Frontier International

Global listed infrastructure in institutional portfolios

February 2023

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Frontier Advisors | Forefront Thinking

About us

Frontier has been at the forefront of institutional investment advice in Australia for over 25 years and provides advice on around $600 billion of assets across the superannuation, charity, public sector, insurance and university sectors.

Frontier's purpose is to empower our clients to advance prosperity for their beneficiaries through knowledge sharing, customisation, technology solutions and an alignment and focus unconstrained by product or manager conflict.

Lucas Driver

CFA
Senior Consultant

Lucas joined Frontier Advisors in March 2022 as a Senior Consultant responsible for providing investment and manager research.

Before joining Frontier, Lucas worked at Plenary Group, a global greenfield infrastructure developer focused on the social, civil, transport and healthcare sectors. Prior to Plenary, Lucas worked in Australia, the Middle East and North America, originating and managing renewable assets across both size and technology.

Lucas holds a Bachelor of Economics from Monash University and is a CFA Charterholder.

Christopher Tran

CFA
Associate

Chris joined Frontier Advisors as an Associate in October 2021. As part of the Real Assets Team, he has responsibility for undertaking manager and investment research with a focus on infrastructure and property sectors.

Before joining Frontier Advisors, Chris worked for over four and half years in corporate finance with Pitcher Partners and ASIC, consulting on M&A and valuation engagements for his clients and stakeholders.

Chris holds a Bachelor of Commerce from The University of Melbourne and is a CFA Charterholder.

Introduction

Frontier Advisors has a long history of advocating for infrastructure as a critical component of institutional investor portfolios. We publish an annual infrastructure sector configuration, supporting our preferred approach for accessing the sector. Our approach is primarily based on accessing the portfolio benefits of infrastructure via unlisted strategies; however, we also encourage investors to consider an allocation to global listed infrastructure (GLI) as part of a well-diversified infrastructure portfolio.

In our view, a listed exposure can provide investors with significant portfolio benefits. These benefits can include accelerated deployment opportunities; access to portfolio completion strategies; reduced tracking error against the Your Future Your Super (YFYS) GLI benchmark; an expanded investible universe and opportunity set; prospective management cost benefits; and active management. We believe, such flexibility can add significant value over time.

As part of our ongoing real assets thought leadership, our Real Assets Team conducted over 20 meetings with Australian and North American managers during a recent research trip to further understand the current investment themes mangers are targeting and why global listed infrastructure should remain a consideration when developing an institutional grade infrastructure portfolio.

Current global listed investment trends

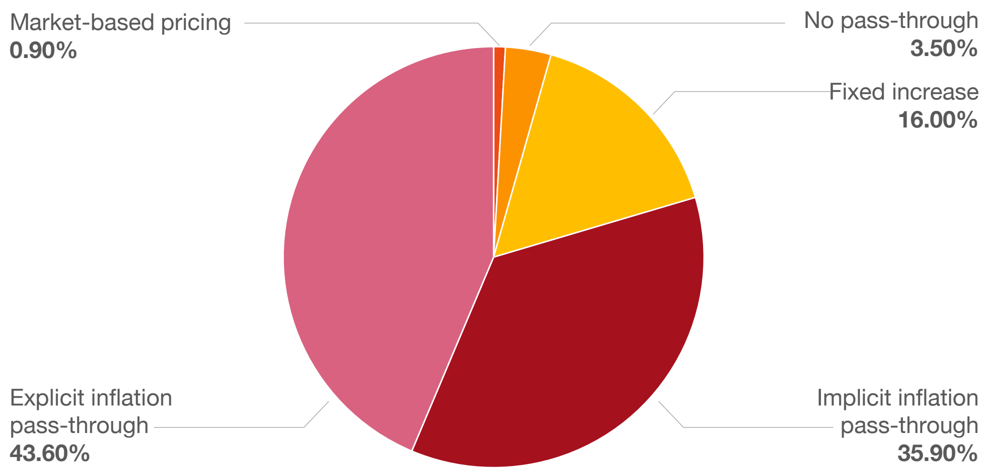
From a top-down perspective, we observed global listed infrastructure managers focusing their investments on companies continuing to grow earnings and cash flows in a potentially slowing or low growth economic environment, with rising interest rates and elevated inflation. As a result, managers are positioning their portfolios to target several trends.

Trend 1: A distinct focus on inflation protection

GLI managers have positioned their portfolios towards infrastructure companies maintaining pricing power. Specifically, pure-play infrastructure companies can meet inflationary cost increases via cost pass-through mechanisms to customers, while maintaining earnings and distribution growth. Research undertaken by GLI managers suggests approximately 96% of pure-play infrastructure companies offer full or partial inflation hedges, with 80% providing a full inflation hedge.

GLI managers typically achieve this inflation protection by adding electric utilities, pure-play water, vertically integrated water and midstream assets to portfolios. Therefore, in periods of high inflation, the listed infrastructure segment performs strongly relative to the broader equity market and in terms of cash flow and distribution growth.

