

Commercial Lab Space for Life Sciences Companies

Market ecosystem scores and industry outlook

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This analyst note is an excerpt from PitchBook's [H1 2020 Real Assets Report](#), originally published on September 1, 2020.

Key takeaways

- **Demand for commercial lab space has skyrocketed over the last several years as more and more life sciences startups are in receipt of VC funding.** Our data indicates that VC deal activity in the life sciences sector is tracking to reach a record high with over \$15 billion in venture financing so far in H1 2020. Life sciences IPOs in the US have also raised a record \$7 billion in H1. Strong investor sentiment toward the life sciences sector has fueled growing demand for commercial lab space.
- **The pandemic has placed a premium on scientific and medical lab space.** Data from Cushman & Wakefield shows that vacancy rates are consistency lower for commercial lab space versus traditional office space in established life sciences ecosystems such as Boston (0.7% vs. 9.2%), San Diego (8.6% vs. 12.9%), and the Bay Area (6.6% vs. 9.4%). The average purchase price per square foot of commercial lab space is also significantly higher than traditional office space in cities like Boston (\$750 vs. \$515) and San Diego (\$486 vs. \$300).
- **In this report, we devised a methodology to calculate “Market Ecosystem Scores”—a scoring system ranking the top 15 US MSAs in the life sciences space based on relative maturity, growth, and industry importance.** We have identified four main market segments: 1) market leaders, 2) established markets, 3) emerging markets, and 4) frontier markets. Key metrics such as VC financings, NIH grant funding, industry growth rates, and labor statistics data were correlated with life sciences real estate square footage to identify these markets. Investors can utilize these scores to determine where future outcroppings of life sciences investments are likely to occur.
- **The life sciences industry continues to remain steadfast during the COVID-19 pandemic.** Renewed focus on healthcare and drug development, combined with the need for biopharma R&D programs to be conducted on-site, has propelled the commercial lab space opportunity within the office property sector as a flight to quality for investors.

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Introduction

The demand for dedicated commercial lab space has exploded over the last several years as well-financed life sciences (largely biotechnology and pharmaceutical) companies look to expand their physical footprint. According to Cushman & Wakefield data, the top 12 US metropolitan statistical areas (MSAs) of the rapidly expanding life sciences market total 154.0 million square feet of lab space, representing 8.8% of the total 1.8 billion square feet of traditional office inventory in these MSAs.¹ Leasing activity for lab space has shown tremendous growth with consistently lower vacancy rates and higher asking rents when compared to the traditional office market.² As the life sciences industry continues to see record levels of corporate R&D spend,³ public and private research capital,⁴ and employment,⁵ the necessity for building and outfitting dedicated lab space has increased.

Commercial lab space for life sciences companies

Given companies' need for specialized HVAC systems and other high-cost capital expenditures such as biosafety cabinets and microscopes, specialized real estate developers and investors including Alexandria Real Estate Equities (NYSE: ARE), Blackstone's (NYSE: BX) BioMed Realty, and Longfellow Real Estate Partners have become dominant players, essentially cornering the market for a key segment of the life sciences company lifecycle: lab space and infrastructure. Aside from providing commercial lab space for life sciences tenants, notable direct investments from these key players include Alexandria's involvement in Silverback Therapeutics' \$78.5 million Series B round in March 2020 and BioMed's involvement in Compass Therapeutics' \$132.0 million Series A round back in July 2018.

Considering the majority of privately held life sciences companies are pre-revenue, these companies have largely been insulated from many of the macroeconomic headwinds brought on by COVID-19 and broader market volatility in H1 2020. In addition, several young companies, such as Moderna (NASDAQ: MRNA) and Novavax (NASDAQ: NVAX), have attracted attention as the race to develop a vaccine continues. VC funding for life sciences startups has not waned in H1, with deal value tracking to set a record high and median pre-money valuations for early- and late-stage VC deals in the biotech & pharma sector actually increasing over 2019. The public markets have also been highly favorable as H1 2020 notched a record \$7 billion raised by life sciences IPOs in the US. Overall market performance has been strong as well, with the NASDAQ Biotechnology Index (^NBI) up 15.7% in H1 2020 against -4.2% for the S&P 500. During a time in which retail- and hospitality-related real estate has suffered, the global pandemic has placed a premium on scientific and medical lab space, as evidenced by Alexandria's outperformance of its office peers (+1.0% vs. -26.0% through

1: "Life Sciences 2020: The Future Is Here," Cushman & Wakefield, Revathi Greenwood, Kenneth McCarthy, and Sandy Romero, 2020.

2: Ibid

3: "What the Top Innovators Get Right," Strategy+Business, Barry Jaruzelski, Robert Chwalik, and Brad Goehle, Winter 2018.

