

Start-up Space

Update on Investment in Commercial Space Ventures

2021

- The *Start-Up Space* series examines space investment in the 21st century and analyzes investment trends, focusing on companies that began as angel- and venture capital-backed startups
- The *Start-up Space report* tracks publicly-reported seed, venture, and private equity investment in start-up space ventures as they grow and mature, from 2000 – 2020. Report includes debt financing where applicable to provide a complete picture of the capital available, also highlights merger and acquisition (M&A) and initial public offering (IPO) activity
- *Start-Up Space* seeks to provide insight into the dynamics of this growing space industry segment and the investment driving it
- *Start-up Space* seeks to inform investors, the aerospace industry, and the public about this emerging space ecosystem. It reflects Bryce's ongoing commitment to providing the space community with rigorous analyses of industry dynamics to aid good decision-making in industry, government, and academia



- ✓ Dataset is sourced from a combination of
 - BryceTech databases
 - Company and investor press releases
 - Annual reports, investor materials, and SEC filings
 - Financial newsletters and databases, such as Crunchbase, PitchBook, Owler, and CB Insights
 - Data provided by NewSpace Hub
 - News articles from major media outlets, investment publications, trade press, and business journals
 - Ongoing engagement with industry subject matter experts
- ✓ Where possible, we confirmed the details of each investment using multiple sources. We further validate our data with venture capitalists, private equity investors, investment bankers, industry experts, management teams at space companies, and through targeted interviews
- ✓ The data set includes only publicly reported transactions; it does not include proprietary investment information. In some cases, transaction value, funding round, or investors are undisclosed
- ✓ The data set generally excludes government funding, except for certain grants, such as those provided by the Grand Duchy of Luxembourg. Bryce also includes funding from publicly funded venture capital firms, such as the Central Intelligence Agency's In-Q-Tel

Definition of Start-Up Space Venture

A space company is a business entity that provides space products or services, specifically one that



Manufactures satellites, launch vehicles, or other space-based systems



Manufactures satellite ground equipment



Provides services that rely on these systems, such as satellite TV, radio, broadband, remote sensing, or on-orbit servicing, assembly, and manufacturing services



Provides analytic services based on data collected extensively from space-based systems, either alone or in combination with terrestrial systems

Criterion for a start-up venture is a space firm that has received and reported seed funding or venture capital

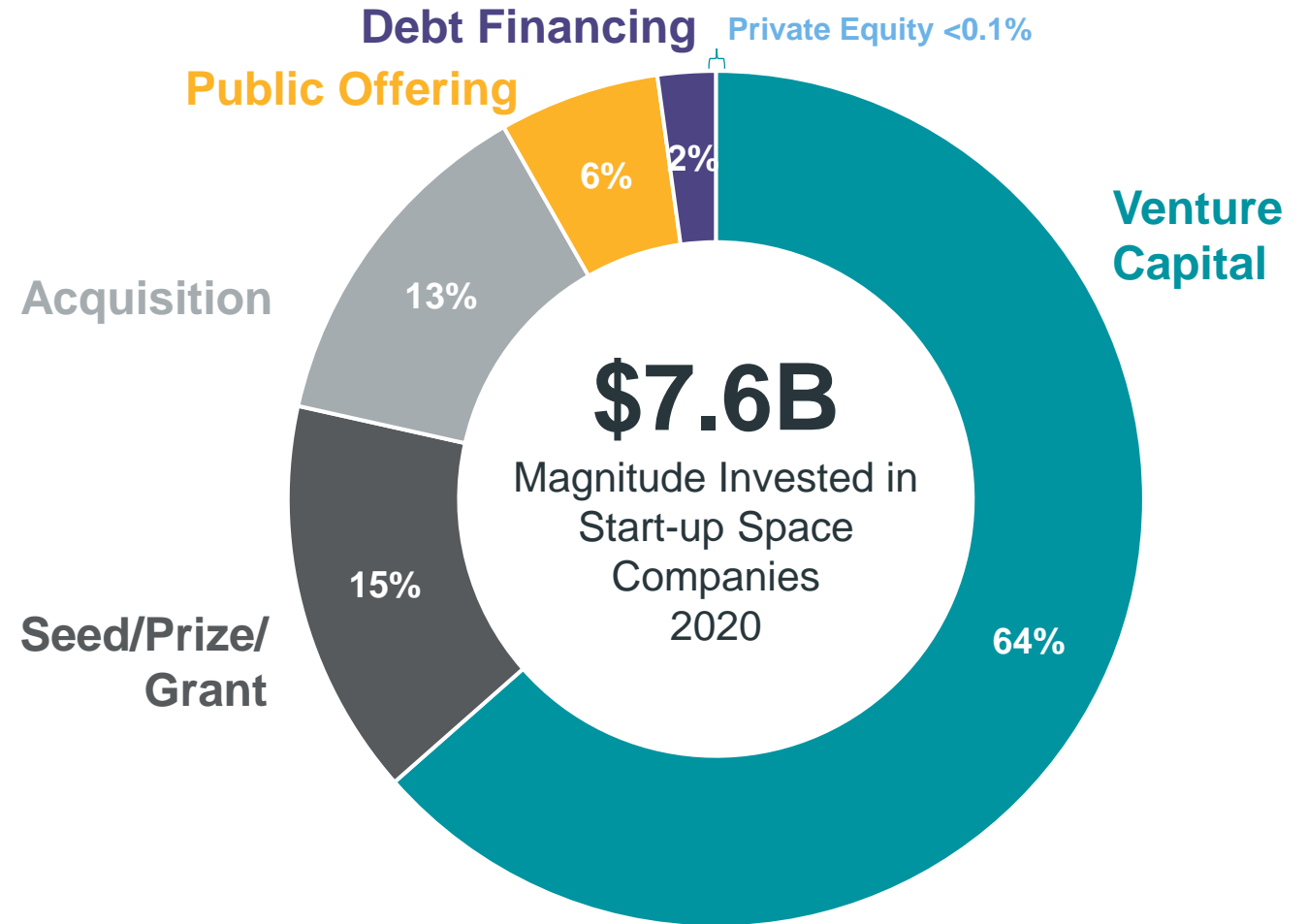
Magnitude Invested in Start-up Space Companies 2020

