PitchBook

Q1 2024

GLOBAL Real Assets Report

Contents

Real assets horizon IRRs*

	1-year	3-year	5-year	10-year	15-year	20-year
Real assets	8.4%	15.2%	7.9%	7.7%	7.5%	8.0%
Infrastructure	9.6%	12.4%	9.8%	10.2%	9.0%	9.1%
Oil & gas	3.7%	26.0%	4.7%	4.1%	5.3%	6.8%
Other	8.8%	11.1%	4.2%	4.8%	4.8%	5.1%

Source: PitchBook • Geography: Global • *As of September 30, 2023

Note: This report includes real assets debt in the real assets fundraising and performance data, unlike other reports such as the Global Private Market Fundraising Report and the Global Fund Performance Report, in which private debt has its own section. As such, totals may differ from other recent reports.

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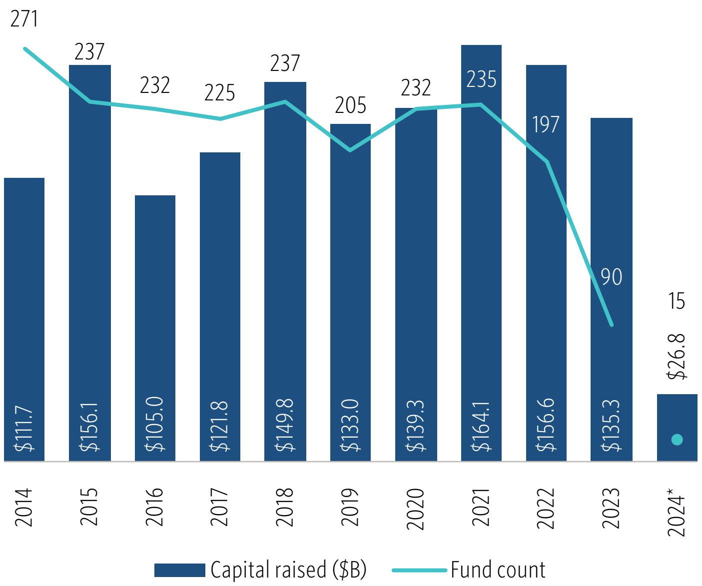
Click here for PitchBook's report methodologies.

Click here for PitchBook's private market glossary.

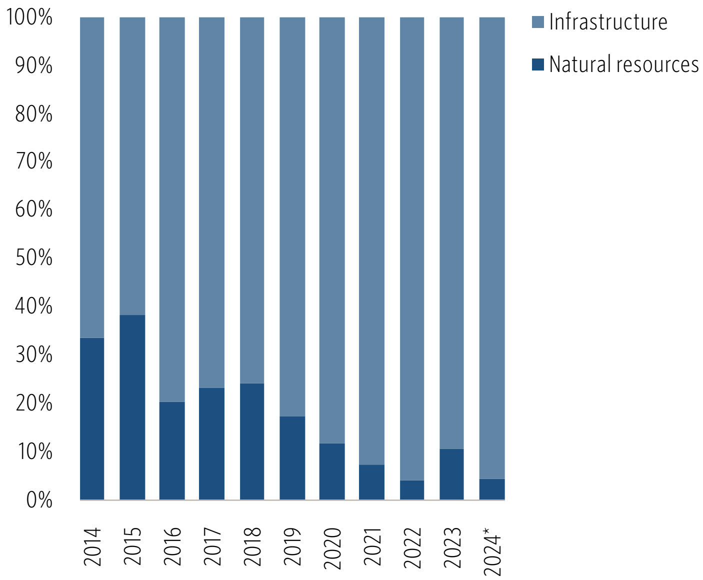
Overview

Real assets fundraising activity



Source: PitchBook • Geography: Global • *As of March 31, 2024

Share of real assets capital raised by type (consolidated)



Source: PitchBook • Geography: Global • *As of March 31, 2024

Juliet Clemens
Analyst, Fund Strategies

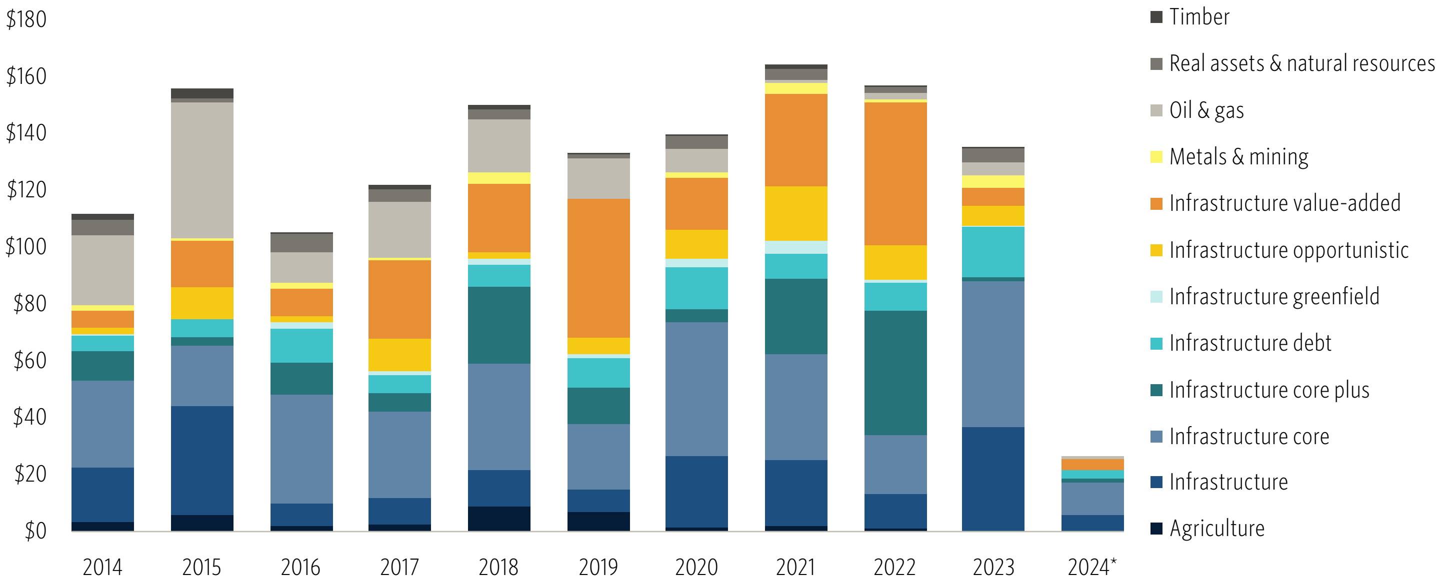
Q1 2024 real assets fundraising is off to a modest start. 15 real assets funds raised a total of $26.8 billion in aggregate through the first quarter, a QoQ drop of 74.9% as compared to the $106.8 billion that closed in Q4 2023. This decline is attributable to cyclical fundraising trends and the natural lull that typically follows a quarter with several multibillion-dollar closes. In Q4 2023, this included the closes of Brookfield Infrastructure V and Lunate Capital Climate Fund, both of which reached $30.0 billion.

Of the total capital raised in real assets funds through Q1 2024, 95.5% of that capital was allocated to 13 infrastructure vehicles. The remaining 4.5%, totaling $1.2 billion, was raised by two oil & gas funds. This dynamic is nothing new—since 2016, infrastructure has accounted for over 75% of real assets fundraising. Private investment into infrastructure makes a lot of sense: Infrastructure's intersection with sustainability, relatively low volatility, collaborative government programs and partnerships such as the Inflation Reduction Act (IRA) and the RePowerEU plan,[1] and its alleged inflation-hedging qualities make it an attractive investment. With the advent of AI and infrastructure's role in datacenter development, the asset class will continue to see sustained interest. Our Q1 2023 iteration of this report contains a spotlight on sustainable infrastructure, and for further reading, find PitchBook's analyst note Sustainable and Digital Infrastructure in the Private Markets.

In Q1, $15.5 billion of total real assets fundraising went toward infrastructure core, core-plus, and debt vehicles as investors sought dependable cash flows in a still-high interest rate environment. On the other side of the spectrum, infrastructure value-add and opportunistic vehicles raised a combined $4.1 billion. Higher debt costs have struck value-added strategies particularly hard, as evidenced by the YoY fundraising decline between 2022's $50.2 billion and 2023's $6.4 billion. Given that we are early into the year, these dynamics may shift as we continue to collect more data.

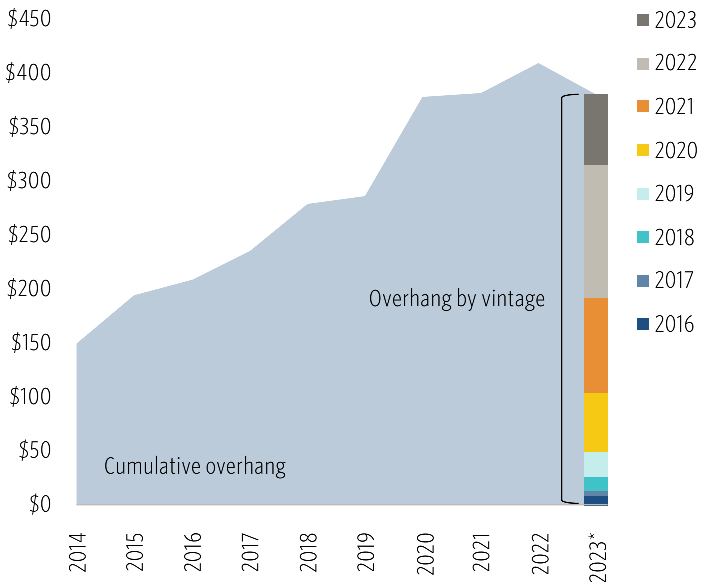
1: "REPowerEU," European Commission, n.d., accessed June 1, 2024.