Chart 1: Inflation pass-through of pure-play listed infrastructure



Source: DWS

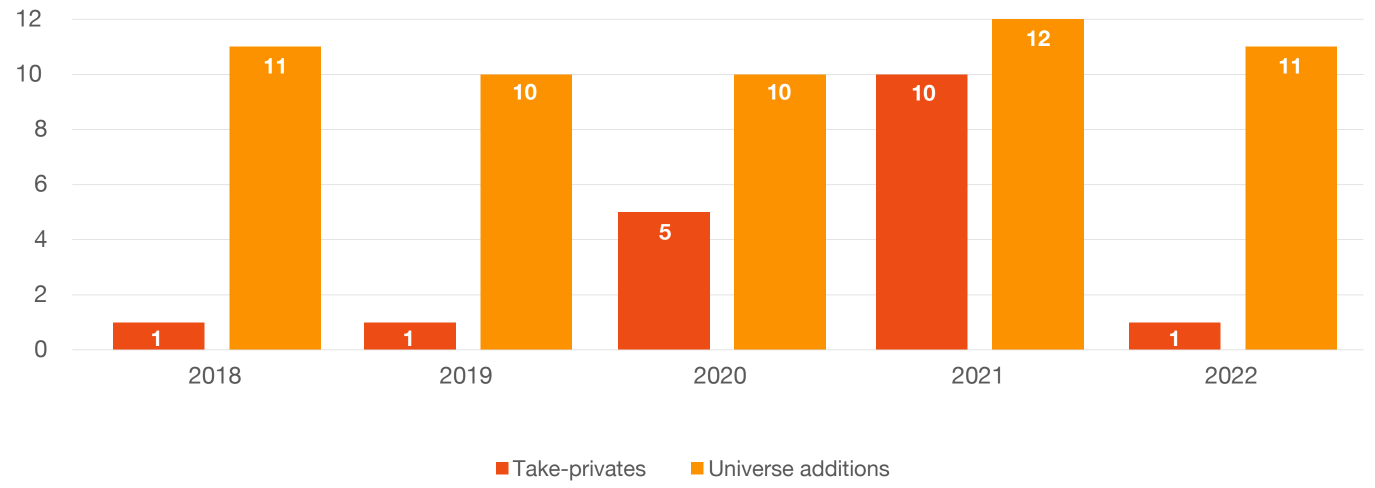
Trend 2: Take-privates

The infrastructure asset class witnessed an acceleration of take-private transactions in 2020 and 2021. In Australia, the following are examples of some of the companies that have been taken private:

- Spark Infrastructure by KKR and Ontario Teachers' Pension Plan (OTPP).
- Sydney Airport by a consortium of IFM Investors, GIP and other investors.
- Ausnet being taken private by a Brookfield-led consortium.

Globally, 18 listed infrastructure companies have been taken private by unlisted infrastructure funds over the last five years. Noting GLI managers have an investible universe of approximately 100-120, the removal of 18 companies from their available universe is a considerable change requiring flexibility.

Chart 2: Global take-privates over the last five years



Source: ATLAS Infrastructure

While several companies have been taken private, there have also been several listings of new infrastructure companies (discussed further), delivering additional opportunities for GLI managers.

Although the GLI universe remains healthy with a balance between take-privates and new listings, we believe unlisted infrastructure managers will continue to search for attractive take-private opportunities in the future. However, in our view the GLI universe will remain sizeable providing ongoing opportunities for GLI managers to further diversify their portfolios.

Trend 3: Energy transition

The investment opportunity within energy transition remains significant. As an example, for the UK to achieve its net zero obligations by 2050, it will need to:

- Increase offshore wind capacity to 50GW by 2030 from its current 11GW.
- Fully decarbonise its power system by 2035, from a position of 40% coal-fired generation in 2011.
- Make numerous other investments across the network.

As the UK example illustrates, the energy transition require ongoing investment over decades to reduce the world's emissions intensity, and listed infrastructure companies will have an important role to play and will need to attract significant capital. However, the ability to find risk-adjusted investment opportunities and execute successfully on those is difficult. The construction, delivery and subsequent long-term operation of large-scale energy infrastructure is complex, requiring experienced and well-incentivised management teams, even before considering emerging technologies and uncertain regulatory environments. Given such complexity and consistent capital demand, listed infrastructure managers are actively investing with these considerations in mind. Within the energy transition, there are differing opportunities with divergent risk and return characteristics which we have summarised in Table 1.

Table 1: Energy transition investment characteristics

Sector	Investment characteristics
Utilities	The integration of renewable energy into global electricity grids requires investment in underlying transmission and distribution (T&D) distribution. As such, exposure to electricity T&D and other required infrastructure provides investors with long-term opportunities to continue to deploy capital backed by strong and consistent regulatory regimes.
Pipelines	Some pipeline companies may be able to participate in the energy transition through the future option of transporting hydrogen.
Vertically integrated developers	Managers can invest in companies that develop and operate renewable energy assets long-term. This sub-sector can also provide exposure to those companies that will transition away from coal and gas technologies to a portfolio of renewables.
Developers	The ability to invest in pure-play developers provides another option for energy transition exposure.

Renewables and transition investments will drive a significant proportion of change needed for a net zero environment. An important requirement for these steps to be effective is electrification. Specifically, the increasing electricity use in the built environment (heating and cooking) along with a greater share of electricity in transportation provides significant investment opportunities.

We have previously published material on the embedded emissions intensity of the built environment in ‘Net zero carbon in real estate: a complex trajectory’. Through our in-depth research with both tenants and managers, electricity will continue to displace heating fuels in both commercial and residential properties. Further, changes in transportation will also play a role in decarbonising the economy, through the continued take-up of electric vehicles (EVs). The push towards a more electrified economy requires significant upgrades to electric utility networks and additional generation capacity, which may generate ongoing investment opportunities.

Illustrating the investment opportunity from electrification, GLI managers suggest utilities require ongoing investment to ensure a net zero, decarbonised economy. To meet these net zero targets, electricity utilities will require ongoing upgrades equating to significant levels of capital expenditure (CapEx). Managers believe utilities will continue to benefit from CapEx as it will likely be included in future utility rate bases, providing long-term earnings growth. For example, in California, the Edison International electric utility is investing over US$1 billion in EV charging infrastructure. This CapEx will be a key component of future rate bases, illustrating the long-term benefits of these investments.