\$7.6B Magnitude invested in start-up space companies

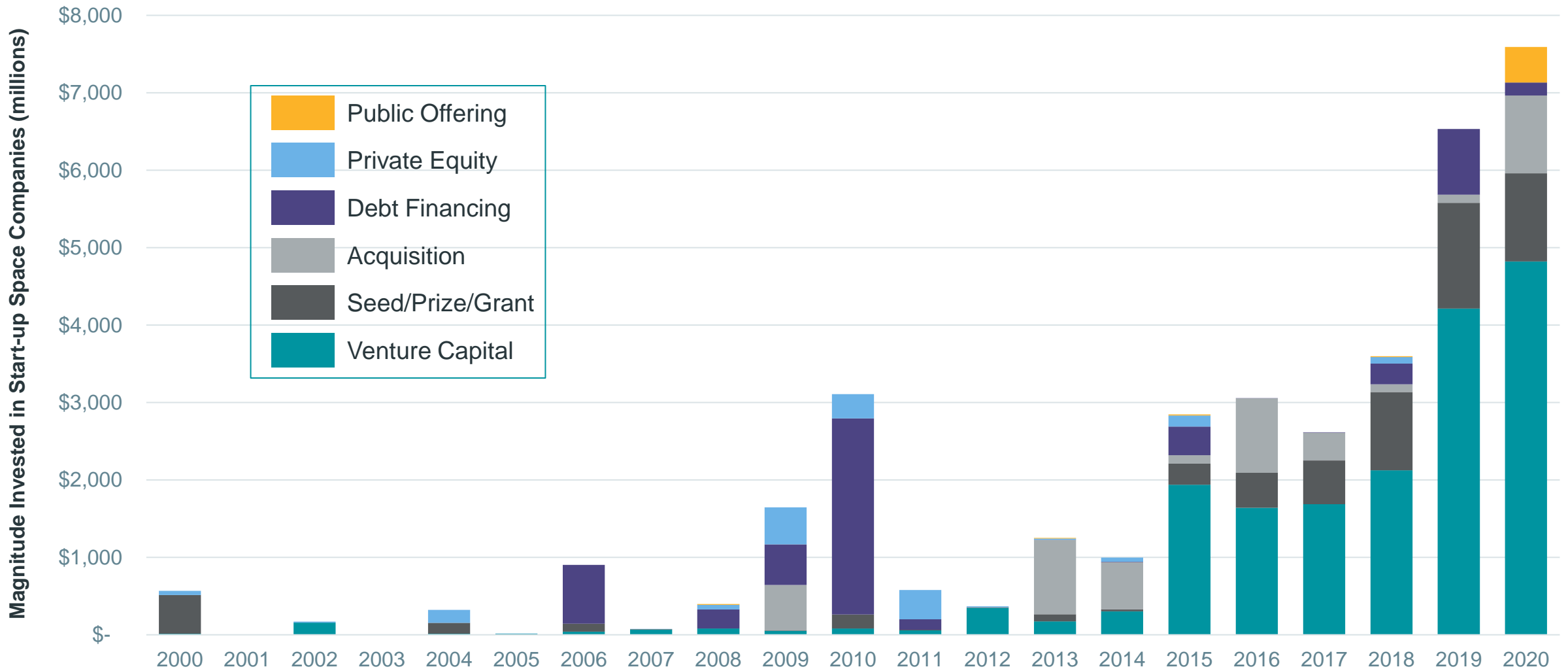
124 Start-up space companies receiving investment

140 Start-up space deals

342 Start-up space investors

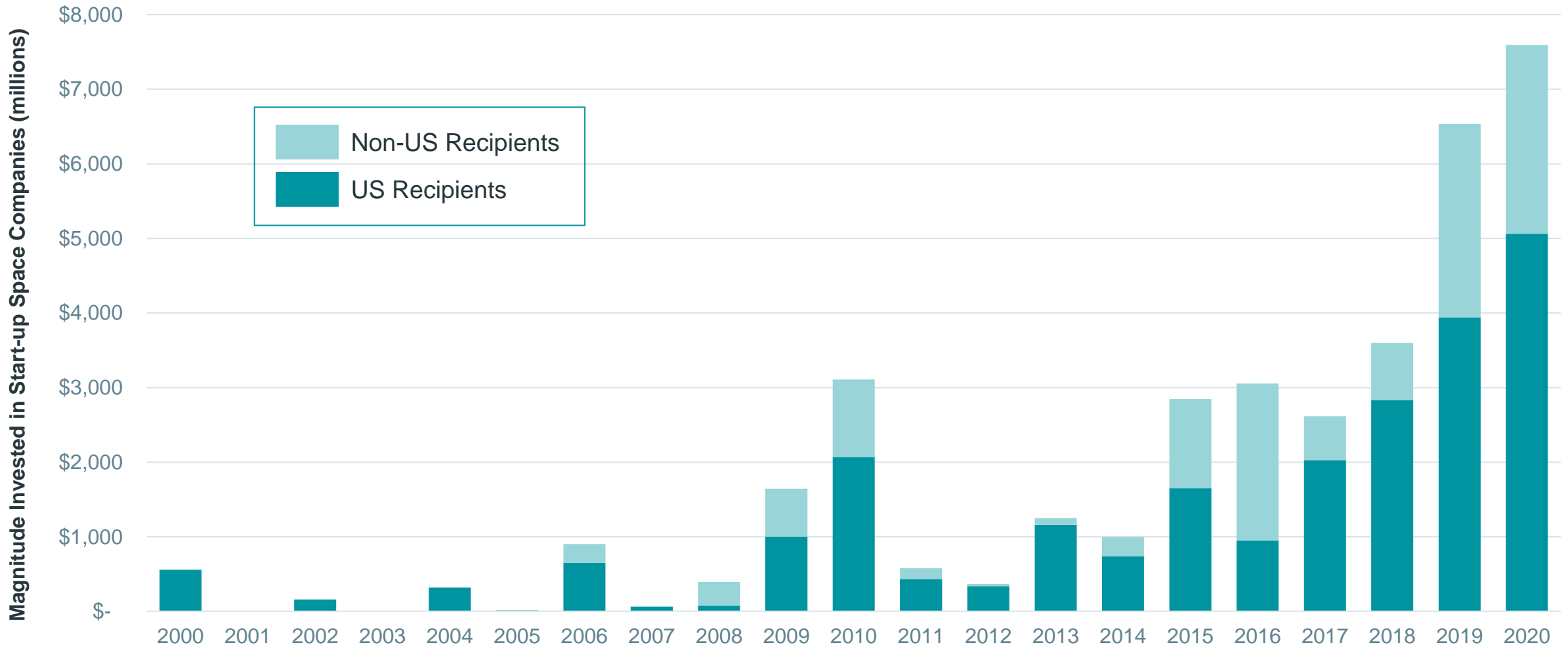


Magnitude Invested in Start-up Space Companies 2000 – 2020



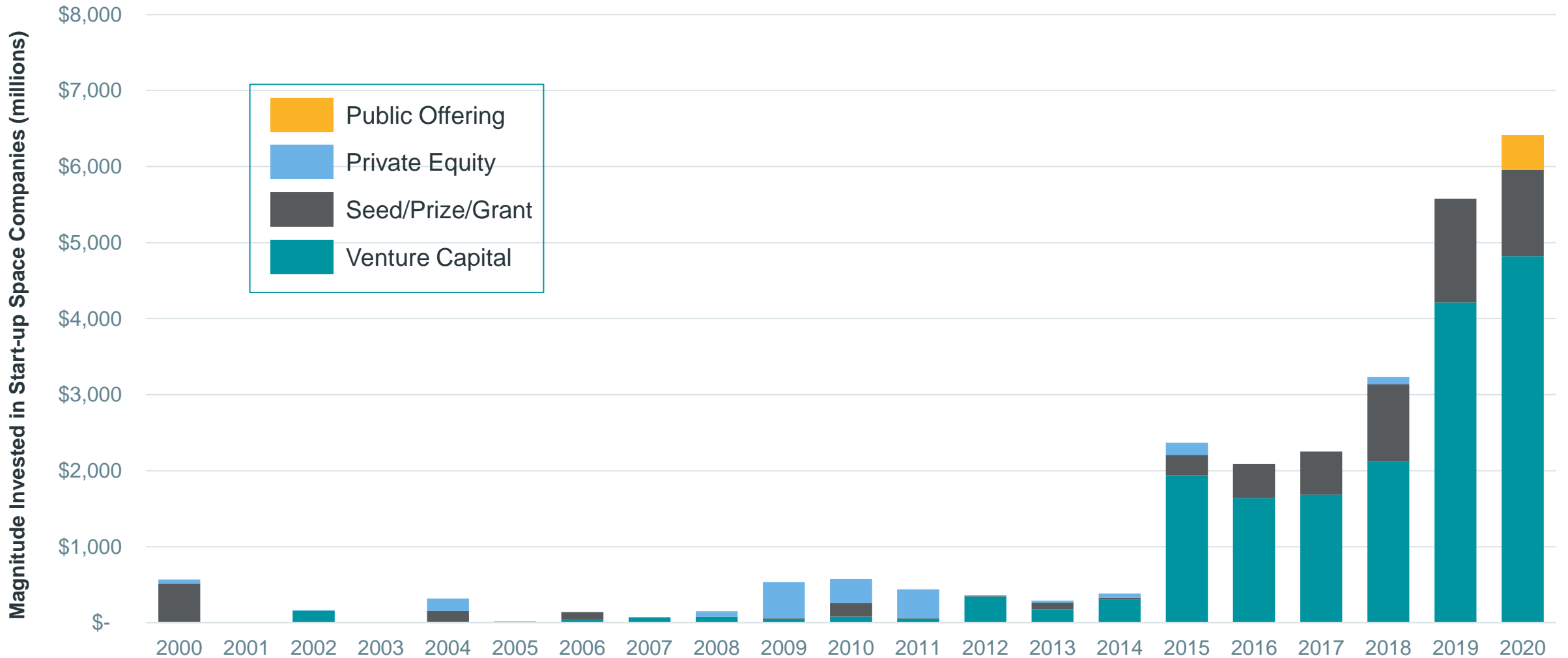
\$36.7B invested in start-up space companies 2000 – 2020, \$26.2B (72%) since 2015