4: "Life Sciences 2020: The Future Is Here," op cit.

5: US Bureau of Labor Statistics

H1, respectively). Vacancy rates are consistently lower for commercial lab space versus traditional office space in established life sciences ecosystems such as Boston (0.7% vs. 9.2%), San Diego (8.6% vs. 12.9%), and the Bay Area (6.6% vs. 9.4%).⁶ The average purchase price per square foot of commercial lab space is also significantly higher than traditional office space in cities like Boston (\$750 vs. \$515) and San Diego (\$486 vs. \$300).⁷

Sophisticated life science landlords often use a two-tiered business model—charging rent based on square footage and equipment needs on the one hand while also taking a small equity stake in tenants. The large upfront cost of building a dedicated lab space is justified by known operating costs and strong future rent-based revenues. Also, the high barrier to entry—steep costs and hidden complexities involved with building and managing space that has lab-grade ventilation, plumbing, and gas delivery systems—has been a notable financial moat for these companies.

Life sciences companies in receipt of VC funding act as a potential leading indicator to which landlords should pay attention. These startups tend to grow fast and attract highly educated employees, and they will likely be expanding their commercial lab footprint in the coming years. Life sciences VC deal activity totaled \$15.9 billion across 844 deals in H1 2020, with YTD deal value on pace for a record-setting year. This boost in VC deal activity has exacerbated the downstream need for adequate lab space. According to CBRE data, investments in commercial life sciences facilities totaled an average of \$6.5 billion per year from 2014-2019.⁸ We anticipate this figure will continue to grow as biotech tenants increase in number, particularly as commercial real estate development takes years and can lag the fast-paced growth exhibited by biotech companies. The fundamental strength of the sector during the pandemic is evidenced by net absorption remaining positive through H1 2020 in Boston, despite the slowdown in the broader office market.⁹

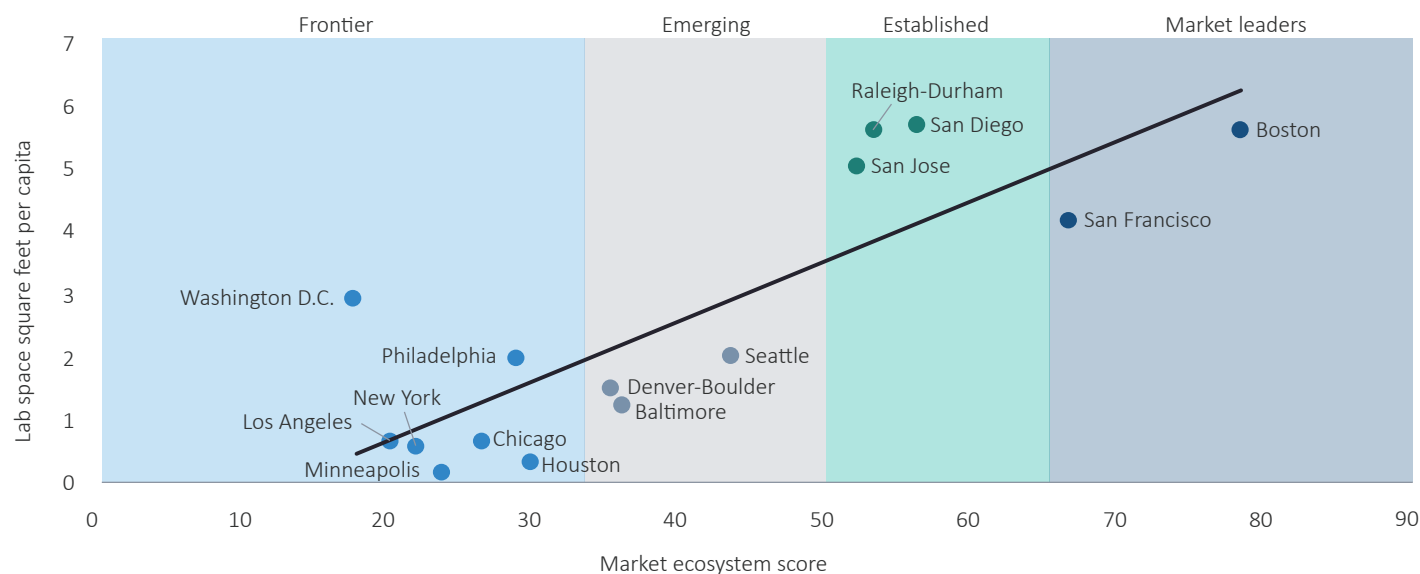
6: "Life Sciences: COVID-19 Report," Cushman & Wakefield, Kenneth McCarthy, June 6, 2020.