Real assets capital raised ($B) by type (unconsolidated)



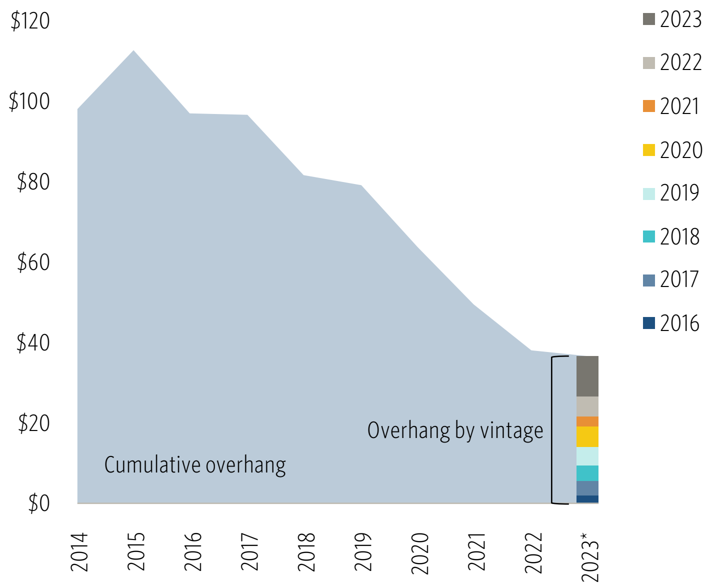
Source: PitchBook • Geography: Global • *As of March 31, 2024

Infrastructure dry powder ($B) by vintage



Source: PitchBook • Geography: Global • *As of September 30, 2023

Natural resources dry powder ($B) by vintage

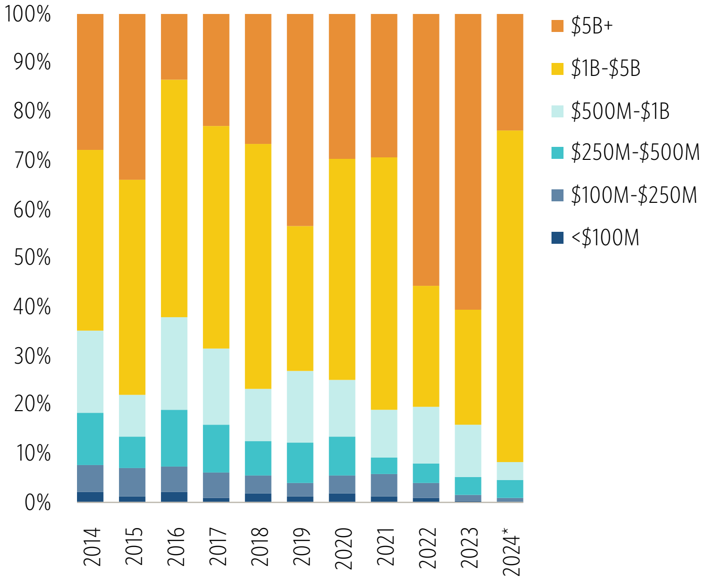


Source: PitchBook • Geography: Global • *As of September 30, 2023

Private investment into natural resources,[2] on the other hand, has been declining for many years. Dry powder and AUM figures show just how divergent the trend is: Private infrastructure dry powder came to $380.4 billion as of Q3 2023. The total overhang for natural resources over the same period was $36.8 billion, with oil & gas comprising $18.3 billion of that total. Infrastructure's total AUM is around $1.2 trillion; for natural resources, it is $266.9 billion—merely a fraction of infrastructure's AUM.

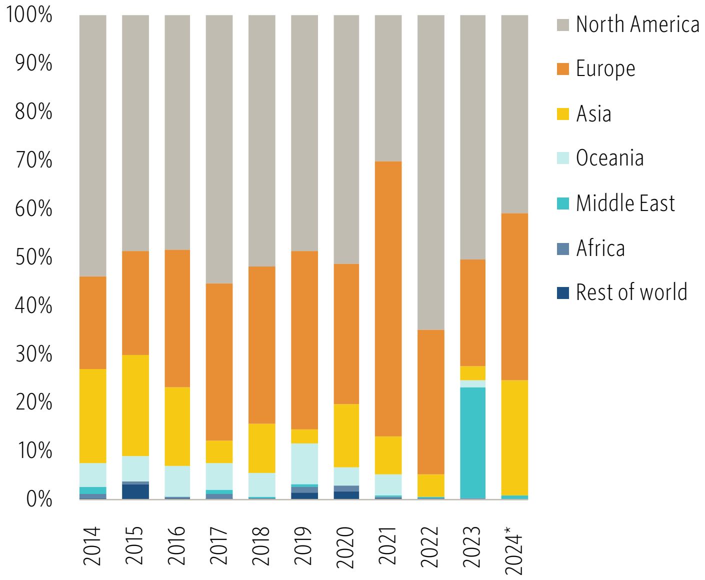
2: In the Q1 2023 iteration of this report, we defined natural resources as the combined category of oil & gas, metals & mining, and other commodities such as timber and agriculture.

Share of real assets capital raised by size bucket



Source: PitchBook • Geography: Global • *As of March 31, 2024

Share of real assets capital raised by region



Source: PitchBook • Geography: Global • *As of March 31, 2024

Private natural resource fundraising has declined for two main reasons. The first is that private investment into oil & gas, which represented 52.4% to 79.9% of total natural resources fundraising between 2008 and 2015, has since tumbled. In 2021, oil & gas funds raised just $1.0 billion. Though 2022 and 2023 figures rebounded slightly, private closed-end fund investment into the sector is unlikely to recover meaningfully.

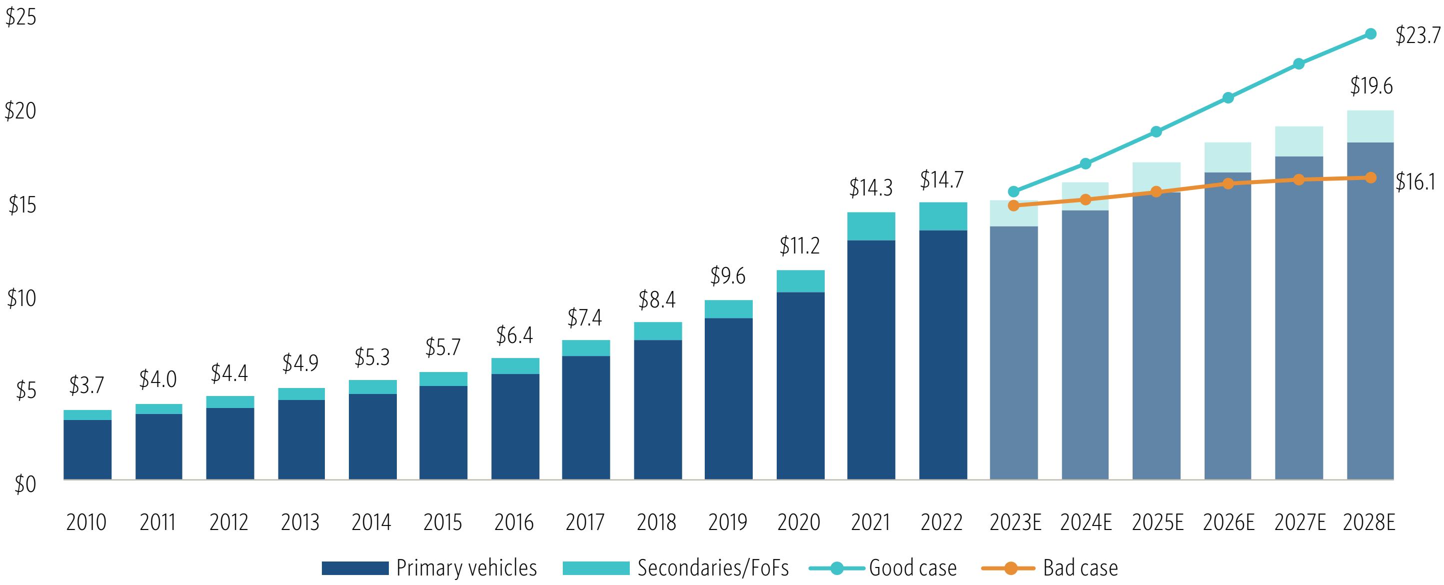
The second reason is that there are several large, active, publicly traded players in the natural resources space. The barriers to entry for smaller, private players are high when trying to compete with these firms. Among the natural resource giants, announced M&A activity across the past few quarters has been massive. From oil to natural gas to metals & mining, consolidation is the play—acquiring brownfield projects is going to be much more cost-effective and financially feasible than breaking ground on new greenfield projects. As the dominant public players grow in search of brownfield resources, the large end of the market is crowded. However, several private vehicles closed in 2023 and through Q1 2024, as discussed in the "Natural resources" section below.