Magnitude Invested in US and Non-US Start-up Space Companies 2000 – 2020



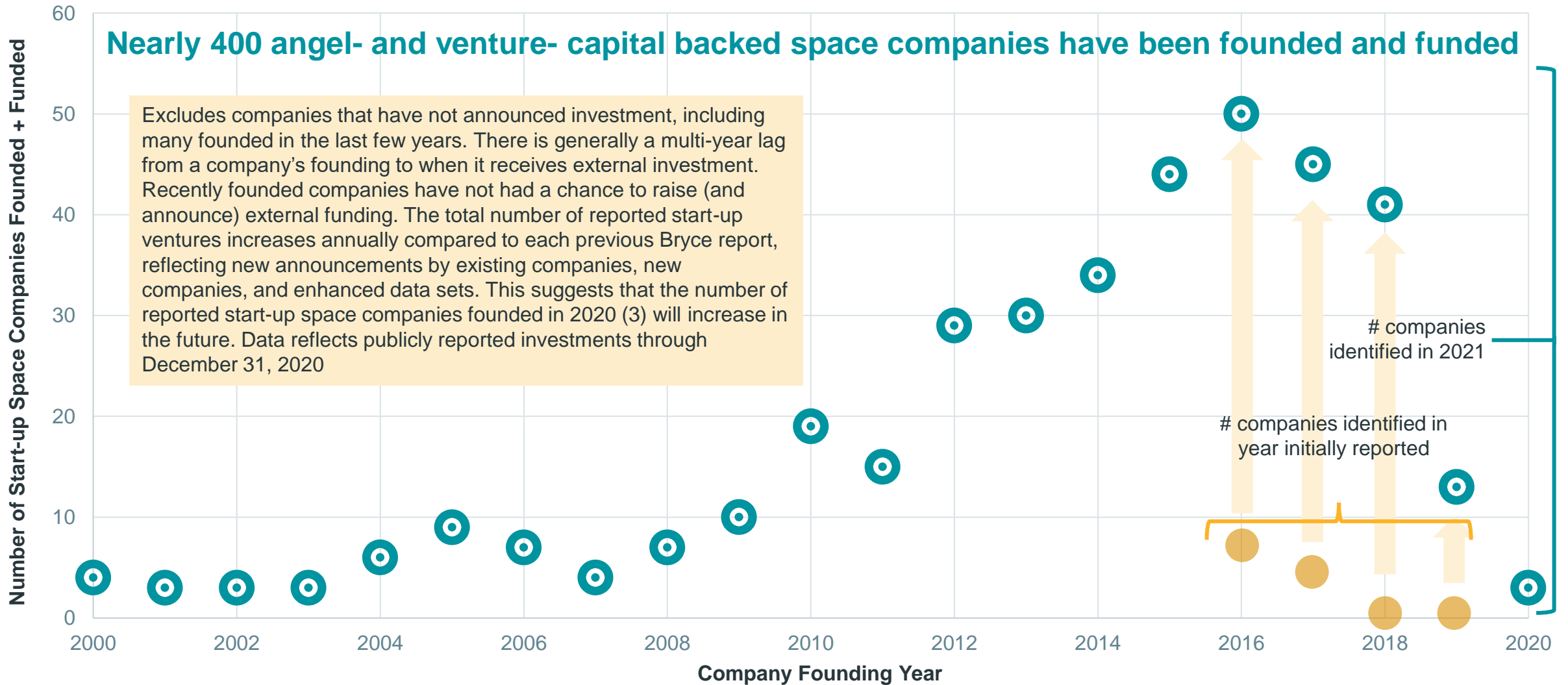
US companies accounted for 67% of investment in 2020

Magnitude Invested in Start-up Space Companies (Excluding Debt Financing and Acquisitions) 2000 – 2020

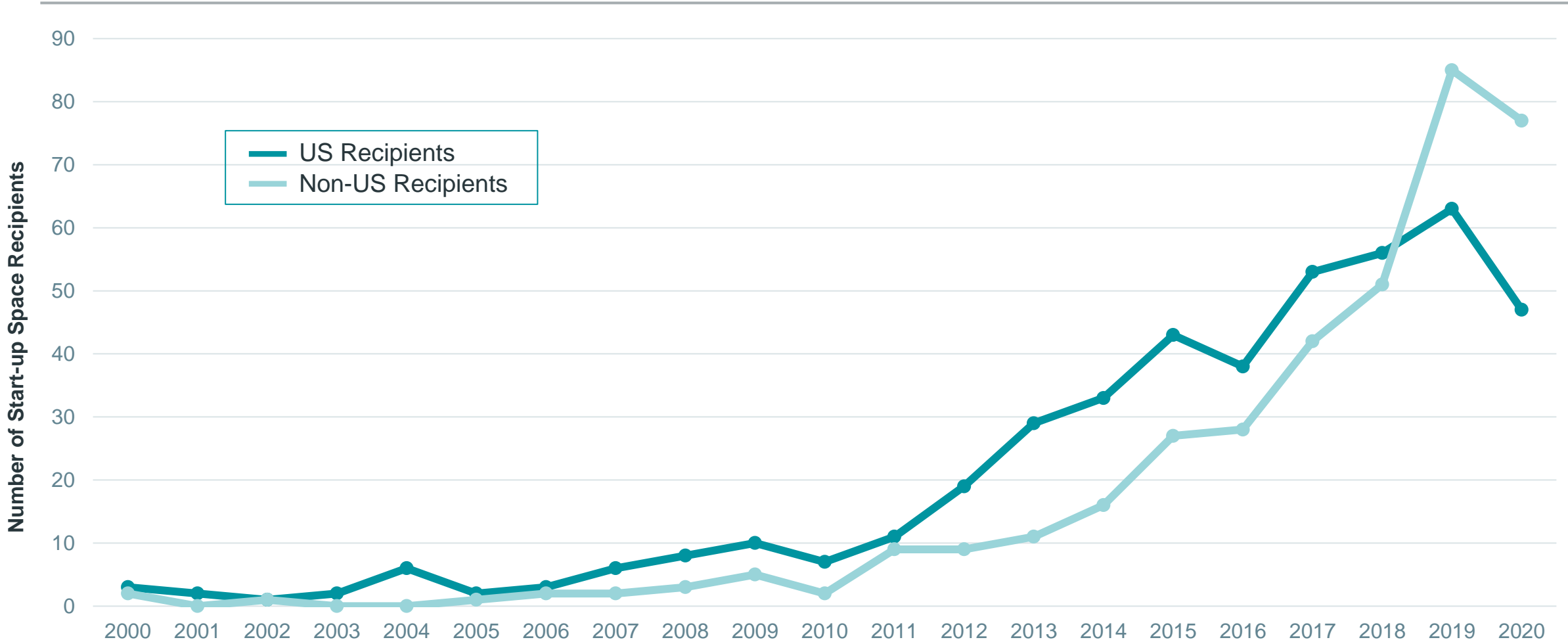


Excluding debt financing + acquisitions, \$26B invested in start-up space companies 2000 – 2020, \$22B (84%) since 2015

