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Research Report

Why Invest in Infrastructure?

May 2017

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1 Introduction

- Unlisted infrastructure continues to gain recognition as a distinctive asset class and holds considerable appeal for investors, including pension funds and life assurance companies focused on yield and seeking to match their long-term liabilities. By the end of 2016, there were over 175 infrastructure funds globally, with a combined target size of USD \$109 billion.¹ The funding gap between current and targeted allocation amongst institutional investors suggests there is further room for growth.²
- Globally, demand for private infrastructure capital continues to grow, driven by governmental budget constraints, the need for investment to facilitate continued economic growth, and a secondary market for existing assets, which continues to increase in importance. As regulatory changes may cause banks to retrench, investors have also begun looking increasingly at the provision of private infrastructure debt.
- Investing in unlisted infrastructure offers attractive benefits, including the possibility to own and actively manage real assets with a diversified end-user base and high barriers to entry, as well as performance characteristics that are potentially resilient to the economic cycle. Infrastructure offers relatively low long-term cash flow volatility compared with other asset classes and can also provide attractive, inflation-hedged total returns.³
- Investing in infrastructure is not risk free; it requires strategic asset allocation decisions, a detailed understanding of jurisdictions and regulation, as well as specific asset management skills to mitigate risks and support investment returns.
- Unlisted infrastructure investment has the potential to offer diversification benefits for multi-asset investors due to the lower correlation of performance with other major asset classes. It is also capable of delivering attractive risk-adjusted returns, due to relatively lower volatility and strong returns, particularly in the medium and long term.
- Mature infrastructure provides stable, long-term, income-oriented returns, while growth and development infrastructure offer material capital appreciation potential. Returns across all lifecycles can potentially be enhanced with active asset management by an experienced infrastructure manager.

¹ Preqin, “Unlisted Infrastructure Funds in Market Over Time”, October 2016.

² Source: Deutsche Asset Management estimate based on Preqin database, February 2017.

³ No assurance can be made that an investment in infrastructure will achieve its stated objectives.

2 Defining Infrastructure

2.1 Classification

Infrastructure is essential to the functioning of society and the modern economy. It consists of the physical structures and essential services that connect society and facilitate its orderly operation. Infrastructure has a direct impact on quality of life for individuals, by providing access to a broad range of essential resources, including water and energy, as well as other services such as transportation and telecommunications. Given its strategic importance and its impact on quality of life, as well as its high capital cost, the provision of infrastructure has traditionally been under government responsibility. Therefore, not all infrastructure is accessible to private investors. Even so, it is gaining broad recognition among investors as a distinctive asset class.

Classification of Infrastructure Assets			
Economic infrastructure			Social infrastructure
Transport	Utilities	Other	General
Airports	Power generation (conventional and renewable)	Communication infrastructure	Education facilities
Sea ports	Electricity transmission and distribution	Storage facilities	Healthcare facilities
Rail	Pipelines	Sport facilities	Public transportation
Toll roads	Water and wastewater	Parking	Judicial and defense facilities
Bridges	Waste		Housing

Source: Deutsche Asset Management, March 2017

From a private investment perspective, direct access to social infrastructure is limited because it captures institutional functions such as health, education and justice that cannot rely purely on user charges and therefore has traditionally been developed, owned, operated and funded by national or local governments. Nevertheless, a market for Public Private Partnership (PPPs) has emerged in developed countries such as Australia and the United Kingdom as a structured way of raising private sector capital to fund social infrastructure projects and provide private investors with a return on investment.

In some countries, the complex legal framework enabling PPPs is not available or the use of PPPs is legally restricted to certain sectors.⁴ The capital deployment potential for equity and debt investors in PPPs therefore remains limited in size, is country specific and is very much determined on a project-by-project basis.

Economic infrastructure, by contrast, offers a wider range of opportunities for private investors across industry subsectors, and typically presents more opportunities for steady revenue flows through user fees, tolling or ticketing.

Economic infrastructure assets are generally grouped into transportation assets, utilities, and other assets. Transportation assets include mainly toll roads, tunnels, bridges, railways, airports and sea ports. Utilities include power generation, electricity and gas networks, water treatment and distribution, and waste management, among others. Communication infrastructure ranges from cable networks to transmission and telecommunication towers and satellites, while other assets, such as parking or motorway service areas, may be classified as infrastructure or real estate assets on a project-by-project basis. Deutsche Asset Management (Deutsche AM) focuses predominantly on economic infrastructure.

⁴ Fitch Ratings, Private Infrastructure Investment in Developed Economies, December 2014.

Infrastructure ownership has traditionally been public. Globally, only a limited proportion of infrastructure assets are under private ownership or listed. However, the budget constraints confronting many national and local governments today suggest that the financing of infrastructure may increasingly move towards private investment and public-private partnerships, offering increasing opportunities for private investors.

Infrastructure can be classified in several other ways. One example is differentiating between investing in greenfield or brownfield assets. The term greenfield refers to new infrastructure that requires construction. Brownfield assets are existing, operating assets in which investors acquire ownership. While brownfield assets tend to provide returns via cash yield immediately after acquisition, greenfield assets require a longer time frame to be developed and constructed, thus entailing additional risks, such as construction risk and ramp-up risk, and therefore require higher returns to compensate.

3 Infrastructure as an Asset Class

3.1 Key asset class benefits

In countries such as the United Kingdom, infrastructure has been considered an investable asset class for many years, following extensive privatisation during the Margaret Thatcher administration from the end of the 1970s, through the 1980s and into the 1990s. Only since the mid-1990s, following large-scale privatisation and liberalisation in the energy, telecommunications and rail sectors in Europe, has the popularity of infrastructure assets increased among investors globally.

The defining benefits of the asset class, which support its popularity among investors, include the essential nature of services and barriers to entry, the high degree of regulation involved, and the potential to offer stable, long-term cash flows, often with some form of inflation protection. The cash flows of infrastructure assets, with inherently long lives and strong intrinsic value, can provide a good match for the long-term liabilities of certain investors, such as pension funds for example.