Though figures will moderate as we collect more data, funds over $1 billion accounted for 91.7%—$24.6 billion—of total real assets Q1 2024 fundraising as investors gravitated toward established managers. With regards to geography, one fund in Asia, KKR Asia Pacific Infrastructure Investors II, currently accounts for $6.4 billion, or 23.9%, of total capital raised. In 2023, fundraising in Asia accounted for just 2.9% of the global total. Seven funds in Europe closed on $9.2 billion in Q1, while five funds out of the US raised a combined $10.0 billion.

SPOTLIGHT

Private Capital's Path to $20 Trillion

Private capital closed-end funds AUM ($T) forecast*



Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024
Note: The 2023-2028 bars represent the base-case forecast. The good case and bad case include secondaries and FoFs.

Nathan Schwartz, CFA
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Note: This spotlight is abridged from our analyst note Private Capital's Path to $20 Trillion. Please see the full note for additional analysis on AUM forecasts across private closed-end fund strategies.

Forecasting the growth of private capital

Private market allocations have become a cornerstone in institutional investors' portfolios over the past decade. From 2012 to 2022, investors put more and more of their marginal dollars into private capital markets, leading to a 12.8% annualized growth rate and $14.7 trillion in AUM.[3] Over the same period, private capital outpaced the growth of public equity and fixed-income market assets by 2.5x.[4] As we survey the current landscape, we are asking ourselves if this growth will continue and how private markets may evolve over the next five years.

Our Q1 2023 analyst note What the Future Holds for Private Capital introduced our forecasting methodology, which employs a data-driven approach to forecast global, closed-end AUM growth by using historical trends and estimates of future fundraising, cash flows, and net asset value (NAV) growth. We revisit the methodology and extend our forecasts to all private fund strategies that PitchBook tracks: PE, VC, private debt, real estate, real assets, fund of funds (FoF), and secondaries. We also provide forecasts for substrategies

3: We include primary funds, secondaries, and fund-of-funds access points in the AUM total. AUM includes both dry powder and fund NAV estimates.
4: "2023 Capital Markets Fact Book," Sifma Research, July 2023.

across private capital fund offerings, including buyout, direct lending, and infrastructure vehicles. We produce a range of outcomes—good, base, and bad—to reflect potential global macroeconomic environments and each strategy's expected performance in those environments. In our base case, we forecast private capital to grow 33.3% to $19.6 trillion in total AUM by 2028.[5]

Within our models, the two most impactful assumptions are asset growth from fund performance and future fundraising, both of which are dependent on the macro climate and distribution recycling from maturing funds. Better fund returns and distributions lead to better fundraising for future vintages, which in turn generates more AUM growth and future distributions. It is a cycle that many know well. On the other hand, the difficult exit environment has already impacted recent fundraising figures; the recycling wheel is turning slowly. That is particularly the case for VC, but across private holdings, LPs are generally looking for a bounceback in distributions sooner rather than later. If the present distribution pace were to continue, total AUM growth would be timid.

Substrategy AUM ($T) forecasts*

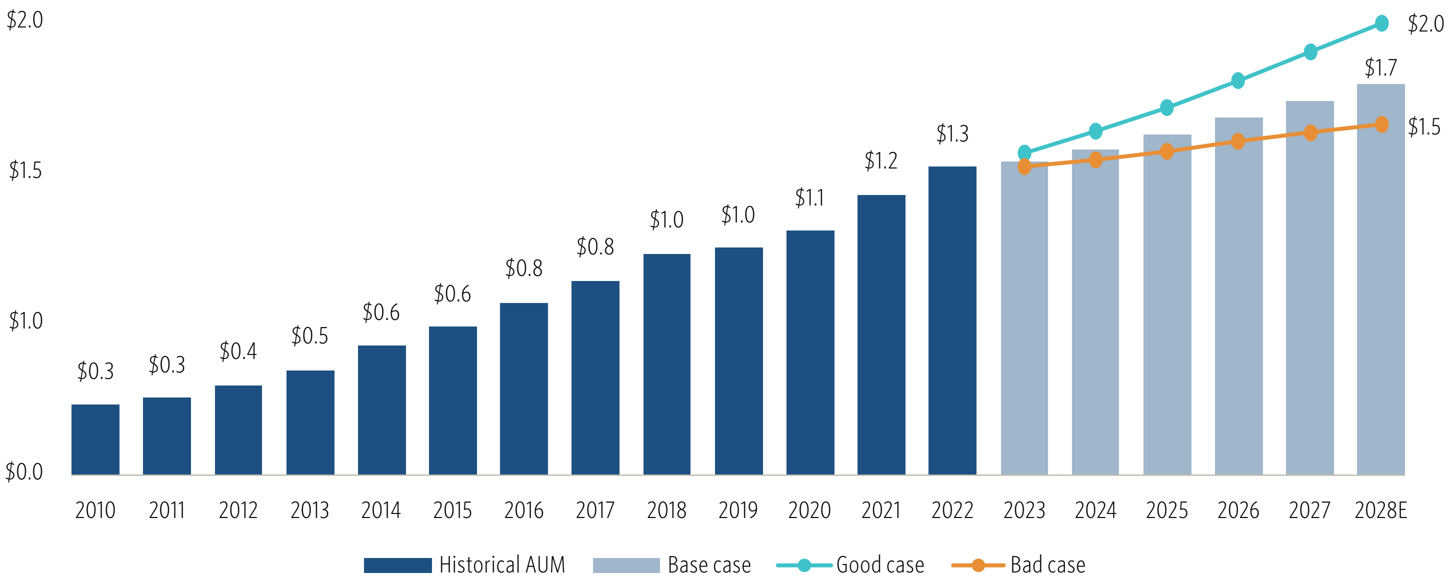
		2028E		
	2022	Bad case	Base case	Good case
Private equity	**$5.3**	**$6.5**	**$8.0**	**$9.7**
Buyout	$4.0	$4.9	$6.0	$7.3
PE growth/expansion	$1.1	$1.5	$1.8	$2.2
PE other	$0.1	$0.2	$0.2	$0.2
Venture capital	**$3.8**	**$3.5**	**$4.6**	**$5.6**
Private debt	**$1.6**	**$1.9**	**$2.3**	**$2.7**
Direct lending	$0.5	$0.7	$0.8	$1.0
Distressed debt	$0.3	$0.3	$0.3	$0.4
Mezzanine	$0.2	$0.2	$0.2	$0.3
Private debt other	$0.5	$0.7	$0.8	$1.0
Real assets	**$1.3**	**$1.5**	**$1.7**	**$2.0**
Infrastructure	$1.1	$1.3	$1.5	$1.7
Natural resources	$0.3	$0.2	$0.2	$0.3
Real estate	**$1.3**	**$1.2**	**$1.4**	**$1.7**
Real estate value-add	$0.4	$0.4	$0.5	$0.5
Real estate opportunistic	$0.6	$0.6	$0.7	$0.8
Real estate other	$0.3	$0.3	$0.3	$0.4
Funds of funds	**$1.0**	**$0.8**	**$1.0**	**$1.2**
Secondaries	**$0.5**	**$0.6**	**$0.7**	**$0.8**

Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024

Note: "PE other" includes diversified PE and restructuring/turnaround; "debt other" includes bridge financing, credit special situations, infrastructure debt, real estate debt, and venture debt; and "real estate other" includes real estate distressed, real estate core, and real estate core plus. Figures may not sum exactly due to rounding.

5: For now, we exclude evergreen and permanent capital structures from our analysis, although we are acutely aware of their growing prominence. Over the next year, we will be expanding our tracking of these vehicles and will be providing updates as we improve our coverage.

Real assets AUM ($T) forecast*



Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024
Note: The 2023-2028 bars represent the base-case forecast.

To account for how private markets may perform under different economic environments, we model three scenarios: a good case involving general economic expansion and high investor appetite; a base case that largely travels with long-term trends; and a bad case characterized by a more challenged economic backdrop, muted fund performance, and continued weak distributions. These scenarios provide an AUM range of $16.1 trillion to $23.7 trillion over the next five years.

A deeper look at real assets

Real assets has been a bright spot within private markets as investors seek out the asset class's low volatility, inflation protection, and diversification properties. Shifting investor preferences have caused a significant change in the real assets universe over the past decade. Until 2013, capital commitments to real assets were largely split evenly between infrastructure and natural resources. Since 2019, infrastructure has commanded over 80% of real asset fundraising in part because investors pulled back from traditional oil & gas in favor of investments focused on the clean energy transition. Our 2023 real assets fundraising total, while lower than the prior two years, shows a resilient appetite for the category. We expect this positive fundraising trend to continue, driven by the $15 trillion gap between infrastructure capital needs and infrastructure funding.[6] Government spending alone will not close this gap, so this dearth of capital provides opportunities for newly deployed private investment.

