CBRE Investment Management

Globally diversified infrastructure portfolios: The benefits of a multi-region approach

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Why diversify today?

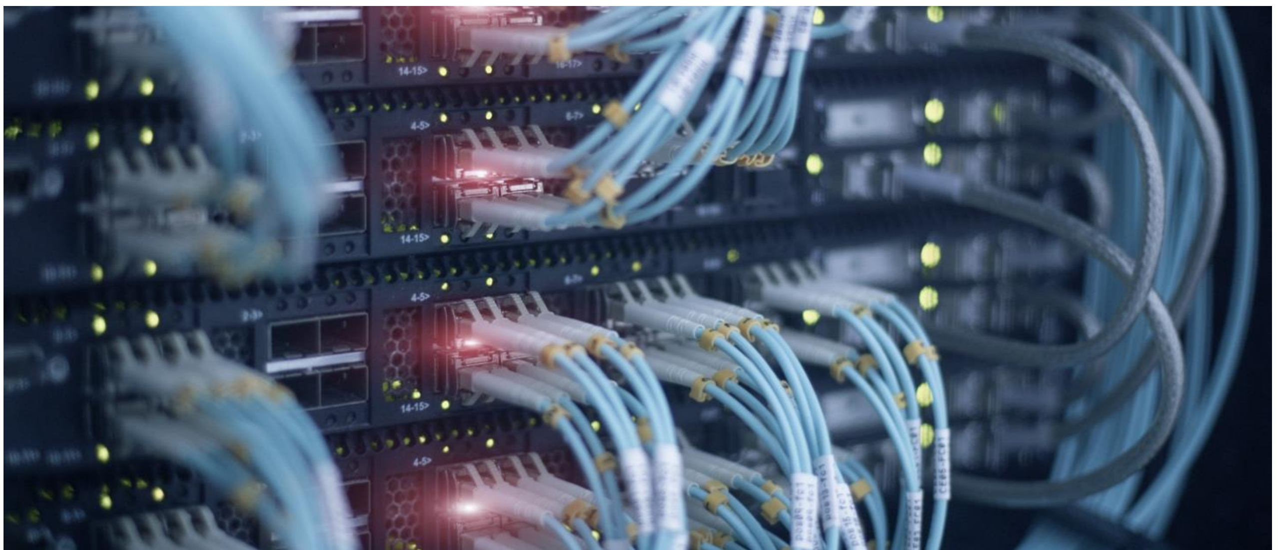
Unlisted infrastructure funds have traditionally focused on opportunities in major developed markets in North America, Europe and Asia Pacific. In the past several decades, global trade flows accelerated, and local markets reacted in tune with global events. As trade frictions exacerbate between China and the U.S., investors see more evidence of rising protectionism and regional fragmentation of supply chains.

We revisited the case for a multi-region approach to investing in infrastructure and found that, in line with traditional theories, international diversification brings significant portfolio benefits. Many infrastructure assets are owned by large domestic companies, providing essential services (power, water, digital connectivity) and have a high degree of idiosyncratic risk. Because of regulation or political oversight, many infrastructure companies have strong connections with local governments and are exposed to the state of their national economies. In this first part of our geopolitics series, we stipulate that allocating infrastructure capital across regions has the following benefits:

- **Portfolio risk reduction:** Listed and unlisted infrastructure returns are strongly, but not perfectly, correlated across major regions.
- **Idiosyncratic risk mitigation:** From the timing of regulatory reviews or the easing of pandemic restrictions, a multi-region strategy can soften the troughs during economic and geopolitical crises and enhance a portfolio's downside protection.
- **More access to diverse sectoral opportunities:** As examples, U.S. federal and state authorities have opened energy and power sectors to private investors, while in Europe and Asia we have seen more opportunities for private capital in transport and renewables.

In this paper, we review recent trends in infrastructure capital allocation to see whether investors have turned a corner from a multi- to a single-region approach. We also discuss optimal geographic ranges, but investors should choose their own preference depending on how they access infrastructure (the listed and private sector universe differs by region), their return objectives and risk tolerance as well as the degree of local expertise in each region.

Our study focuses on infrastructure investments in developed markets. Private infrastructure investment in emerging markets remains a small fraction of global investment flows and market indices and comes with added political, currency and regulatory considerations.



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The concept of diversification

"Don't put all your eggs in the same basket" is a basic rule in modern finance. In Markowitz theory,[1] portfolio diversification is the art of combining assets to reduce risk. When returns are driven by country-specific factors, an international diversification strategy—that carefully spreads the investment funds across multiple countries—can yield substantial risk-reduction benefits. The objective of our research is to test this theory and concept with a focus on infrastructure portfolios.

Infrastructure returns by region are strongly, but not perfectly correlated

While local markets exhibit similar patterns, geographically diversified strategies can optimize a portfolio's risk-adjusted returns. The correlations of total returns by region for both listed and unlisted infrastructure markets are high, but not perfect. All other things being equal, the less returns are correlated, the more portfolio risk is reduced overall.