A real asset class: Infrastructure represents a tangible asset – i.e. a combination of land and structures that constitutes real property – but is not necessarily a commodity in the same sense as real estate. Real property will almost always retain a residual value, which is particularly attractive during periods of distress.

Essential services resilient to the economic cycle: User demand patterns for infrastructure assets tend to be relatively inelastic given the essential nature of these services. Therefore, they tend to exhibit a lower correlation to the economic cycle compared with other sectors. In addition, some assets, such as electricity and gas distribution networks, can be regulated, which can lead to an increase in return predictability. Depending on the regulation, assets can be volume neutral, offering returns that are independent of volumes and demand fluctuations.

The economic cycle can have more impact on unregulated services, such as airports and seaports, though the essential nature of such services mitigates this risk. As a general rule, when looking at different infrastructure asset types, it could be stated that the stronger and more predictable the regulation and contractual framework is for a certain asset, the lower its sensitivity to the economic context and the more stable its cash flows over the long term. During economic and market volatility, this defensive characteristic has been an attractive feature of the asset class.

Diversified end-user base: The counterparties to infrastructure assets are generally a widely diversified group of end users, which helps to stabilise cash flows. Often the customer base includes governments and local authorities, which tend to be more creditworthy than most private counterparties.

High barriers to entry: Infrastructure requires a high level of initial capital investment and this acts as a significant impediment to potential competitors entering the market. Assets can enjoy monopolistic or quasi-monopolistic market positioning and it would be economically unsound, or legally not possible, to build a competing facility. Examples of natural monopolies include water infrastructure, as well as gas and electricity grids, which is why such assets are almost always regulated.

Long-term cash flow predictability: Regulation provides long-term revenue visibility to infrastructure investments. Additionally, ownership of regulated infrastructure is usually transferred to private investors through long-term concession agreements that can range up to 99 years. Concession agreements give the right to operate a business for a given amount of time and under certain conditions. If the concession involves a monopolistic business, for example a gas distribution network, then the revenues will often be regulated in the long term. The long-term nature of concession agreements represents an advantage for asset managers and enables them to put in place long-term strategies to maximise asset values, including, for example, the optimization of operations capital expenditures and long-term financing. In the case of unregulated assets, the depreciable operating life of well-maintained infrastructure assets tends to be long and predictable.

Inflation hedge: Depending on the type of infrastructure asset, price inflation can sometimes be passed on to the end consumer. Most regulatory frameworks allow regulated assets to use inflation-indexed user tariffs, often associated with electricity transmission and distribution or gas distribution. However, inflation-indexed toll increases can be common features of concessions for some types of surface transport such as roads, bridges, and tunnels. For unregulated assets, full hedging may not always be possible.

Active management opportunities: Infrastructure provides managers with an active and strategic opportunity to add value directly to an investment with the objective of increasing returns. This type of value enhancement is typically most feasible in the case of unlisted investments. Applied effectively, active asset management can, amongst other things, help boost user volumes and revenues, cut costs and optimize capital structures and cash flow, enhancing returns over and above the cost of active management. The ability to create value successfully will be dependent in part upon the specialist skills of the asset management team, but also, for example, upon the level of regulation of an asset, whereby higher regulatory protection might reduce the level of operational flexibility given to asset managers.

3.2 Key asset class risks



Source: Deutsche Asset Management, March 2017

Infrastructure investments can be exposed to a number of risks. These can be divided into those common to the entire asset class and those that are asset specific. Risks common to the asset class are mainly political and regulatory, while asset-specific risks can include, for example, construction risk, operational risk and financing risk.

Political and regulatory risk: As discussed previously, infrastructure assets are essential to the effective functioning of society and the modern economy, hence governments prefer to maintain some control and regulate them. The level of exposure to political developments as well as the features of the regulatory framework can vary significantly from one country or sector to another and can have a significant impact on the generation of investment returns.

Investing in unlisted infrastructure requires a detailed understanding of regulation, developed through experience and often active long-term relationship with regulators. Strategic asset allocation can help mitigate political and regulatory risk through geographical and sector diversification.

Construction risk: Construction risk involves greenfield projects and includes cost overruns or construction delays, due to factors such as design errors or changes in the project specifications during execution. These risks can be particularly high for complex assets such as bridges or energy plants and may involve technology risk when new untested technologies are used. Cost overruns or delays can lead to a postponement in the project operational phase, delayed revenues and reduced returns.

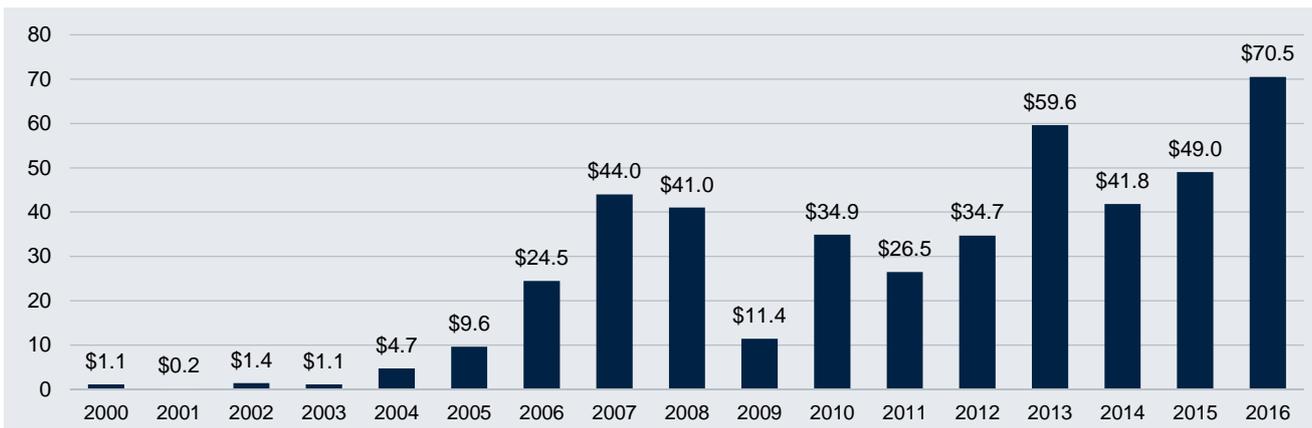
Operational risk: Operational risks materialise when an infrastructure asset is in full operation and include performance risk or maintenance risk. Performance risk can include falling short of volume or price objectives or increased costs of doing business. Maintenance risk includes unplanned maintenance costs that can reduce operating cash flow levels. Exposure to operational risk varies by asset type. Regulated assets like electricity grids are typically more protected against certain risks through regulatory formulas or cost pass through to the customer, while unregulated assets are usually more exposed.

