Executive Summary

With private infrastructure fundraising continuing to impress and the resulting dry powder reaching all-time record highs, we see today as a particularly good time to allocate to global listed infrastructure (GLI). We view GLI not only as a complement to private investment, but also a key beneficiary of the private equity infrastructure boom in the coming decades. Relative to private, GLI has the potential to provide a competitive return, lower fees, and better liquidity. Perhaps less well known, GLI may also allow investors to access regulated assets that have high entry barriers (i.e. regulatory hurdles) for investment by private equity, consequently offering the potential for material diversification benefits across both sectors and geographies. Today, as the private infrastructure market navigates the deployment and return challenges that naturally arise following a capital-raising boom and increasing institutional allocations, we see GLI as a compelling, complementary solution for investors.

The statements and conclusions made are not guarantees and are merely the opinion of CenterSquare and its employees. Any statements and opinions expressed are as of the date of publication, are subject to change as market and economic conditions dictate, and do not necessarily represent the views of CenterSquare. Refer to important disclosures including index disclosures at the end of this document. Past performance is not indicative of future results. This material cannot be reproduced in print or any other media without prior written permission from CenterSquare Investment Management LLC.
Private Equity’s Great Run Means a Second Leg Up For Listed

By any measure, private equity infrastructure’s fundraising has been tremendously successful. Over the last ten years, the sector’s AUM has nearly quintupled to half a trillion, and in 2018 alone the annual capital raised breached $90 billion. As result of this, however, the “dry-powder” estimate of equity waiting to be invested, sits at close to $200 billion. If the typical private equity leverage on equity capital is considered, this implies well over half a trillion dollars is needed deal flow to invest that equity.

The explosion in private infrastructure should have profound implications for both listed and unlisted assets. First, competition for deals will continue to rise, and with it will come higher private equity valuations and, in turn, lower returns for private infrastructure. In a recent Preqin study, 26% of LPs expected lower returns in 2019, 35% of general partners have lowered target returns for new funds, and overall 66% of private equity fund managers view competition as a key challenge. Going forward, we expect competition to increase; as of Q3 2019, Preqin estimated that private equity funds were targeting $200 billion in capital raises, about 50% above the levels targeted in 2018. Increasing amounts of private equity capital and higher levels of competition should only benefit GLI, which is the natural target for such deal flow.

Higher private equity valuation of public assets has the potential to drive a further widening of the 20-50% valuation discount that we see for listed equities versus private deal valuations across sectors of the infrastructure asset class. In addition to providing a useful valuation marker (on what a regulated natural gas pipeline is worth, for example, to an unlisted buyer), we see publicly listed companies increasingly being targeted for private equity acquisitions. With the amount of dry powder raised, and the concentration of that dry powder within larger and larger private infrastructure funds, GPs will need larger deals; $50 million standalone solar farms won’t make a difference, and GLI companies will need to be swallowed whole. We’ve seen this trend toward all-in purchases begin to play out in North America in 2019, where private equity has contributed over 60% of deal flow, including in the midstream, rails, and telecom sectors.
Investors Need Listed Infrastructure to Fill Gaps in Private Exposures

One of the reasons that private infrastructure has accelerated its investment in US energy in particular is that it is relatively more challenging to deploy capital in other sectors. Indeed, one of the most important questions facing private equity today is the constrained extent to which GPs can deliver a focus on high quality regulated infrastructure (such as regulated US utilities, global toll roads, airports), US transportation, or access to water investments. We see this as limiting in several ways, and believe GLI can fill gaps that private cannot bridge. Between 2014 and 2018, of the private equity deals completed, only 12% went to utilities/power producers and 11% to global transports, while 49% went to renewables. This deal composition is a far less regulated set of cash flows than that provided by GLI, and offers a much narrower exposure to sources of cash flow generation than is available when using listed and private infrastructure in conjunction with each other.