7: Ibid

8: "Stability Amid Uncertainty: 2020 U.S. Real Estate Market Outlook, CBRE, 2019.

9: "Strong Fundamentals Persist Despite Covid-19," Newmark knight Frank, 2020.

Life sciences market ecosystem scores versus lab space per capita



Source: PitchBook, JLL, Cushman & Wakefield, BLS, Newmark Knight Frank | Geography: US

PitchBook's market ecosystem scores

As real estate investors navigate this niche sector, we have created the Market Ecosystem Scores, a scoring system to rank the top 15 US MSAs in the life sciences space based on relative maturity, growth, and importance of the industry. Investors can use this framework to identify potential hotspots and outcroppings of markets experiencing, or poised to experience, outsized growth. Similarly, investors in tangential property sectors—namely, retail and residential—are more likely to see financial upside by positioning investments near these ecosystems, which provide exposure to high-skilled, high-income workers who are less likely to transition to a long-term work-from-home lifestyle than traditional office employees.

Unsurprisingly, our framework places the Boston and San Francisco MSAs in first and second place, with Market Ecosystem Scores of 78.4 and 66.6, respectively. Given the high levels of VC deal activity and outsized levels of lab inventory square footage, these two MSAs top the list with the highest maturity scores. When coupled with strong momentum trends and high VC density,¹⁰ they represent the highest overall Market Ecosystem Scores and affirm their place as market-leader ecosystems. Furthermore, the framework places Raleigh-Durham, San Diego, and San Jose into the “established” market bucket given the high amount of VC deal activity and established investor base providing steady funding for these hubs. These MSAs come in ahead of the “emerging” markets of Seattle, Baltimore, and Denver-Boulder which all have exhibited high growth recently, but lack the same level of institutional maturity and industry importance.

10: VC activity (\$ and #) per capita

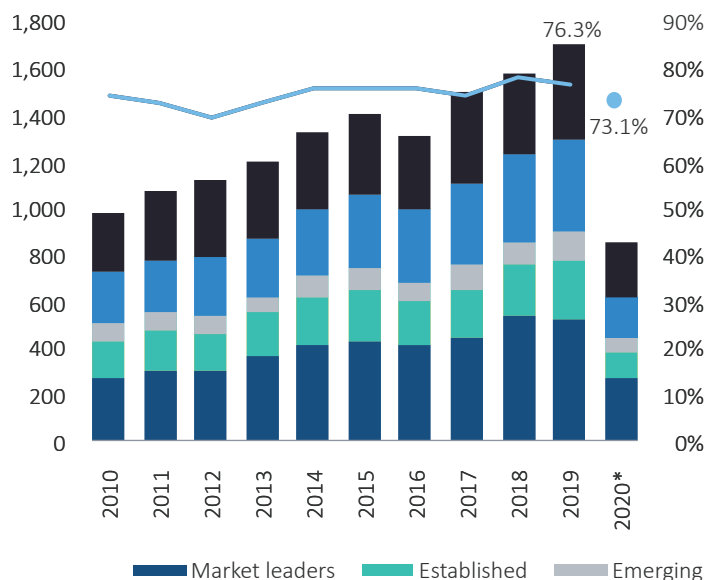
Our methodology also identified six up-and-coming “frontier” ecosystems: the New York, Minneapolis, Los Angeles, Chicago, Houston, and Washington DC MSAs. These ecosystems generally exhibit modest short-term momentum in VC activity but lack an established infrastructure or high VC density as leading indicators of large-scale commercialized scientific research. For example, the New York and Washington DC metros do not lack lab space real estate, but given the relative dominance of finance and government, as well as low per capita VC activity in life science, these two MSAs rank lower on our relative market rankings.

Life sciences market ecosystem scores

MSA	2016-2020 VC activity (#)	2016-2020 VC activity (\$B)	2019 lab space (million sq. feet)	2019 NIH Funding (\$B)	Maturity score (35%)	Growth score (35%)	Industry importance score (30%)	Market ecosystem score
Boston	1,054	\$24.5	27.3	\$3.0	78.8	69.1	89.0	78.5
San Francisco	1,135	\$24.8	19.8	\$1.4	60.1	61.7	79.9	66.6
San Diego	465	\$7.4	19.0	\$1.0	58.5	58.3	51.7	56.4
Raleigh-Durham*	176	\$1.6	11.4	\$1.5	67.7	42.3	49.2	53.3
San Jose	318	\$4.6	10.0	\$0.6	60.4	41.3	55.5	52.3
Seattle	217	\$2.9	8.0	\$1.2	34.0	75.3	17.7	43.6
Baltimore	87	\$0.4	3.5	\$1.1	23.0	69.1	13.0	36.1
Denver-Boulder*	168	\$1.1	4.9	\$0.4	20.9	62.3	20.8	35.4
Houston	114	\$0.6	2.2	\$0.8	13.8	68.0	4.4	30.0
Philadelphia	297	\$3.6	12.0	\$1.3	26.0	42.4	16.4	28.9
New York	386	\$4.9	12.8	\$2.8	12.9	59.8	3.7	26.5
Minneapolis	193	\$1.4	0.6	\$0.4	10.9	47.2	11.6	23.8
Chicago	123	\$0.8	5.4	\$1.0	4.0	57.9	1.0	22.0
Los Angeles	346	\$2.5	9.0	\$1.4	16.2	38.5	3.9	20.3
Washington DC	151	\$1.6	18.5	\$1.2	32.0	6.4	14.7	17.8

