# PRIVATE CAPITAL QUARTERLY

FIRST QUARTER 2024







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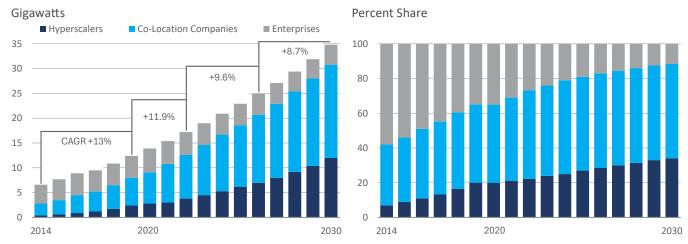
## The Power Question: AI, Data Centers, and the Thirst for Energy

It is difficult for those of us who focus on real assets not to observe the almost daily headlines regarding the widespread adoption of Artificial Intelligence (AI) and consider the substantial power demands of data centers. Data centers are the backbone of the infrastructure that allows AI to function, and they require a lot of power to operate. It is becoming more apparent that the rollout of AI will drive growth in power demand, but exactly where this power will come from remains unclear. Data center power demand is poised to grow 160% by the end of the decade, according to Goldman Sachs Research. Similarly, Wells Fargo estimates that after a decade of flat growth, total electricity consumption in the U.S. will surge 20% through the end of the decade.<sup>1</sup>

#### DATA CENTER AND ENERGY HEADLINES

- How Big Data Centers Are Slowing the Shift to Clean Energy, The Wall Street Journal, April 29, 2024
- Amid Explosive Demand, America is Running Out of Power, The Washington Post, March 7, 2024
- U.S. Electric Utilities Brace for Surge in Power Demand from Data Centers, Reuters, April 10, 2024
- A.I. Frenzy Complicates Efforts to Keep Power-Hungry Data Sites Green, The New York Times, February 29, 2024

# U.S. DATA CENTER POWER CONSUMPTION IS FORECASTED TO GROW BY SOME 10 PERCENT PER YEAR UNTIL 2030



Data source: McKinsey & Company

Note: Demand is measured by power consumption to reflect the number of servers a data center can house. Demand includes megawatts for storage, servers, and networks.

To put some numbers around the power demand surge, Nvidia estimates it will sell 1.5-2 million graphics processing units (GPU) this year alone. Together, these units will require nearly as much power as the residential power consumption of Houston, which has the fourth highest demand of any city in the U.S. Assuming Nvidia continues at this pace, consumers will be adding the demand equivalent of a large U.S. city or more to the power grid each year.<sup>2</sup> This is evident in the projected data center power demand growth between now and 2030.

3% — > 160% — > 8%

Data centers' current share The expected growth in data center power demand Data centers' 2030E share

of U.S. power demand

The expected growth in data center power demand (excluding cryptocurrency) between 2023 and 2030

Data source: Goldman Sachs; Data as of April 2024

of U.S. power demand

Since the emergence of ChatGPT in late 2022, the growth of AI and resulting energy needs have become part of the broader dialogue around the technology landscape and are prompting questions from investors. Tech companies are certainly aware of the energy issue and are scrambling to find solutions. In early May, Microsoft announced it had signed a deal with Brookfield Asset Management to invest more than \$10 billion in developing renewable energy capacity to help power data centers. Although the exact details were not laid out in the announcement, the companies described the deal as the largest of its kind.<sup>3</sup>

While most are aware of the potential challenges related to the trifecta of AI, data centers, and power demand, what is less clear is how investors can participate in—and potentially capitalize on—these on a longer-term basis through private capital. Given these emerging trends, several essential questions come to mind. Can renewables fill the gap in meeting power demand from data centers? Where will that power come from? And what opportunities are available to investors seeking to capitalize on these trends?

#### CAN RENEWABLES DELIVER POWER?

The short answer is unlikely. The longer explanation includes multiple factors, not the least of which is the interconnection queue—think of it as the waitlist to get renewable power onto the grid—which is exceptionally long for renewables. According to Berkely Labs, the median duration from interconnection request to commercial operations date has doubled from less than two years for projects built in 2000-2007 to nearly four years for those constructed in 2018-2022, and some renewable projects never actually make it through the queue.<sup>4</sup>