Financial risk: Depending on the level of leverage and the debt structure, infrastructure assets can be exposed to interest rate volatility or refinancing risk. If not hedged, interest costs may increase, reducing operating cash flow levels. Lenders may require a higher cost of debt in the case of construction delays for a greenfield project, while assets held in foreign countries may expose investors to exchange rate risks.

3.3 The rapid growth of infrastructure

Institutional investors began targeting unlisted infrastructure in the 1990s, following the large-scale privatisation of infrastructure assets. Since then, the popularity of infrastructure as an asset class has been gradually increasing amongst investors. Infrastructure assets exhibit long-term, steady cash flow and the potential for inflation protection, which hold considerable appeal for investors such as pension funds and life assurance companies who focus on both yield and offsetting or hedging their long-term liabilities.

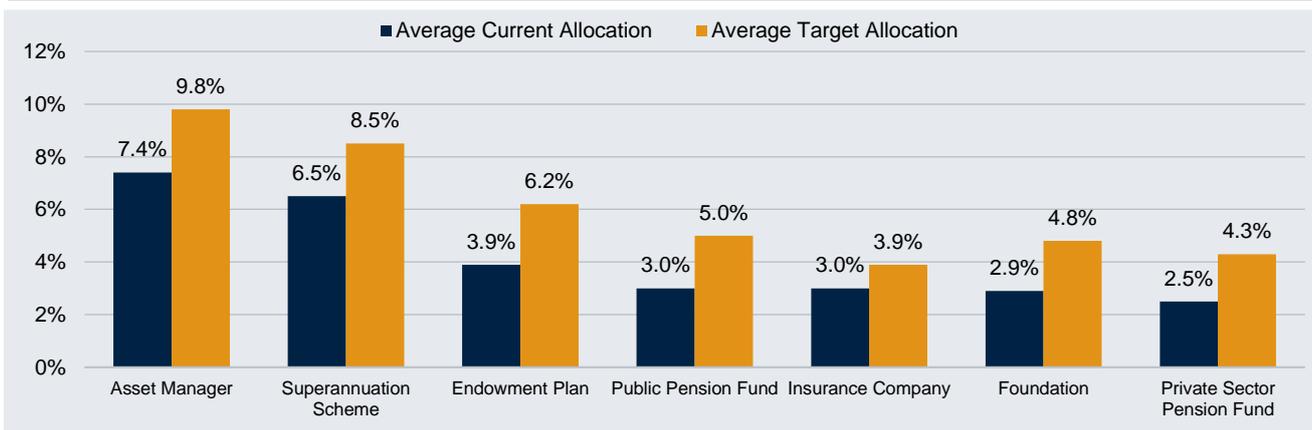
Annual Unlisted Infrastructure Fundraising (USD bn.)



Source: Deutsche Asset Management, 2017 Preqin Global Infrastructure Report, February 2017

By March 2017, there were over 165 infrastructure funds in the market, targeting USD \$95 billion in investor capital.⁵ The year 2016 saw a number of records set in terms of unlisted infrastructure fundraising, with a record USD \$59 billion raised by funds reaching a final close. In 2016, 20 Europe-focused funds reached a final close, raising EUR 16.7 billion in institutional capital. A large proportion of capital secured was by primarily U.S.-focused funds, with most capital raised for energy-focused funds, a dominant theme in the U.S. market.⁶

Average Allocation to Infrastructure as a Proportion of AUM (Estimate as at Oct. 2016)



Source: Deutsche Asset Management, estimate based on Preqin database, February 2017

The estimated funding gap between current and targeted allocation demonstrates that globally there is further space for expansion of the sector, particularly for superannuation schemes, endowment plans, public pension funds, private sector pension funds and insurance companies.

Investors have a range of options for investing in infrastructure beyond the unlisted market. Investors can allocate capital to both listed infrastructure securities and unlisted infrastructure. Listed infrastructure securities offer greater liquidity levels while unlisted investments have the potential for lower volatility and lower correlation with other major asset classes. Unlisted infrastructure is valued less frequently than listed infrastructure and offers greater risk-adjusted return potential.

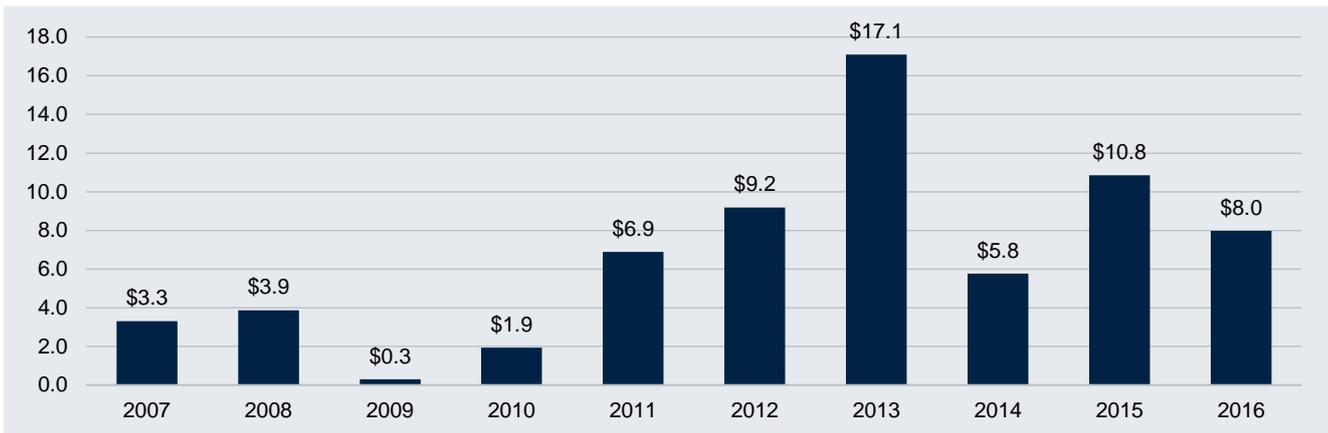
Private infrastructure debt represents another growing asset class. Given its fundamental characteristics, infrastructure provides comparatively higher and less volatile credit quality compared with other asset classes.⁷ The illiquidity premiums provided by infrastructure private debt are attractive for investors, particularly in a low yield environment, while the lower volatility and the comparatively lower default risk of infrastructure debt together create the potential for attractive risk-adjusted returns.