Our analysis (**Figure 1**) should be seen as an illustrative example, rather than a scientific study. The availability of data for unlisted infrastructure markets has evolved significantly over the past few years but is still constrained by the lack of granularity at the asset or country level. Both listed and unlisted markets have a degree of autocorrelation due to the outsized exposure to specific regions. For example, the Americas is over 60% of the listed FTSE Developed Core 50/50 index and Europe (including the U.K.) is about 70% of the unlisted index EDHECinfra300.

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Figure 1: Listed and unlisted infrastructure markets correlation matrix

Unlisted markets (EDHEC, CA)

	Global	Europe	Americas	Asia
Global	1.00			
Europe	0.83	1.00		
Americas	0.82	0.41	1.00	
Asia	0.58	0.39	0.47	1.00

Listed markets (FTSE Global Core 50/50)

	Global	Europe	Americas	Asia
Global	1.00			
Europe	0.90	1.00		
Americas	0.86	0.69	1.00	
Asia	0.78	0.69	0.61	1.00

Source: FTSE Developed Core 50/50; EDHECinfra by region, global unlisted infrastructure: 50/50 blend of EDHECinfra300 and Cambridge Associates Infrastructure index, unlisted Americas: Cambridge Associates Infrastructure index, North American funds (de-smoothed by CBRE Investment Management). All currencies are in U.S. dollars as of Q3 2022. Data period is Q4 2004-Q3 2022.

For illustrative purposes only. Based on CBRE Investment Management's subjective assessment and subject to change. Forecasts are inherently uncertain and subject to change.

[1] Markowitz, Harry. Portfolio Selection, 1952.

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Geographic diversification reduces portfolio risk

We analyzed the performance of a regional versus a global unlisted infrastructure portfolio without any portfolio constraints. The study covers the last 18 years and includes data from two unlisted infrastructure index providers—EDHECinfra and Cambridge Associates. We found that a globally diversified infrastructure portfolio produces a superior risk-return profile compared to investing in any single region. The global portfolio has a lower maximum drawdown and a higher Calmar ratio—two measures which indicate downside risk. A globally diversified portfolio, therefore, is more defensive since it can better absorb geopolitical shocks and economic crises in a particular region.

Investors should select optimal regional weights depending on their return objectives, liquidity constraints, risk preferences and the method of accessing infrastructure (listed and unlisted markets offer different sets of regional opportunities). We use local currency returns so investors should also consider currency volatility and their hedging objectives.

Figure 2: Regional and global infrastructure portfolio metrics

	Americas	Europe	Asia Pacific	Global optimal portfolio (40% Americas, 37% Europe, 23% Asia Pacific)[2]
Average annualized return	12.9%	12.9%	16.9%	14.1%
Volatility	10.3%	11.8%	13.0%	8.4%
Sharpe ratio	1.14	1.00	1.20	1.55
Maximum drawdown	-12.3%	-13.4%	-11.4%	-8.8%
Calmar ratio	0.95	0.87	1.38	1.47

[2] CBRE Investment Management opinion based on internal research and view of the investible universe in each region.

Source: Cambridge Associates Infrastructure index North American funds, in U.S. dollars (de-smoothed by CBRE Investment Management), unlisted Europe: EDHECinfra 100, unlisted Asia: EDHECinfra Asia Pacific in local currency, adjusted for estimated fees. Period: Q2 2005 to Q3 2022. Risk free rate: Factset. Calmar ratio: average annual rate of return, divided by the maximum drawdown.

Regional infrastructure markets responded differently to major global events during the last two decades.

The Global Financial Crisis (GFC), 2007 to early 2009, was sparked by the sub-prime crisis in the U.S. but then spread globally. During the GFC, European infrastructure registered the sharpest decline because of the global recession that ensued and overlapped with a sovereign debt crisis in peripheral economies such as Iceland, Ireland, Spain, Portugal and Italy. Domestic infrastructure companies are often directly or implicitly linked to sovereign credit quality. Some of these infrastructure companies are partly owned by the government or have direct offtake agreements with government agencies.

The COVID-19 pandemic was a major health crisis with a related economic shock that spread quickly globally. Virus-induced restrictions varied and came into force at different time intervals around the world as did the pace of vaccination and the subsequent re-opening of economies. As seen in **Figure 4**, it took longer for Asia Pacific unlisted infrastructure to rebound as the restrictions on mobility in Australia, New Zealand and China were longer and more stringent.

Most recently, the war in Ukraine that broke out in February 2022 triggered a global energy crisis which was most acute in Europe due to the continent's heavy reliance on Russian natural gas. Unsurprisingly, European infrastructure underperformed its counterparts in other developed markets in 2022.