Beyond the grid connection issues, as with all wind and solar energy sources, the most obvious challenge is that they are, by definition, intermittent and subject to varying weather conditions. This means there would be a need for backup power from another source to keep the data centers operating. The wind doesn't always blow, and the sun doesn't always shine. Therefore, powering data centers solely with wind, solar, or other renewable sources is not feasible. Another challenge associated with using wind and solar for powering data centers is the increased space requirements. Wind and solar farms require more land and could have an additional impact on the surrounding environment, which increases the project's overall cost. While recognizing that clean energy will almost certainly be a factor in a technology company's sustainability strategy, it is also essential to be cognizant of the limitations of these energy sources.<sup>5</sup>

#### IF NOT RENEWABLES, THEN WHAT?

Traditional energy sources—primarily natural gas—will continue to be critical power providers for data centers. Nuclear power will also play a role, as it offers stable power to the grid. While legacy coal assets are being phased out, to the degree that they remain part of the energy mix, they will also likely provide some of the power to data centers.

In March, Amazon Web Services (AWS) purchased a data center site in northeast Pennsylvania adjacent to a nuclear power plant. AWS paid \$650 million for the 1,200-acre property, making it the largest individual U.S. commercial sale of the year, according to CoStar. AWS expects to expand the property to include up to 960 megawatts of data center capacity. According to a recent article in The Wall Street Journal, many utility companies expect to meet rising power demand by keeping coal-fired plants online longer and adding natural gas plants. Thus, despite net-zero commitments, large technology companies will likely have to contend with balancing power needs with available energy sources. The most likely scenario is that natural gas-fired power generation will supplement renewable power sources.<sup>6</sup>

Adding new natural gas power presents its own challenges, however, including the previously mentioned interconnection queues, permitting, and approvals. Nothing happens quickly in the power generation space, partly because of many competing interests from local communities, environmentalists, and regulators. In summary, traditional energy sources will be needed as a backup to supplement clean sources or when clean energy is unavailable.

#### **HOW TO PLAY IT - POTENTIAL OPPORTUNITIES**

One of the compelling aspects of the current energy landscape is that it presents investors with a broad and dynamic opportunity set. Taking an expansive view can yield a wide range of options. As it becomes increasingly apparent that there will be a need for all energy sources in the years ahead to meet growing demand, multiple strategies exist that could be poised to benefit.

- 1. Picks and Shovels in Nuclear Nuclear remains the largest source of carbon-free energy in the U.S. and has garnered increased attention, as the federal government is expected to continue restarting shuttered nuclear power plants in the coming years to meet the increasing demand for clean, dependable energy. In March, the U.S. Energy Department's Loan Programs Office approved a loan to reopen the Palisades nuclear plant in Michigan.<sup>7</sup> This is the first nuclear power plant to be reopened in the U.S. and could begin producing power as early as the second half of 2025. Nuclear power plants require highly specialized equipment and ongoing maintenance, and investing in the companies that provide these products and services represents an indirect way to participate in the move toward greater acceptance of nuclear power.
- 2. Ownership of Power-Producing Assets Private funds specializing in acquiring and operating power assets producing baseload power present another potential opportunity. Baseload power plants are essential because they provide constant power to the grid to meet ongoing energy needs and are key components of an efficient electric grid. Similarly, "peaker" plants ensure grid reliability during high-demand periods. Fueled mainly by natural gas, these power plants can ramp up quickly and begin producing power for the grid during periods of high demand when other sources, like wind and solar, are unavailable. As more intermittent renewable power sources are added to the grid, these assets become more valuable in providing stable power sources across the country.
- 3. Traditional Energy Traditional energy will continue to be a vital component of the energy mix for the foreseeable future. Put another way, fossil fuels aren't going away anytime soon. The situation in Europe following Russia's invasion of Ukraine in 2022 made this abundantly clear, as the region quickly readjusted to accessing natural gas previously provided by Russia. Investing in strategies that focus on natural gas production continues to present compelling opportunities. Upstream energy remains one of the few areas within private equity that has not seen significant capital inflows, resulting in less competition for deals. While the U.S. currently has excess natural gas supplies—as reflected in declining prices—the buildout of export terminals on the Gulf Coast will allow for transporting domestically produced gas to global markets, which should put upward pressure on prices.

As power demand in the U.S. continues to grow in the coming years, the intersection of AI, data centers, and the growing thirst for power will create compelling opportunities for investors with capital to deploy to capitalize on these evolving dynamics.

