be larger than pension funds, on average); but this size effect is evident even among pension funds themselves.

2 'Government Pension Fund' is actually a misnomer, as the fund actually derives inflow from oil revenue (it was previously known as the Petroleum Fund of Norway), rather than pension contributions. See http://www.swfinstitute.org/swfs/norway-government-pension-fund-global for additional detail.

Chapter summary

The global infrastructure investment landscape continues to transform with increasing momentum. The ranks of pioneering Australian, Canadian and UK investors have been swelled by the participation of US, Asian and continental European investors. Infrastructure now has a foothold in all the key institutional markets globally.

The participation of these new markets is generating interest from insurance and SWFs, alongside the more traditional pension fund investors. In addition, the average size of these new investors is also markedly higher than existing investors.

Together, these shifts confirm the status of infrastructure as a genuine alternative asset class.

The entry of these new investors is undoubtedly positive for the asset class in the long-run, and should lead to a broader pipeline of deals to whet the appetite of these new investors. In the short-term, however, there may be potential frictions in the market. These and other themes are explored in our next research paper **'Bottlenecks and Bonanzas: Brownfield Infrastructure Activity'.**

Bottlenecks and Bonanzas: Brownfield Infrastructure Activity

Key points

- Despite increased interest in alternative strategies, brownfield infrastructure remains the most popular strategy among institutional investors.
- Institutional activity has been sectorially sporadic and unpredictable, with implications for portfolio construction.
- The sources of infrastructure deals have also shifted appreciably in the last few years, with listed takeovers being supplanted by corporate sales and government privatisations.
- Looking forward, opportunities in the energy sector abound, with the vast majority of assets still in non-institutional hands.
- Regional concentration in dealflow continues to be evident, with just three key regions accounting for over 90 per cent of opportunities.
- Europe continues to be fertile ground for developed market-focused institutional investors, offering attractive political and regulatory diversity. The transformation of large energy utilities stands out as a particularly bountiful theme for institutional investors.
- The North American market is energy-dominated at present, with a crowded institutional landscape. While short-term obstacles exist, there is significant medium-term potential in the energy and water sectors.
- Australia's recent privatisation bonanza is set to continue, making it a highly attractive destination for local and international institutional investors alike.

Mapping infrastructure activity

This paper focuses on institutional infrastructure activity – the supply side of the investment equation. While interest in alternative strategies such as infrastructure debt and greenfield infrastructure continues to expand, core brownfield infrastructure undoubtedly remains the most popular strategy among institutional investors globally.

We estimate total (including non-institutional) brownfield infrastructure activity since 2002 at $1.9 trillion, compared to greenfield infrastructure activity of approximately $700 billion[1]. While accurate estimates of institutional participation in greenfield infrastructure are not available, we would expect this to be much lower than the corresponding appetite for brownfield infrastructure.

1 The estimate of greenfield activity is based on InfraDeals' online database.

Institutional infrastructure activity in context

Source: Zephyr and CFSGAM Research.

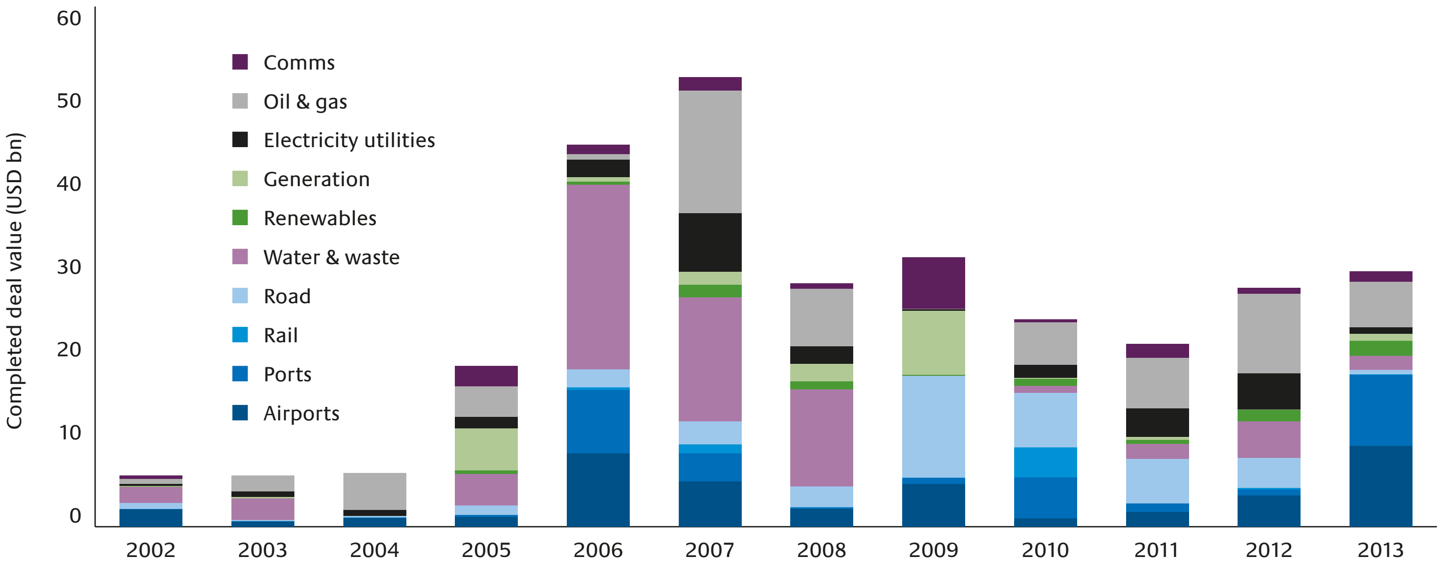
Of the $1.9 trillion in brownfield activity, the majority is accounted for by corporate acquirors. Just over a quarter consists of what might broadly be termed as institutional acquirors, including dedicated infrastructure funds, private equity funds, pension, insurance and SWFs, as well as master limited partnerships (MLPs).