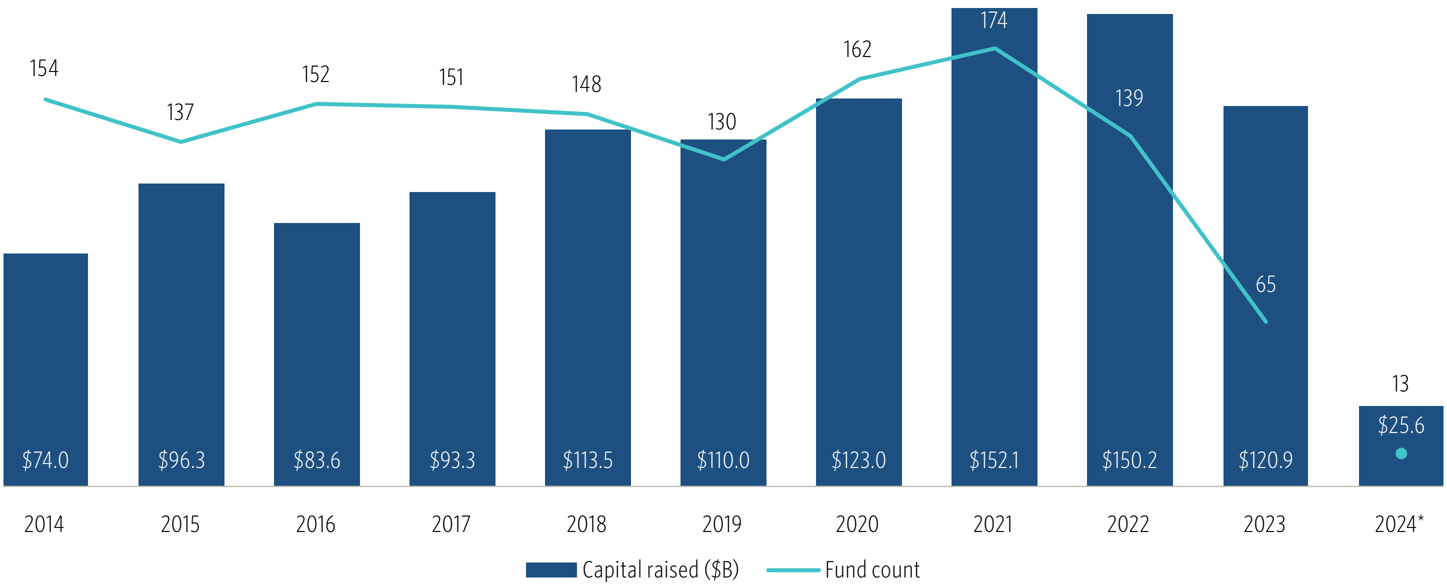
Alongside capital needs are other tailwinds including the global energy transition, general aging of government assets, and increased need for digital infrastructure to handle the compute power required for generative AI. In our base case, we expect real asset AUM to grow to $1.7 trillion by 2028, a cumulative growth of 26.8% from 2022. Of that total, we forecast infrastructure to garner the preponderance, with nearly $1.5 trillion in AUM.

The good case for real assets AUM involves annual fundraising growth of 11.2% coupled with an asset class return of 15%. This scenario means new commitments would be coming into the space at a pace well above what was experienced in the past two decades and annual IRRs that will beat the prior decade's median return by a wide margin, owing to the smaller share that natural resources funds will have. Our bad case has returns tracking with the prior two-decade bottom-quartile IRR for infrastructure of around 7%. Even though we project fundraising to increase in our bad scenario, fund performance will not keep up with distributions and real assets AUM will grow to only $1.5 trillion.

6: "Forecasting Infrastructure Investment Needs and Gaps," Infrastructure Outlook, n.d., accessed June 1, 2024.

Infrastructure

Infrastructure fundraising activity



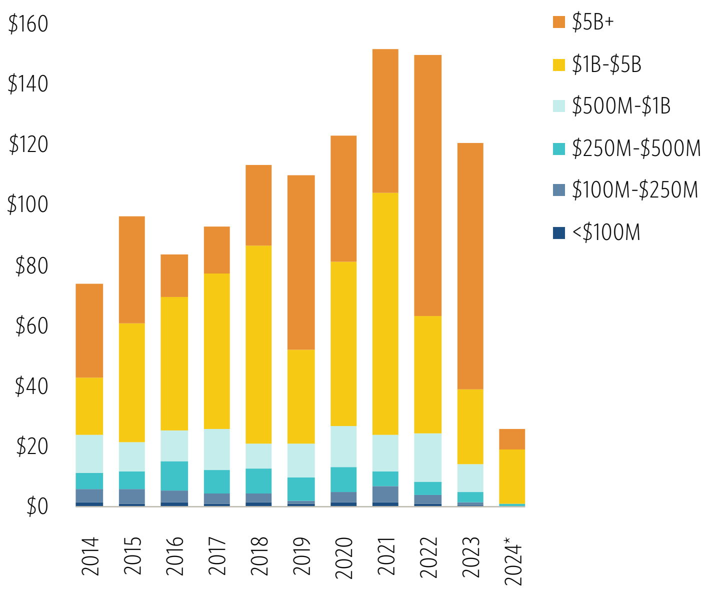
Source: PitchBook • Geography: Global • *As of March 31, 2024

Anikka Villegas
Senior Analyst, Fund Strategies & Sustainable Investing

In the context of private fund distributions, prevailing macroeconomic conditions, and the broader private market fundraising slowdown, infrastructure's fundraising has held strong through Q4 2023 and into 2024. Two massive closes in Q4 2023 bumped the year's commitments $60.0 billion to a total of $120.9 billion for the year. One was from Brookfield Infrastructure V, a $30.0 billion vehicle investing along the themes of digitization, decarbonization, and deglobalization. The other was the Lunate Capital Climate Fund, another $30.0 billion vehicle, backed by the United Arab Emirates. The Lunate Capital fund was the product of COP28-related collaborations in 2023 and was established to funnel capital to climate-related infrastructure investments. The closure of the fund reinforces the idea that not only are infrastructure vehicles investing in sustainable and digital infrastructure, but more specifically, that sustainability- and digitization-related needs and commitments are driving the fundraising itself.

Fundraising numbers for Q1 2024 are by no means record-breaking, with $25.6 billion in commitments made to the 13 vehicles that closed in the quarter, but they are also not tracking to drop off dramatically, especially compared to

Infrastructure capital raised ($B) by size bucket

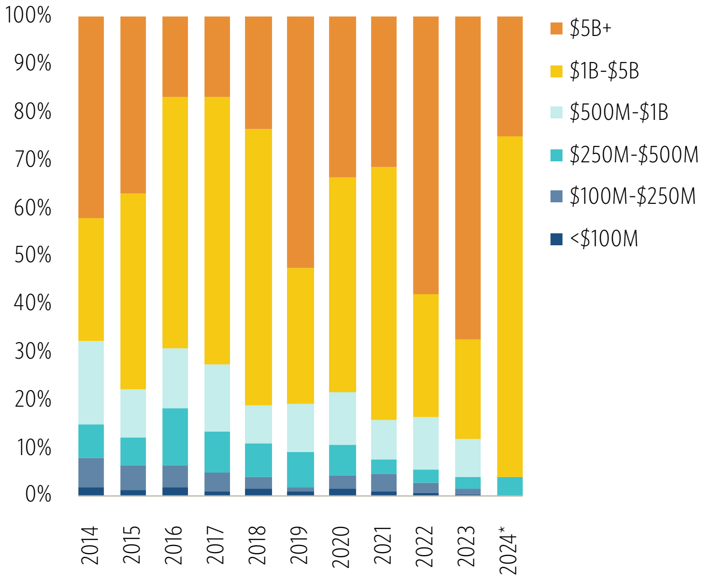


Source: PitchBook • Geography: Global • *As of March 31, 2024 those of other asset classes. The quarter's raised capital figures will continue to grow as more funds closed during the period are captured by our data. Additionally, the rest of year is likely to contain several significant closes. Brookfield has been fundraising for its Global Transition Fund II and has a first close of $10.0 billion under its belt with a final close anticipated in Q3 2024.[7] Copenhagen Infrastructure Partners held a first close of $6.0 billion for its Infrastructure V fund, which is targeting a final close of over $12.0 billion in Q2 2024.[8] KKR has also reportedly raised $11.0 billion for its Global Infrastructure Investors V vehicle and is targeting a final close of $20.0 billion, which may occur in 2024. This will likely help replenish infrastructure dry powder, which declined to $380.4 billion in Q3 2023, down from $409.1 billion in 2022. Of note, the Q3 figures exclude the two $30.0 billion closes in the last quarter of the year, which will boost the numbers when updated for the full-year 2023.

Many asset managers state their optimism around the future of infrastructure, but over the past few years, more have actually been putting their own chips into the infrastructure play. Several global multi-asset-class managers have acquired other large infrastructure GPs.[9] One of the most noteworthy was BlackRock's acquisition of Global Infrastructure Partners for $12.5 billion, the largest deal ever in which an alternatives manager was acquired, discussed in our Q4 2023 US Public PE and GP Deal Roundup. Other recent transactions of this kind include CVC's acquisition of DIF Capital Partners and Investcorp's acquisition of half of Corsair Capital's infrastructure arm.[10] These deals demonstrate a high degree of conviction around infrastructure's attractiveness, suggesting that fundraising for the asset class will continue to grow in the coming years.