Read our two-part report about Net zero carbon in real estate

Part one

Download: A complex trajectory

Part two

Download: Leaders and laggards

Trend 4: Fluctuating policy backdrops

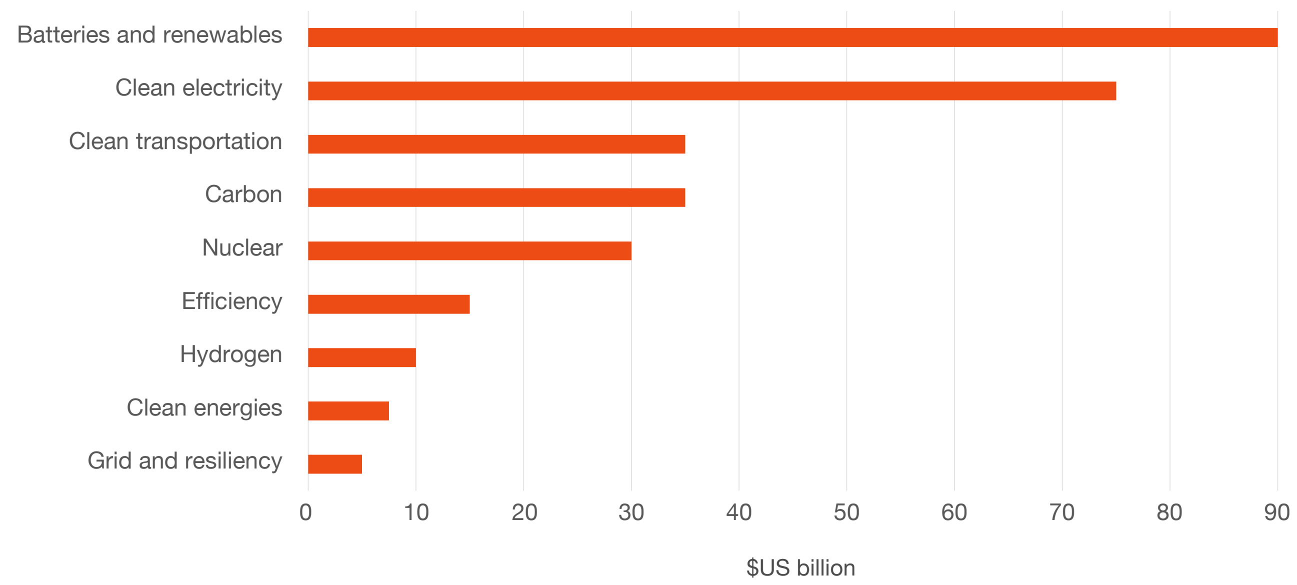
Managers are also positioning portfolios to take advantage of supportive government policies. Over the last 12 to 18 months, governments globally have introduced policies to counter inflation, cost of living pressures and energy security. This has led to a dynamic investment environment. However, the most impactful piece of policy in the managers' view, and the most often discussed, was the Inflation Reduction Act (IRA) introduced in the US.

The IRA was signed into law in August 2022, enabling circa US$500 billion of new spending and tax breaks to reduce the cost of living by boosting clean energy, reducing healthcare costs and increasing tax revenues. Some of the major consumer incentives in the Act include:

- Significant tax credits related to the purchase of heat pumps, water heaters, stoves, and boilers.
- US$4,000 per vehicle consumer tax credit for EVs.
- US$3 per kg credit for the production of qualified clean hydrogen.

Additionally, there is significant support provided by the IRA through the continuation of clean-energy tax and production credits, which will assist the development of new renewable projects. Such credits are available for various energy efficiency, production and storage projects including batteries and renewables, clean electricity, carbon, nuclear, clean transportation and various efficiency measures. Chart 3 highlights the level of energy funding provided by the IRA.

Chart 3: Level of funding by sector within the Inflation Reduction Act



Source: Inflation Reduction Act of 2022

While the policy is designed to reduce cost-of-living pressures for US families, GLI managers view the outcome of the policy as highly supportive for the listed renewable energy market and associated infrastructure.

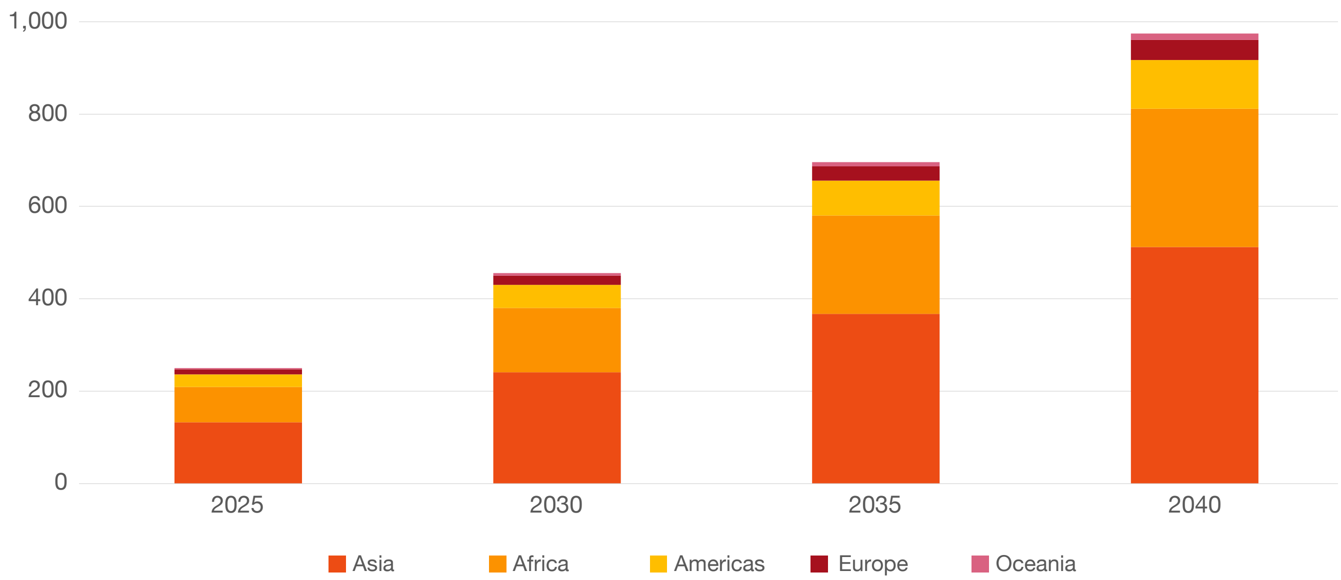
Trend 5: Digital and communication infrastructure