Based on our analysis, there are significant differences in the risk appetite of these groups[2]. Consequently, we adopt a tighter definition of institutional activity in this paper, excluding private equity funds and MLPs, and instead focus on dedicated infrastructure funds, pension, insurance and SWFs.

Institutional infrastructure activity

The first chart shows the breakdown of institutional activity by sector. It highlights the sporadic and often unpredictable nature of deal activity. Between late 2006 and early 2008, for instance, nearly $43 billion of UK water assets were acquired by institutional investors. A similar $9 billion burst of activity occurred in Australian toll roads over a two-year period from 2010; while investors have more recently been focused on gas transmission deals in Europe.

Institutional infrastructure activity by target sector

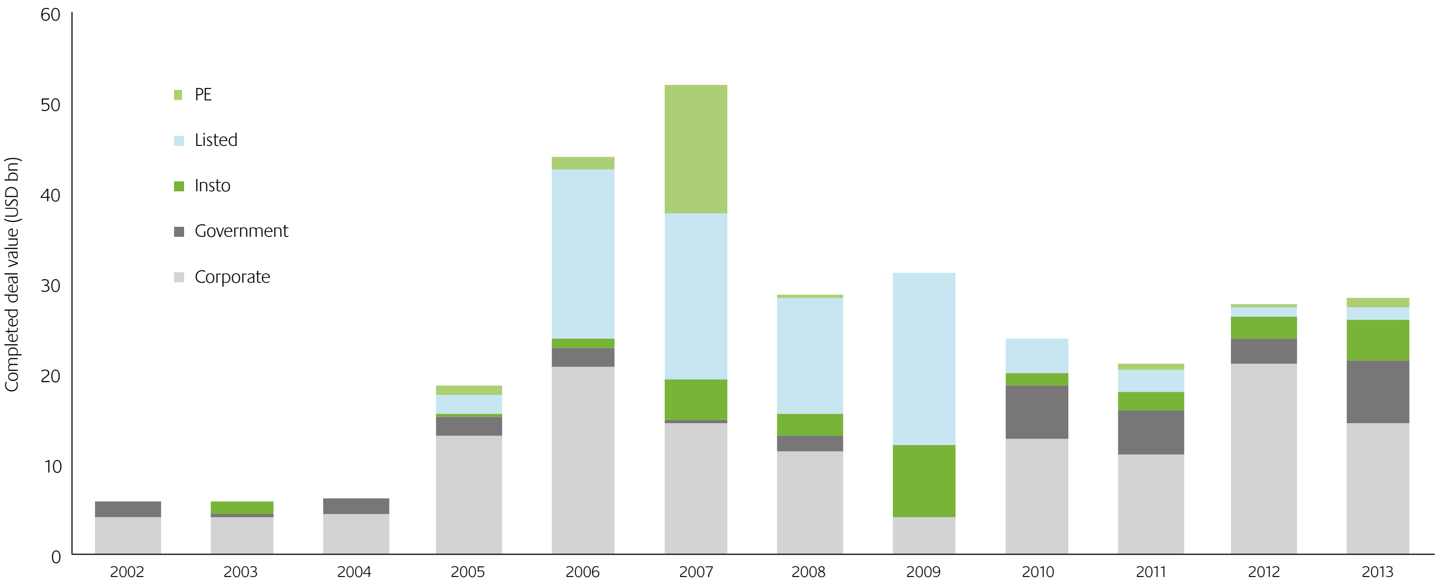


Source: Zephyr and CFSGAM Research.