Slicing fundraising by geography, both 2023 and Q1 2024 show unusually large proportions of fundraising coming from outside North America and Europe. In 2023, this was because of the Lunate Capital fund, which is located in the UAE. In Q1 2024, it was due to KKR's APAC Infrastructure

Share of infrastructure capital raised by size bucket

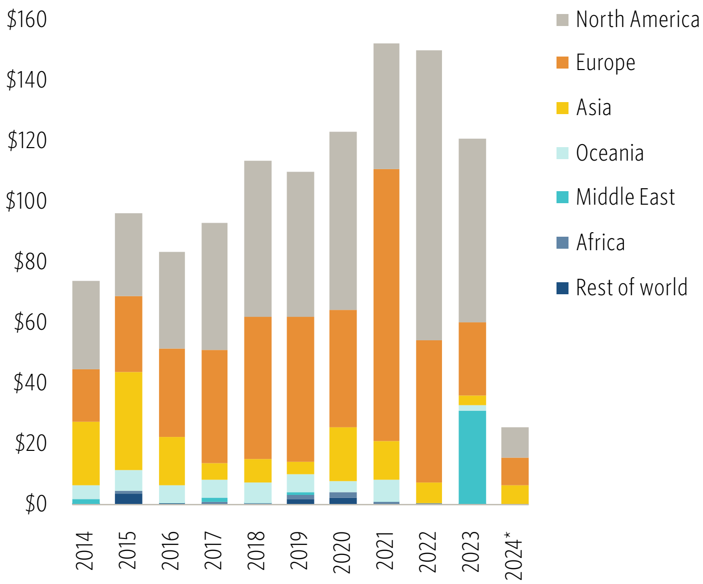


Source: PitchBook • Geography: Global • *As of March 31, 2024

Investors II, the largest fund to close in the quarter, at $6.4 billion. The Asian infrastructure opportunity has received more attention in recent years, with "rising domestic consumption and productivity, rapid urbanization, and an enormous emerging middle class" creating demand for more and better infrastructure, according to Hardik Shah, a partner on KKR's infrastructure team, in a Q1 company statement.[11] These needs span multiple sectors, which the KKR fund will capitalize on, targeting renewables, power & utilities, water & wastewater, digital infrastructure, and transportation. Another vehicle that closed in Q1 2024, Stonepeak's Asia Infrastructure Fund, also invests in the region, despite being located in the US. The $3.3 billion vehicle similarly targets digital infrastructure, transport & logistics, and the energy sector. Still more vehicles, such as the $1.8 billion ISQ Growth Markets Infrastructure Fund, invest in the same sectors in the APAC region in addition to other geographies.

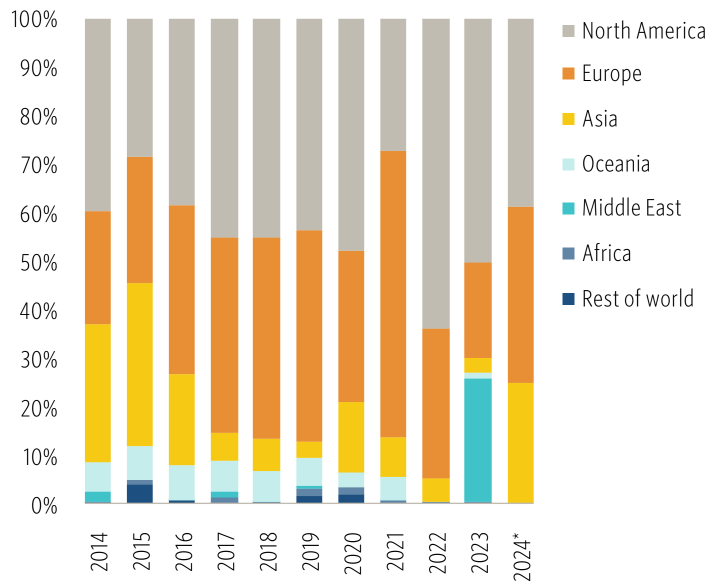
7: "Brookfield Announces $10 Billion First Closing for Second Brookfield Global Transition Fund," Brookfield Asset Management, February 5, 2024.
8: "Flagship Funds," CIP, n.d., accessed June 1, 2024.
9: "McKinsey Global Private Markets Review 2024: Private Markets in a Slower Era," McKinsey & Company, March 28, 2024.
10: To keep up to date on news like this, subscribe to our Weekend Pitch newsletter.
11: "KKR Closes US$6.4 Billion Asia Pacific Infrastructure Investors II Fund," KKR, January 31, 2024.

Infrastructure capital raised ($B) by region



Source: PitchBook • Geography: Global • *As of March 31, 2024

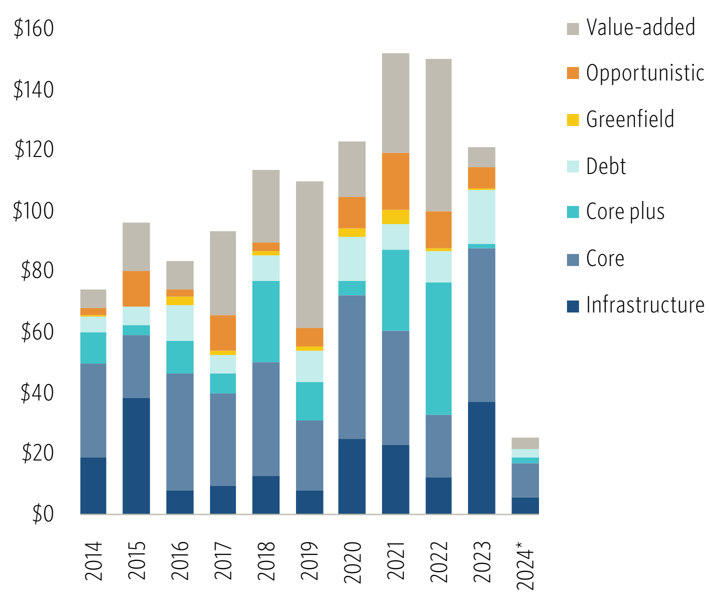
Share of infrastructure capital raised by region



Source: PitchBook • Geography: Global • *As of March 31, 2024

Since 2008, China has raised the most capital in Asia, with $82.9 billion in commitments over that period, followed by Singapore, with $21.8 billion, India with $16.9 billion, Hong Kong with $14.4 billion, and South Korea with $10.1 billion. The data is lumpy, with the region's most active fundraising years being 2014, 2015, and 2020. However, the 2014 and 2015 fundraising booms can be attributed almost entirely to China's Belt and Road Initiative.[12] In contrast, more vehicles from other geographies contributed to 2020's fundraising numbers, with Hong Kong and India contributing several billion dollars each in addition to China's $10.1 billion. Bridging the infrastructure funding gap in Asia, which was projected to be approximately $26 trillion in 2017, undoubtedly still requires private capital.[13] With more foreign investors exploring infrastructure investment in the region, the gap could narrow in coming years, although to what extent remains to be seen.

Infrastructure capital raised ($B) by type



Source: PitchBook • Geography: Global • *As of March 31, 2024

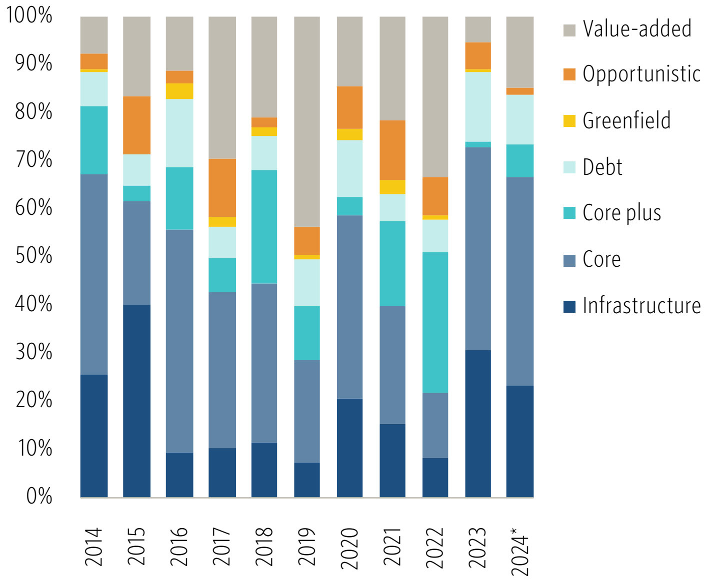
Looking across infrastructure fund categories, Q1 2024's fundraising shows a larger proportion of commitments made to lower-risk, lower-return strategies such as core, core plus, and debt than has been typical over the past five years, with over 60.0% of the quarter's raised capital going to funds using those strategies. One possible explanation for this is that high cost of development is deterring investors from strategies that require major construction or substantial physical modifications. However, it also may simply be that allocators have different needs from their infrastructure portfolios at this point in time. A sizable portion is likely more interested in core and core-plus infrastructure or infrastructure debt's steadier, more dependable cash flows under the current conditions than they would be otherwise. It also bears

12: "China Belt and Road Initiative (BRI) Investment Report 2023," Green Finance & Development Center, Christoph Nedopil Wang, February 5, 2024.
13: "Meeting Asia's Infrastructure Needs," Asian Development Bank, February 2017.

mentioning that the year is still young and the closure of a few megafunds can cause trends to swing in an entirely different direction. However, the aforementioned Brookfield Global Transition Fund II utilizes a core-plus strategy and Copenhagen Infrastructure V uses a core strategy, so there is reason to believe that core and core-plus fundraising will retain momentum.