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Figure 3: Listed infrastructure returns by region, rolling one-year returns

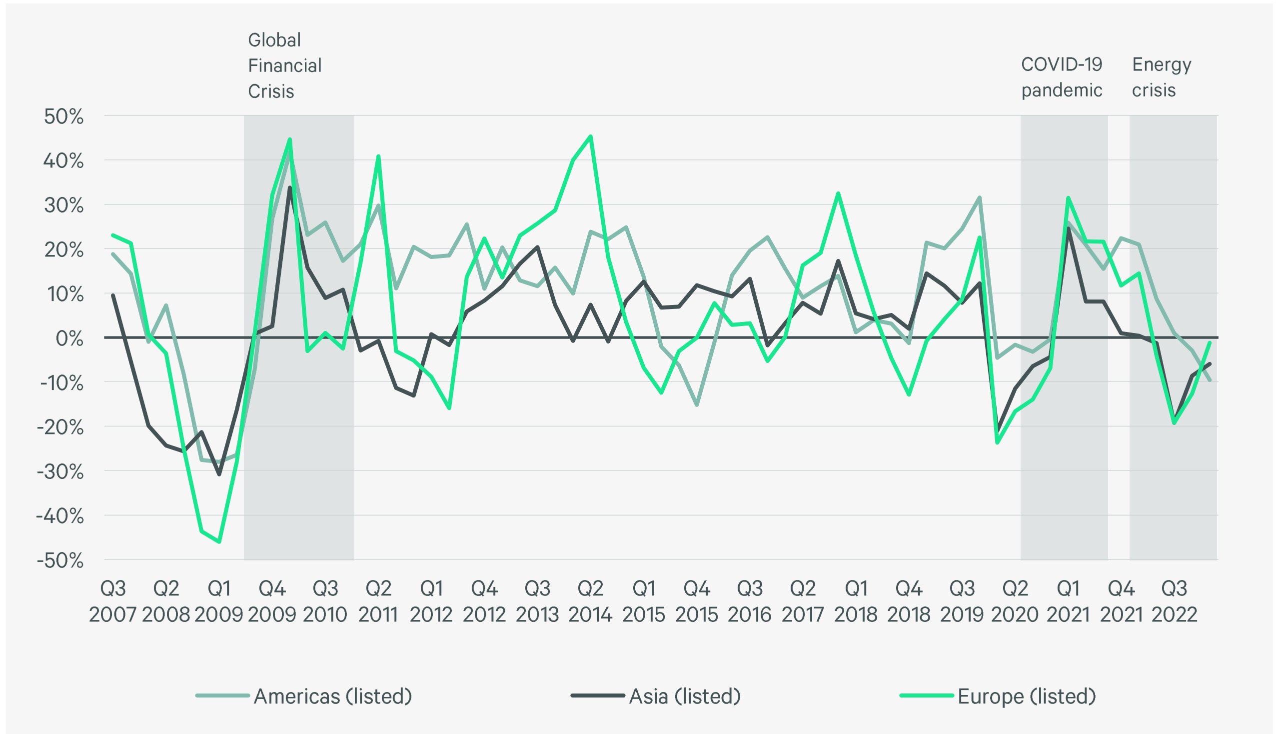
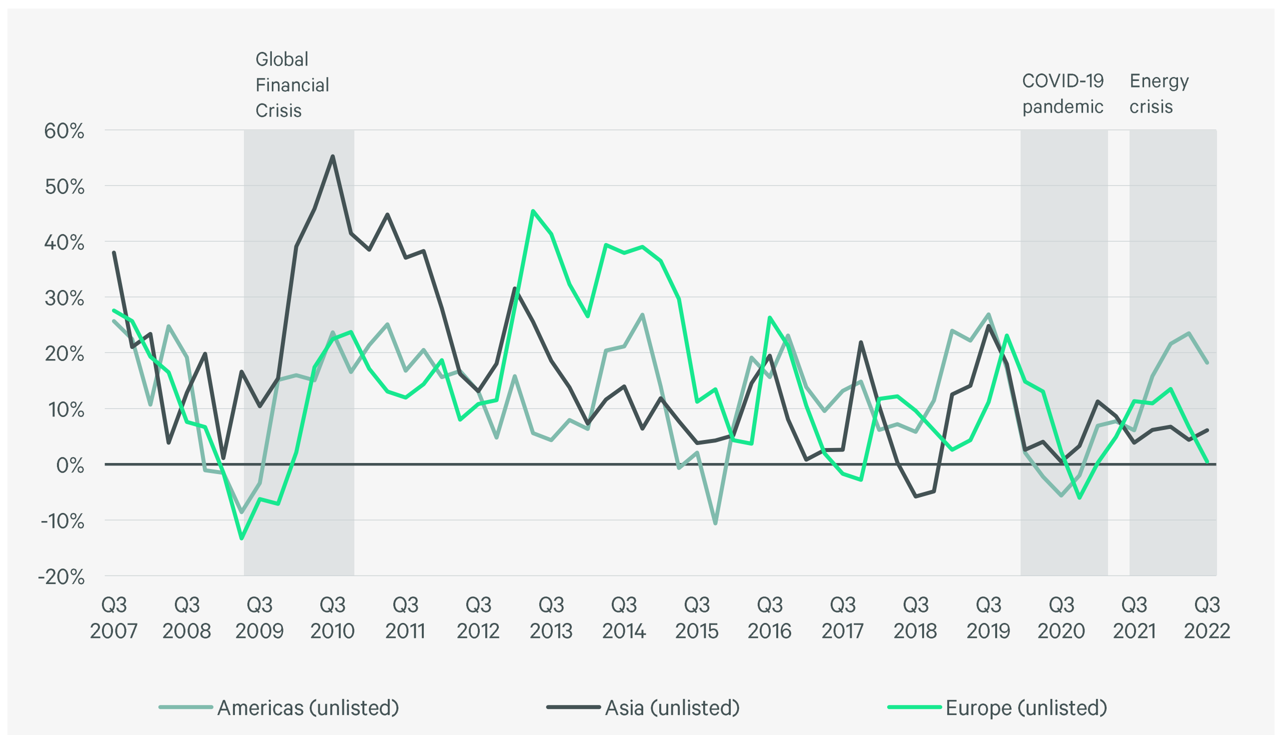