⁵ Preqin database, "Infrastructure Funds in Market", 14 March 2017.

⁶ Preqin, "2017 Preqin Global Infrastructure Report", February 2017.

⁷ Moody's Investors Service, "Infrastructure Default and Recovery Rates, 1983-2015", July 2016.

Annual Unlisted Infrastructure Debt Fund Fundraising (USD bn.)



Source: Deutsche Asset Management, 2017 Preqin Global Infrastructure Report, February 2017

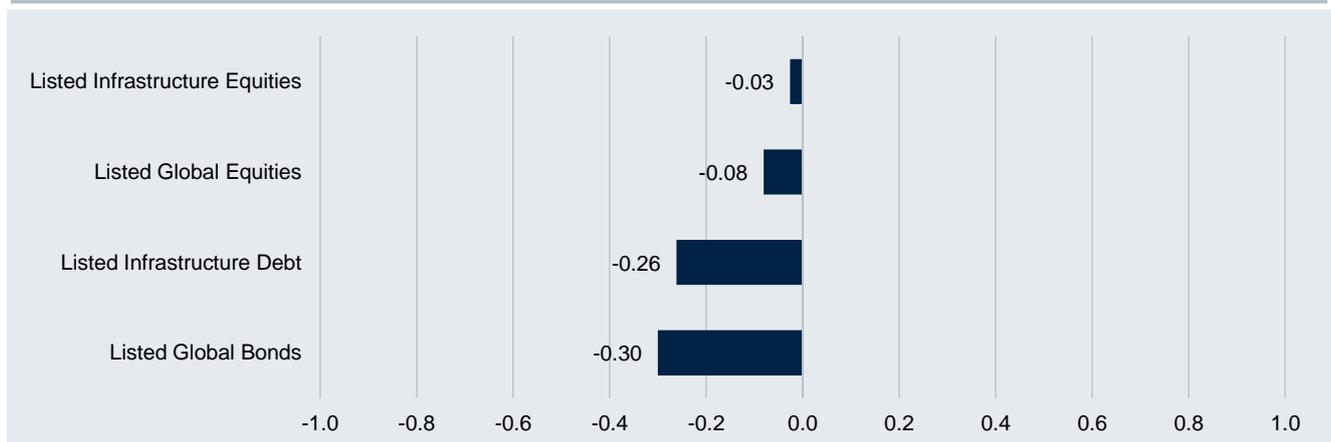
Some larger investors have dedicated infrastructure deal teams and invest directly into infrastructure; however, investors are frequently seen accessing infrastructure investments through asset managers. Unlisted infrastructure can expose investors to highly complex business models. Like private equity, it requires active portfolio management skills, and valuation, deal sourcing and execution capabilities. Private infrastructure also requires specific experience in relation to the market, regulatory, financing, governance and stakeholder aspects.

3.4 Comparison with other asset classes

An allocation to unlisted infrastructure offers investors diversification benefits as part of a multi-asset-class portfolio. As shown in the chart below, unlisted infrastructure exhibits very low, negative correlation with the global bond and equity markets as well as listed infrastructure equities and debt, thus simplistically suggesting positive diversification benefits based on the data available.⁸

Infrastructure shares some features common to other asset classes, such as real estate and private equity, but has the potential to combine several of these features together, differentiating it from other asset classes in this regard. The flipside, of course, is that when compared to more tradable asset classes, investment in unlisted infrastructure is relatively illiquid.

Correlation with Unlisted Infrastructure (Correlation coefficient, eight years to Q3 2016)



Sources: MSCI, Deutsche Asset Management, March 2017. Listed Infrastructure Equities: DJ Brookfield Global Infrastructure Index, USD; Listed Global Equities: MSCI World Index, Local; Listed Infrastructure Debt: iBoxx Infrastructure, USD; Listed Global Bonds: Barclays Global Aggregate Bond Index, USD; Unlisted Infrastructure: MSCI/IPD Global Infrastructure Direct Asset Index, Local. Correlations based on quarterly returns to September 2016.

⁸ Past performance is not an indicator of future results. Diversification does not assure against market losses.

Like real estate, infrastructure is a real asset class, capable of generating cash flow indexed to inflation. However, compared with real estate, the quasi-monopolistic nature of infrastructure assets as well as regulation can protect returns from market risk and volatility, limiting exposure to the economic cycle. This feature also differentiates infrastructure from global listed equities.