All GLI managers view digital and communication infrastructure as a key part of the infrastructure landscape and a requirement in everyday modern life. In their view, digital and communications infrastructure provide strong underlying fundamentals and advantageous valuations coupled with a growth outlook. Strong data volume and data storage growth is particularly positive for the inclusion of data centres, fibre network and cell tower companies in a diversified portfolio.

Specifically relating to the cell towers sub-sector, interest rate rises have had an outsized impact on the valuations of tower assets given their long-duration nature. Further, tower assets have also been negatively impacted by the lack of cost pass-through structures embedded in contracts. However, noting the sector's underperformance relative to the broader infrastructure segment, most managers view the tower sub-sector positively on a forward-looking basis once terminal interest rates have been reached.

Chart 4 illustrates there is a significant gap in digital infrastructure globally, thus requiring ongoing investment to meet the needs of users. Such a gap presents investors with an attractive long-term investment thematic.

Chart 4: Forecast digital infrastructure gap



Source: RC Global, World Economic Forum, EIU, Ovum, OECD, HooteSuite

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Trend 6: Stranded asset risk and subsequent valuation

In relation to stranded assets, we discussed with GLI managers the treatment of such assets, valuation methodology and overall views. Stranded asset risk can manifest due to several factors, including carbon pricing, shifting social views and expectations, changes in consumer behaviour or legislative amendments. This can lead to a significant adverse impact on asset value, and managers communicated they spend considerable time thinking about and subsequently valuing assets where, in their view, there is a risk of asset stranding.

There has been a sharper focus of late on stranded asset risk given the energy transition and thinking surrounding mid-stream assets, thermal coal energy production and natural gas. According to GLI managers, stranded asset risk is not a new theme. Most managers value portfolio companies on an IRR basis, and most make assumptions regarding stranded asset risk and the subsequent value of those assets viewed as stranded over a set time frame. For instance, when a manager views an asset or company as having a finite life, they will likely undertake significant analysis of terminal value estimates. In most cases where there is a strong view on asset or company life, GLI managers will assume a zero terminal value (or potentially a negative terminal value where considerable refurbishment costs are required, i.e. mine rehabilitation), leading to returns being calculated over a finite operating life.

Several fossil-fuel reliant sub-sectors within the energy space have enjoyed strong performance recently and are likely to be impacted the most by the energy transition and the introduction of new technologies.

Trend 7: Gearing levels, refinancing distributions and forward-looking refinancing requirements

The infrastructure sector (both unlisted and listed) generally carries higher gearing levels than others in the economy given the level of cash flow volatility. With all-in debt costs rising over the last 12 to 18 months, we wanted to ensure the companies that managers are analysing have enough spare capacity and flexibility concerning serviceability, gearing and covenant headroom.

Most infrastructure companies have learnt from past errors and have refrained from taking on high levels of debt or utilising floating debt structures. Additionally, they have termed out and hedged outstanding debt via refinancing activities during 2021 and early 2022, providing capital structure flexibility.

The last decade was characterised by declining base rates and credit margins, that allowed infrastructure companies to benefit from higher debt servicing capacity. This resulted in financing gains from increased cash flows and therefore higher equity returns than their respective underwriting cases. Given financings costs have risen rapidly over the last 12 months, GLI managers noted infrastructure companies will find it difficult to up-size their debt facilities in the short-term and hence the potential for distributions from refinancings will be limited.

On a look-forward basis, investors should ensure that capital structures are fit for purpose and have flexibility in terms of refinancing timetables, debt service and absolute debt volumes.

Trend 8: Valuations and forward-looking returns

GLI managers also provided their views of prospective returns. There was a general view that valuations were at levels not seen in many years, given recent pullbacks in public markets. Significantly, managers saw increased dispersion within regions. Notwithstanding Europe's geopolitical and macroeconomic backdrop, most GLI managers see strong regional value, supported by average valuations over time as well as comparing valuations to those seen during the GFC.

