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REAL ESTATE

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Tailwinds propel life science sector forward over the long term

PERFORMANCE OUTLOOK SOFTENS BUT HEALTHY

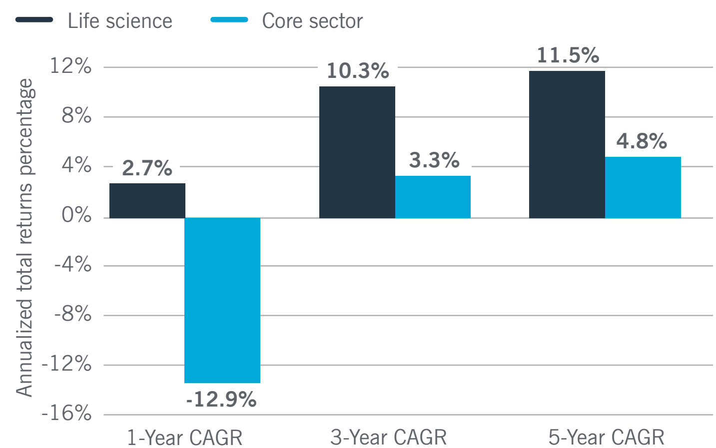
The past year presented a challenging investment environment. Macroeconomic volatility including inflationary pressures, increasing interest rates, lower stock prices and the rising odds of a recession caused many analysts to lower expectations for forecast returns across most asset classes, including real estate.

Like other asset classes, commercial real estate is adjusting to changes in inflation and the capital markets. However, private real estate continues to provide a compelling alternative to equity market investments which have historically provided a relative inflation hedge.

Sentiment for the life sciences sector reached a fever pitch during the COVID-19 pandemic; global attention turned to the biopharma industry as it mobilized in record time to deliver life-saving vaccines. This unprecedented success was the culmination of decades of research performed in just a handful of laboratory clusters in select cities across the U.S.

Independent of the pandemic, life science research has been fuelled by other macroeconomic tailwinds. The rapidly aging global population has demanded and will continue to demand breakthroughs in therapies and treatments for degenerative diseases that are more prevalent with age. This megatrend has led to record levels of both public and private funding for the biopharma industry and unprecedented demand for laboratory R&D space.

Figure 1: Life science outperforming core sectors



Source: Green Street Advisors, as of December 2022
Note: Core Sector includes apartment, office, industrial, and retail strip centers.
Past performance is no guarantee of future returns.

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FUNDING FOR MEDICAL RESEARCH REMAINS STRONG DESPITE THE RECENT PULLBACK FROM VENTURE CAPITAL

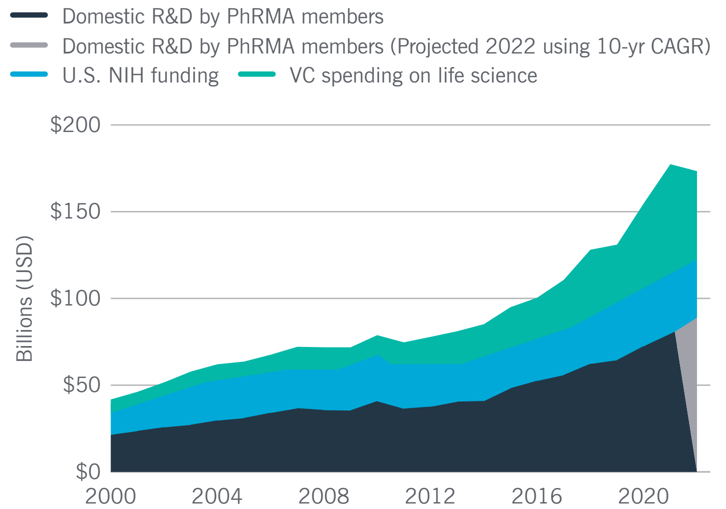
A decade ago, venture capital (VC) made up a relatively small piece of the medical research investing pie at a 14% share of total spending, trailing public funding through the National Institutes of Health (NIH) with a 36% share and direct investment by private companies in support of their internal R&D at a 50% share.