There are several reasons we believe private equity has fallen short in acquiring highly regulated assets. In the US, as an example, regulatory bodies have several decades’ worth of relationships with local governments, and are typically hard pressed to justify an asset being sold to an entity that would raise leverage, cut costs (i.e. jobs), potentially reduce investment (to harvest/bolster near-term cash flows), and seek to flip on a compressed timeline (relative to a regulatory sense of time). These practices, while perhaps attractive to investors, don’t offer what regulators would call a compelling outcome in the “public interest” — complicating both the approvals process and the economic return prospects. Beyond utilities, large scale toll-road investments for private investment come up only every few years, and airport deals themselves are both relatively scarce, and when they do become available, tend to price fairly dramatically, and are often located in riskier / developing economies. Compared to private, GLI offers close to 50% exposure to regulated utilities, avoiding an overexposure to renewable energy. This compares to 12% of deal flow for private infrastructure vehicles over the last 5 years (Exhibits 4 & 5).

Relatedly, while renewables have a highly attractive secular growth story, their cash flows are often driven not only by the secured/contracted price received for the power, but also the volume of power produced – which can be quite variable depending on environmental factors. Furthermore, depending on the tax status of the investor, the economics of renewables that arise from the monetization of tax credits can be problematic for a variety of reasons.

Private Equity’s Allocations to North America Have Been Limited vs. GLI Exposures

In addition to the regulated mix advantage, GLI has geographical advantages as well. North American-focused strategies hold approximately
45-50% of the dry powder within private equity infrastructure funds. However, since 2006, Preqin cites that private infrastructure has been able to complete only ~30% of its deals in the region, which boasts a solid political, regulatory, and governance structure for infrastructure investment. Given this backdrop, challenges to economically deploy this capital should only rise. Further, the bulk of private deals in North America have been in renewables, thermal power, and energy – sectors with material volumetric or commodity exposure. In other words, North America is a geography where private investors can invest less in utilities, and more in energy, and have exhibited less deal flow success relative to other geographies, whereas GLI can easily access that market and improve exposures for investors.

**GLI’s Return Profile Compared to Private Equity Infrastructure**

Data supports GLI’s potential complementarity to private equity infrastructure from a return and risk perspective as well. Since Q4 2003, gross returns and volatility for listed and unlisted infrastructure have been broadly similar (although listed, we would note again, has the potential to offer significantly lower management fees, immediate access to the asset class, and diversification benefits). Below we show data from Preqin, EDHEC Business School, and the Global Listed Infrastructure Organization (GLIO) outlining the risk and return results over this period of time. Both GLI and private infrastructure have returned approximately 12% over the Q4 2003 - Q1 2019 period, supporting the reality that the cash flows generated from both listed and private infrastructure are derived from much the same assets, with highly similar economic and fundamental exposures. Also notable, however, is that after unsmoothing the Preqin series’ appraisal-based approach, unlisted/private volatility is only about 1.6% less (11.3% vs 12.9%) than GLI.

Further, in light of the fundamental factors we note above and the risk and return characteristics of both listed and unlisted/private infrastructure, usage of both aspects of the infrastructure universe is supported. Including GLI into a blended infrastructure portfolio and maximizing for optimal risk and return produces a result supporting an optimal infrastructure mix of 40% listed and 60% unlisted/private over time while increasing asset-level and geographic portfolio diversity (Exhibits 10 & 11).