Of the 13 vehicles to close in Q1 2024, 10 invest in sustainable infrastructure, with nine citing renewable energy specifically as an area of focus. Seven funds invest in digital infrastructure, with two listing datacenters and one naming telecom as one of the asset types the fund will target. Transportation infrastructure was the third-most-widely cited area of investment, with six vehicles planning to invest in the space. For comparison, traditional utilities, water, and waste were mentioned as an investment sector by only three of the 13 funds. These trends are nothing new and have been covered at length in previous PitchBook reports.[14]

Share of infrastructure capital raised by type



Source: PitchBook • Geography: Global • *As of March 31, 2024

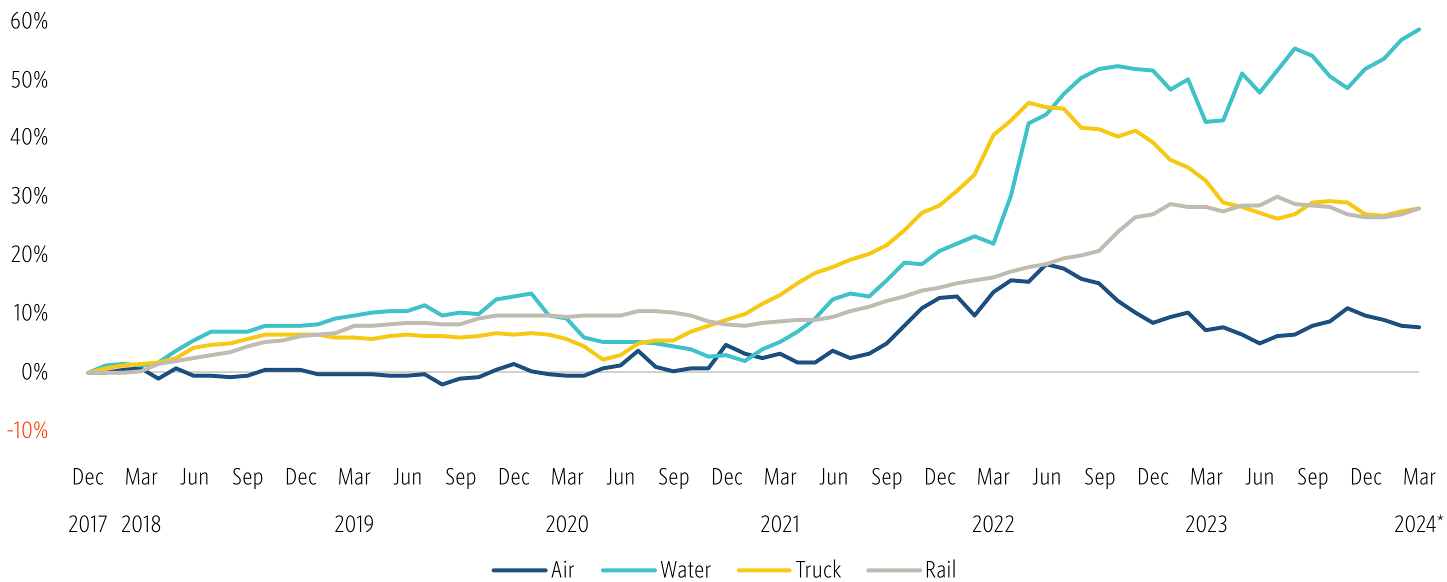
Top infrastructure funds to close in Q1 2024*

Fund	Investor	Capital raised ($M)	Close date	Fund type	Fund location
KKR Asia Pacific Infrastructure Investors II	Kohlberg Kravis Roberts	$6,400.0	January 31	Core	Hong Kong
DIF Infrastructure VII	DIF Capital Partners	$4,750.6	March 5	Core	Schiphol, Netherlands
Stonepeak Asia Infrastructure	Stonepeak	$3,292.1	March 7	Infrastructure	New York, US
Global Infrastructure Partners Emerging Markets	Global Infrastructure Partners	$2,670.0	March 5	Debt	New York, US
ISQ Growth Markets Infrastructure	I Squared Capital	$1,800.0	March 1	Value-added	Miami, US
Arcus European Infrastructure 3	Arcus Infrastructure Partners	$1,749.0	March 18	Value-added	London, UK
DIF Core-Plus Infrastructure III	DIF Capital Partners	$1,727.5	March 5	Core plus	Schiphol, Netherlands
DFC Climate	US International Development Finance Corporation	$1,200.0	January 18	Infrastructure	Miami, US
Energy Transition Opportunities Pool	Alberta Investment Management	$1,000.0	February 1	Infrastructure	Edmonton, Canada
Trilantic Europe Energy Transition	Trilantic Europe	$409.6	January 1	Infrastructure	Luxembourg
TiLT Capital 1	Siparex Group	$348.0	February 8	Opportunistic	Lyon, France
Andera Smart Infra 1	Andera Partners	$252.0	February 28	Value-added	Paris, France
Solar Green Energy Impact 1	hep global	N/A	February 20	Infrastructure	Güglingen, Germany

Source: PitchBook • Geography: Global • *As of March 31, 2024

14: In addition to previous versions of the Global Real Assets Report, we discuss these trends in detail in our Q1 2023 Analyst Note: Sustainable and Digital Infrastructure in the Private Markets, which we plan to update in 2024.

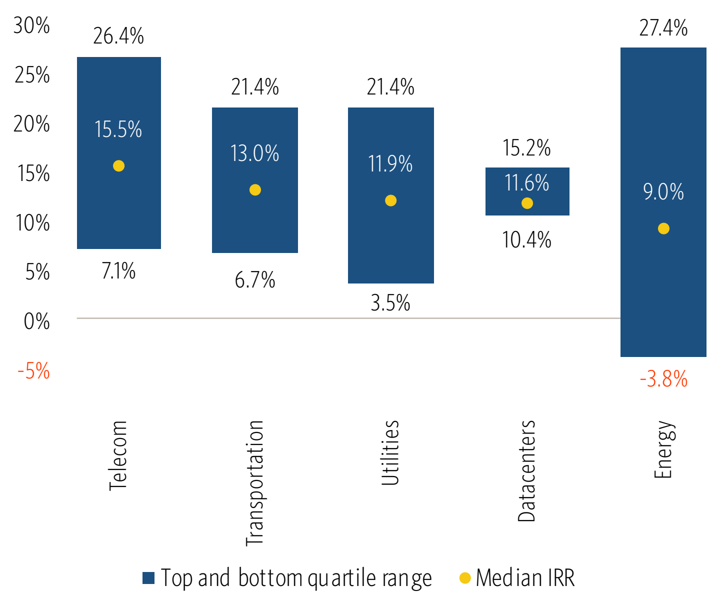
Producer price index (PPI) for select transportation services



Source: FRED • Geography: Global • *As of March 31, 2024

However, deal-level IRRs further elucidate why this is. For deals made from 2010 to 2023, telecom returns are among the highest, with less potential downside than traditional energy or utilities. Datacenters have a lower median return, but have the highest bottom quartile return of any infrastructure deal type by several percentage points. Transportation and utilities have similar potential upside to one another, but transportation has higher median and bottom quartile returns, and traditional energy is the highest risk with the greatest dispersion of IRRs.

Deal-level IRRs by sector*



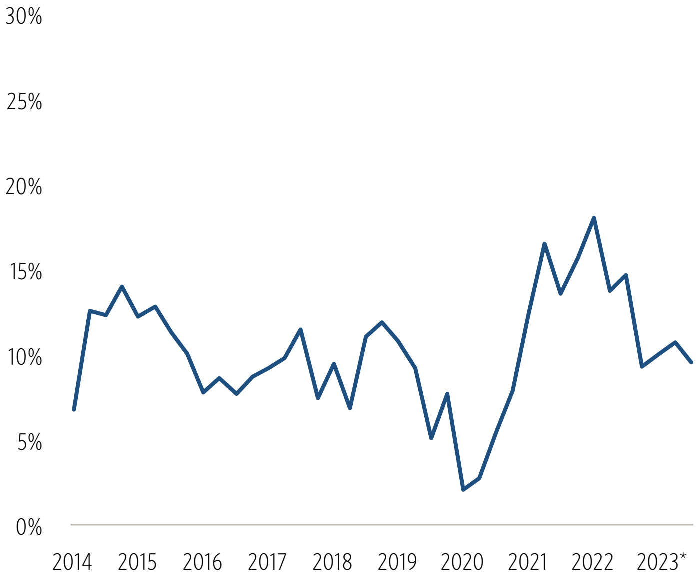
Source: Chart reproduced with permission from DealEdge • Geography: Global
*As of April 2, 2024
Note: Usage of DealEdge data outside this context, especially further publication or reprint, requires the permission of Bain & Company.

Diving deeper into transportation infrastructure and the dynamics affecting IRRs in the sector, there are different return drivers for the various types of transportation. Passenger transportation infrastructure such as train and bus systems are heavily influenced by the ability and desire of the general public to devote discretionary income to transportation. The surge of travel as COVID-19-related shelter-in-place orders were lifted and vaccines were rolled out has been a boon to most types of passenger transportation, but a hard landing could increase demand for lower-cost alternatives such as rail or bus travel.[15] Freight transportation demand is influenced more by economic growth, global trade, and shifts in the supply chain. More recently, these factors have worked in favor of water and rail, which had sustained elevated PPIs through March 2024. This is less true of air and truck freight, whose PPIs have moderated following spikes in June 2022. Still, many are bullish on freight transportation as a whole, with

15: "Infrastructure Quarterly: Q1 2024," CBRE Investment Management, Tania Tsoneva and Jake Parker Allen, March 22, 2024.