2 For more detail on this, see: http://www.firststateinvestments.com/uk/insto/EDIF_research_H1

The sporadic nature of dealflow illustrates the difficulty new investors face in trying to create a sectorially-diversified portfolio from scratch. Analyzing the sources of these deals is also instructive. For example, the four-year period from 2006 to 2009 was heavily driven by listed takeovers (44 per cent of activity), yet in the ensuing four-year period this dropped to less than 9 per cent. On the other hand, corporate sellers increased their share of activity from 33 per cent to 59 per cent; while government privatisations have risen from virtually zero to one-fifth of activity.

Institutional infrastructure activity by vendor type



Source: Zephyr and CFSGAM Research.

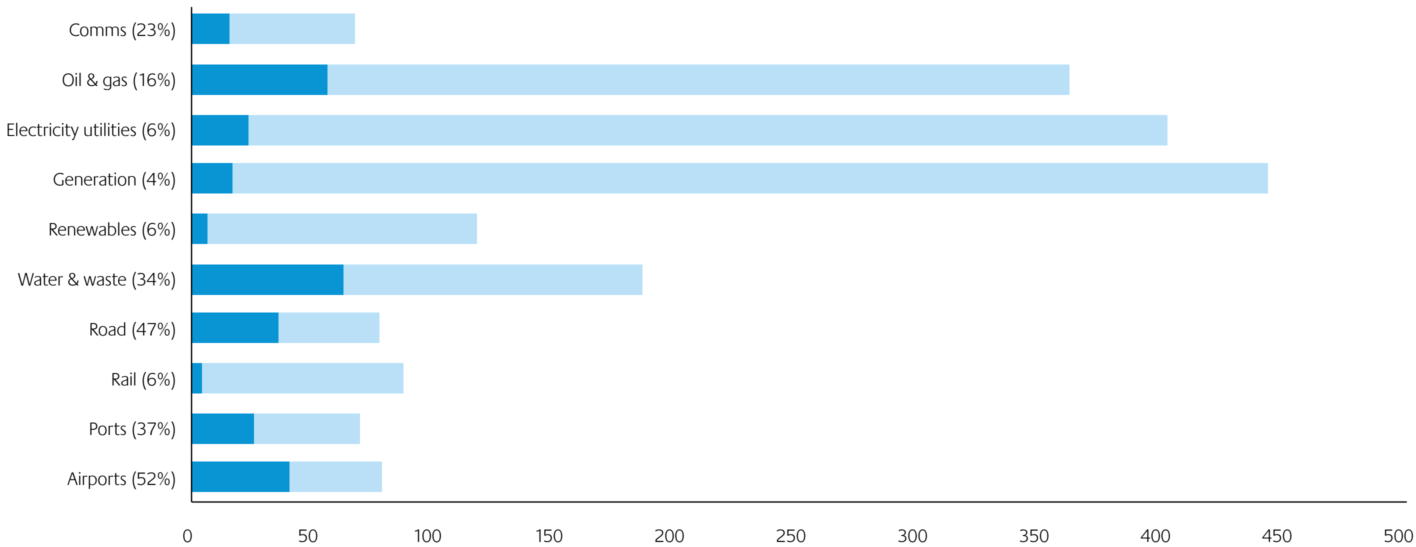
These shifts can shape the opportunity set for institutional investors. For example, listed takeovers and privatisations tend to be larger in size than corporate asset sales or secondary stakes purchased from other institutional investors. Secondary stake sales and listed takeovers tend to be more opportunistic and market-driven, while political cycles tend to influence the timing of privatisations.

Corporate asset sales, if part of a broader financially or strategically-driven divestment program, can be either company-specific or industry-driven, while privatisations tend to be organised along national or regional lines. Depending on the circumstances, value-minded investors may prefer a bilaterally-negotiated purchase from a corporate vendor rather than forming consortia to bid in large, highly-contested auctions.

The chart below compares institutional activity in each sector to overall (non-institutional) activity, with the figures in parentheses representing the proportion of total activity accounted for by institutional investors. It shows that some sectors, such as airports (52 per cent) and toll roads (47 per cent), are more tightly-held by institutional investors than others, such as generation (4 per cent), rail and renewables (both 6 per cent).