Figure 4: Unlisted infrastructure returns by region, rolling one-year returns



Source: FTSE Developed Core 50/50; EDHECinfra by region, global unlisted infrastructure: 50% EDHECinfra300 and Cambridge Associates Infrastructure index, unlisted Americas: Cambridge Associates Infrastructure index, North American funds (de-smoothed by CBRE Investment Management). All in U.S. dollars as of Q3 2022.

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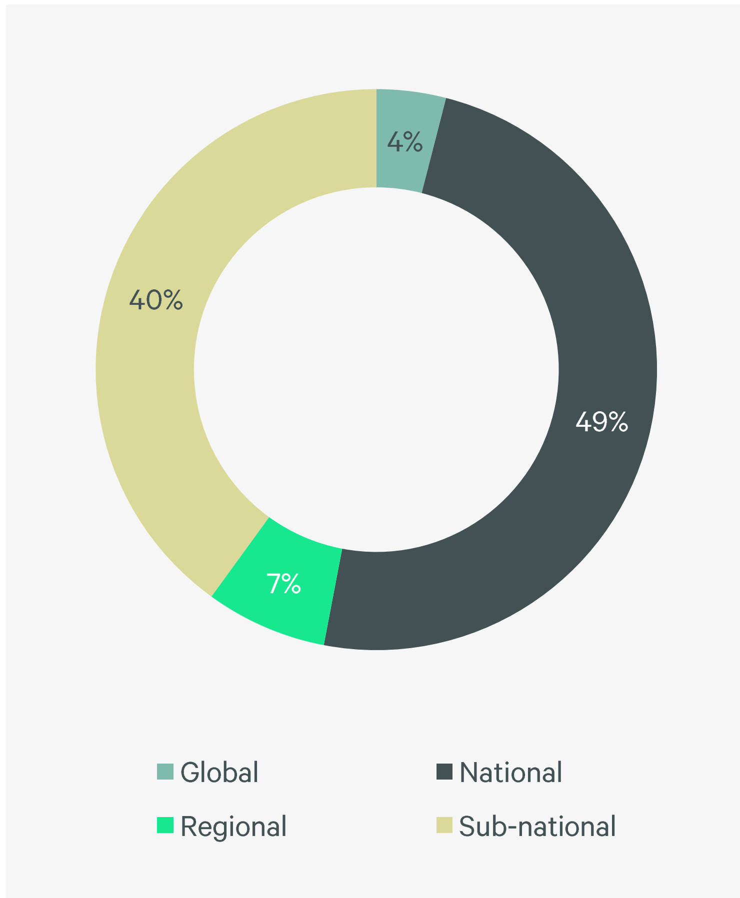
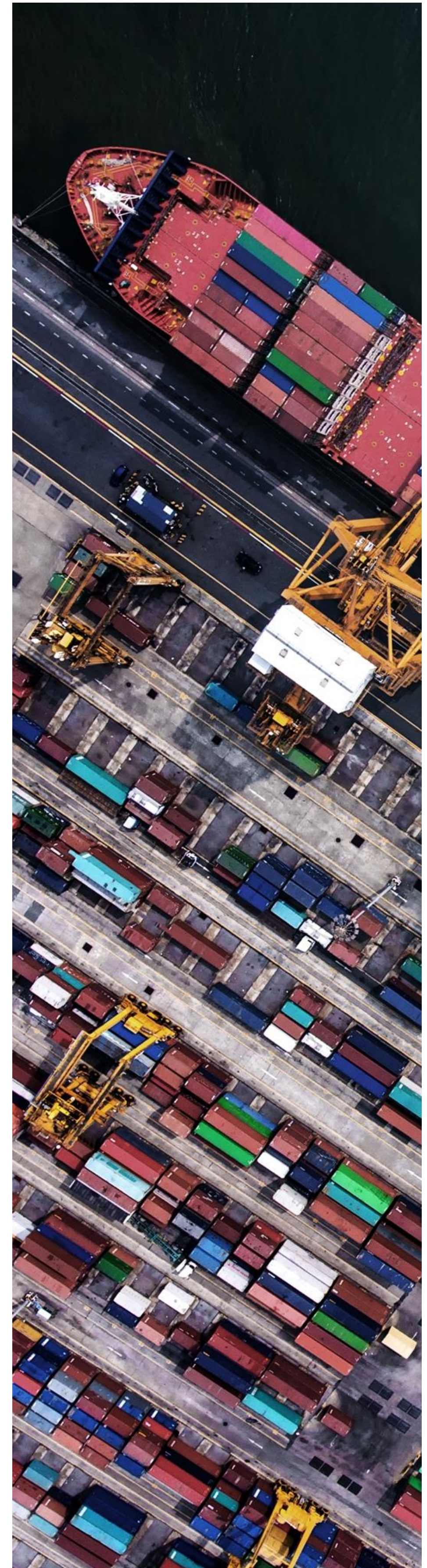
Infrastructure companies have high exposure to their home economies