However, VC spending on biotech research increased impressively over the previous decade, reaching a record and unsustainable high of a 31% share in 2021. In 2022, while VC spending decreased to a 24% share it was nearly even with the NIH's 26% share, both which significantly trail private pharma companies' direct funding which consistently contributes to nearly half of all medical research funding annually. The increase in large pharma R&D investment is due to the significant risk exposure by patent expirations over the next decade (figure 2).

VC activity since the pandemic outpaced the previous five years combined. And while VC investment has slowed from its record 2021 pace, public research funding (i.e. NIH Funding) is expected to grow by 8% in fiscal year 2023. It is one of the few governmental programs that receives bipartisan support. Separately, the Biden Administration announced a $2 billion investment aimed at expanding the U.S. biotech and biomanufacturing industry, highlighted by a $1 billion investment by the Department of Defense to catalyze the establishment of the domestic bioindustrial manufacturing base.

The venture capital pullback began around the third quarter of 2021, likely a result of similar declines in public markets and the fact that biotech was a clear pandemic outperformer. Biotech VC funding overall was down 51% from the all-time peak in 2022 Q1, it is still up 14% compared to the quarterly average funding volume since 2017. Biotech VC funding pullbacks are a normal and healthy part of the cycle.

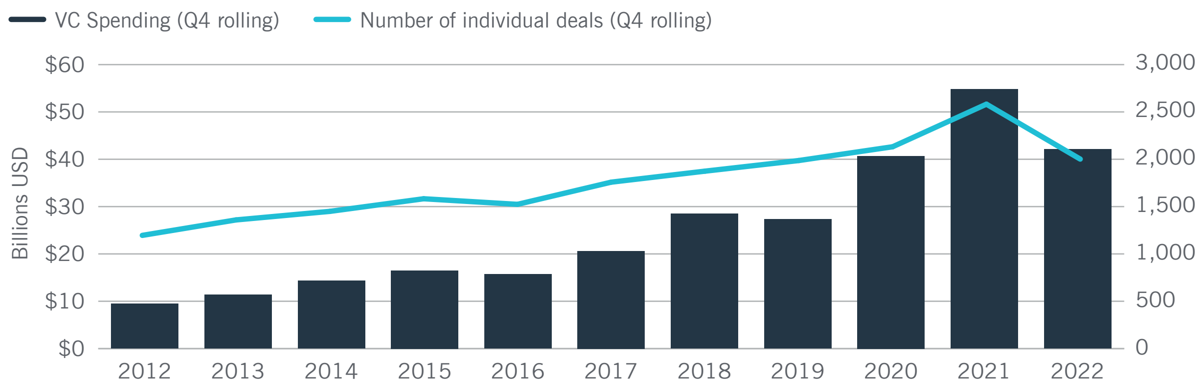
Figure 2: Domestic R&D spending on life sciences



Source: NIH, Pitchbook, PhRMA 2022 Membership Survey

Note: PhRMA membership surveys are published in July. The 10-year compound annual growth was used as a 2022 estimate.