<sup>&</sup>lt;sup>1</sup>Goldman Sachs, April 2024; Wells Fargo, March 2024

<sup>&</sup>lt;sup>2</sup> Grey Rock Energy Quarterly Letter, Fourth Quarter 2023

<sup>&</sup>lt;sup>3</sup> CNBC, May 1, 2024

<sup>&</sup>lt;sup>4</sup> Berkeley Labs, April 6, 2023

<sup>&</sup>lt;sup>5</sup> Why You Can't Power Your Data Center Only With Renewables – But Should Try Anyway, Data Center Knowledge, April 2023

<sup>&</sup>lt;sup>6</sup> How Big Data Centers Are Slowing the Shift to Clean Energy, The Wall Street Journal, April 29, 2024

<sup>&</sup>lt;sup>7</sup> Once Unthinkable Nuclear Plant Revival is a Reality on U.S. Shift, Bloomberg, April 29, 2024

## **PRIVATE EQUITY**

## Venture Capital

- U.S. Venture Capital (VC) fundraising remained challenged during the first quarter of 2024. Limited partners committed approximately \$9 billion to VC funds, down 20% from 2023.<sup>1</sup> Aggregate annualized fundraising is down more than 80% from peak levels in 2022.<sup>2</sup>
- U.S. venture capital deal activity also declined but remains in line with recent historical averages. During the first quarter of 2024, the U.S. venture capital aggregate deal value was \$36 billion.<sup>3</sup> Deal volumes were also flat from last year at nearly 2,900.<sup>4</sup>
- The median U.S. pre-money valuations for venture-backed startups increased during the first quarter of 2024. This trend is likely skewed due to a survivorship bias, as successful companies were able to garner investor capital.
- Lackluster demand for initial public offerings (IPOs), weak merger and acquisition (M&A) activity, and economic uncertainty have continued negatively impacting exits. Annualized exit value in the first quarter of 2024 was down nearly 90% from the peak in 2021.<sup>5</sup> Through the third quarter of 2023, the U.S. VC 12-month distribution yield as a percentage of net asset value (NAV) (5 to 10 years) fell to a near-all-time low of 6.0%.<sup>6</sup>
- U.S. venture capital performance contracted during the third quarter of 2023, with the spread between the top and bottom quartiles above 1,000 basis points.

#### **INVESTOR IMPLICATIONS**

Fundraising, deal activity, and exit activity will likely remain below recent historical averages. If the macroeconomic environment persists, investors will probably see down rounds and lower carrying values in coming quarters. FEG encourages clients to be cautious with new commitments.

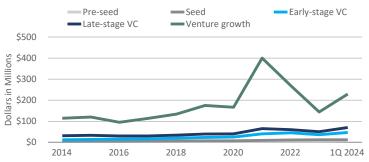
#### **VENTURE CAPITAL FUNDRAISING SLOWED**

**Fundraising Activity** Capital Raised Funds (Right Axis) \$200 2.000 \$150 1,500 **Jollars in Billions** \$100 1,000 500 \$50 \$0 Ω 2014 2016 2018 2020 2022 1Q 2024

Data source: Pitchbook

## PRE-MONEY VALUATIONS REBOUNDED SLIGHTLY

Median Pre-Money Valuations



Data source: Pitchbook

#### **EXIT VALUE NEAR RECORD LOW**

**Exit Activity** Fxit Value Deals (Right Axis) \$1,000 2,500 2,000 \$800 **Dollars in Billions** 1,500 \$600 \$400 1,000 \$200 500 0 2018 2020 2022 10 2024

Data source: Pitchbook

### PERFORMANCE FACING HEADWINDS

Performance by Vintage Year



Data source: Thomson One; Data as of September 30, 2023

<sup>&</sup>lt;sup>1–5</sup> Pitchbook; NVCA Venture Monitor Q1 2024; March 31, 2024

<sup>&</sup>lt;sup>6</sup> Refinitiv; September 30, 2023 (most recent available)

## Leveraged Buyouts

- U.S. private equity (PE) has remained resilient despite broader private market challenges. During the first quarter of 2024, U.S. PE funds raised approximately \$77 billion of capital. Capital continued to be concentrated among fund managers. Fundraising efforts are also taking longer, with the median time to close for a buyout fund now more than 16 months.
- U.S. PE deal activity continued to be muted. Deal value and volume fell by 44% and 3%, respectively, in the first quarter of 2024 compared to the same period in 2023.<sup>3</sup> Addon transactions represented roughly 76% of U.S. PE deal activity in the first quarter 2024.<sup>4</sup>
- PE purchase price multiples remained in line with figures from year-end 2023. As of March 31, 2024, the median private equity buyout purchase price multiple was 11.9x earnings before interest, taxes, depreciation, and amortization (EBITDA).<sup>5</sup> The median debt/ EBITDA ratio was roughly 5.0x EBITDA.<sup>6</sup>
- U.S. PE exit activity remained well below recent market averages during the first quarter 2024. Sponsors continued to struggle with prolonged inflation and unfavorable valuation trends. The median holding period of U.S. PE investments exit has stretched to 6.4 years.<sup>7</sup>
- Private equity performance was strong through the third quarter of 2023, with the spread between the top and bottom quartiles surpassing 1,000 basis points.<sup>8</sup>