### Exhibit 9: Listed & Private Risk / Return Attributes (Q4 2003 - Q1 2019 Annualized Total Figures)

<table>
<thead>
<tr>
<th>Listed &amp; Private Standalone Risk &amp; Return Attributes</th>
<th>Optimal Blended Risk/Return Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed Infrastructure</td>
<td>Unlisted Infrastructure</td>
</tr>
<tr>
<td>Mean Return</td>
<td>12.1%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>12.9%</td>
</tr>
<tr>
<td>CAPM Beta</td>
<td>0.69</td>
</tr>
<tr>
<td>CAPM Alpha</td>
<td>5.2%</td>
</tr>
<tr>
<td>Sharpe Ratio</td>
<td>0.84</td>
</tr>
<tr>
<td>Correlation with GLIO</td>
<td>1.00</td>
</tr>
<tr>
<td>Correlation with Equity</td>
<td>0.84</td>
</tr>
<tr>
<td>Correlation with Preqin</td>
<td>0.28</td>
</tr>
</tbody>
</table>

Source: GLIO, Preqin, Simon Wilde - Research Fellow and Visiting Lecturer, Imperial College London, GLIO Journal - Issue 6. Note: GLI characteristics represented by Global Listed Infrastructure Organization (GLIO) composite risk and return figures. Private infrastructure characteristics represented by Wilde/Preqin and EDHECInfra Global Unlisted Equity Index risk and return figures. Optimal blends indicated in Exhibits 10 & 11 in this paper. All Equity refers to global equities represented by Professor Kenneth French’s global equities series, Dartmouth College Tuck School of Business. Past performance is not indicative of future results.

Refer to important disclosures at the end of this document.
Lastly, given the discussion on the potential direction of private infrastructure returns, and the ability of listed equities to provide opportunities for private capital deployment, it is likely, in our view, that GLI’s return advantage can be sustained or expanded over time, as deal multiples and prices paid rise, compressing private equity infrastructure returns.

Refer to important disclosures at the end of this document.
Conclusion

In the coming decade, we see GLI as a complementary solution to challenges resulting from the tremendous fundraising success of private equity infrastructure. Today’s private equity backlog implies lower future returns, higher prices paid, and longer wait times to get invested, while GLI offers geographic and sector diversity, with a similar return profile, and immediate access to the asset class. GLI’s history of lower volatility vs. broad global equity markets, coupled with attractive defensive characteristics, may help it to outperform markets in periods of stress and slower growth, further bolstering its attractiveness as an alternative or complementary allocation versus private equity. The collection of assets and locations in GLI gives investors an optimum mix of the best paths to achieve the necessary risk-adjusted returns as we enter the next phase of the economic cycle – and does it in a way that adds value to existing allocations across both private equity and global equities.

Disclosure Statements and Risk Factors

Material in this publication is for general information only and is not intended to provide specific investment advice or recommendations for any purchase or sale of any specific security or commodity. Due to, among other things, the volatile nature of the markets and the investment areas discussed herein, investments may only be suitable for certain investors. Parties should independently investigate any investment area or manager, and should consult with qualified investment, legal, and tax professionals before making any investment. Some information contained herein has been obtained from third party sources and has not been independently verified by CenterSquare Investment Management LLC (“CenterSquare”). CenterSquare makes no representations as to the accuracy or the completeness of any of the information herein. Accordingly, this material is not to be reproduced in whole or in part or used for any other purpose.

Any statements and opinions expressed are as at the date of publication, are subject to change as economic and market conditions dictate, and do not necessarily represent the views of CenterSquare or any of its affiliates. The information has been provided as a general market commentary only and does not constitute legal, tax, accounting, other professional counsel or investment advice, is not predictive of future performance, and should not be construed as an offer to sell or a solicitation to buy any security or make an offer where otherwise unlawful. The information has been provided without taking into account the investment objective, financial situation or needs of any particular person.

Material in this publication is for general information only and is not intended to provide specific investment advice or recommendations for any purchase or sale of any specific security or commodity. Due to, among other things, the volatile nature of the markets and the investment areas discussed herein, investments may only be suitable for certain investors. Parties should independently investigate any investment area or manager, and should consult with qualified investment, legal, and tax professionals before making any investment. Some information contained herein has been obtained from third party sources and has not been independently verified by CenterSquare Investment Management LLC (“CenterSquare”). CenterSquare makes no representations as to the accuracy or the completeness of any of the information herein. Accordingly, this material is not to be reproduced in whole or in part or used for any other purpose.