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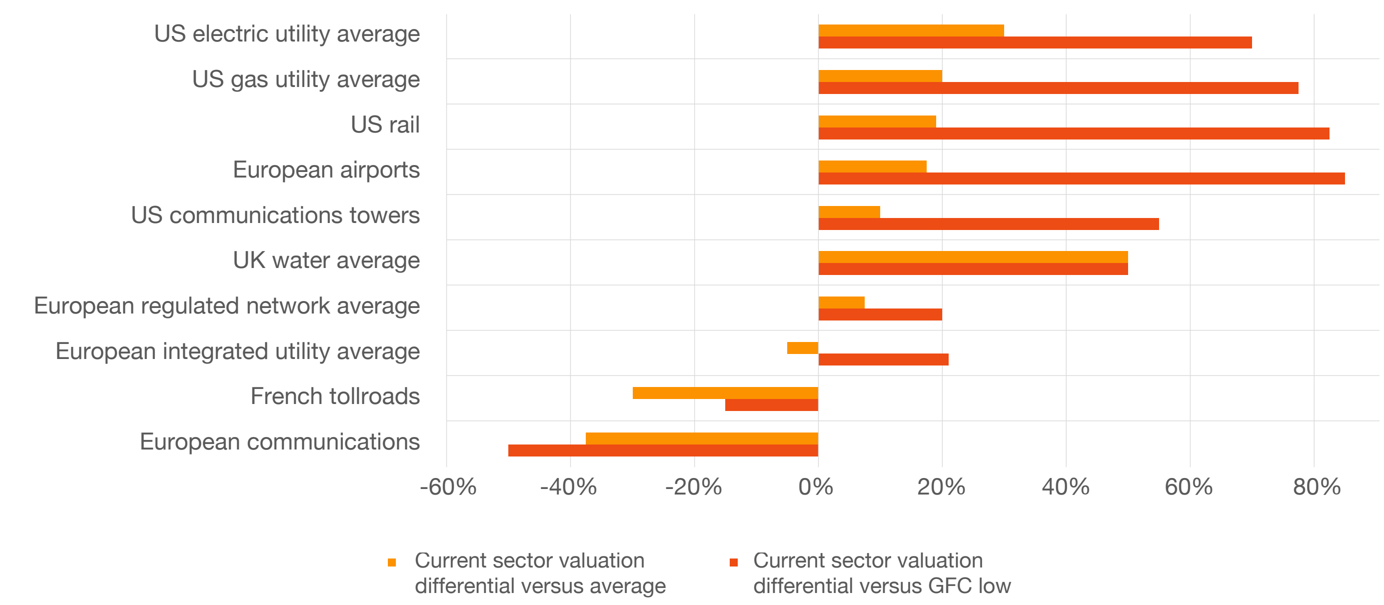
Chart 5: Current sector valuation differential versus average and GFC low

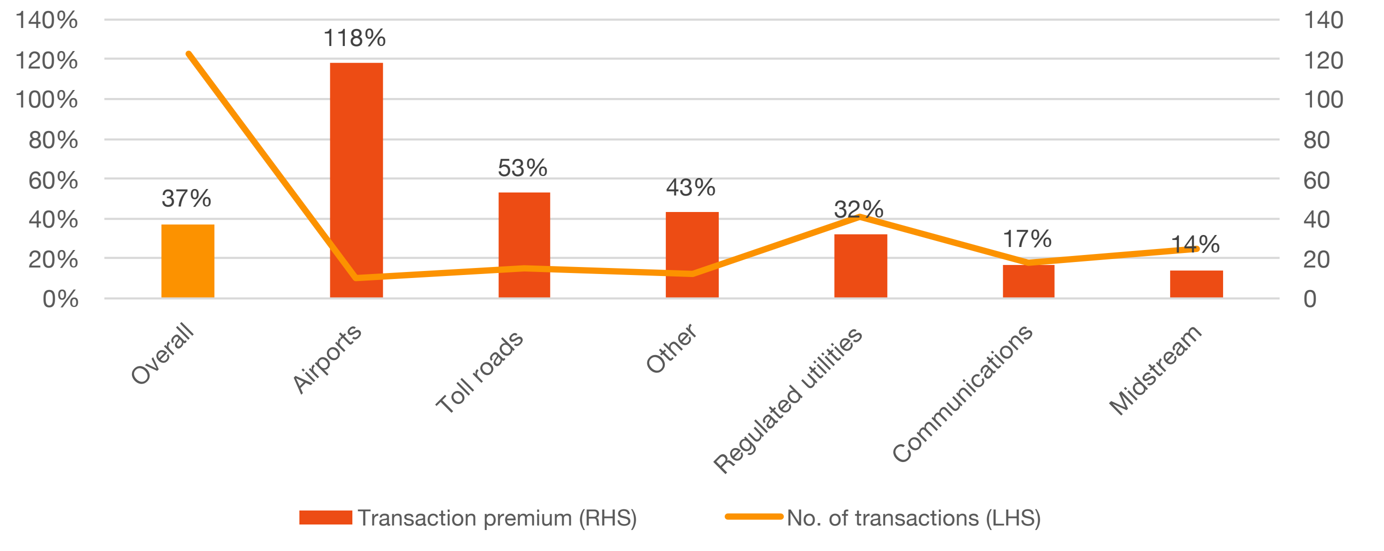


Source: ATLAS Infrastructure

GLI managers are taking advantage of valuation dispersions and positioning portfolios with significant tilts towards Europe and away from the US. As such, there is considerable optimism for strong forward-looking performance given the current valuation environment.

Further, while the valuation differences between listed and unlisted markets remain, listed markets will continue to serve as a fertile environment for take-private transactions. Chart 6 illustrates both the premium paid for listed assets and the number of transactions that have occurred over the last three and a half years.