#### **INVESTOR IMPLICATIONS**

Higher interest rates and concerns about an economic recession have dampened private equity activity thus far in 2024. Increasing public market volatility and geopolitical risks will likely present near-term performance headwinds for the asset class. FEG recommends clients continue to remain cautious with new commitments.

#### PRIVATE EQUITY FUNDRAISING REMAINED STEADY

Fundraising Activity



Data source: Pitchbook

#### **DEAL ACTIVITY DECLINED**



Data source: Pitchbook

#### **EXIT ACTIVITY SLOWED**

Exit Activity



Data source: Pitchbook

#### PERFORMANCE REMAINED STRONG

Performance by Vintage Year



Data source: Thomson One; Data as of September 30, 2023

<sup>&</sup>lt;sup>1–7</sup> Pitchbook; March 31, 2024

<sup>&</sup>lt;sup>8</sup> Refinitiv; September 30, 2023 (most recent available)

## **PRIVATE DEBT**

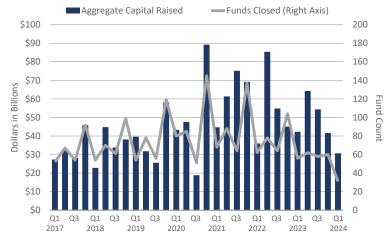
- The first quarter of 2024 saw continued strength in the public credit markets, with bank loans outperforming high yield bonds by ~80 basis points, depending on the index referenced.¹ Bank loan outperformance was driven by strong demand for credit and a lack of new issuance coupled with an economic backdrop that prompted the Fed to keep overnight borrowing rates on hold.
- The economic environment has kept interest rates high on private debt transactions. M&A activity is expected to improve in the year's second half, yet the cost of capital for transactions remains prohibitive. To the extent inflation remains sticky and the Fed cannot pivot towards easing, private debt will continue to compete for refinancing opportunities versus the public loan market.
- Private debt fundraising has averaged \$35.8 billion since 2017, but the first quarter total of \$30.6 billion was well off the pace of the last seven years, with direct lending dominating.<sup>2</sup> Preqin believes this slower pace in fundraising may catch up later in the year as demand expectations from market participants for private debt allocations remain robust.

#### **INVESTOR IMPLICATIONS**

The economy has been more resilient than the consensus anticipated coming into the year, and inflation remains sticky. The Fed continues to be in a holding pattern despite increased pressure to begin cutting interest rates. This dynamic should be expected to continue until inflation approaches the Fed's targeted 2% neutral rate.

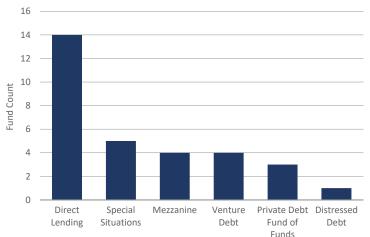
#### PRIVATE DEBT FUNDRAISING BELOW Q1 AVERAGE

Aggregate Capital Raised and Number of Funds Closed Globally



Data source: Pregin Pro

# **DIRECT LENDING DOMINATES Q1 FUND CLOSURES**Number of Funds Closed by Strategy



Data source: Pregin Pro

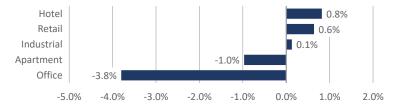
<sup>&</sup>lt;sup>1</sup> The CSFB Leveraged Loan Index gained 2.3% vs. the BofA Merrill Lynch US High Yield, Master II Index gain of 1.5%

<sup>&</sup>lt;sup>2</sup> Insights – Private Debt Q1 2024: Preqin Quarterly Update