Any statements and opinions expressed are as at the date of publication, are subject to change as economic and market conditions dictate, and do not necessarily represent the views of CenterSquare or any of its affiliates. The information has been provided as a general market commentary only and does not constitute legal, tax, accounting, other professional counsel or investment advice, is not predictive of future performance, and should not be construed as an offer to sell or a solicitation to buy any security or make an offer where otherwise unlawful. The information has been provided without taking into account the investment objective, financial situation or needs of any particular person.

Any indication of past performance is not a guide to future performance. The value of investments can fall as well as rise, so investors may get back less than originally invested.

This communication is not an offer of securities for sale in the United States, Australia, Canada, Japan or any other jurisdiction where to do so would be unlawful. CenterSquare has not registered, and does not intend to register, any portion of the securities referred to herein in any of these jurisdictions and does not intend to conduct a public offering of securities in any of these jurisdictions. This communication is being distributed to, and is directed only at, persons in the United Kingdom in circumstances where section 21(1) of the Financial Services and Markets Act 2000 does not apply (such persons being referred to as “relevant persons”). Any person who is not a relevant person should not act or rely on this communication or any of its contents. Any investment activity (including, but not limited to, any invitation, offer or agreement to subscribe, purchase or otherwise acquire securities) to which this communication relates will only be available to, and will only be engaged with, persons who fall within the target market. This communication is an advertisement and is not a prospectus for the purposes of Directive 2003/71/EC, as amended (such directive, the “Prospectus Directive”) and/or Part IV of the Financial Services and Markets Act 2000.

Any communication of this document by a person who is not an authorised person (as defined in the Financial Services and Markets Act 2000 (“FSMA”)) is directed only at the following persons in the United Kingdom, namely (i) persons falling within any of the categories of “investment professionals” as defined in Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the “Financial Promotion Order”), (ii) persons falling within any of the categories of persons described in Article 49(2) of the Financial Promotion Order, (iii) persons falling within the categories of “certified high net worth individual” described in Article 48(2) of the Financial Promotion Order and “self-certified sophisticated investor” described in Article 50(a)(1) of the financial promotion order and (iv) any person to whom it may otherwise lawfully be made. Persons of any other description should not review, nor act upon, this document.

For the purposes of Article 19 of the Financial Promotion Order, this document is directed at persons having professional experience in matters relating to investments. Any investment or investment activity to which this document relates is available only to such persons. Persons who do not have professional experience in matters relating to investments (and in respect of whom another exemption is not available) should not rely on this document.

For the purposes of Article 49 of the Financial Promotion Order, this document is directed at persons meeting the respective minimum criteria specified in Article 49(2) of the Financial Promotion Order (for example, partnerships with net assets of not less than £5 million). Any investment or investment activity to which this document relates is available only to such persons. Persons who do not meet such minimum criteria (and in respect of whom another exemption is not available) should not rely on this document.

Canada Specific Disclosure

This document has been prepared solely for information purposes and is not an offering memorandum nor any other kind of an offer to buy or sell or a solicitation of an offer to buy or sell any security, instrument or investment product or to participate in any particular trading strategy. It is not intended and should not be taken as any form of advertising, recommendation, investment advice or invitation to trade. This information is confidential and for the use of the intended recipients only. The distribution of this document in Canada is restricted to recipients who are qualified “permitted clients” for purposes of NI 31-103. This document may not be reproduced, redistributed or copied in whole or in part for any purpose without prior written consent.