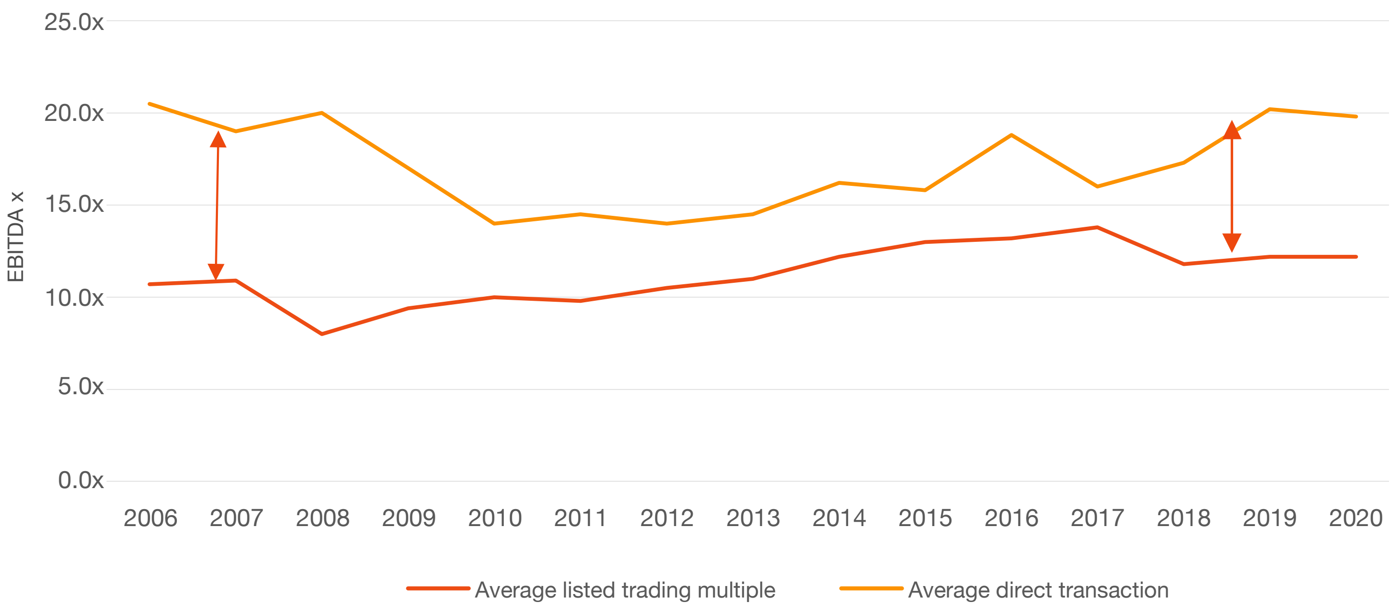
Chart 6: Average premium paid for listed companies over the least three and a half years



Source: Inflation Reduction Act of 2022

Chart 7 also highlights that over the long-term, direct transactions have traded at higher multiples than those of listed companies.

Chart 7: Average listed trading multiple versus average direct transaction



Source: Maple-Brown Abbott

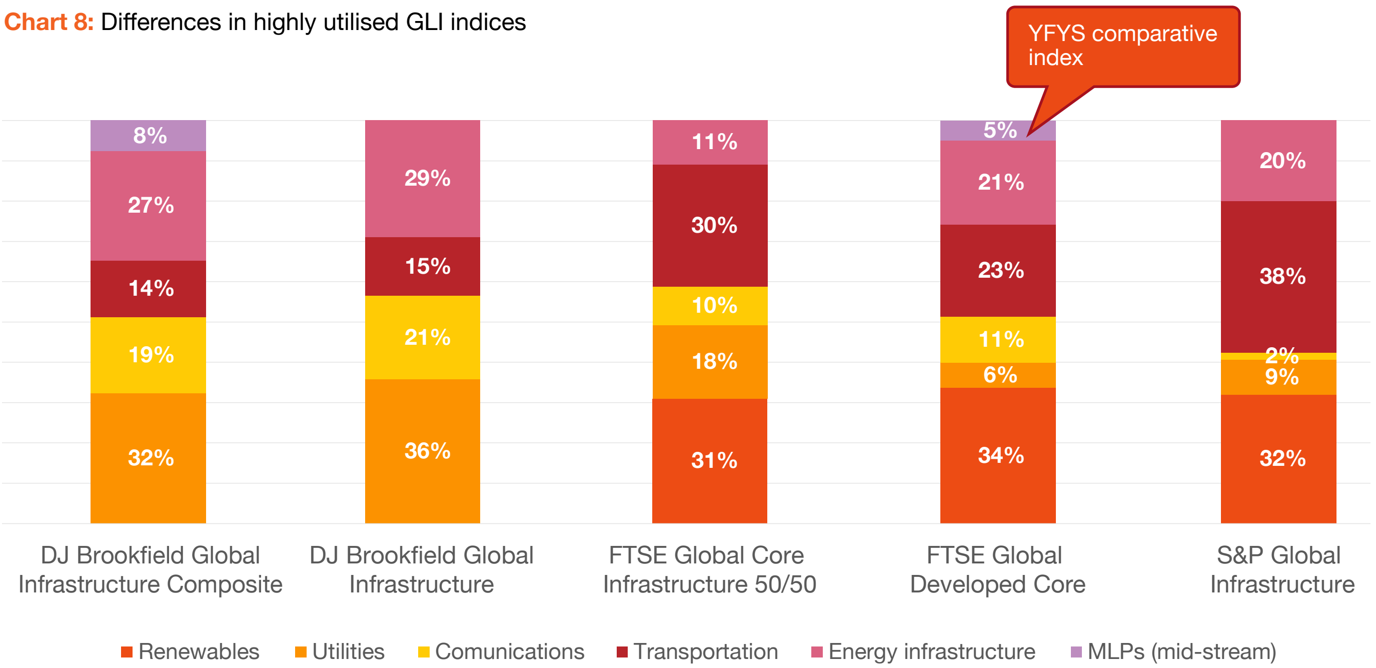
Benchmarks and indices

Investor have different preferences and constraints regarding utilising specific benchmarks and indices, (i.e. some investors have specific exclusions whereby mid-stream investments cannot be undertaken). Therefore, investors should be aware of the diverse nature of indices available for measurement and the sectors represented within those respective indices.

Specifically, for Australian APRA-regulated investors subject to Your Future, Your Super (YFYS) regulations and performance tests, the chosen benchmark for GLI is the FTSE Developed Core Infrastructure 100% Hedged to AUD Net Tax (Super) Index (YFYS GLI Benchmark). There are non-trivial differences in the underlying indices, whether it be through sector or geographies, so investors should be aware of such differences when selecting an index for comparative purposes.