In contrast to other corporates, many of which expanded their footprint internationally in a globalizing world, infrastructure companies are largely domestic players. As such, they have a higher degree of local, idiosyncratic exposure to their national or sub-national economies. **Figure 5** below is a breakdown of unlisted infrastructure companies by their exposure to different geographic levels of the economy. Only a few infrastructure companies are dependent on the state of the global economy. Examples are international airport hubs or global ports since passenger volumes or container throughput are determined by global mobility trends and the global levels of seaborn trade of goods, respectively.

Figure 5: Geo-economic exposure in 2021



Source: EDHECinfra, Private markets 2022, The Journal of Portfolio Management.



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In addition to diversifying the home economy exposure, infrastructure investors pursuing assets across borders achieve other benefits such as a superior information advantage. Investment in infrastructure requires specialized knowledge of complex regulations, policies and legal frameworks (concession agreements or public-private partnerships). Countries export not just goods and services but also best practices. For example, regulatory approaches based on the regulated asset base (RAB) were first devised by regulators in the U.K. to handle privatized network utilities in the 1990s. Since then, many European regulators have adopted similar but simpler RAB-based approaches, while U.S. regulators also use a related concept—the net book value of the assets.[3]

Even if regulatory frameworks resemble each other in their founding principles, they differ in the timing of regulatory decisions. For a global green energy company such as Spain-based Iberdrola, the regulated network subsidiaries in the U.K., U.S. and Brazil have different lengths of regulatory periods and a different basis for determining returns (**Figure 6**). Investing in different countries and types of regulated companies allows investors to spread and mitigate regulatory risk.

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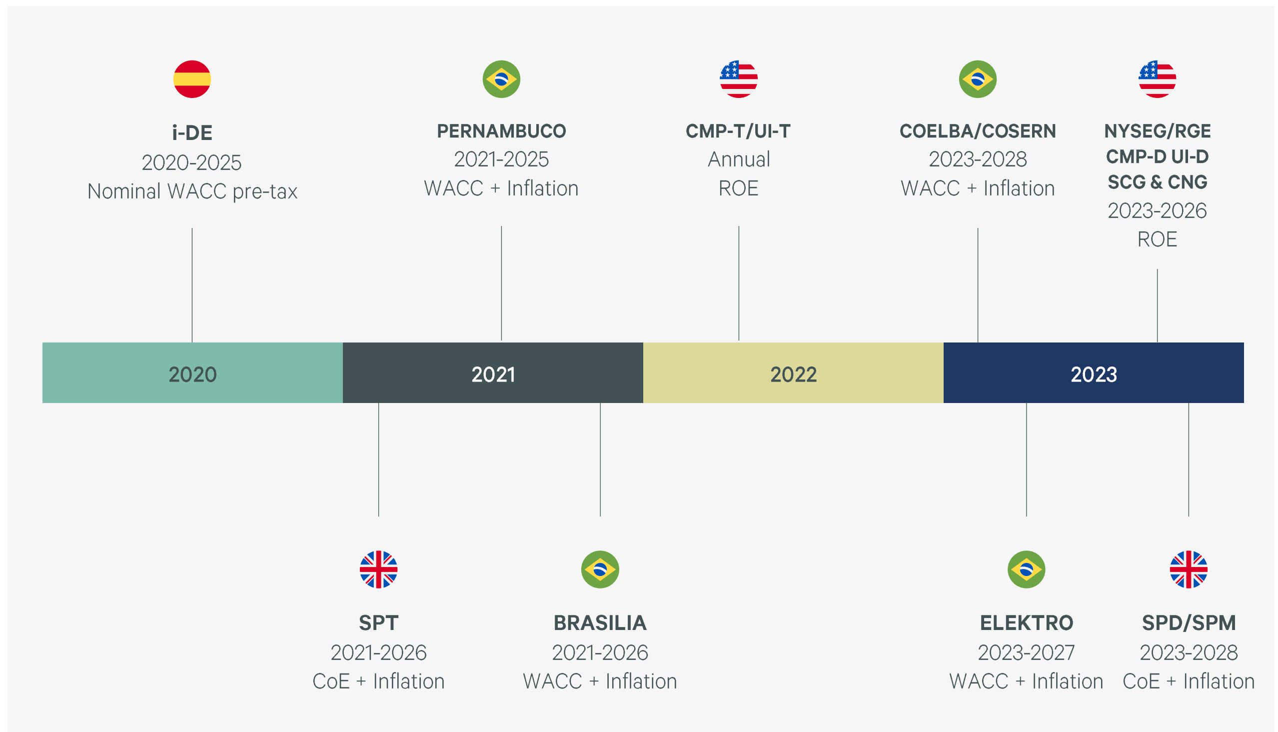
Figure 6: Regulatory timeline



Source: Iberdrola Capital Markets & ESG Day November 2022, WACC (weighted average cost of capital), CoE (cost of equity), ROE (return on equity).