Figure 3: Venture capital funding to life sciences



Source: Pitchbook NVCA Venture Monitor Summary, as of the fourth quarter of 2022

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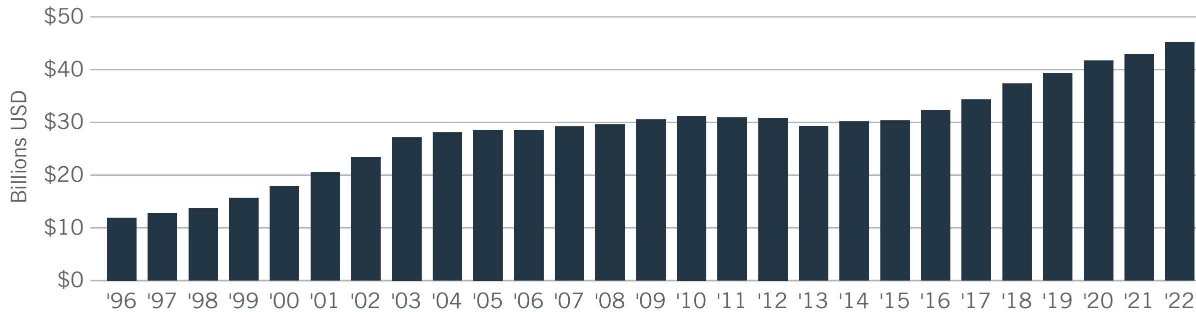
Figure 4: National Institutes of Health (NIH) funding



Source: National Institutes of Health (NIH), as of FY 2022

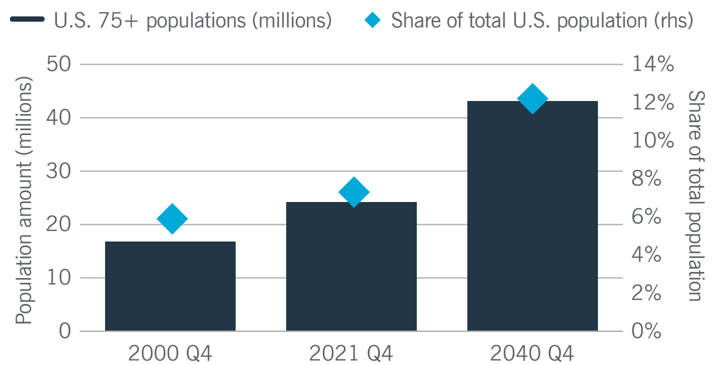
The life sciences industry has always had volatility for start-ups and small-cap firms. Getting FDA approval is a difficult process and there will always be firms that fail. In recent years, too many firms sought to IPO much too early before they had FDA approval and revenue. The public market is not as patient as venture capital and has punished these firms severely because of too many unprofitable quarters. It would not be surprising to see the more well-capitalized biopharma firms looking to opportunistically hire recently laid off workers at smaller firms.

DEMOGRAPHIC DRIVERS REMAIN COMPELLING

Healthcare spending has increased to approximately 20% of the U.S. GDP. While the U.S. already spends the most on healthcare per capita among OECD countries, it is projected to increase further due to the rapidly aging population, innovations in therapeutics and increasing interest from younger generations around tech that facilitates wellness and longevity.

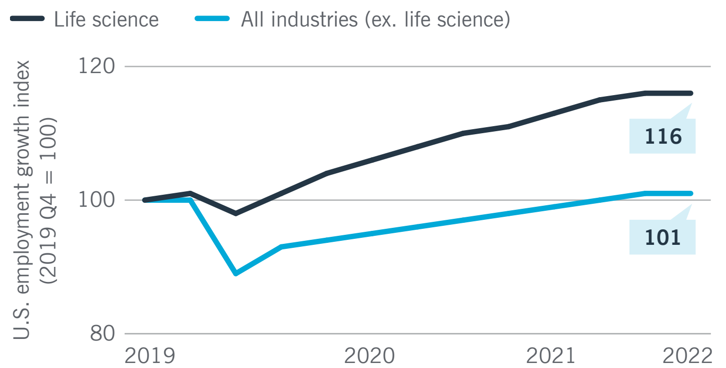
Job growth for the life science sector was flat in the fourth quarter but remained 16% above its pre-pandemic level. That compares to just a 1% gain for all other industries. The life science sector is more robust and less volatile than the average sector. It is less correlated with business cycles due to the long-term nature of R&D process.

Figure 5: 75+ change in share of population



Source: StratoDem Analytics, as of 2022

Figure 6: Life science employment growth slowing, but far above 2019 level



Source: U.S. Bureau of Labor Statistics, as of December 2022

Note: Life science industries include scientific research and development services (NAICS: 5417) and medical and diagnostic laboratories (NAICS: 6215).