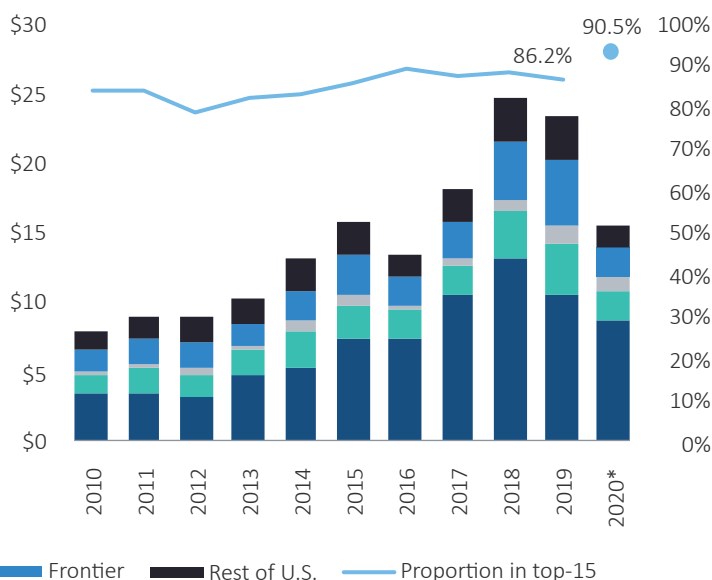
*Raleigh-Durham and Denver-Boulder are combined MSAs

VC deal count (#) in life sciences



Source: PitchBook | Geography: US
*As of June 30, 2020

VC deal value (\$B) in life sciences



Source: PitchBook | Geography: US
*As of June 30, 2020

Outlook

As companies reevaluate their work-from-home policies, the opportunity presented by commercial lab space within the office property sector remains a flight to quality for investors. The ability to work remotely is nearly impossible for scientists and technicians in most life sciences R&D programs, sustaining the need for commercial lab space in many of the top 15 market ecosystems shown above. By using these Market Ecosystem Scores, investors who can identify existing gaps within current ecosystems will be well-positioned to generate financial returns. A deeper dive into this framework will be published in an upcoming analyst note.

Methodology

The PitchBook-derived life sciences market ecosystem scores aim to provide a numerical value on the relative maturity, growth, and importance of the life sciences industry in specific MSAs within the U.S. We begin with a baseline of markets with notable life science footprints and/or at least 100 VC deals in the last five years (2016-2020). Next, we established the three main categories for comparison:

Maturity (35% weight)

1. Total VC activity over the last five years (7.5% overall weight)

2. VC stage ratio compares the proportion of later-stage VC and exit activity versus early and angel & seed activity (7.5% overall weight).

3. Life sciences real estate square footage per capita (10% overall weight)

4. 2019 NIH funding per capita (10% overall weight)

Growth (35% weight)

1. Short-term momentum measures the 1-year growth rate in VC activity (15% overall weight).

2. Longer-term momentum measures the 3-year growth rate in VC activity (10% overall weight).

3. Overall life sciences industry growth measures the 3-year growth rate in total private life sciences and R&D establishments, according to the BLS (10% overall weight).

Industry importance (30% weight)

1. VC density (#) measures the total VC deal count over the last five years divided by the 2019 population (10% overall weight).

2. VC density (\$) measures the total VC deal value over the last five years divided by the 2019 population (10% overall weight).

3. Life sciences establishment location quotient is a figure provided by the BLS measuring the relative number of establishments compared to all establishments in the market. That ratio is then compared to the US's ratio as a whole (10% overall weight).

Each of these individual metrics is used to score each market via Z-scores, rescaled from 1-100. The overall scores are then calculated using the weights above. This provides a metric that is relative to the other markets included in the analysis. With this framework, investors will be able to quickly compare the important life sciences hubs around the US and build trend analysis to identify potential future outperforming markets.