[3] Oxera, The regulatory asset base and regulatory commitment, February 2014 https://www.oxera.com/insights/agenda/articles/the-regulatory-asset-base-and-regulatory-commitment/

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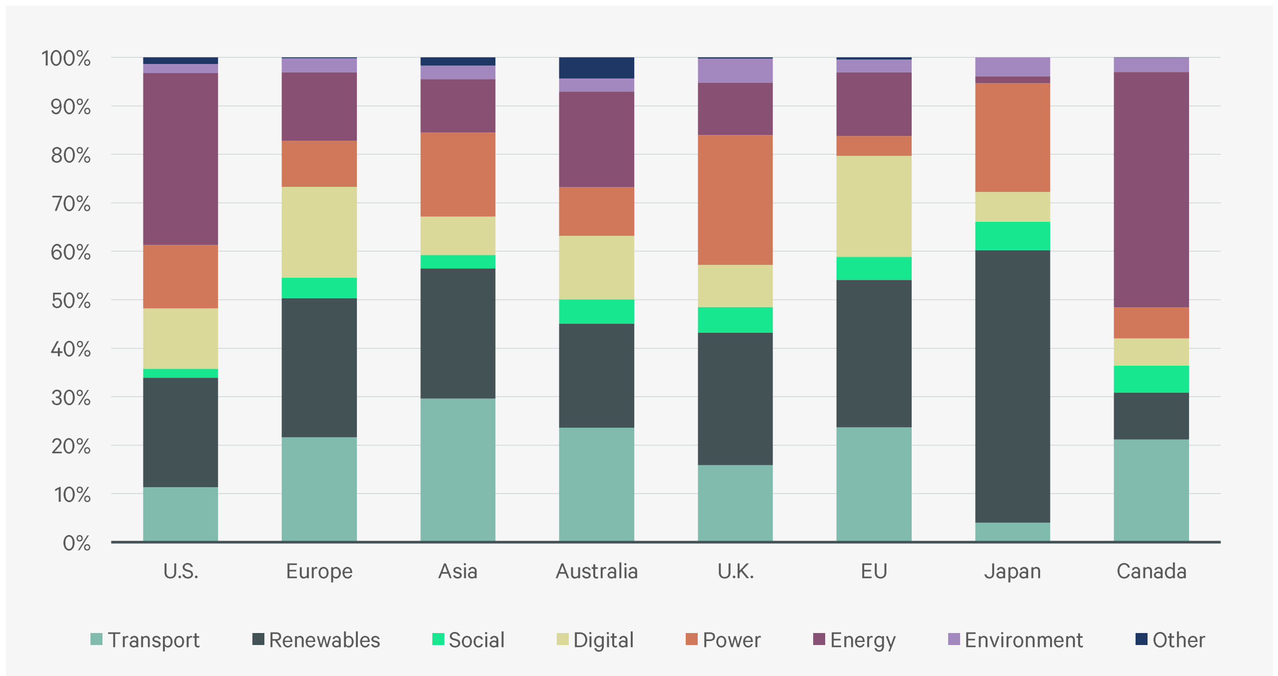
Sector composition differs by regions

A question that arises often is whether the diversification benefit is attributed to the variances between economies or the characteristics of industries contained within them. Unlisted infrastructure performance data does not have the coverage, granularity and time scope to allow for a deep security-based analysis. Instead, we look for insights from a recent study of general equities, using a large sample of nearly 42,000 stocks from 25 developed and 23 emerging markets (EMs) from January 1995 to December 2021. The authors[4] find that "gains from international diversification outperformed those from industrial diversification for unrestricted global portfolio managers or emerging market investors."

Despite the alleged secondary importance, allocation across regions allows infrastructure investors to enhance the sectoral diversity of their portfolios. Countries offer different sector opportunities in infrastructure for at least two reasons. First, governments privatized certain sectors and maintained others in public hands for security or employment reasons. And second, policymakers plan to invest more in focus areas in line with their public objectives.

Europe is leading the way in renewables while the U.S. has seen most deals over the last five years in the energy and conventional power space (**Figure 7**). Consistent across countries, investment in digital infrastructure (towers, data centers and fiber-optic network deployment) tends to be in the hands of private investors.

Figure 7: Share of sectors in private M&A deals (last five years)



Source: Infralogic, as of Q2 2023.