Start-up Space Companies Founded + Funded Since 2000

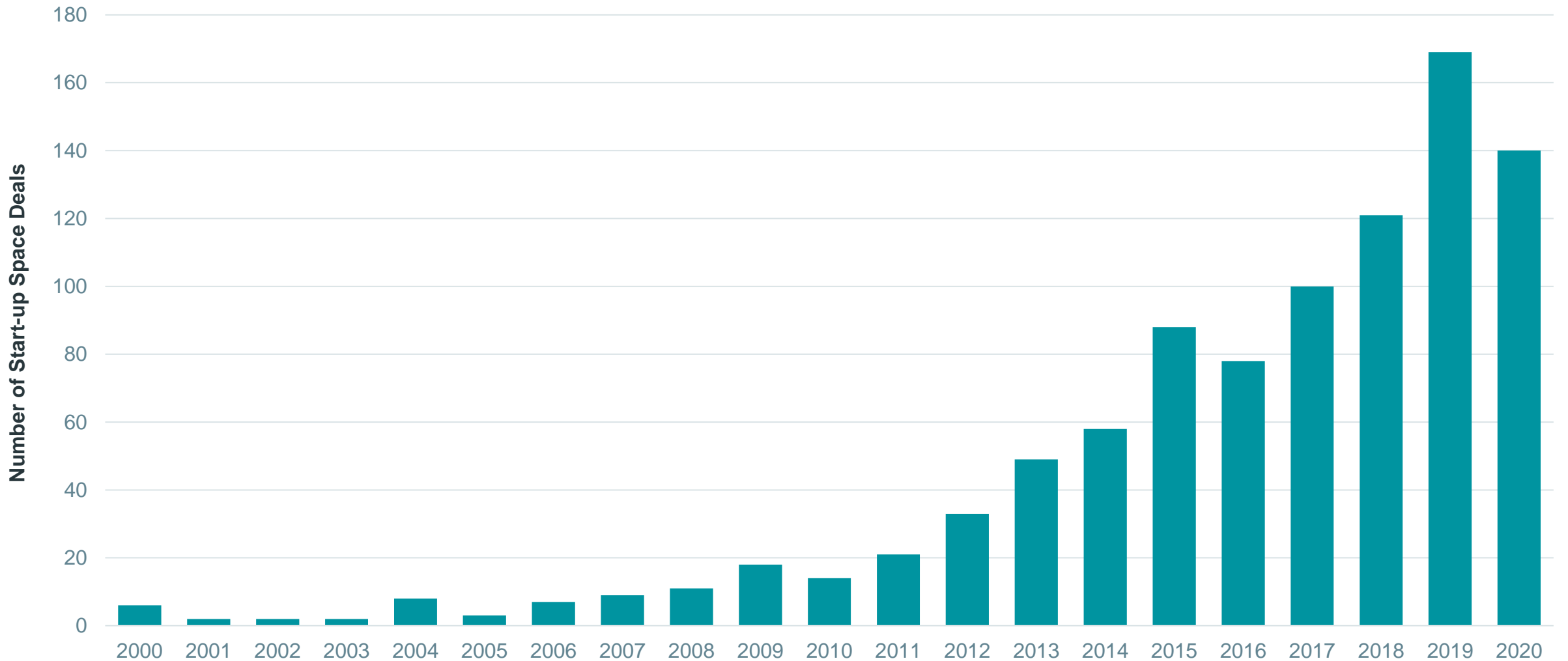


US vs Non-US Start-up Space Recipients 2000 – 2020



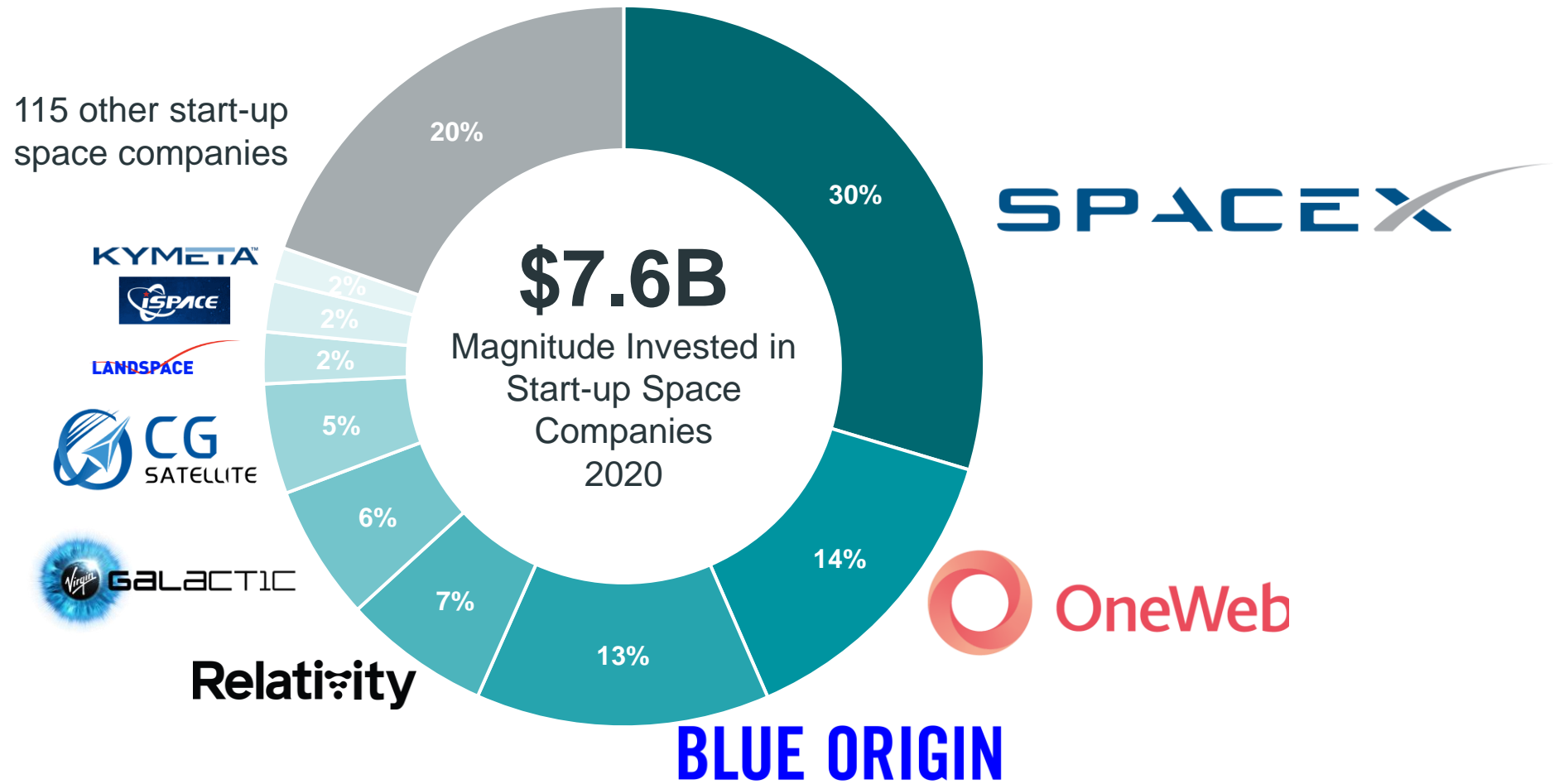
38% of companies receiving investment in 2020 were based in the US