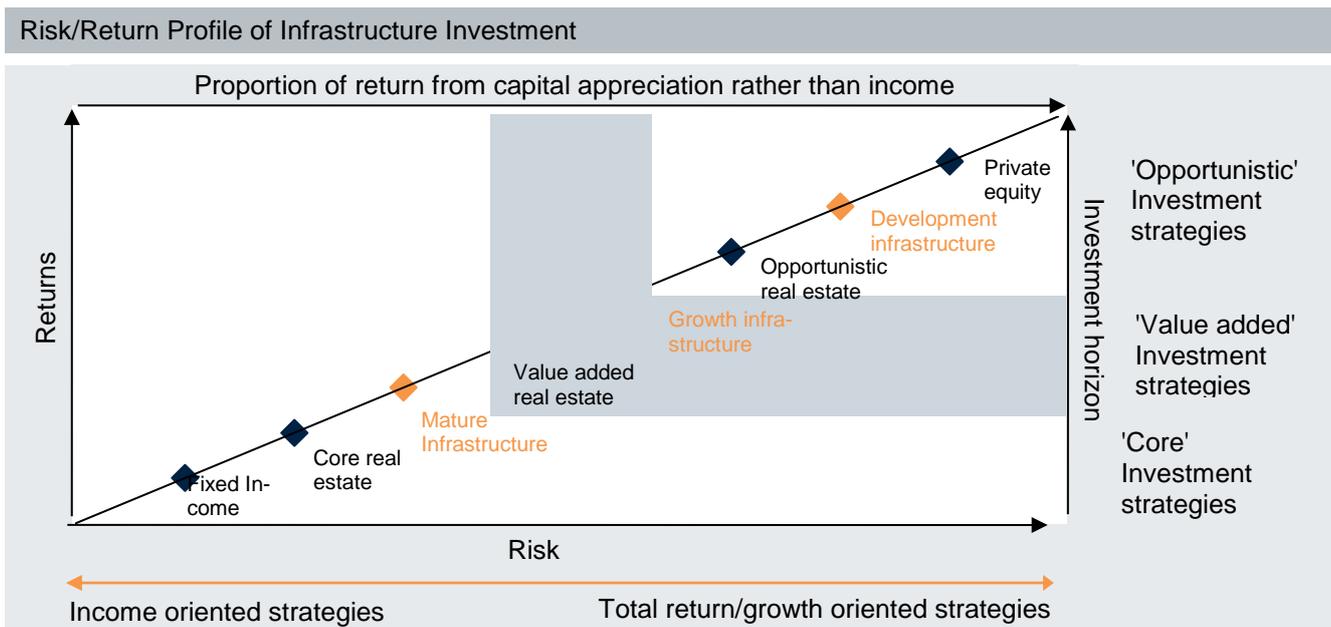
The recurring, long-term nature of cash flow is a characteristic that infrastructure shares with fixed income; however, the degree of control over the asset and the lower exposure to direct interest rate risk partially differentiate it from this asset class.

Unlisted Infrastructure in Comparison with Other Asset Classes		
Asset class	Analogies with infrastructure	Comparative strengths of infrastructure
Real estate	Real asset class	Higher barriers to entry and market risk protection
	Cash flow indexation potential	Exposure to economic cycle more limited
	Cash yield as key return component	Higher long-term cash flow predictability
Fixed income	Long-term cash flow predictability	Asset Control
	Limited market risk	Stronger inflation hedging potential
	—	More limited interest risk exposure
Private equity	Asset control	Long-term investment horizon
	Scope for management improvements	Higher barriers to entry and exposure to market risk
	—	Ongoing distributions and capital appreciation
Listed equities	Asset ownership/control	Long-term cash flow predictability
	Capital appreciation potential	Higher barriers to entry and market risk protection
	—	Lower liquidity, but lower volatility potential

Source: Deutsche Asset Management, January 2017. For illustrative purposes only. Please see previous discussion concerning the risks of investing in infrastructure earlier in this chapter.

Similarly to private equity, infrastructure has scope for improvements that can lead to capital appreciation. On the other hand, infrastructure has a lower exposure to market risk and to the economic cycle, a longer investment horizon, and is more balanced towards income yield rather than capital appreciation realised on disposal.

3.5 Risk/return profile



Source: Deutsche Asset Management, January 2017. For illustrative purposes only.

The above diagram is useful in describing the risk/return profile of unlisted infrastructure in comparison with other asset classes, and to put infrastructure in perspective with different possible investment strategies. Conservative investors tend to invest in funds that focus on core assets, while opportunistic allocation strategies expose investors to higher risk/return and capital appreciation potential.

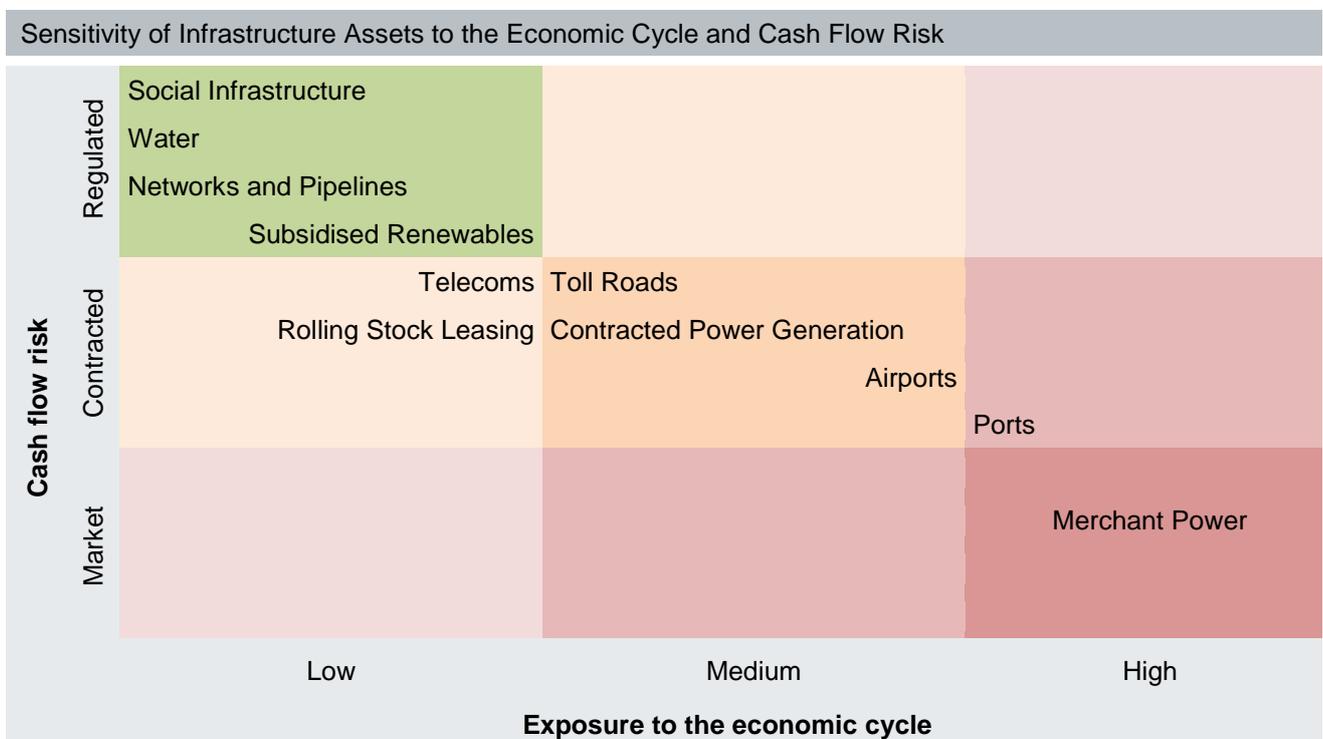
Mature infrastructure: Mature infrastructure can be positioned at the border between core and value added investment strategies, given its income return potential, typical for core investment strategies, coupled with the capital growth potential that is more in line with 'value added' investment strategies.