[4] Najah Attig & Oumar Sy (2023) Diversification during Hard Times, Financial Analysts Journal, 79:2, 45-64,

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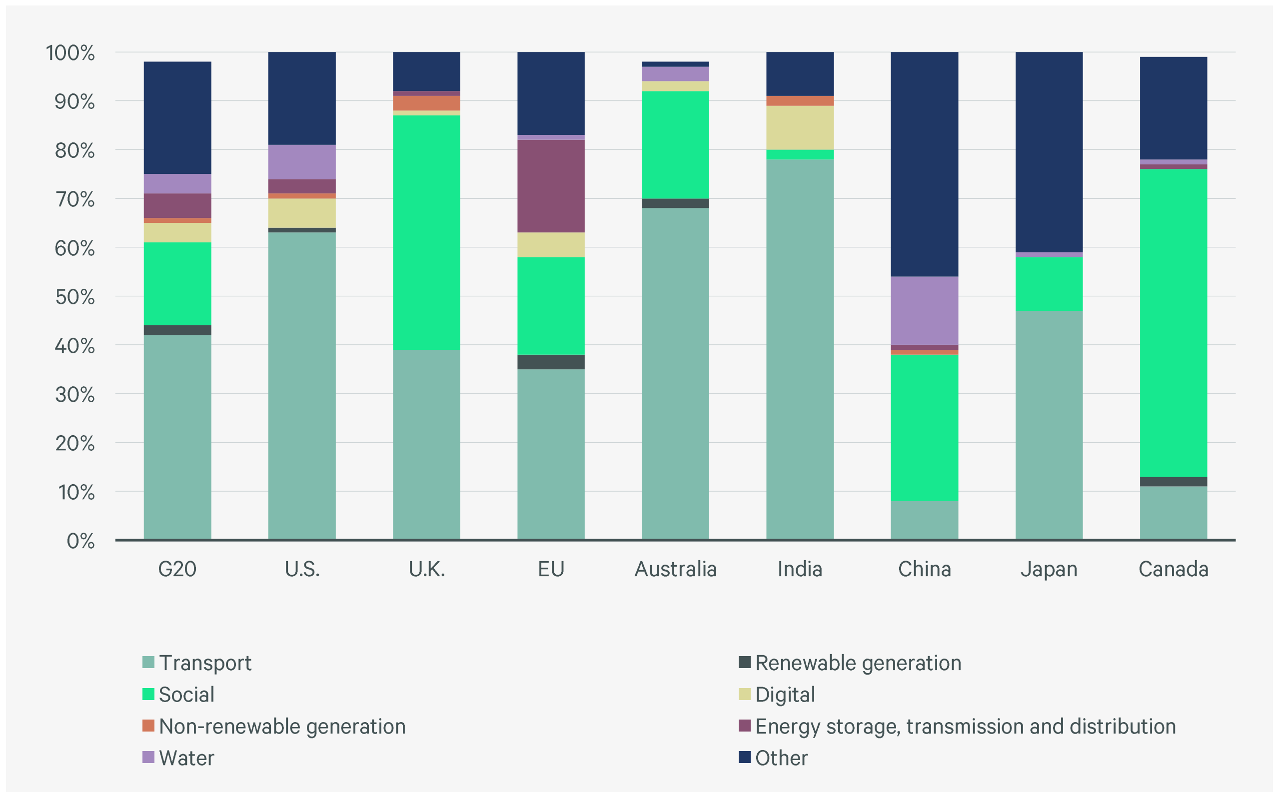
Government spending on infrastructure is typically higher than private investment, especially in developing countries. Monitoring government priorities is important as an indicator of where private capital can have greater impact (**Figure 8**). Transport is an example of a sector that monitoring can make a difference given varying approaches of decarbonizing transport networks and changing demographics. Social infrastructure (including healthcare, education and elderly care facilities) is another example of a sector which is important to monitor. Spending on social infrastructure, accelerated by the COVID-19 pandemic, accounted for a large part of state budgets in the U.K., Canada and Australia in 2022.

Figure 8: Share of sectors in G20 government spending in 2022 (estimated)



Source: Global Infrastructure Hub Infratracker: infrastructure spending in 2022. Other includes general infrastructure, general energy, waste and other. The tool is not a statistical estimate of total spending.

Investing across countries and continents is therefore a way for infrastructure investors to enhance the sectoral composition of their portfolios. Active monitoring of government priorities can provide an investor with an early adoption advantage by capitalizing on emerging clean tech trends for which some countries have explicit policy support and strategies.