Sub-sector constituents in infrastructure indices

Chart 8: Differences in highly utilised GLI indices



Source: Brookfield (as at 30 November 2022)

As shown in Chart 8, the differing indices within the GLI universe provide different exposures across sub-sectors. For instance, the FTSE Global Core measure has 34% of the Index exposed to Renewables whereas the DJ Brookfield Global Infrastructure Composite has no exposure. Therefore, a listed portfolio may differ greatly across benchmark aware strategies, even though that may not be the targeted outcome.

Performance of underlying indices

Over the long-term the performance of the various indices can differ, highlighting the importance of understanding the underlying constituents of each index and therefore selecting the appropriate index for GLI benchmarking purposes.

Table 2: Performance of GLI indices to 31 December 2022 (Local currency, Total return basis)

	1 year (%)	3 year (% p.a.)	5 year (% p.a.)	10 year (% p.a.)
DJ Brookfield Global Infrastructure Composite	-4.9	1.1	3.7	5.9
DJ Brookfield Global Infrastructure	-6.6	1.4	4.3	6.4
FTSE Global Core 50/50	-4.1	2.3	5.5	7.9
FTSE Global Developed Core	-5.8	3.9	7.1	8.9
S&P Global Infrastructure	-0.2	1.7	3.9	6.5
FTSE Developed Core Infrastructure 100% Hedged to AUD Net Tax (Super) Index	-1.4	4.5	7.8	9.1

Source: Bloomberg

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Benefits of a listed exposure

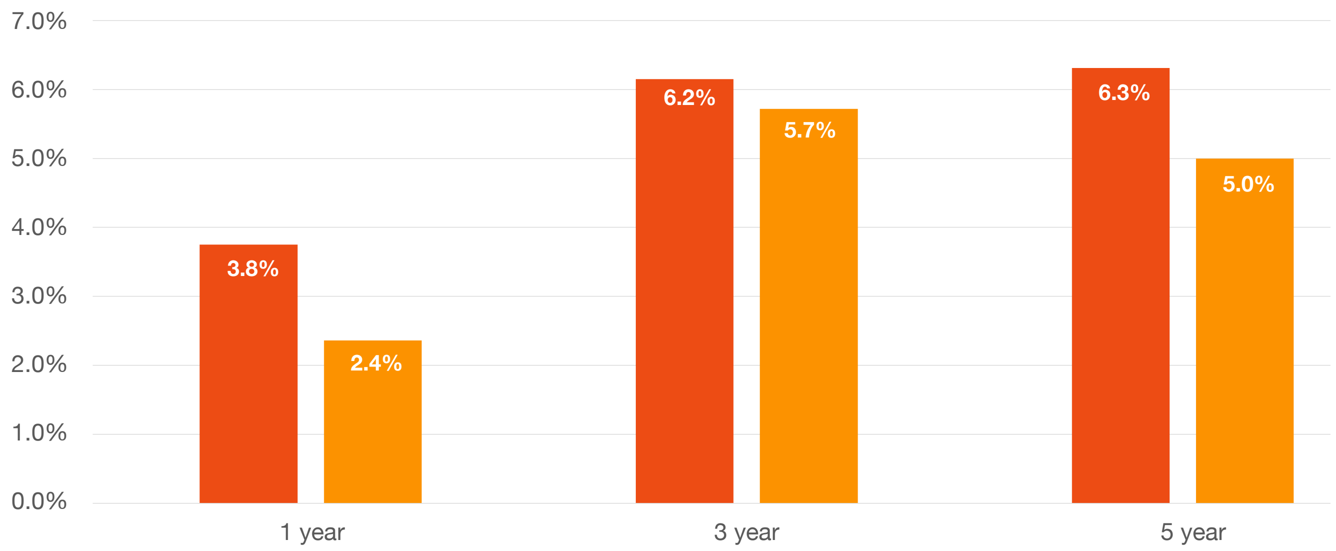
Although our preferred infrastructure exposure is via unlisted strategies, we continue to believe there are benefits in maintaining a global listed infrastructure exposure. Although there may be higher levels of price volatility within the combined portfolio, or in comparison to the unlisted portfolio, the benefits of a listed exposure should be considered in the context of specific investor constraints.

Active management and downside protection

The infrastructure sector comprises diverse industry groups, each with a range of distinct fundamentals and macro sensitivities such as how they respond to economic activity, interest rates and inflation. Such differences assist in explaining the dispersion in returns within indices. Active management enables managers to target such idiosyncratic differences generating additional value over time.

Illustrating the ability for active management performance, the median active manager in the global listed infrastructure segment has shown outperformance over short, medium and long periods. The outperformance illustrates the ability of GLI managers to capitalise on market inefficiencies and temporary dislocations, by tilting portfolios and and taking tactical advantage of longer-term thematics or valuation dislocations.

Chart 9: Median performance of active versus passive GLI strategies to 31 July 2022



Source: Brookfield (as at 31 July 2022)

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Lower correlation to global equities

A positive portfolio benefit of GLI is the relatively low correlation it has to global equities and bonds. Thus, inclusion of GLI into a portfolio could improve total performance and reduce volatility. Table 3 illustrates the correlations of listed infrastructure to other asset classes.