Number of Start-up Space Deals 2000 – 2020



140 start-up space deals in 2020 (169 deals in 2019)

Start-up Space Companies by Magnitude of 2020 Investment



9 companies accounted for 80% of start-up space investment in 2020, 3 companies accounted for nearly 60%

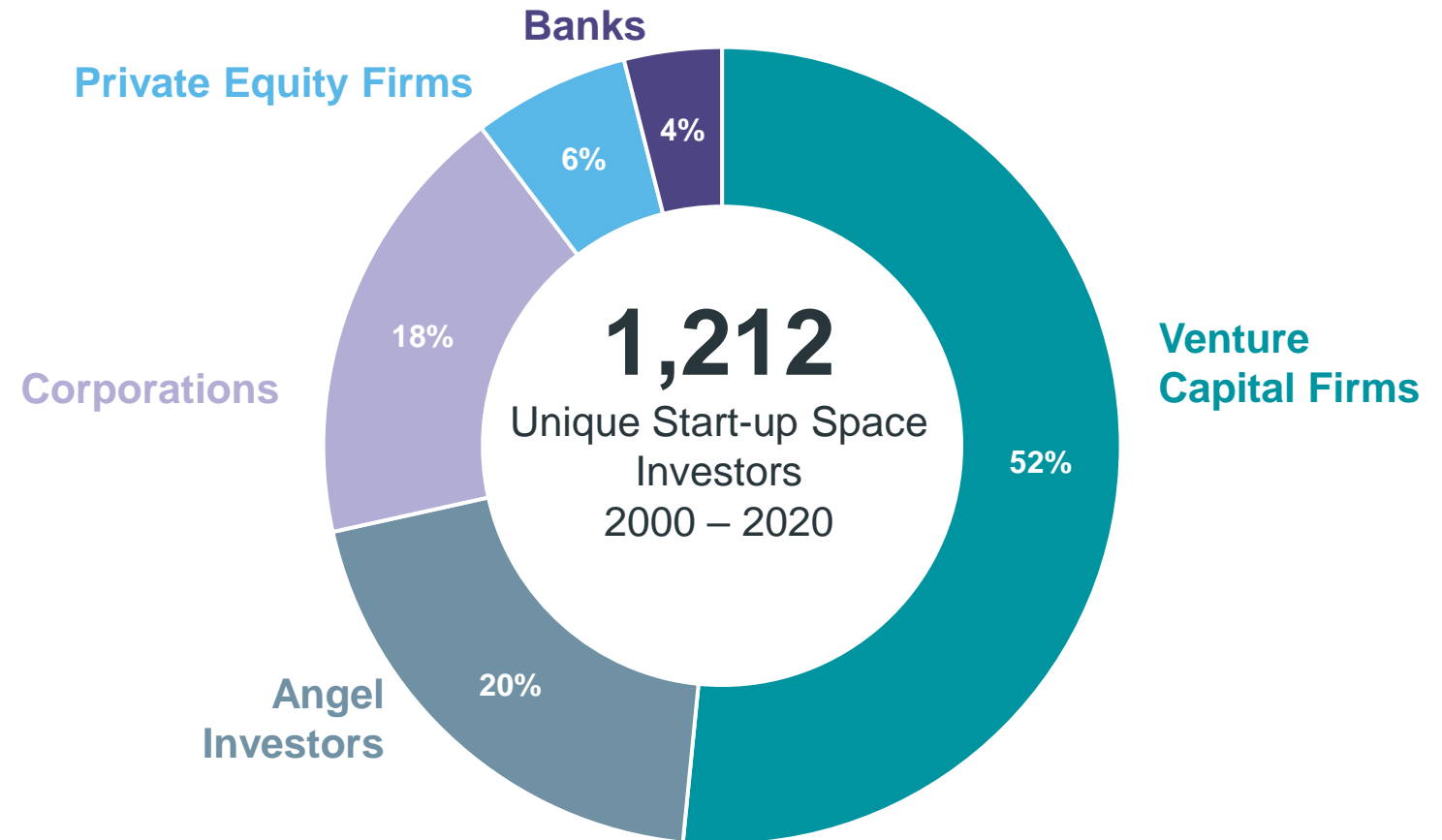
Types of Space Investor



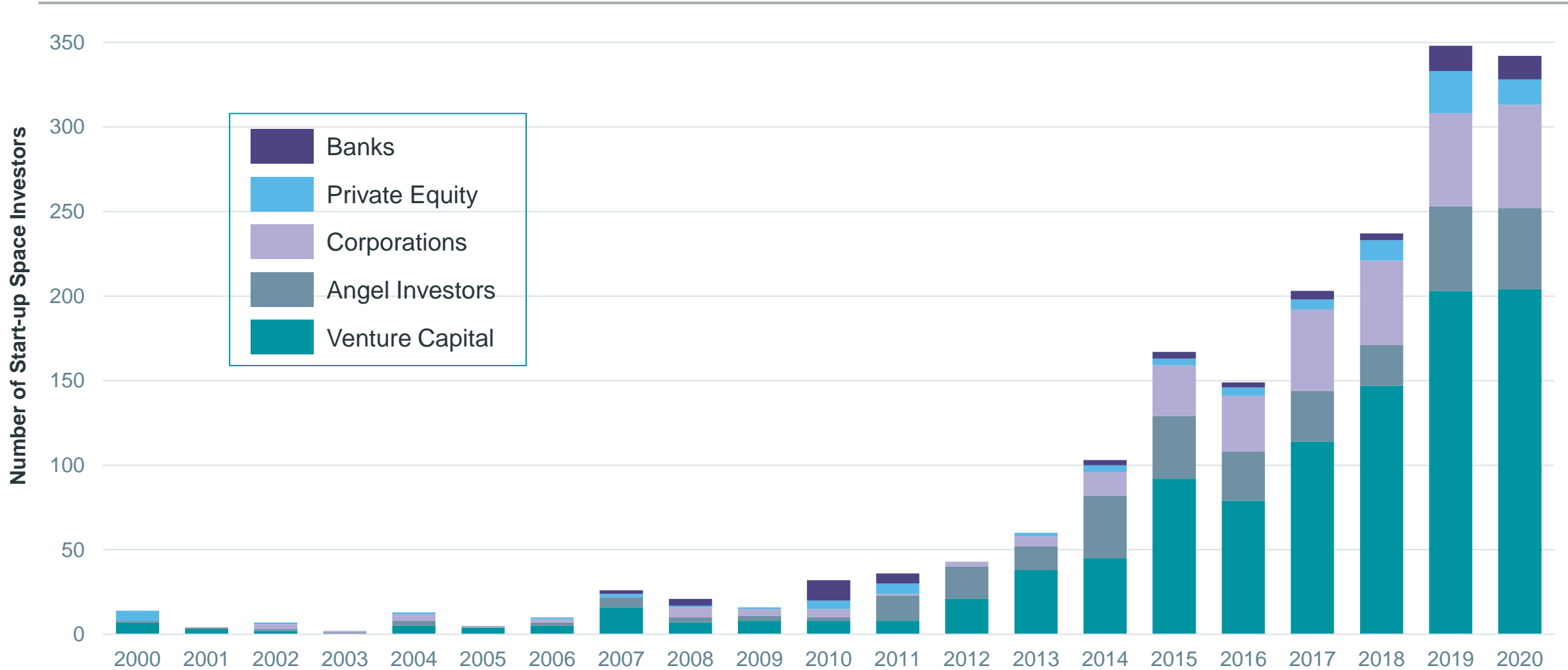
Type of Investor	Characterization of Investor	Typical Space Investment	Investment Type	Examples of Transactions	Expected Returns/ Exit Horizons
Angel Investors	High net worth individuals, families, or groups of angels	\$50K – \$1M	Equity	York Space Systems with \$250K of angel investment from Dylan Taylor in 2015	5-10X investment/5-7 years
Venture Capital Firms	Groups of investors focusing on early stage, high growth ventures and accepting a significant degree of risk	\$2M – \$75M	Equity preferred stock in several tranches (e.g., Series A, B, C)	Kymeta with \$333M of venture capital from multiple (2012–present)	5X investment/5 years
Private Equity Firms	Large investment houses that have multi-billion dollar investment funds—focus on established companies	\$100M – \$1B	Equity	Virgin Galactic with \$490M of investment from Aabar Investments (2009 and 2011)	3-5X investment/3-5 years
Corporations	Large companies providing strategic investments to support large CapEx space projects Internal R&D for special projects Independent R&D as government contractor Merger and acquisition Venture investing	\$100M – \$1B	Equity and sometimes debt	OneWeb with \$4.4B of investment from SoftBank, Airbus, Intelsat, and other corporations (2015 – 2020)	Significantly less returns than for PE firms/horizon is over a long term
Banks	Private and governmentbacked banks providing substantial debt financing layered over equity	\$100M – \$1B	Debt, sometimes convertible into equity	O3b with \$184M of debt financing from COFACE in 2015	Straightline interest rates (e.g., 5–10%)
Public Markets	Independent R&D as government contractor	\$100M – \$1B	Equity	Iridium raising \$170M in an IPO	Serves as a vehicle to allow the earlier investors to exit