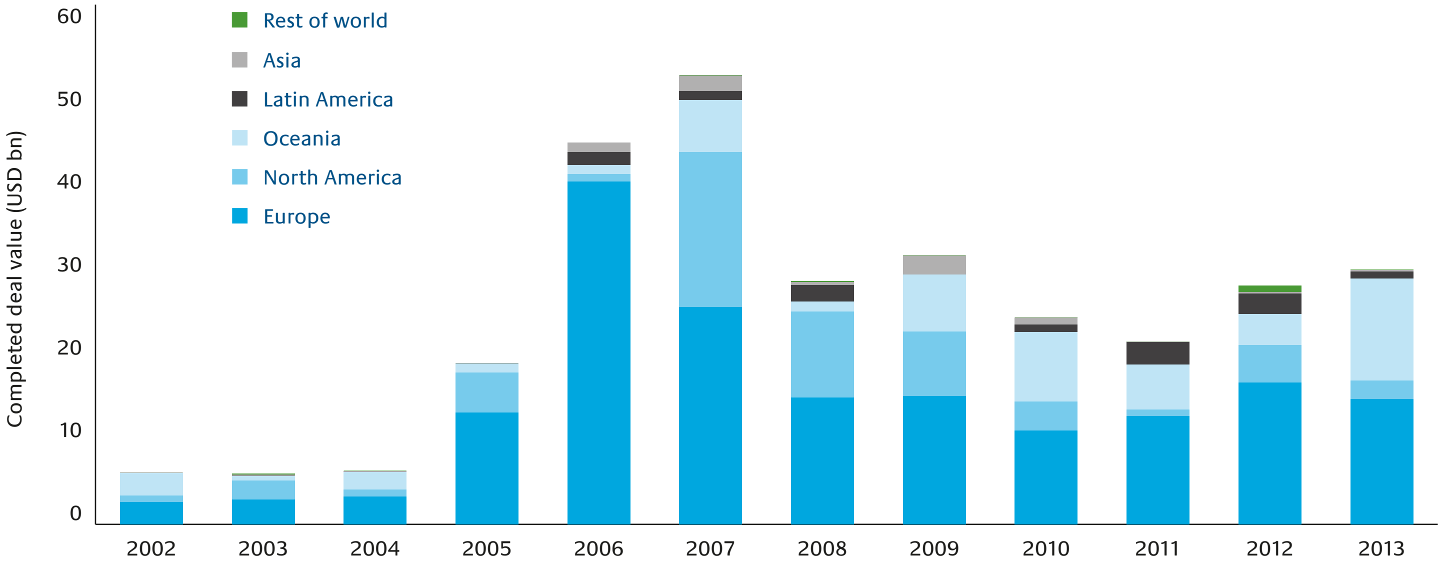
While institutional activity in oil and gas transportation and storage has been high in absolute terms (second-highest, with nearly $57 billion), the level of non-institutional activity suggests that plenty of opportunity remains in this sector. Similar dynamics are at play in electricity networks and higher-risk generation assets.

Institutional versus non-institutional activity by sector. Completed deals, 2002-2013.



Source: Zephyr and CFSGAM Research.

Institutional infrastructure activity by region



Source: Zephyr and CFSGAM Research.

The chart above, which segments institutional deal activity by target location, highlights the geographical concentration of activity. Reflecting investors' preference for developed-country risk (often expressed as 'OECD-style' risk), over 90 per cent of institutional activity over the last decade has come from just three key regions: Europe (58%), North America (19%) and Oceania (17%).

Over recent years, activity has become even more concentrated, with Europe continuing to be the dominant source of deals, but Oceania leapfrogging North America into second place on the back of strong Australian dealflow. 2013 was a particularly strong year for Australia, led by the $5.1 billion Port Botany and Kembla privatisation and the $2.1 billion takeover of AIX.

We analyze the three key regions in more detail in the next section, focusing on key aspects of the market and assessing the outlook from a deal perspective.

3 For more detail on European themes, readers may find our earlier research note **'European infrastructure: themes and opportunities'** (Nov 2011) of interest.

Europe

With nearly $170 billion in institutional activity since 2002, Europe has been the most bountiful market for infrastructure investors by some margin. The most popular sectors for institutional investors have been water and waste (33 per cent), airports (18 per cent) and oil and gas infrastructure (16 per cent). Collectively, these sectors have accounted for two-thirds of activity. Geographically, the UK has led the way through a slew of listed takeovers as well as divestments from players who participated in the initial wave of government privatisations in the mid-1990s.