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RISING INTEREST RATES AND A VOLATILE EQUITIES MARKET CONTINUE TO DISRUPT THE LIFE SCIENCE MARKET

As it became clear early in 2022 that the Federal Reserve was serious about taming runaway inflation through aggressive monetary policy, growth stocks were the hardest hit by this sudden reversal in the longstanding policy of low interest rates. Smaller, publicly traded biotech firms were particularly hard-hit by this swing in the equity market with the mostly small- and mid-cap SPDR S&P Biotech ETF (ticker: XBI) down 49% from its early 2021 peak.

The stock devaluation combined with an increased cost of capital, has led some of these firms to re-think growth plans as they look to preserve cash. More positively, the biotech ETF appears to have troughed in June 2022 and has recovered to pre-pandemic levels.

While many smaller biotech firms have struggled with this changing environment, larger, well-capitalized firms generally saw stock prices hold up very well even in the face of the broad downturn for equities. The 20 largest biopharma firms by market capitalization were collectively just 4% below their recent December 2022 peak as of late January. These larger firms continue to demand additional lab space and have the financial health to better weather near-term cyclical challenges.

2023 HAS POTENTIAL TO BE A BANNER YEAR FOR LIFE SCIENCES M&A

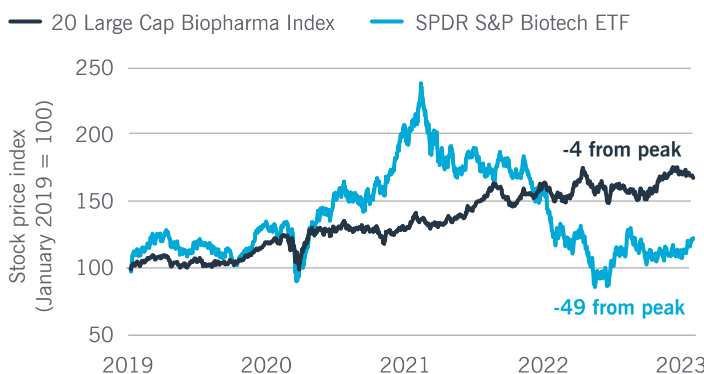
Lower share prices, a limited IPO market, and decelerating VC funding have created a cash crunch for smaller biotech firms. Some will be motivated to strike a deal with big pharma companies to keep a sufficient cash burn rate to keep operations moving forward.

Big pharma companies face a wave of patents expiring over the next decade and need to replenish their pipelines by investing significantly in R&D and M&A as an estimated $200 billion of revenue tied to patents expirations through 2030 is at risk per S&P Global.

R&D budgets for large pharmaceutical firms have continued to grow even with a decelerating return on investment over the last decade. The number of new drugs approved annually increased over the same period.

Conditions are shaping up for major M&A activity in 2023 with record firepower[1] per EY and a wealth of targets for 2023. The biopharma industry alone holds over $1.4 trillion in firepower: an 11% increase on 2021, and the highest level recorded. Per EY,[2] "Political, economic and regulatory uncertainties are affecting the industry's deal appetite but falling valuations and declining IPO and SPAC markets are creating a 'buyer's market,' which will prompt the big players to invest in deals."

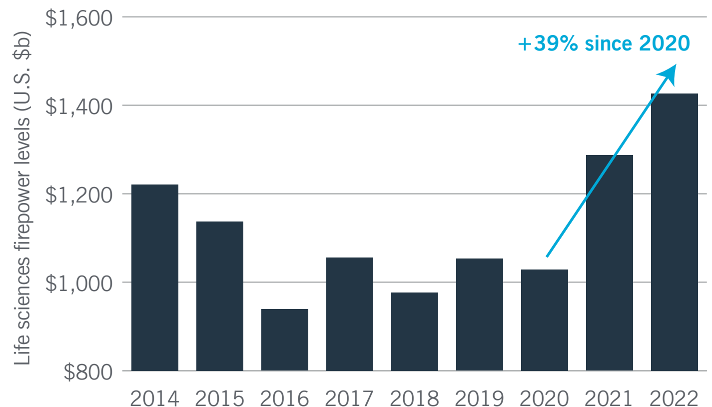
Figure 7: Large biopharma share prices generally holding up much better than smaller biotechs



Source: TIKR, as of January 27, 2023

Note: Large cap biopharma index compiled by Nuveen Real Estate Research and is weighted by market capitalization.