Refer to important disclosures at the end of this document.
Definition of Indices

GLI: FTSE Developed Core Infrastructure 50/50 Index
Global Equities: MSCI ACWI
Global Infrastructure: For periods after 12/31/2005, FTSE Developed Core Infrastructure 50/50 Index. For periods prior to 12/31/2005, Dow Jones Brookfield Global Infrastructure Index.
Other Global Listed Infrastructure/Private: Wilde/Preqin, and GLIO Listed Infrastructure Composite, Inframation Database, EDHECinfra Global Unlisted Equity Index
FTSE Developed Core Infrastructure 50/50 Index
The FTSE Global Core Infrastructure 50/50 Index and FTSE Developed Core Infrastructure 50/50 Index give participants an industry-defined interpretation of infrastructure and adjust the exposure to certain infrastructure sub-sectors. The constituent weights for these indices are adjusted as part of the semi-annual review according to three broad industry sectors – 50% Utilities, 30% Transportation including capping of 7.5% for railroads/railways and a 20% mix of other sectors including pipelines, satellites and telecommunication towers.

MSCI ACWI
The MSCI ACWI, which is part of The Modern Index Strategy, is a broad global equity index that represents large and mid-cap equity performance across 23 developed markets countries. It covers approximately 85% of the free float-adjusted market capitalization in each country and MSCI ACWI does not offer exposure to emerging markets.

Wilde/Preqin
An Index that captures the average returns earned by investors in their infrastructure portfolios based on the amount of money invested in infrastructure partnerships weighted by the size of each fund. The Wilde data can be used to extend the Preqin time series back to June 2003 to allow for longer comparisons with other indices.

GLIO Listed Infrastructure Composite
The GLIO (Global Listed Infrastructure Organisation) Composite only includes companies covered by at least two or more index providers from S&P, Dow Jones Brookfield, STOXX, FTSE and GPR.

EDHECinfra Global Unlisted Equity Index
EDHECinfra’s eight broad market indices provide global coverage of unlisted infrastructure equity and private debt markets. Four global unlisted infrastructure equity indices cover the broad infrastructure sector, the project finance sector and advanced and emerging infrastructure markets, respectively.

Inframation Database
Inframation is the leading provider of real-time actionable intelligence for the infrastructure community. We monitor deal-led, principal investing in the development of new infrastructure assets and the acquisition of operational assets and companies to give you research, analysis, intelligence and data.

About the Authors

Theodore Brooks, CFA, Portfolio Manager, Infrastructure Securities
Mr. Brooks is the Portfolio Manager for CenterSquare Investment Management’s global listed infrastructure group. He joined the firm in 2014, and has primary responsibility for coverage of global utilities. Prior to joining CenterSquare, Mr. Brooks was a Director of Equity Research, Power & Utilities Group at Barclays Capital and Lehman Brothers from 2005-2014, and an Investment Banking Analyst at Credit Suisse First Boston in New York, NY from 2004-2005. Mr. Brooks holds an MBA in Finance from the New York University Stern School of Business, and a BA in History from the College of the Holy Cross. He is a CFA charterholder and member of the CFA Institute and the CFA Society of Philadelphia.

Jonathan Treitel, CFA, CAIA, Senior Analyst, Infrastructure Securities
Mr. Treitel serves as a Senior Analyst for CenterSquare Investment Management’s global listed infrastructure group. Mr. Treitel joined the firm in 2016, and his coverage includes energy, industrial, and utility equities. Prior to joining CenterSquare, Mr. Treitel was a Portfolio Manager and analyst at Columbia Partners and Turner Investments, in Berwyn, PA. He has over a decade of experience across several sectors. Mr. Treitel holds a BA in Economics and English from Columbia University. He is a CFA and CAIA charterholder and member of the CFA Institute and the CFA Society of Philadelphia.
About CenterSquare

Founded in 1987, CenterSquare Investment Management is an independent, management-owned real asset manager focused on listed real estate, private equity real estate, private real estate debt and listed infrastructure investments. As an investor and manager, our success is firmly rooted in aligning our firm’s interests with those of our clients, partners and employees, as well as our commitment to alpha-generating research.

CenterSquare Investment Management is headquartered in suburban Philadelphia, with offices in New York, Los Angeles, London and Singapore. CenterSquare is proud to manage investments on behalf of some of the world’s most well-known institutional and private investors.