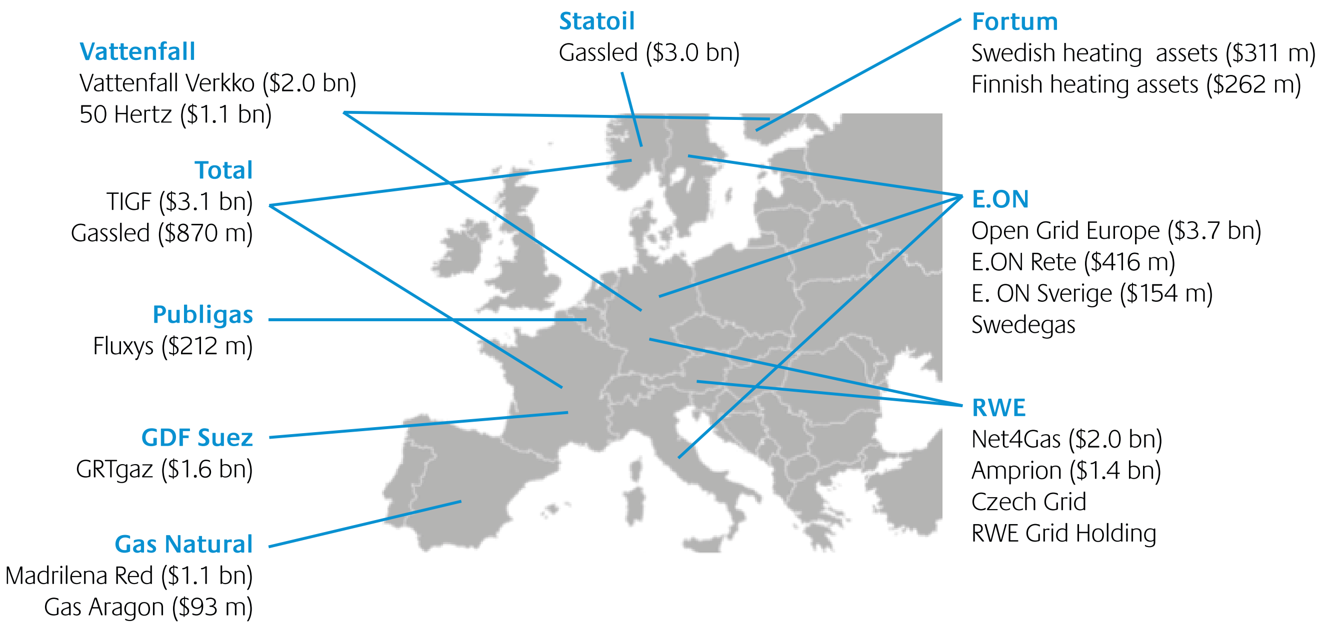
However, as the UK pipeline has slowed, investors have begun focusing on continental European economies such as Spain, France, Germany and Italy. Indeed, with over 30 countries, Europe offers unmatched depth and diversity for investors. Crucially, 24 of the 34 OECD members are located here, making it a cornerstone region for core investors focused on institutional criteria such as property rights and transparency.

Relative to a similar-sized economic bloc within one national border, these multiple jurisdictions greatly enhance investors' ability to diversify political and regulatory risk. The actions (or inaction) of any one government, for example, has a lesser influence on the region's overall privatisation pipeline, ensuring greater continuity of dealflow than would otherwise be the case.

Looking ahead, Europe offers a good mix of cyclical and structural drivers. One of the key opportunities is the divestment of regulated assets by integrated energy utilities. These sales were primarily motivated by regulatory (e.g. EU unbundling directive) or strategic factors (e.g. exiting lower-margin 'non-core' activities) pre-crisis[3]. However, the need to repair debt-laden balance sheets has accelerated this trend post-crisis. As such, it represents something of a silver lining for infrastructure investors amidst the region's economic weakness in recent years.

In the last few years alone, we estimate that over $30 billion in assets divested by European energy utilities have been purchased by institutional investors. The exhibit below shows that all of these have been based in continental Europe, and vary considerably in deal size.

Selected European energy utility divestments. 2010-2013, sales to institutional investors only.



Source: Zephyr and CFSGAM Research.

This trend shows no signs of abating, with 2014 dominated by Nordic utility Fortum's divestments, including the $3.5 billion sale of Fortum's Finnish grid to a consortium led by First State and Borealis, the subsequent $469 million sale of Fortum's Norwegian grid, and the upcoming sale of its Swedish grid, expected to fetch between $5.5 and $7 billion. We expect this trend to continue to present investment opportunities over the next few years as utilities continue to reinvent themselves in anticipation of fundamental changes in the energy market.

Other themes include contractors recycling capital from the sale of mature assets into greenfield projects, the continued privatisation of state-owned assets (particularly in austerity-affected southern Europe) and the expansion of renewable energy sector driven by the revised EU-wide target of 27 per cent of energy from renewables by 2030, which was announced in early 2014.

North America

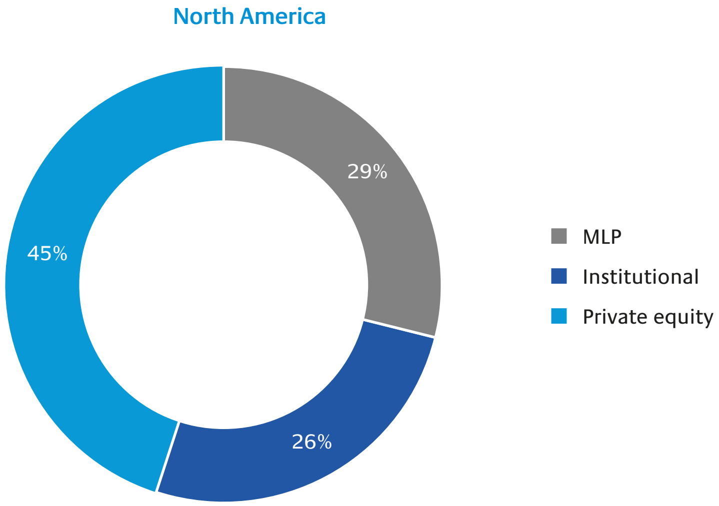
Despite being the largest capital market globally, North America is under-represented in terms of institutional infrastructure activity. In part, this reflects the unique landscape that exists in the US.