Figure 8: Major M&A activity expected in 2023



Source: EY 2023 Life Sciences M&A Firepower Report

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This patent cliff is expected to be a major driver of laboratory demand for years to come. For example, the top 10 pharmaceutical companies have 46% of their revenue at risk by 2030 due to these patent cliffs, with Bristol Myers Squibb, Pfizer, and Merck having the most exposure. Large pharma will have to replenish the R&D pipeline through M&A and/or organic growth.

FUNDAMENTALS REMAIN STRONG, BUT WAVES OF NEW SUPPLY WILL TEST THE MARKET IN 2023

Though market conditions slowed as 2022 progressed, fundamentals remain quite healthy with low vacancy, strong funding and tenant demand that remains above historical norms. Projections have been tempered for the near-term growth outlook. However, strong demand tailwinds should propel this sector forward over the long-term.

Today's vacancies remain exceptionally low across most markets but there is a large wave of supply set to deliver in 2023. It is important to note that 77% of the supply is underway in the big three lab markets of Boston/Cambridge, the San Francisco Bay Area and San Diego. CBRE reports an average lab rent of $62.16 per square foot triple net nationally as of the fourth quarter of 2022.

Lab deliveries should peak in 2023 as projects that broke ground while interest rates were still low continue to deliver. The substantial increased cost of debt has slowed new projects from moving forward, which will help keep fundamentals strong over the mid- to long-term.

Tenant requirements in the market (i.e., demand) per CBRE pulled back over the second half of 2022 but remained strong from a historical point of view. While the supply/demand balance is tilted towards tenants in the big three markets with 2.3 sq. ft. of demand for every 5 sq. ft. under construction and available, the balance continues to favor landlords

Figure 9: Laboratory market fundamentals

Market	Inventory (SF)	Vacancy	Avg. Asking Rents (NNN)	Total Tenant Requirements (SF)	Under Construction (SF of Lab/R&D)	Under Construction % of Inventory	Pre-Leased (% of Under Construction)
Boston/ Cambridge	52,705,067	3.0%	$99.02	3,019,000	15,297,894	29.0%	37.1%
San Francisco Bay Area	33,753,018	6.3%	$71.64	5,555,000	9,255,050	27.4%	14.0%
San Diego	23,890,097	4.4%	$75.96	980,000	5,370,000	22.5%	30.1%
Big 3 U.S. Lab Markets	**110,348,182**	**4.3%**	**$85.65**	**9,554,000**	**29,922,944**	**27.1%**	**28.7%**
New Jersey	15,835,871	7.4%	$32.00	440,000	0	0.0%	0.0%
Washington, D.C./Baltimore	12,620,167	1.7%	$42.35	821,500	1,453,287	11.5%	51.9%
Raleigh/Durham	9,025,516	7.6%	$38.50	950,000	688,628	7.6%	16.4%
Philadelphia	9,665,840	10.1%	$46.32	1,878,000	2,767,460	28.6%	35.2%
Seattle	9,257,340	8.9%	$44.74	325,000	1,655,700	17.9%	30.1%
Los Angeles	5,624,236	11.2%	$54.00	950,500	681,170	12.1%	0.0%
Denver/Boulder	3,040,541	5.6%	$60.00	960,000	931,046	30.6%	64.8%
New York City	2,695,667	7.7%	$108.47	1,360,000	866,013	32.1%	0.0%
Other Markets	**67,765,178**	**7.2%**	**$44.70**	**7,685,000**	**9,043,304**	**13.3%**	**32.5%**
Overall	**178,113,360**	**5.4%**	**$62.16**	**17,239,000**	**38,966,248**	**21.9%**	**28.8%**