Mature infrastructure includes large, brownfield assets that benefit from regulated or contracted revenue streams that help mitigate income volatility. It requires limited capex when purchased and is expected to generate income return early after the investment has been made. Mature infrastructure is characterised by relatively lower market risk, which may often translate in the ability to withstand higher leverage levels. An example of mature infrastructure would be a mature, regulated electricity transmission network, generating income return and with limited, regulated investment needs.

Growth infrastructure: As investment progresses through the risk spectrum, value-added investment strategies would involve the investor taking the company through growth expansion, potentially exposing the business to a higher level of market and operational risk, as well as a higher level of gearing, with the prospects of greater total returns. Growth infrastructure assets generate income but also require expansionary capex and support the ability to enhance both yield and value through management initiatives. One example of growth infrastructure would be an airport, with an established customer base, but with business growth potential through expansionary capex.

Development infrastructure: Opportunistic investment strategies put significant emphasis on the capital appreciation of assets to generate returns. Development infrastructure involves a variety of risks, including development risks, construction risks, market risks and leverage. Development infrastructure would include, for example, the construction of a new thermal electricity generation plant that, once operational, would operate through a feed-in tariff or a long-term contract at fixed price, stabilising revenues.

The risk/return profile of infrastructure investment is dependent on the specific attributes of the asset. Infrastructure sectors tend to be ranked according to two key dimensions: the degree of exposure to the volatility of the economic cycle and cash flow risk. Infrastructure assets are exposed to a different degree to these two measures.



Source: Deutsche Asset Management, January 2017. For illustrative purposes only.

Assets that are fully regulated and have a low exposure to the volatility of the economic cycle can be associated with a lower risk profile. Social infrastructure, regulated networks and pipelines, and subsidised renewables can

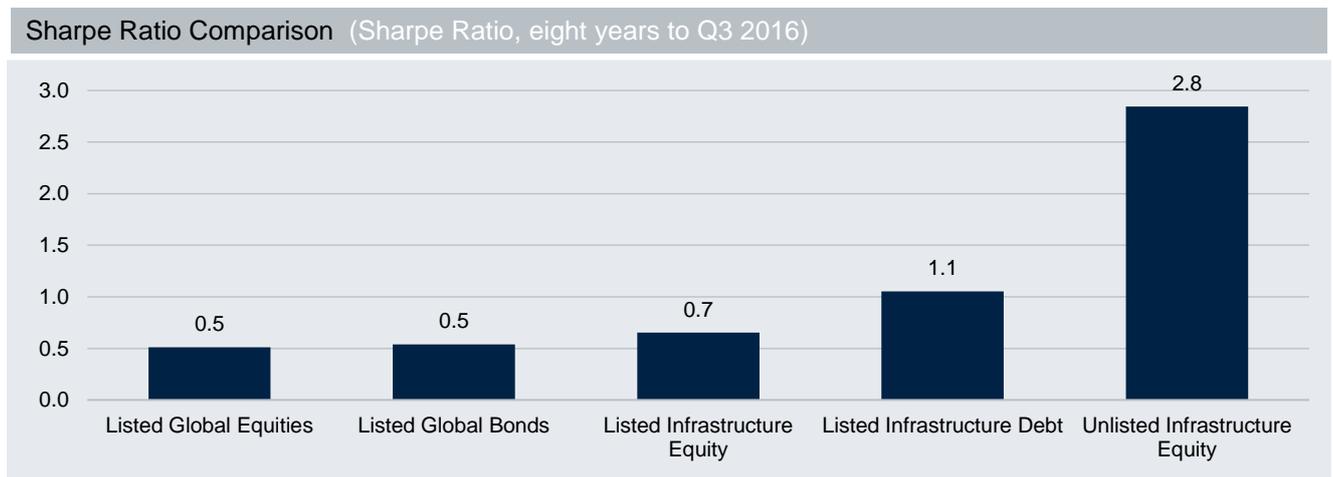
be included in this category. Toll roads, airports, and power generation tend to be more exposed to the economic cycle and have a cash flow profile which is contracted, offering protection from market exposure but being more exposed to risk of volatility if compared with fully regulated assets. Merchant power projects have full cash flow market exposure and a higher exposure to the economic cycle and are hence associated with a higher risk profile.

3.6 Historical performance

Data available for unlisted infrastructure’s performance and volatility have historically been relatively limited. In November 2014, MSCI/IPD published an analysis of the comparative asset performance as part of the introduction of the release of the “Global Infrastructure Direct Asset Index”.⁹ This presentation demonstrates that unlisted infrastructure is capable of providing relatively stable returns over the long term as well as low correlation with other asset classes, enhancing the diversification benefits of the asset class.