Investors in Start-up Space Companies 2000 – 2020

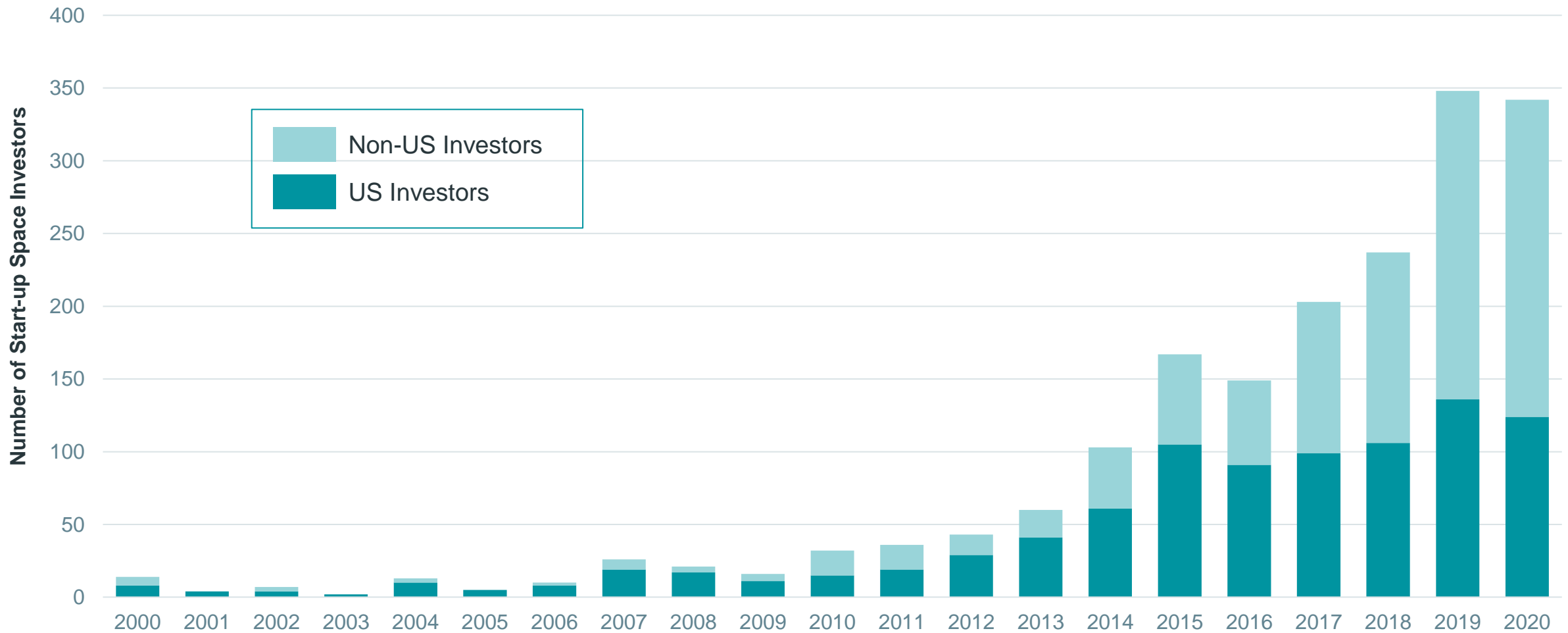
- ✓ 1,212 investors invested in start-up space companies 2000 – 2020
- ✓ In 2020, 342 investors invested in 124 start-up space companies across 140 deals
- ✓ New investors continue to enter the ecosystem. 211 investors invested in start-up space ventures for the first time in 2020
 - 117 venture capital firms
 - 29 angel investors
 - 38 corporations
- ✓ Investors from the United States accounted for 44% of all investors (36% in 2020)