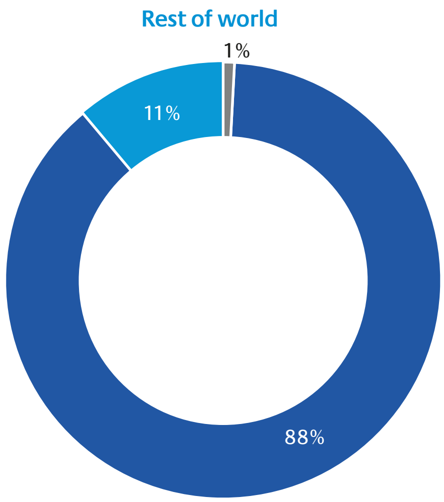
Master limited partnerships (MLPs) have grown rapidly over the past decade, from around $8 billion market capitalisation in 1996 to around $500 billion at present[4]. These listed, tax flow-through vehicles have traditionally been associated with lower-risk midstream oil and gas infrastructure, although there has been some increase in 'non-traditional' assets such as refineries and chemical plants being housed in MLP structures. Unlike Europe, where integrated energy utilities have sold their regulated assets directly to financial buyers, US corporations have tended to 'drop-down' similar assets into newly-created MLPs[5].

Private equity funds are the other major investment vehicle for North American investors. While not unique to North America, they are more prevalent in this market, and have been significant investors in the energy sector – albeit with a bias to higher-risk assets such as conventional or renewable generation assets in order to meet their typically-higher return hurdles.

The presence of MLPs and private equity funds has meant that dedicated infrastructure funds and direct investors have had a lower share of infrastructure activity in North America than in other regions. The exhibit below shows the stark difference between North America and the rest of the world in this regard.

Infrastructure activity by acquiror type. 2002-2013, excludes other non-institutional acquirors.





Source: Zephyr and CFSGAM Research.

4 MLPs are exchange-listed vehicles structured as partnerships to achieve flow-through tax treatment. They are broadly similar to REITs (Real Estate Investment Trusts) or LPTs (Listed Property Trusts), but are generally energy-focused.

5 As an example, US-based Spectra Energy sold its transmission, storage and liquids business to a separately-listed MLP for $12.3 billion in 2013.

Looking ahead, energy opportunities will continue to abound, with shale gas-related opportunities dominating. The Interstate Natural Gas Association of America (INGAA), an industry body, estimates that over $250 billion is needed on new energy infrastructure between 2011 and 2030 in North America.

The water sector is another potential bonanza. In the US, water utilities are mainly publicly-owned, fragmented and have marginal economics. Consolidation and reform to encourage rational pricing and private financing could transform the sector, according to a recent report by Ernst and Young[6].

Following newly-introduced PPP legislation in several US states, activity in greenfield transportation such as roads has picked up. However, we see brownfield transportation – particularly privatisations – as the true litmus test for the US market. These have had a chequered history: a proposed 2006 deal by Dubai Ports World to operate container terminals across six ports was cancelled due to political opposition, while attempts by the private sector to operate Virginia's port have failed twice.

In the case of Chicago's Midway Airport privatisation, which has also been cancelled twice in the past five years, the situation is even worse. Midway occupied the only one 'hub' airport slot under the program, meaning that other large airports could not be privatised unless Midway was successfully sold. While the city of Chicago has since withdrawn its application to privatise Midway in late 2013, the failure to capitalise on the hub slot effectively created a bottleneck in the pipeline of large US airport deals[7].

Notwithstanding these false dawns, we feel it is inevitable that the North American market will open up. The growing base of institutional infrastructure investors in the US is building a groundswell of home-grown support for local deals, which in turn should erode political opposition to privatisations.