Table 3: Asset correlation

	MSCI World	S&P 500	Global REITS	DJ Brookfield Infra	S&P Infra	FTSE Global Core 50/50	Global Bonds
MSCI World	1.00	-	-	-	-	-	-
S&P 500	0.97	1.00	-	-	-	-	-
Global REITS[1]	0.70	0.66	1.00	-	-	-	-
DJ Brookfield Infra	0.69	0.66	0.76	1.00	-	-	-
S&P Infra	0.70	0.64	0.78	0.91	1.00	-	-
FTSE Global Core 50/50	0.62	0.60	0.77	0.94	0.91	1.00	-
Global Bonds [2]	0.23	0.28	0.22	0.34	0.20	0.38	1.00

Source: Bloomberg, Maple-Brown Abbott

[1]Global REITS = the FTSE EPRA/NAREIT Global Total Return Index.

[2]Global Bonds = Bloomberg Global Aggregate Total Return Index

Cost

There is little doubt that managing an unlisted infrastructure portfolio is complicated and resource intensive. There are many moving parts to investments within underlying projects and portfolio companies, including project origination; capital markets activities; asset management; consistent regulatory changes; differences between investing locally and offshore; technological changes; and various ESG requirements. As such, there is considerable expense to managing an unlisted portfolio. In most cases, adding a listed exposure can reduce the overall management expense ratio, whilst still maintaining an active asset class exposure.

Completion strategy

The listed market also allows investors to obtain a specific geographic or sector exposure, which they may not be able to obtain via unlisted infrastructure strategies. For instance, some infrastructure companies are unlikely to be available to unlisted investors due to regulatory issues, national interest grounds or size constraints (although size is becoming less of an issue). Therefore investors can access such an exposure relatively easily through listed markets, thus completing their infrastructure portfolio. In addition, large scale investors can (and do) utilise listed managers for specific concentrated portfolio mandates. For example, US utilities is consistently raised as a sub-sector investors seek exposure to, which can be difficult to access in the unlisted space.

Environmental, social and governance

Environmental, social, and governance (ESG) compliance is an essential requirement for asset managers, driven by investors, the community and policymakers. Frontier Advisors has been a firm proponent of ESG compliance amongst asset managers, given the downside risk from ignoring ESG considerations (including climate related risk and the social licence to operate).

In our view, many listed businesses within the investible infrastructure universe maintain significant sustainability reporting. This can be attributed to a higher level of resourcing, shareholder requirements, and/or regulatory and listing requirements where the companies are domiciled. Additional reporting provides investors with significant benefits specifically for those looking to understand their scope 1, 2, and 3 emissions in detail.

Deployment and liquidity

Investors will have specific portfolio constraints, whether investment timeframes, strategic asset allocation requirements or liquidity budgets. We discussed GLI managers' capital deployment and redemption capabilities. Although GLI managers differed in their responses regarding the volume of investment that could be deployed or redeemed in a 24 to 48 month period, the range was between US$100 million and US$125 million (the differences in response are likely due to investment strategy, portfolio concentration and size of investment amongst others). This liquidity provides significant optionality for investors when managing an extensive portfolio allowing deployment or redemptions within short windows.

Access to alternative global views and managers

An area we consider beneficial and likely under-appreciated is the ability for internal investment teams to gain differentiated insights from GLI managers. We met with a wide variety of management teams based in Australia and the US and welcome the differences in opinions from both a top-down and stock-specific perspective. In our view, the knowledge and ideas imparted from a listed exposure can provide an improved understanding of the investment outlook, future investible thematics and, importantly, potential areas of an unlisted portfolio that may warrant further analysis.

We note several sovereign wealth investors have contractual agreements with GLI managers purely for sector insights, knowledge and research. We view such agreements as worthy of consideration for institutional investors constrained from investing in listed infrastructure.

Other considerations of a listed exposure

While we have outlined several benefits, there are also other considerations for listed infrastructure worth highlighting. A key criterion investors should consider is volatility, at least in the short term. Most notably, if an investor has historically maintained their infrastructure exposure through unlisted investments, short-term movements in portfolio valuations are likely to lead the majority of queries. Significantly, during market stress, GLI sector correlations are likely to converge with broader equity indices. Additionally, there is the potential for short-termism (relating to the portfolio exposure and the use of liquidity in a long-term asset class), by potentially increasing the draw-downs to fund other portfolio priorities.

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The final word

In summary, we encourage the utilisation of GLI strategies to achieve specific portfolio goals. Although our preferred access to infrastructure is through unlisted managers, we strongly believe listed infrastructure has a role to play in a well-constructed infrastructure portfolio.

Our trip highlighted the median active GLI managers maintains strong outperformance by targeting emerging themes and via portfolio positioning.

We believe investors stand to benefit from a listed exposure due to:

- Active management and subsequent downside protection
- Access to a significant investable universe
- Thematics unavailable in unlisted markets
- Prompt deployment
- Attractive cost for active management.

Most importantly, our strong view on GLI is based on the ability to implement portfolio completion strategies accounting for factors such as:

- Geographic and infrastructure sub-sector diversification
- Risk-return portfolio targets
- Drawdown and downside protection in bear markets
- Equity beta exposure
- Liquidity

In conclusion, whether an investor is an Australian APRA-regulated superannuation fund or a liability-driven insurer looking to deploy capital into infrastructure, GLI strategies can provide a bespoke solution.

Want to learn more?

Frontier Advisors has undertaken extensive research on global listed infrastructure and is well placed to advise investors on this theme. We encourage investors to reach out to our Real Assets Team for a discussion on how we may be able to help.

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Frontier Advisors is one of Australia's leading asset consultants. We offer a range of services and solutions to some of the nation's largest institutional investors including superannuation funds, charities, government / sovereign wealth funds and universities. Our services range from asset allocation and portfolio configuration advice, through to fund manager research and rating, investment auditing and assurance, quantitative modelling and analysis and general investment consulting advice. We have been providing investment advice to clients since 1994. Our advice is fully independent of product, manager, or broker conflicts which means our focus is firmly on tailoring optimal solutions and opportunities for our clients.

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