The analysis also demonstrates that unlisted infrastructure tends to expose investors to lower volatility and hence produces more attractive risk-adjusted returns. Deutsche AM’s analysis on the numbers published by MSCI/IPD, with asset valuation frequencies performed on a quarterly basis for all asset classes, confirms that global unlisted infrastructure has a higher Sharpe ratio than other asset classes.¹⁰

A high Sharpe ratio is attractive because it equates to a higher return per unit of risk. However, it should be noted that the relative strength of unlisted infrastructure in this analysis is in part due to the fact that the IPD Global Infrastructure Direct Asset Index is a valuation-based index, while indices used for the other asset classes are calculated on a transactional base and are therefore more volatile.



Source: IPD, Deutsche Asset Management, March 2017. Listed Infrastructure Equities: DJ Brookfield Global Infrastructure Index, USD; Listed Global Equities: MSCI World Index, Local; Listed Infrastructure Debt: iBoxx Infrastructure, USD; Listed Global Bonds: Barclays Global Aggregate Bond Index, USD; Unlisted Infrastructure: MSCI/IPD Global Infrastructure Direct Asset Index, Local. Annualised Sharpe Ratio is based on quarterly data and is calculated as the average of the arithmetic return less the risk-free rate divided by the annualized standard deviation. The benchmark risk-free rate used is the 3-month US Treasury. Past performance is not an indicator of future results.

In previous research reports, Deutsche AM’s research and strategy team compared the performance of asset classes in Europe, including listed and unlisted real estate as well as listed infrastructure securities. Listed infrastructure securities had shown relatively low beta exposure compared to global listed equities due to longer-term stability of their cash flow profiles. Our backtested study showed that listed infrastructure securities had a tendency to underperform global equities in a bullish market but provided stability in a weaker market.¹¹

⁹ MSCI releases industry’s first global asset infrastructure index, Sydney, 19 November 2014. Past performance is not indicative of future returns.

¹⁰ IPD Global Quarterly Infrastructure Direct Asset Index, March 2017.

¹¹ Backtested performance is developed with the benefit of hindsight and has inherent limitations. Specifically, backtested results do not reflect actual trading or the effect of material economic and market factors on the decision-making process. Actual performance may differ significantly from backtested performance.

3.7 Inflation hedging

In addition to the potential diversification benefits and attractive risk-adjusted returns, infrastructure investment also has the potential to provide a hedge against inflation over the long term. The quasi-monopolistic nature of infrastructure assets supports inflation hedging in the long term as the inelasticity of demand allows for increased tariffs and fees with a high probability that inflation can be passed on to the customer.

Inflation Protection Level by Infrastructure Sector				
Regulated assets	Water and Power	Toll Roads	Airports	Energy Pipelines
High	High	Medium	Medium	Variable

Source: Deutsche Asset Management proprietary database of European unlisted infrastructure transactions, 10 January 2017

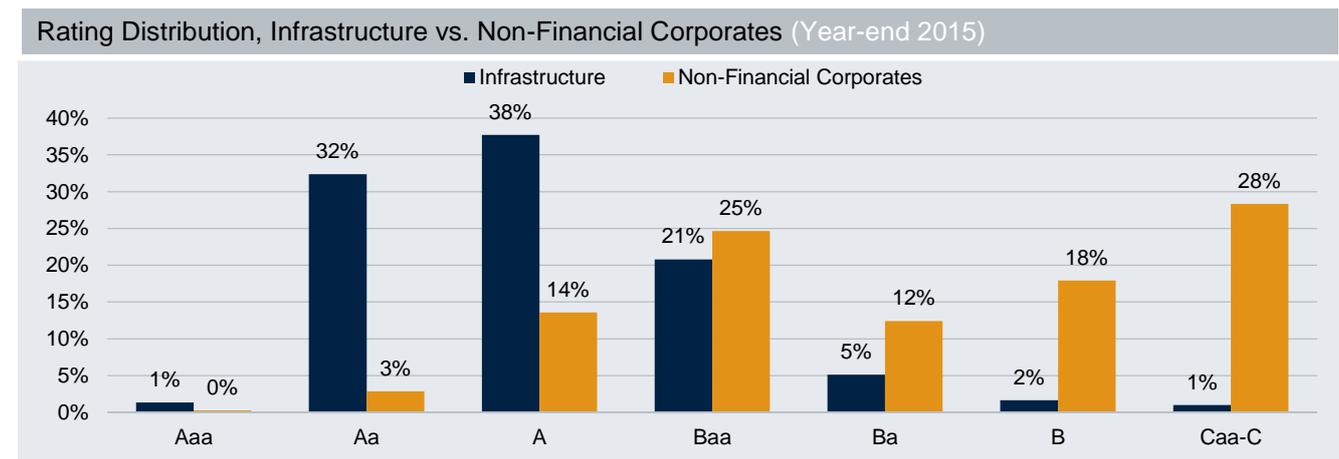
For highly regulated infrastructure sectors, including water or power transmission/distribution services, correlation with inflation is high, as regulation generally includes an explicit inflation-link, allowing tariffs to increase in line with inflation.

Other sectors within the infrastructure space, including toll roads, ports and airports, tend to offer some inflation protection. Regulation usually sets an upper limit on toll road increases, which is typically linked to inflation, offering some hedging potential. For ports, revenues consist of port dues, handling fees for cargo, and service fees for value added services, and contracts are frequently indexed to inflation.

Airport operations are mostly regulated and thus also offer some inflation hedging potential, although airport retail operations might have limited inflation hedging potential. For energy pipelines, regulation may allow tariff charges which are based on inflation; however, contracts can be long-term and inflation-indexed, or merchant, where revenues are determined by market conditions, thus exposing investors to the risk of inflation.