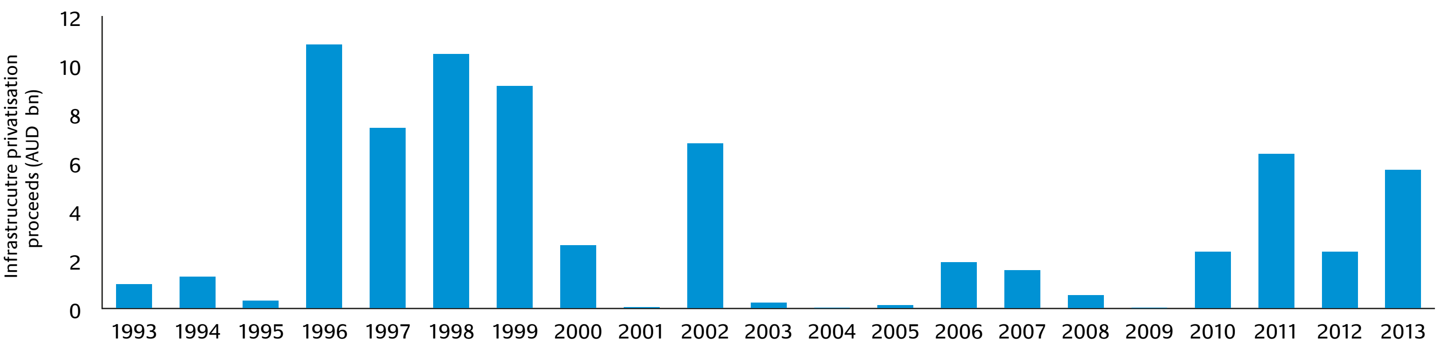
Australia

Australia's status as a well-established institutional market has its genesis in the mid-1990s, with two important developments. The first was a series of Federal and State government privatisations, which included several infrastructure assets. The second was the formation of dedicated infrastructure funds, funnelling capital from the country's new superannuation system into these newly-investible assets.

This nexus broke down somewhat during the 2000s, when a dearth of local deals led Australian pension funds to venture offshore in search of investment opportunities. Apart from a few notable listed takeovers by Canadian investors in Australian assets, this period was largely characterised by significant cross-border flows from Australia into the UK.

A second wave of privatisations began in late 2010 with the $2.3 billion Port of Brisbane sale by the Queensland government, which was followed by the $3.3 billion transfer of Queensland Motorways to QIC, the $1.1 billion Sydney Desalination sale and the $5.1 billion Port Botany and Kembla transaction in 2013. Unlike the earlier wave, where foreign participation was largely in the form of corporates, foreign institutional investors have been well-represented, attracted by Australia's strong economic fundamentals.

Australian infrastructure privatisations. Completed deals, 1993-2013.



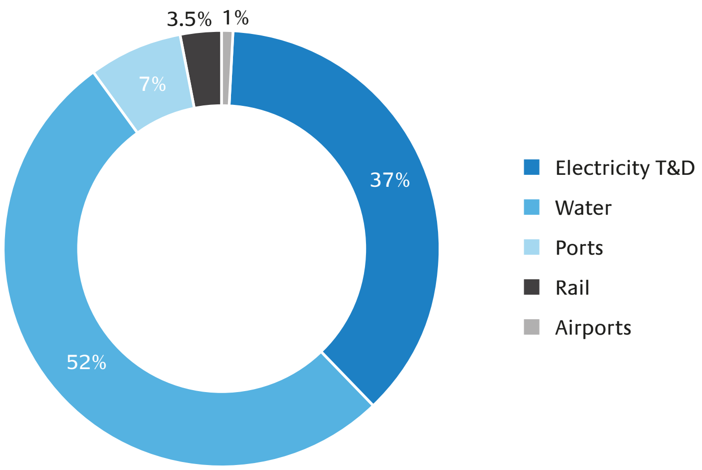
Source: Caslon Analytics, the Mayne Report, RBA and CFSGAM Research.

6 Ernst and Young. 'The US Water Sector on the verge of transformation' (2013).

7 Reason Foundation. 'Chicago Stops Midway Privatization Deal, Time for FAA to Give Other Large Airports a Chance'.

With an estimated $100 billion of assets remaining on Federal and State government balance sheets, the pipeline is expected to remain healthy for several years ahead[8]. Importantly, the capital recycling model used in New South Wales – where privatisation proceeds are earmarked for reinvestment into greenfield infrastructure – is proving successful, and should ensure greater continuity of infrastructure investment opportunities. As the chart below highlights, the bulk of the privatisation opportunities are in core assets such as water and electricity networks.

Australian publicly-owned infrastructure by sector. Estimated equity values, 2002-2013.



Source: Infrastructure Australia and CFSGAM Research.

In addition to privatisations, other opportunities are expected to emerge from the rationalisation of infrastructure following the peaking of the resources boom, as well as ongoing activity in the secondary market as institutional investors rebalance their portfolios.

Chapter summary

Compared to the regionally diverse sources of institutional demand for infrastructure, core brownfield deal activity has been relatively concentrated. While this partly reflects the distribution of OECD economies popular with core investors, North America and developed Asia remain under-represented in terms of investment opportunities. This geographical imbalance is likely to persist in the short to medium term, creating potential bottlenecks for new investors in particular. However, there are also major thematic bonanzas that astute investors can take advantage of.