Investors in Start-up Space Companies 2000 – 2020



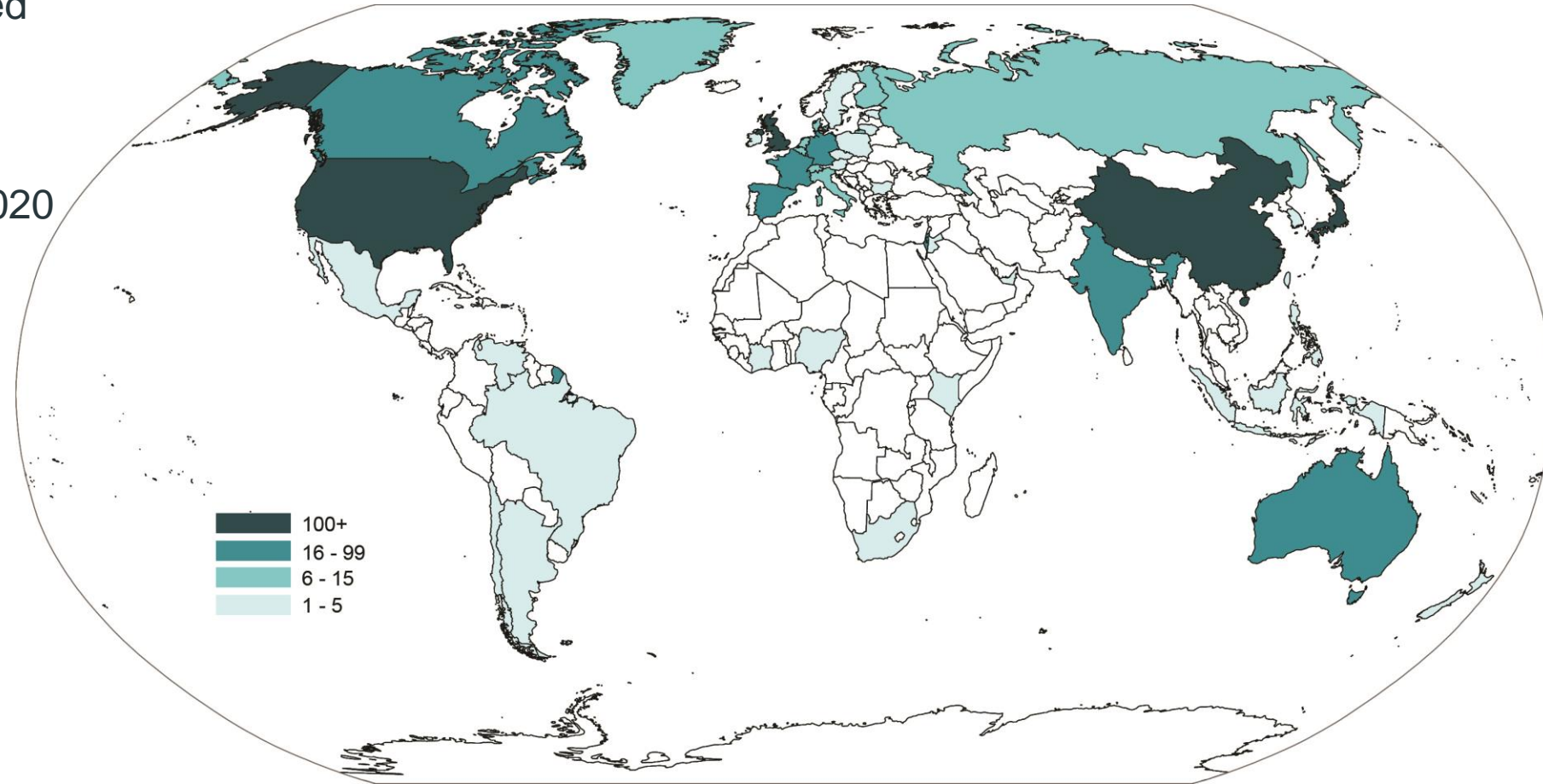
US and Non-US Investors in Start-up Space Companies 2000 – 2020



United States accounted for 44% of all start-up space investors 2000 – 2020 (36% in 2020)

Start-up Space Investors by Country 2000 – 2020

- ✓ 538 investors from the United States, 44% of all investors 2000 – 2020 (124 in 2020, 36% of total)
- ✓ Non-US Investors 2000 – 2020
 - China – 136 investors
 - Japan – 107 investors
 - UK – 103 investors
 - India – 37 investors
- ✓ Non-US Investors 2020
 - China – 48 investors
 - UK – 31 investors
 - Japan – 21 investors
 - France – 17 Investors



Most Active VCs in Start-up Space 2000 – 2020 (VC Firms investing in 3+ Space Start-ups)

10+

8

7

6

5

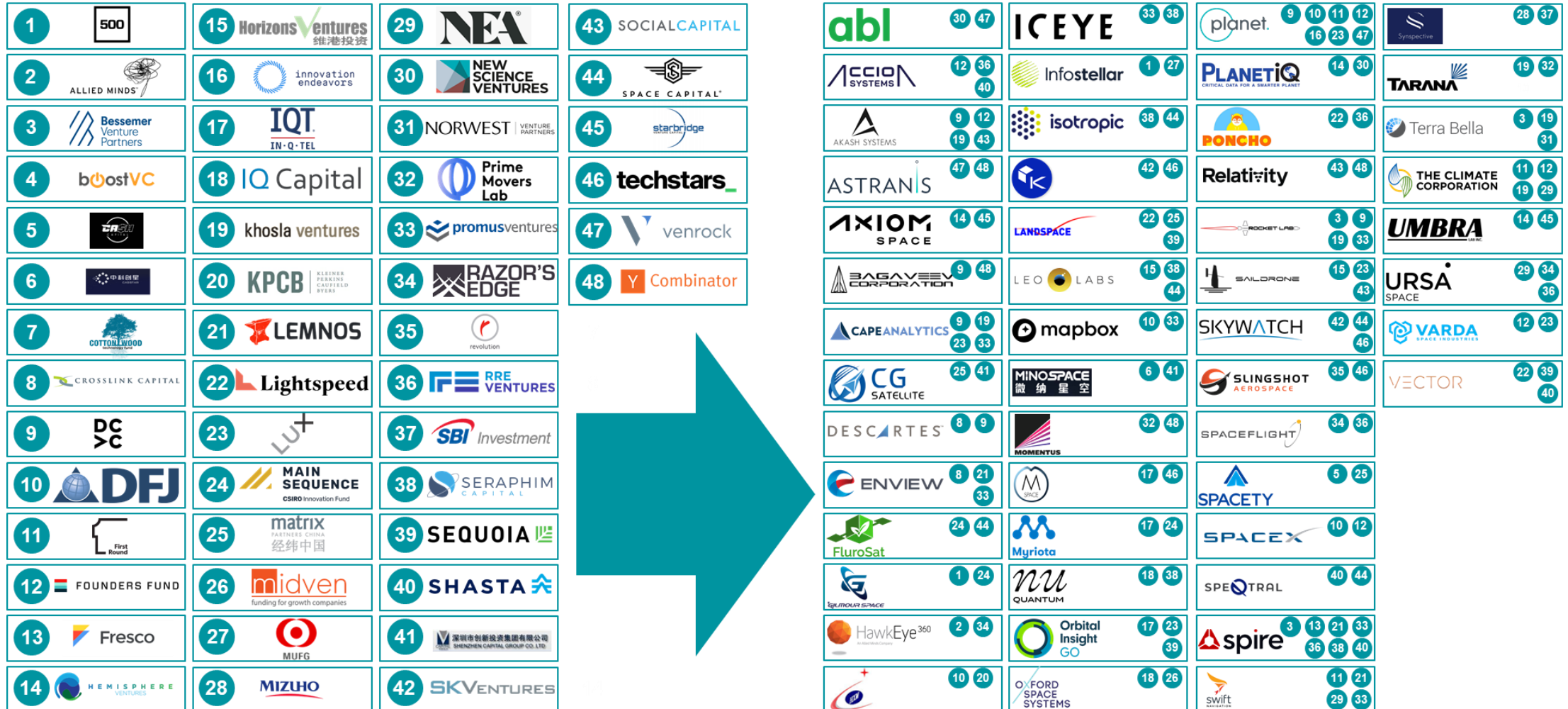
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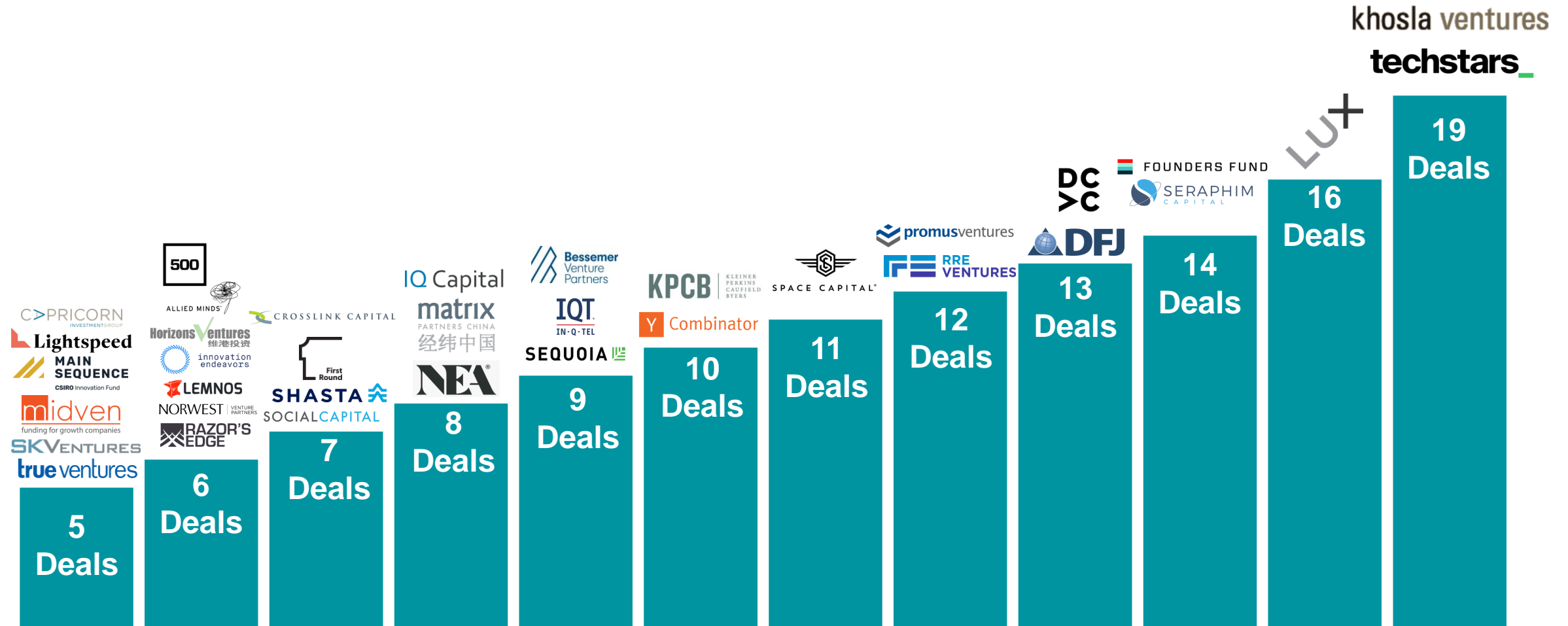
48 venture capital firms have invested in three or more start-up space companies