3.8 Lending to infrastructure

Institutional investors have historically accessed infrastructure primarily through equity, while infrastructure debt has traditionally been a space occupied by bank lending. However, in recent years, unlisted infrastructure fund managers and institutional investors have begun looking increasingly at infrastructure debt as a complement to, or replacement of, traditional fixed income investments.¹² Infrastructure debt is also increasingly supported by favourable regulation. For example, with Solvency II, capital charges have been reduced for insurance companies investing in qualifying infrastructure debt.¹³



Source: Moody's Investors Service, "Infrastructure Default and Recovery Rates, 1983-2015", July 2016

Post-crisis banking regulation (Basel III) came into force in the European Union on 1st January 2014 and will be fully phased in by year-end 2018, with a view to strengthening banks' balance sheets. Under Basel III, banks

¹² Deutsche AM on Preqin database, 2017

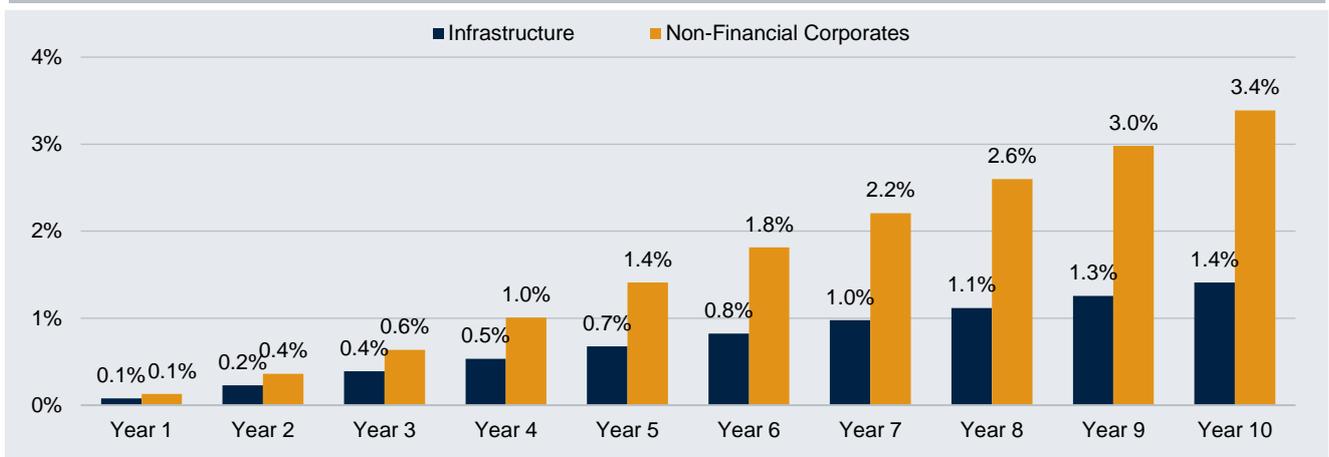
¹³ European Commission, "Press release – Capital Markets Union: Making it easier for insurers to invest in infrastructure", 1 April 2016

have a diminished appetite for relatively illiquid assets, such as project finance and infrastructure long-term lending, as regulation requires them to seek longer-term funding, which is generally more expensive, to better match assets and liabilities. This, combined with Basel III's stricter capital adequacy requirements is creating a gap in the market that is attracting non-traditional lenders.

As banks retrench from lending, possibly for regulatory reasons, the decrease in debt financing available is driving a rise in demand for alternative sources of infrastructure debt investments. The investment strategy of infrastructure debt funds covers the broad universe of infrastructure investments, across sectors, geographies and credit risk profiles. Infrastructure funds exclusively focused on debt, which are increasingly coming to the market, are attracted by the stable cash flow profile and the long-term liability matching characteristics of infrastructure debt.

Long-term investors have few options for asset-liability matching while simultaneously limiting volatility. In this regard, private debt offers some attractive diversification benefits compared with public bonds and equities, both of which are associated with volatility and market risk, particularly for long duration investments.

Cumulative Default Rates, Infrastructure 'BBB' vs. Non-Financial Corporates 'BBB' (1983-15)



Source: Moody's Investors Service, "Infrastructure Default and Recovery Rates, 1983-2015", July 2016

Infrastructure includes high quality, investment grade assets that are suitable for low-risk investors, with ample opportunity to invest in senior debt issued by investment-grade rated companies or projects. As the rating distribution chart demonstrates, the universe of rated infrastructure issuers has a higher credit quality compared with the generic rated corporate issuers, while default rates for infrastructure debt are lower than for corporate issuers.¹⁴ The level of demand for these assets and the relatively limited opportunities coming to the market may, however, lead to a compression in total returns.

The deal sourcing and execution skills of infrastructure managers may help in looking deeper into the asset class and the credit profile of issuers. This should assist in identifying the best risk-adjusted return prospects by selecting investments in greenfield projects or targeting a particular sector or country.

¹⁴ Moody's Investors Service, "Infrastructure Default and Recovery Rates, 1983-2015", July 2016

4 Conclusions

Infrastructure investment continues to gain interest among investors, given its potential to generate attractive, inflation-hedged total returns. As infrastructure financing increasingly moves towards private investment due to public sector budget as well as bank financing constraints, investment opportunities in the asset class may increase, particularly in the unlisted infrastructure and infrastructure debt markets.

In a multi-asset portfolio, unlisted infrastructure investment can offer diversification benefits with the potential to own real assets that generate high-yielding, income-oriented returns and stable, attractive, inflation-hedged total returns. Unlisted infrastructure has the potential to deliver more attractive risk-adjusted returns than listed infrastructure securities. This is mainly due to comparatively lower volatility.¹⁵

Unlisted infrastructure investment can suit different risk/return profiles. Mature infrastructure has the potential to provide stable long-term returns, while growth and development infrastructure have significant capital appreciation potential. Returns for all lifecycle investments can be de-risked and/or enhanced by the specialist skills of professional infrastructure investment managers, particularly if supported by the specialist skills of asset management teams.¹⁶

¹⁵ Diversification does not assure against market losses.

¹⁶ Investment in infrastructure is not suitable for all investors. No assurance can be made an investment in infrastructure will achieve its stated objectives. Please read important disclosures included as part of "Important Information".

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