Source: CBRE, as of the fourth quarter of 2022
Note: Market segmentation by Nuveen Real Estate Research

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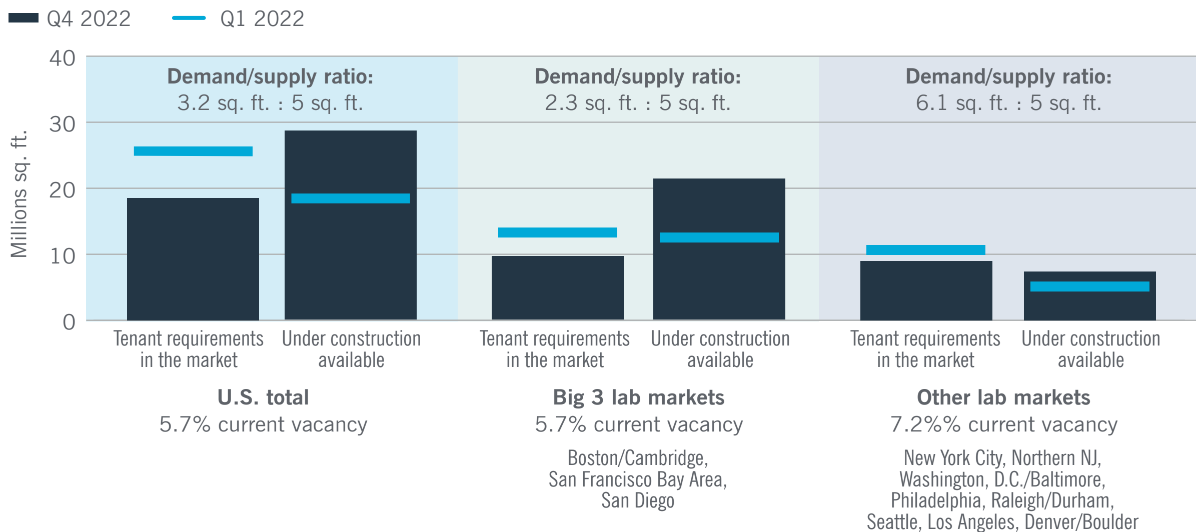
in the next tier of lab markets where there are 6.1 sq. ft. of active requirements for every 5 sq. ft. of lab supply and available in these markets.

While there is no denying that the U.S. lab market is seeing an unprecedented level of new supply underway presently, the laboratory market remains a small fraction of the other major property types. The estimated 180 million sq. ft. of existing lab space nationally is about the same size of the Denver office market, which is only the 15th largest U.S. office market.

Tighter capital markets have increased the cost of debt. Stricter lending standards are leading to less new supply breaking ground over the past few months and that should continue through at least the first half of 2023. A respite from continued development should aid market fundamentals in absorbing this wave of supply delivering over the next 12 to 18 months.

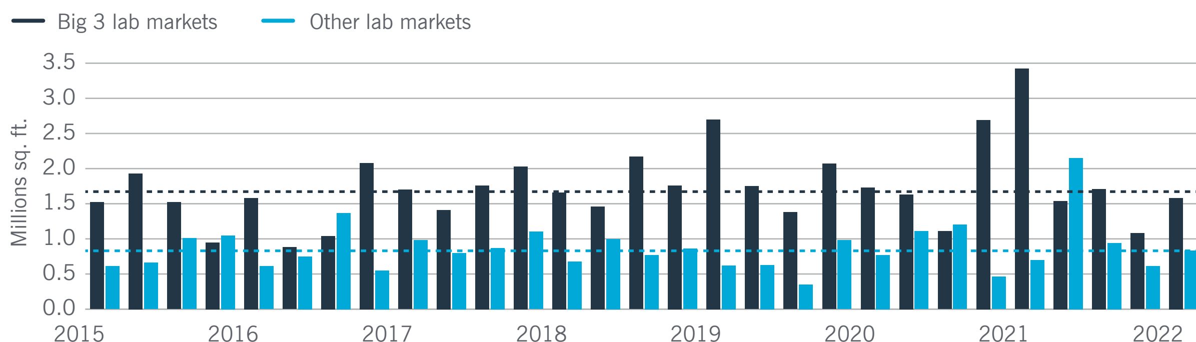
As for the near-term outlook, should all the currently available space underway deliver with no additional new demand beyond the current tenant requirements in the market, the national vacancy rate would rise to 9.1% from its current 5.4%. Secondary lab markets look particularly attractive as vacancy would potentially fall to 4.3% from the