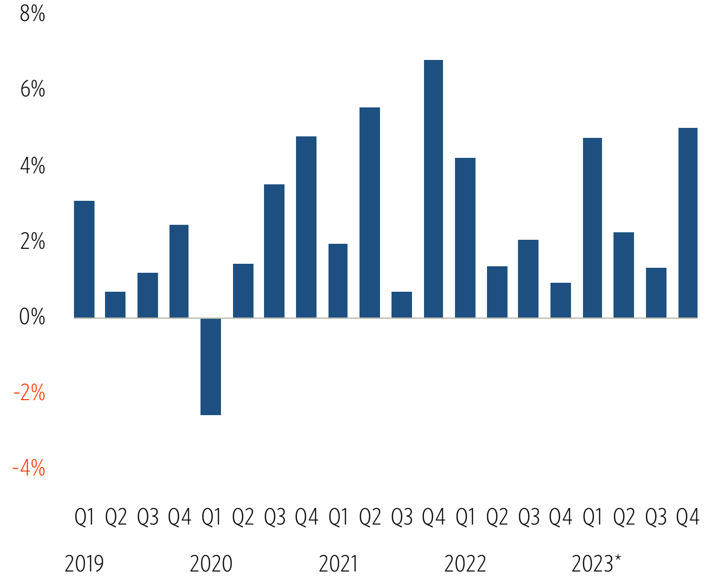
PitchBook

PitchBook Indexes: Infrastructure funds rolling one-year horizon IRRs



Source: PitchBook • Geography: Global • *As of September 30, 2023

PitchBook Indexes: Infrastructure funds quarterly returns



Source: PitchBook • Geography: Global • *As of December 31, 2023
Note: Q4 2023 data is preliminary.

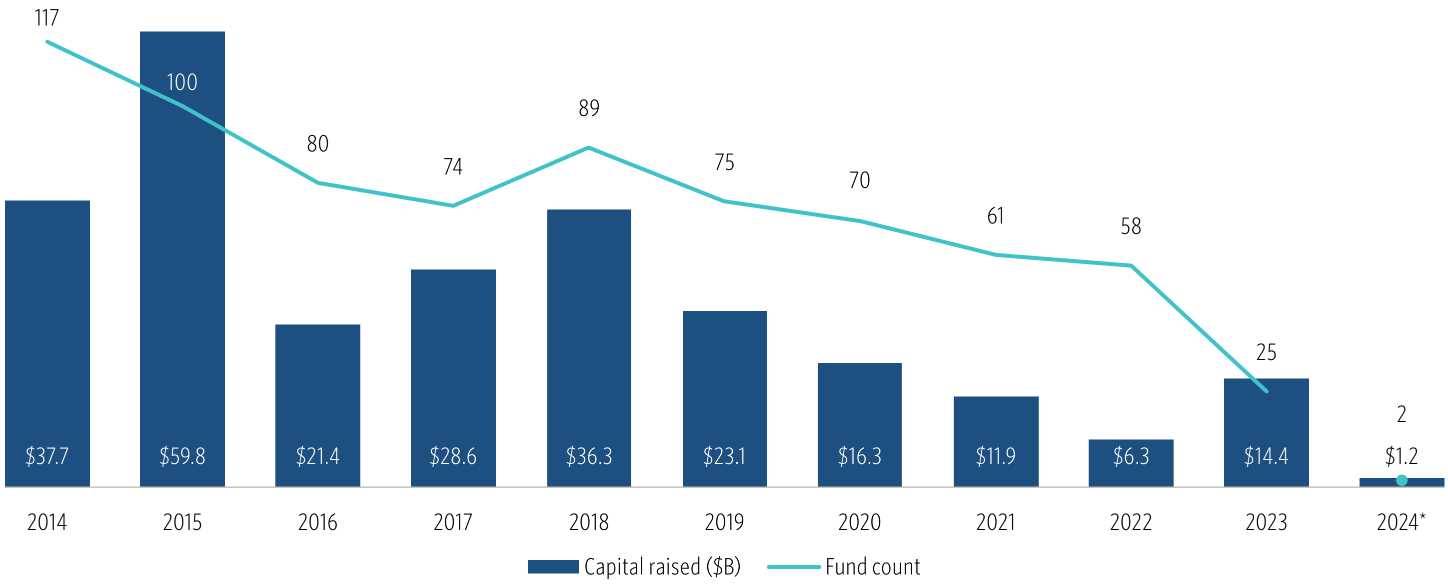
deglobalization expected to catalyze a restructuring of trade routes that will create opportunities for strategic investors.[16] Geopolitical fragmentation may also accelerate this trend as decisions are made not only to onshore and nearshore but "friend-shore."[17]

Turning to the more recent performance of private infrastructure funds, the asset class's returns have been holding fairly steady, although one-year IRRs have been edging incrementally lower since 2022. For the year through Q3 2023, infrastructure's IRR was 9.6%. One year prior, the same metric was 14.7%, and in the year through Q1 2022, it was 18.1%, the asset class's post-Global Financial Crisis (GFC) peak. This slow downward slide is not cause for concern. While most other equity asset classes have seen tremendous peaks and troughs over the past four years and infrastructure has not, this does not mean that infrastructure is entirely unaffected by headwinds such as high interest rates and cost of construction. Rather, it just contains some types of assets that have inflation-hedging or countercyclical qualities. Ultimately, this is what draws so many allocators to the space. Since the asset class has grown more popular among private investors in the last decade, one-year returns have never gone negative, while those of PE, VC, real estate, and fund of funds have all done so within the last two years. The outlook is good for performance in the coming quarters. Although Q3 quarterly returns for infrastructure were low, at 1.3%, preliminary quarterly returns for Q4 popped up to 5.0%. A positive economic growth outlook in the US bodes well for returns in the region,[18] but even in geographies facing less favorable conditions, infrastructure may serve as a buoy to allocator portfolios, as it has done in the past.

16: "2024 Infrastructure Outlook," UBS Asset Management, Alex Leung, December 1, 2023.
17: "Find Opportunities in Japanese Stocks," BlackRock, n.d., accessed June 1, 2024.
18: "Economic Outlook: Steady Global Growth Expected for 2024 and 2025," OECD, February 5, 2024.

Natural resources

Natural resources fundraising activity



Source: PitchBook • Geography: Global • *As of March 31, 2024

Juliet Clemens
Analyst, Fund Strategies

Within the natural resources sector, we make a distinction between oil & gas and other subtypes given that separate headwinds and tailwinds affect each category. The return profiles and risk characteristics between the two categories are also very different. The "other natural resources" category includes agriculture, metals & mining, timber, and then a catchall for funds that do not sit neatly in one bucket. Natural resource fundraising hit a peak in 2015 with $59.8 billion raised across 100 funds and has been on a downward trajectory since. There have been just two natural resource fund closes so far in Q1 2024, both on oil & gas funds.

Oil & gas

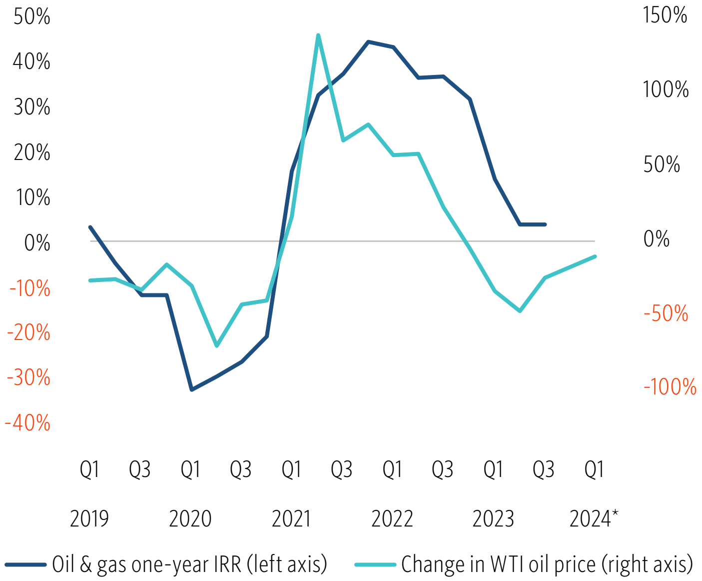
In 2015, oil & gas fundraising reached its highest point when 59 funds raised $47.8 billion. For comparison, between 2021 and Q1 2024, oil & gas funds raised just $9.0 billion across 42 funds. The two funds to close in Q1 2024 were US-based Carnelian Energy Capital V on $975.0 million and Saudi Arabia's SNB Capital Oil & Gas Fund I on $230.0 million.

Oil prices have hovered between $75 to $85/barrel through the first few months in 2024, driven by OPEC+'s effort to cut oil production and firm up pricing over the past couple of years.[19] The International Energy Agency also expects that demand for oil will slow for the rest the of year to 1.1 million barrels a day,[20] so it is likely that OPEC+ will keep these cuts in place for the time being.

The direction of oil prices will heavily influence the return profile of funds invested in the traditional energy sector. The one-year IRR of oil & gas funds as of the end of September 2023 is 3.7%, well below the 3-year IRR of 26.0%. However, the 3-year IRR itself is an outlier, driven by relatively high oil prices through 2022 after the start of the Russia-Ukraine war. The 5-year and 10-year IRRs are 4.1% and 4.7%, respectively, showing just how volatile oil returns can be depending on supply and demand and geopolitical conditions. The oil & gas one-year IRR is also well below that of other natural resources' one-year return of 8.8% through the same period. Other natural resource performance has not moved as sharply from its 3-year IRR of 11.1%.