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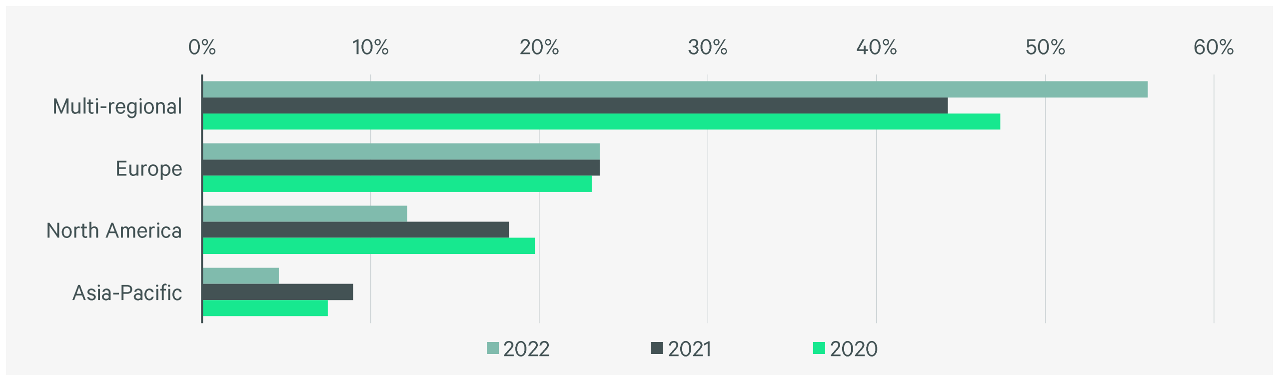
Is there a shift of capital allocation towards specific regions?

In recent months, we have seen indications of a preference towards North American infrastructure strategies. Approximately 30% of respondents surveyed by the Infrastructure Investor LP Perspectives 2023 reported an increased interest in North America, compared to 20% for Western Europe and 20% for Asia. This comes on the back of significant policy support for infrastructure enacted by the Biden administration.

At this stage, we do not see a trend favoring North America in the fund market data. More than half of infrastructure funds in the market disclose a multi-region approach and Europe and North America split the rest equally. In fact, over the last three years, as the funds in the market have grown by a third, so has the preference for a multi-region approach (**Figure 9**).

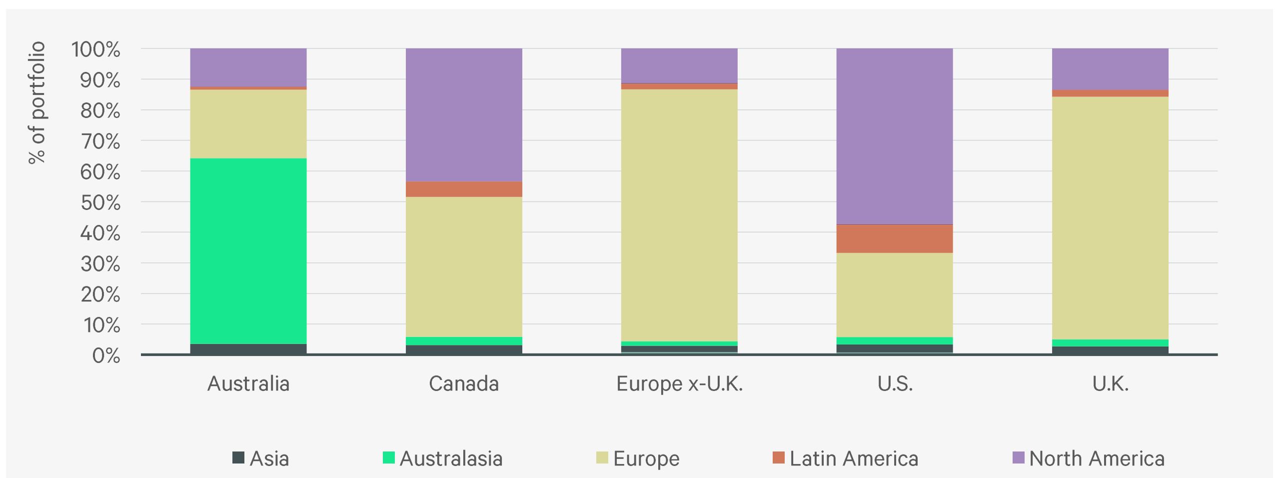
Figure 9: Infrastructure funds in the market (% share of total by regional focus)



Source: Infrastructure investor 2020-2022

In contrast, when it comes to direct investments and co-investments in infrastructure, pension funds globally prefer to invest where they are based (**Figure 10**). This highlights the key hesitation to invest in regions outside the home market. Infrastructure investing requires knowledge of extensive local policies and regulations, as well as tax and currency considerations. More importantly, investors require a local network with infrastructure project developers, relationships with policymakers and an understanding of the local communities.

Figure 10: Pension funds' investments by region



Source: Infralogic as of April 27, 2023, based on disclosures for 670 public and public pension funds and 4,690 investments in Africa and Middle East, Latin America, Asia, Europe, U.K., U.S., Australia and Canada.

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Conclusion

As geopolitical risk heightens and economies brace for hard times, investors might get tempted to build forts around their local markets. We contend that geographically diversified portfolios in infrastructure can optimize portfolio returns and smooth the vulnerability to global shocks or market events. Investing across regions is a way to mitigate risk (e.g., by spreading regulatory resets). Geographic diversification also offers opportunities for building a superior information advantage and more diverse allocation by infrastructure segment.

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