## PRIVATE REAL ESTATE

- The National Council of Real Estate Investment Fiduciaries (NCREIF) Property Index (NPI) declined 1.0% during the first quarter, the seventh consecutive quarterly decline since the peak in 2022. Hotels continued to have the highest return (+0.8%), followed by retail and industrial. Hotels benefited from higher occupancy rates driven by increased travel during the quarter. Market value-weighted cap rates based on appraisals for unsold properties in the index increased to 4.7%, compared to 4.6% in the fourth quarter. However, the average cap rate for properties that sold during the quarter was significantly higher at 5.9%.1
- As measured by the FTSE NAREIT Index, public real estate securities declined 1.3% during the first quarter. After a solid fourth guarter in 2023, real estate remained under pressure in the first quarter as higher-thanexpected inflation readings diminished expectations for rate cuts. Rate-sensitive sectors such as cell towers (-8.8%) were among the worst-performing sectors. REITs remain highly sensitive to interest rate moves, while private real estate benefits from more conservative balance sheets and fixed-rate debt. Private real estate funds reported lower valuations at year-end, reflecting the impact of higher cap rates on property values.<sup>2</sup>
- Private real estate transaction volume reached a multi-year low. During the first quarter, commercial real estate transaction volume continued to decline from the peak in early 2022, with \$31.6 billion in transaction volume, down 28% compared to the same period in 2023. Transaction volume in the

# OFFICE CONTINUED ITS DOWNWARD TRAJECTORY NCREIF Performance by Property Type



Data source: NCREIF

U.S. reached the lowest level since 2013, with the number of single-asset transactions declining 21% compared to the first quarter of 2023.<sup>3</sup>

- According to Preqin, 59 private real estate funds closed during the first quarter, raising \$28.5 billion, compared to 132 funds raising \$24 billion in the same period in 2023. Private real estate fundraising peaked in the fourth quarter of 2021, during which 324 funds raised a total of \$97 billion. Fundraising timelines in private real estate are extending, with two-thirds of funds spending over two years in the market. As of the first quarter of 2024, there were over 2,400 private real estate funds in the market, up from 1,780 at the beginning of 2023.4
- Looming commercial real estate debt maturities, which exceed \$2.0 trillion over the coming three years, remain a crucial concern for investors. With the current interest rate and investment sales environments making loan refinancing and property sale exit strategies more difficult, many borrowers are seeking to exercise loan extension options. One bright spot during the quarter was the private-label commercial mortgage-backed security (CMBS) market, which rebounded sharply with 23 transactions totaling \$17.9 billion—nearly three times the \$6.0 billion issued in the first quarter of 2023.5

#### **INVESTOR IMPLICATIONS**

The broader real estate market continues to readjust to an environment of higher interest rates, higher property-level operating expenses, such as energy and insurance, and slower rent growth. Other challenges facing the real estate market in 2024 include looming debt maturities and tighter credit markets. With expectations for interest rate cuts pushed to the second half of the year, distress in real estate markets will likely be extended. Nevertheless, the coming quarters should present attractive distressed opportunities for managers with capital to deploy. Individual property types and regions vary in their fundamentals, which should benefit managers with a flexible mandate who can take advantage of shifting market dynamics.

<sup>&</sup>lt;sup>1</sup>NCREIF; March 31, 2024

<sup>&</sup>lt;sup>2</sup>NAREIT; March 31, 2024

<sup>&</sup>lt;sup>3</sup> Altus Group, U.S. CRE Transaction Analysis, April 2024

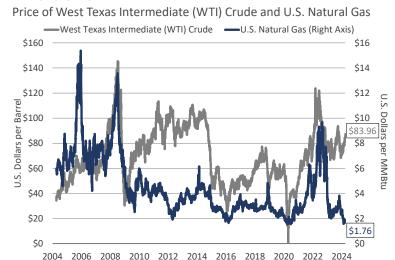
<sup>&</sup>lt;sup>4</sup> Preqin First Quarter 2024 Quarterly Real Estate Update