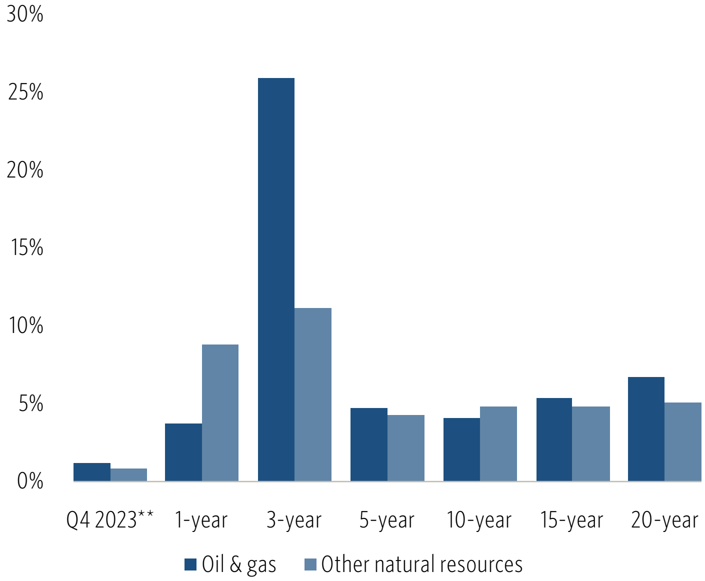
19: "Commodity Price Report Stable Amidst Risks," TD Economics, Marc Ercalao, May 16, 2024.
20: "IEA Lowers 2024 Oil-Demand Growth Forecast on Slow Start of the Year," The Wall Street Journal, Giulia Petroni, May 15, 2024.

Oil & gas rolling one-year IRR and change in WTI oil price



Sources: PitchBook and FRED • Geography: Global • *One-year IRR as of September 30, 2023; WTI oil price as of March 31, 2024

Oil & gas and other natural resources horizon IRRs*



Source: PitchBook • Geography: Global • *As of September 30, 2023 **Preliminary quarterly return

Other natural resources

Though fundraising in this category has been slow from a private investment standpoint, fund closes in 2023 included two metals & mining-focused funds: Taurus Mining Finance Fund IV out of Australia and Vision Blue Resources from the UK. There was also the $420 million Sumitomo Forestry Fund out of Japan, which invests in timber and uses a carbon credit strategy to enhance incentives around sustainability, as discussed in our Q3 2023 iteration of this report.[21]

In the Q1 2023 Real Assets Report, we discussed the theory proposed by Goldman Sachs commodities analysts that we are in the early stages of a commodities supercycle.[22] A commodities supercycle is an extended period in which the price of commodities undergoes sustained increases above or decreases below their long-term trends. A handful of previous boom-and-bust cycles and the higher volatility of commodities have made investors wary of investing into natural resources on a 10-to-12-year investment timeline.

As capital to natural resources funds receded, the inherent mismatch between commodity production timelines and shorter-term investment strategies has created the conditions for a runup in commodity prices over the next decade. Getting from the phases of commodity discovery to the point of steady production requires several years. Greenfield projects that a decade ago went underinvested are now driving up prices for particular commodities in the present day. It is a big reason that public natural resource M&A has been so focused on acquiring brownfield assets.

One base metal that is currently benefiting from supercycle conditions is copper. Because of underinvestment into copper over the past decade or so, there is currently high demand for it. Copper is essential to powering capacity to electric grids and is a necessary element in the development of AI. Datacenters will require significant amounts of copper.

Copper underwent its own boom-and-bust cycles between 2001 and 2008; over that period, copper prices rose by 700%.[23] When prices tumbled during the GFC, this jolt to the global economy made many institutional investors wary of commodities investing. That underinvestment has paved the way for the present-day conditions in which, again, copper supply is limited while demand is incredibly high. The barrier

21: "Japanese Investors Launch $420 Million fund for North American Forests," DGB Group, July 19, 2023.
22: "2023 Commodity Outlook: An Underinvested Supercycle," Goldman Sachs, Jeffrey Currie, et al., December 14, 2022.
23: "Commodity Prices Tumble," The New York Times, Clifford Krauss, October 13, 2008.

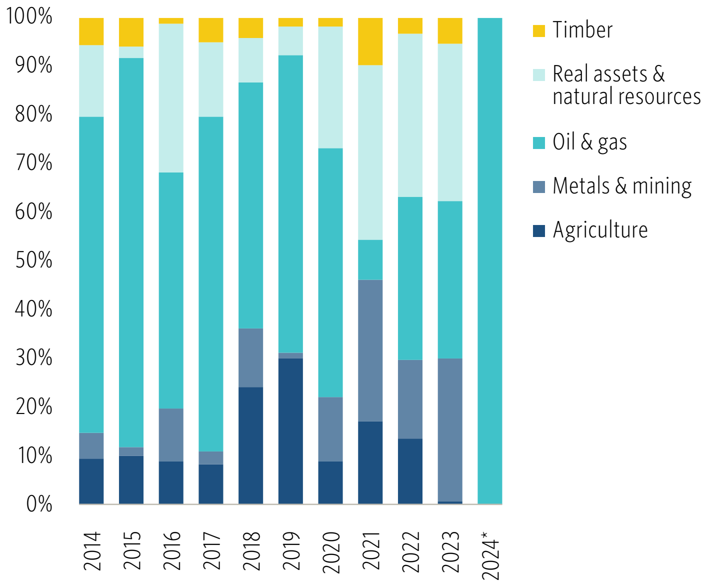
to entry to starting ground on new greenfield copper projects is also high, giving an advantage to the players that have been entrenched in the space for decades.

The supercycle framework does not mean that all commodities are performing similarly. Commodities are inherently more price-volatile, especially from a short-term standpoint, as pricing is dependent on swings in supply and demand, which are both prone to shocks and disruptions. Lithium prices, for instance, underwent a price bubble bust in 2023. In December 2022, lithium was being priced at around $80,000 per ton as the race for dominance in electric vehicles (EVs) heated up between the US and China.[24] However, EV sales started to slow dramatically in both the US and in China over the course of 2023.[25, 26] Lithium prices began dropping steadily as oversupply hit the global market. By December 2023, lithium prices were roughly around the $13,600 per ton mark.[27]

Despite these dramatic price fluctuations, the Department of Energy under the Biden administration provided Lithium Americas with a roughly $2.3 billion loan in March 2024,[28] one of several lithium programs that the Department of Energy intends to invest in. This highlights the administration's understanding of the importance of investment into lithium production, particularly when prices are low and continued underinvestment is not on the table. Given the relatively low private investment going toward other natural resources—2023's annual total was just $9.7 billion, following $4.2 billion in 2022—governments are having to get involved in providing these projects with capital.

Though private investment into natural resources has been minimal, there have been several large M&A transactions in the public natural resources space. In early May 2024, Exxon completed its acquisition of Pioneer Natural Resources. Only a few weeks later, Hess shareholders voted to approve a $53 billion merger with Chevron, though arbitration with

Share of natural resources capital raised by type



Source: PitchBook • Geography: Global • *As of March 31, 2024

Exxon and China National Offshore Oil Corporation over oil reserves in Guyana may complicate the future of the deal.[29] ConocoPhillips' decision to acquire Marathon Oil was announced during the writing of this report, in late May 2024.

In natural gas, several large deals occurred: EQT's merger with Equitrans Midstream, ONEOK's acquisition of Magellan Midstream, and Energy Transfer Partners' acquisition of Crestwood Equity Partners. Some deals have also been delayed.[30] Within the metals & mining space, BHP has decided not to go forward on its second $49 billion bid for Anglo American.[31] The deal had been contingent on how to proceed on majority stakes in two mines in South Africa.[32]

24: "Lithium: Price Collapse Secures Green Transition, Causes Headaches," Forbes, Ariel Cohen, December 27, 2023.
25: "China's First-Quarter EV Sales Growth Slowest in a Year," Reuters, Qiaoyi Li, Zhang Yan, and Brenda Goh, April 9, 2024.
26: "E.V. Sales Are Slowing. Tesla's Are Slumping," The New York Times, J. Edward Moreno and Karl Russell, April 15, 2024.
27: "Lithium: Price Collapse Secures Green Transition, Causes Headaches," Forbes, Ariel Cohen, December 27, 2023.
28: "Biden Jump-Starts Electric-Vehicle Push With Massive Lithium Loan," The Wall Street Journal, Scott Patterson, March 14, 2024.
29: "Hess Shareholders Give Approval to $53 Billion Merger With Chevron," The Wall Street Journal, Benoît Morenne, May 28, 2024.
30: "Chesapeake, Southwestern Delay Merger Closing After FTC Seeks More Information," Reuters, Seher Dareen, April 5, 2024.
31: "BHP Abandons $50 Billion Anglo American Deal," The Wall Street Journal, Julie Steinberg and Rhiannon Hoyle, May 29, 2024.
32: "BHP and Anglo Remain Split on South Africa as Time Runs Out," Bloomberg, Thomas Biesheuvel, May 28, 2024.

Additional research

Private markets

Q1 2024 Clean Energy Report

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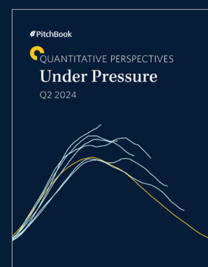

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