Figure 10: Lab supply and demand by market tier



Source: CBRE, Nuveen Real Estate Research, as of the fourth quarter of 2022

Figure 11: Quarterly leasing activity



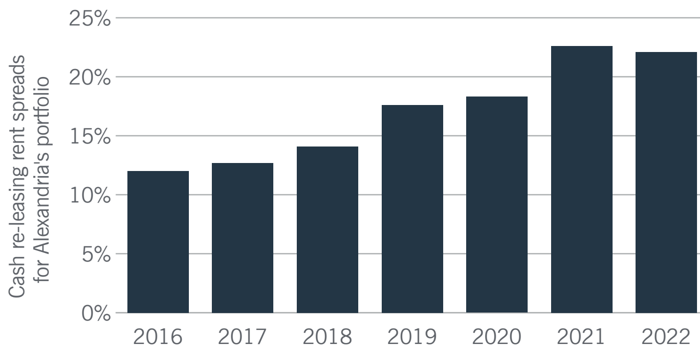
Source: Source: CoStar Group, Inc., Nuveen Real Estate Research, as of the fourth quarter of 2022

Note: The Big 3 Lab Markets include Boston/Cambridge, the San Francisco Bay Area, and San Diego. Other lab markets include New York City, Northern New Jersey, Philadelphia, Washington, D.C./Baltimore, Raleigh/Durham, Denver/Boulder, Seattle, and Los Angeles/Orange County.

current 7.2%. Whereas vacancy would rise from 4.3% to 11.8% in the big three markets given the current supply/demand imbalance.

After setting records a year ago for leasing activity, more recently, the market appears to have stabilized at historically normal levels in both the primary and secondary lab markets. While individual firms have announced layoffs totalling more than 7,400 jobs in 2022 according to Challenger, Gray, & Christmas, the U.S. life sciences sector added nearly 50,000 net new jobs last year, per the Bureau of Labor Statistics.

Figure 12: Cash re-leasing rent spreads remain strongly positive



Source: Alexandria Real Estate Equities (NYSE: ARE) fourth quarter 2022 supplemental report

Per CBRE, rents have grown by 40% cumulatively over the past two years. Extraordinary rent growth and single-digit vacancy should provide ample support for strongly positive leasing spreads into 2023 and beyond. Using Alexandria Real Estate Equities, the largest U.S. lab landlord with control of one-sixth of the inventory, as a proxy for lab re-leasing rent spreads, lab properties have consistently achieved leasing spreads in the teens and more recently have accelerated into the low-20s percentage range.

INVESTING IN LIFE SCIENCES REAL ESTATE REMAINS A COMPELLING OPPORTUNITY

In the mid- to long-term, several key factors continue to favor the life sciences sector, namely jobs, demographics, and funding. The many years of strong lab rent growth have led to not only wide leasing spreads for existing lab buildings but even wider spreads when compared against in-place rents for target flex/R&D and office conversions. From a capital markets standpoint, the pricing reset occurring across commercial real estate sectors including life sciences presents an opportunity for current buyers given a more favorable cost basis on future vintages versus the recent past.

For more information, please visit our website, nuveen.com/realestate

Endnotes

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