Common Investments Among Most Active VCs in Start-up Space 2000 – 2020

Fifty start-up space companies attracted investment from two or more of the most space-focused VCs (the 48 VCs in previous slide)



Venture Capital Firms with Most Start-up Space Deals 2000 – 2020



Increase in SPAC Activity in Space Industry

- ✔ Special-purpose acquisition companies (SPACs) are publicly traded companies established with the aim of raising funds to acquire or merge with a private company seeking to go public
- ✔ SPACs enable firms to go public quicker than traditional IPOs
- ✔ SPACs increasingly popular across industries, raising \$83B in capital in 2020 (space + non-space), +6x previous record (according to Bain & Company)
- ✔ While some space companies have gone public via SPAC in the past (Iridium 2008, Avio 2016), a surge has been visible since Virgin Galactic merged with Social Capital Hedosophia in Oct 2019
- ✔ Most space companies going public via SPACs highlight the merger provides full funding for the coming years; if necessary, companies can raise additional post-merger funds via secondary offerings (\$460M by VG in Aug 2020)
- ✔ SPACs are included in this report in the year they begin trading publicly post merger

Announced Space SPAC Deals

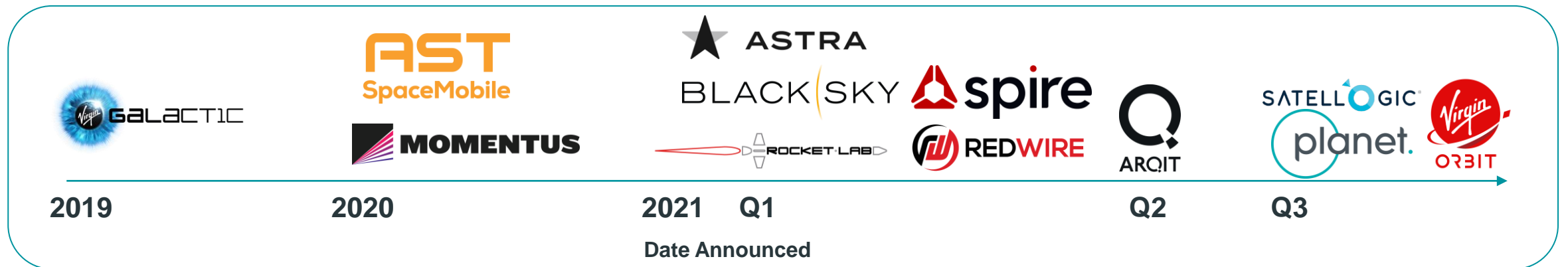
Twelve announced space industry SPAC deals

\$5.1B

Funding being raised through SPAC deals

\$27.1B

Anticipated combined enterprise value (aggregate market values of companies)



Start-up Space: What's Next?



LEO Constellations	<p>Deployment of large LEO telecom constellations (SpaceX, OneWeb, Kuiper, Telesat, China Guo Wang), historic # of sats</p> <p>Earth observation satellite operators continue to deploy and expand constellations</p> <p>Both Earth observation and telecom smallsat ventures face significant hurdles in proving their business models</p> <p>Large constellations drive interest in smallsat launch ventures (which face competition from large vehicle rideshare)</p>
Smallsat Launch Ventures	<p>Dozens of new small launch vehicles in varying phases of development and operation, many receiving significant investment</p> <p>While governments are increasingly interested in small launch vehicles, competition with larger vehicles and business case uncertainty will shape the commercial market</p>
Private Human Spaceflight	<p>Growth in commercial suborbital human spaceflight anticipated after crews/passengers in 2021 on Virgin Galactic + Blue Origin</p> <p>Increasing activity related to commercial orbital human spaceflight; announced launches: Inspiration 4, Ax-1, Space Adventures</p>
On-orbit Servicing, Assembly, and Manufacturing	<p>Increasing interest in commercial on-orbit servicing, assembly, and manufacturing (OSAM) technologies + markets, including life extension, debris removal, and in-space transportation, following successful MEV missions in 2019 and 2020</p> <p>OSAM activities have potential to expand sustainable on orbit ecosystem; face technology and business barriers</p>
Exploration	<p>NASA's Artemis program, which seeks to return humans to the moon by 2024, includes opportunities for start-up companies</p> <p>Exploration start-up companies continued to raise capital, including SpaceX, Blue Origin, Astrobotic, and ispace</p>
National Security	<p>Increase in government contracts targeting start-up space companies for initial/pilot programs</p> <p>USG stakeholders increasingly viewed as important to venture-funded space start-ups</p> <p>Space Development Agency awarding contracts, studies to start-ups to support National Defense Space Architecture</p> <p>NRO awarded study contracts to commercial Earth observation companies, poised to expand suppliers of commercial data</p> <p>USG small launch programs include contracts to Virgin Orbit and Rocket Lab</p> <p>Foreign governments increasingly aiming to leverage domestic start-up space capabilities</p>

This report was written and produced by BryceTech, which conducted the study on which it is based

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