<sup>&</sup>lt;sup>5</sup>Trepp CBMS Research, April 2024

## NATURAL RESOURCES

- Oil prices rose 16% during the first quarter, closing at \$83.96/barrel, compared to \$72/barrel at year-end. The ongoing turmoil in the Middle East pushed prices higher, as attacks from Houthi rebels on oil tankers in the Red Sea prompted concerns about supply disruptions. At the organization's April meeting, OPEC+ maintained their voluntary cuts of 2.2 million barrels per day to support prices through mid-year.¹ After quarter-end, conflict in the Middle East escalated further with attacks on Israel by
- Natural gas prices fell 30% to close at \$1.79/MMBtu, compared to \$2.51 at the end of 2023.² Record levels of natural gas storage across North America and Europe put downward pressure on natural gas prices, and mild weather through the winter months further drove prices lower. Natural gas prices should benefit from liquid natural gas (LNG) export capacity coming online in the next two years. Another potential contributor to natural gas demand could be gas-fired power to support the power needs of growth in data centers.
- Multiple upstream private energy firms were actively raising capital. While some investors have reconsidered traditional energy, fundraising remains challenging. However, relative to other areas within private capital—e.g., real estate and venture capital—distributions from private energy funds have been healthy over the past two years, with multiple large exits to public companies resulting in capital being returned to limited partners. A small number of groups have emerged specifically targeting secondary interests and continuation vehicles in upstream funds, a niche area not widely pursued by larger private equity secondary groups.

# OIL EXCEEDS \$80 PER BARREL AND NATURAL GAS PRICES DECLINE



Data source: Bloomberg, L.P.; Data as of March 28, 2024

- After a record-setting 2023 for upstream M&A, deal flow continued into the first quarter and included a broad range of transactions. In the Permian Basin, Diamondback's \$26 billion acquisition of Endeavor Resources was announced in March. Chesapeake and Southwestern announced a merger that would create the largest U.S. natural gas producer. Merger and acquisition activity will likely continue as larger companies seek to expand their inventories through further acquisitions.<sup>3</sup>
- According to Baker Hughes, the U.S. oil and gas rig count decreased slightly in the first quarter. Current rig counts reflect lower natural gas prices over the past year and the cautious approach of upstream energy companies on capital spending due to pressure from investors to return capital in the form of dividends and share buybacks.<sup>4</sup>

#### INVESTOR IMPLICATIONS

The wave of merger and acquisition activity in public upstream energy should lead to the sale of non-core assets, creating acquisition opportunities for private energy funds with available capital. More recently, traditional energy managers have increased the utilization of continuation vehicles as a means of exiting companies. FEG believes this trend will continue and may present an attractive opportunity for secondary players in traditional energy.

<sup>&</sup>lt;sup>1</sup>Reuters, OPEC+ keeps output policy steady as oil nears \$90 a barrel, April 3, 2024

<sup>&</sup>lt;sup>2</sup> Energy Information Administration www.eia.gov, March 31, 2024

<sup>&</sup>lt;sup>3</sup> Diamondback Energy, Chesapeake Energy, and

<sup>&</sup>lt;sup>4</sup> Baker Hughes, March 31, 2024

#### INDICES

Bloomberg US Corporate High Yield Index represents the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included. The index includes the corporate sectors: Industrials, Utilities, and Finance, encompassing both U.S. and non-U.S. Corporations. See www.bloomberg.com for more information.

The Russell Indices are constructed by Russell Investment. There are a wide range of indices created by Russell covering companies with different market capitalizations, fundamental characteristics, and style tilts. See <a href="https://www.russellinvestments.com">www.russellinvestments.com</a> for more information.

The FTSE NAREIT Composite Index (NAREIT) includes only those companies that meet minimum size, liquidity and free float criteria as set forth by FTSE and is meant as a broad representation of publicly traded REIT securities in the U.S. Relevant real estate activities are defined as the ownership, disposure, and development of income-producing real estate. See <a href="https://www.londonstockexchange.com/indices?tab=ftse-indices">https://www.londonstockexchange.com/indices?tab=ftse-indices</a> for more information.

The S&P 500 Index is capitalization-weighted index of 500 stocks. The S&P 500 Index is designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.

The NCREIF Property Index is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only.

HFRI ED: Distressed/Restructuring Index — Distressed/Restructuring strategies which employ an investment process focused on corporate fixed income instruments, primarily on corporate credit instruments of companies trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceeding or financial market perception of near term proceedings. Managers are typically actively involved with the management of these companies, frequently involved on creditors' committees in negotiating the exchange of securities for alternative obligations, either swaps of debt, equity or hybrid securities. Managers employ fundamental credit processes focused on valuation and asset coverage of securities of distressed firms; in most cases portfolio exposures are concentrated in instruments which are publicly traded, in some cases actively and in others under reduced liquidity but in general for which a reasonable public market exists. In contrast to Special Situations, Distressed Strategies employ primarily debt (greater than 60%) but also may maintain related equity exposure.

Information on any indices mentioned can be obtained either through your consultant or by written request to <a href="mailto:information@feg.com">information@feg.com</a>.

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All data is as of March 31, 2024 unless otherwise noted.

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