Europe represents fertile ground for developed market-focused institutional investors, offering attractive political and regulatory diversity. The transformation of large energy utilities stands out as a particularly bountiful theme for institutional investors. Australia is undergoing a second wave of privatisations, making it a highly attractive destination for local and international institutional investors alike. North America will continue to provide energy-related opportunities, but we anticipate other sectors such as water and transportation will also ripen for investors in the medium term.

Our analysis also shows that the pipeline of deals has been sporadic and unpredictable at a sector level; and that the sources of deal opportunities continue to evolve over time. This is instructive for investors, as it highlights the value in having flexibility and multiple routes to market in order to achieve a well-diversified infrastructure portfolio.

8 Infrastructure Australia: 'Australia's Public Infrastructure – Part of the Answer to Removing the Infrastructure Deficit' (October 2012).

10 key take-aways

1. Infrastructure is rapidly ascending the ranks of alternative asset classes globally.
2. Infrastructure encompasses a diverse range of investment strategies, each with distinct risk and return characteristics.
3. Core infrastructure strategies, which are preferred by most investors, performed admirably over the GFC.
4. The infrastructure investor base is transforming in several key respects.
5. The dominance of Australian and Canadian pioneers is giving way to US, Asian and European-based investors.
6. Pension funds have led investment to date, but insurance and sovereign wealth funds are stepping up.
7. Large investors have been late to adopt infrastructure, but are potential game-changers.
8. Unlike the regionally-diverse demand for infrastructure, brownfield activity has been relatively concentrated.
9. Deals have been quite sporadic on a sector basis, and the sources of deals have shifted appreciably.
10. Investors will need to be flexible in order to navigate the ‘bottlenecks and bonanzas’ that await.

Our Team

Ritesh Prasad

Senior Investment Analyst, Infrastructure Research

Ritesh joined the business in January 2007 from the Commonwealth Bank of Australia's Wealth Management Graduate Program. As part of the Direct Infrastructure team, he has experience in providing macroeconomic analysis, sectoral 'house-views', portfolio and asset class analytics, and thought leadership on infrastructure investment. Ritesh provides research support for the global Direct Infrastructure business.

Ritesh completed a Bachelor of Economics from the University of New South Wales, majoring in Finance and Economics.

Philippe Taillardat

Partner

Philippe joined the Direct Infrastructure team in September 2011 and has responsibility for infrastructure investment funds and mandates in Europe, with a primary focus on direct investment in and management of major infrastructure projects. Philippe is a member of the Infrastructure Executive Committee and the EDIF Investment Committee.

Philippe has 20 years of relevant experience in infrastructure and project finance, particularly in the energy sector. Prior to joining the business, Philippe ran his own consultancy business focussing on financing and investment solutions in the unlisted infrastructure investment sector.

He holds a Master of Science in Mechanics, Industrial Systems and Process Management from École Nationale Supérieure d'Arts et Métiers (ENSAM) in Paris and an MBA from École de Management in Lyon.

Danny Latham

Partner

Danny joined the Direct Infrastructure team in November 2007 and has a focus on direct investment in and management of major infrastructure projects. Danny has responsibility for developing client relationships and the origination and securing of new investment opportunities. He is a member of the Infrastructure Executive Committee and the Investment Committee for EDIF, GDIF and WIIF.

Danny has been at the forefront of the infrastructure funds management industry for more than 17 years, working on the acquisition of over 20 infrastructure assets, including Melbourne Airport, United Energy and Northern Gas Networks. Danny has held over 10 directorships with companies including Spark Infrastructure, Melbourne Airport and Northern Gas Networks and various other companies in the transport and utility sectors. He has also been Fund Manager for a number of infrastructure funds and client mandates over the last 10 years.

Danny has a Masters of Applied Finance and a Bachelor of Economics from Macquarie University, Sydney.

Perry Clausen

Managing Partner

Perry is Managing Partner for the Direct Infrastructure business and has responsibility for the global infrastructure investment activities, as well as having primary responsibility for the Australian domiciled infrastructure investment funds and separate accounts. Perry was appointed to jointly lead the CFSGAM Infrastructure business in April 2009, and has been solely leading the business since April 2012. Perry is a member of the Colonial First State Global Asset Management Executive Committee reporting to the CEO, a member of the Infrastructure Executive Committee, and a member of the Investment Committee for EDIF, GDIF and WIIF.

Perry has more than 20 years of infrastructure and financial experience including nine years at the National Australia Bank where he was a Director in the Project and Structured Finance Group. For six years Perry was a Director and Investment Committee Member of National Australia Bank Superannuation Pty Ltd, the trustee of the A$2 billion National Australia Bank Group Superannuation Fund.

Perry has a Masters of Tax from the University of Melbourne and a Bachelor of Commerce from the University of Calgary. He is also a member of the Canadian Institute of Chartered Accountants.

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