VC Valuations

3Q 2018

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Key takeaways from the analysts

Median valuations across all stages sustained upward trends through 3Q 2018. Valuation gains have been most remarkable in late-stage rounds, with the median valuation increasing 50.7% year over year (YoY), while early-stage and angel & seed deals saw more modest jumps of 27.5% and 11.8%, respectively.

90-day VC-backed IPO performance closely followed broad market price movement. On a percentage basis, non-biotech IPOs are outperforming the broader market indices, signifying sustained demand for high-growth opportunities—particularly technology businesses.

Valuations of investment rounds with CVC participation continue to sky-rocket. Late-stage valuations for CVC-backed rounds have reached unprecedented heights with the median resting at $140.0 million in 2018, a full 2.5x greater than startups without corporate backing.

50.7%
YoY increase in median late-stage valuation

34.0%
average 30-day return in 2018 of VC-backed IPOs

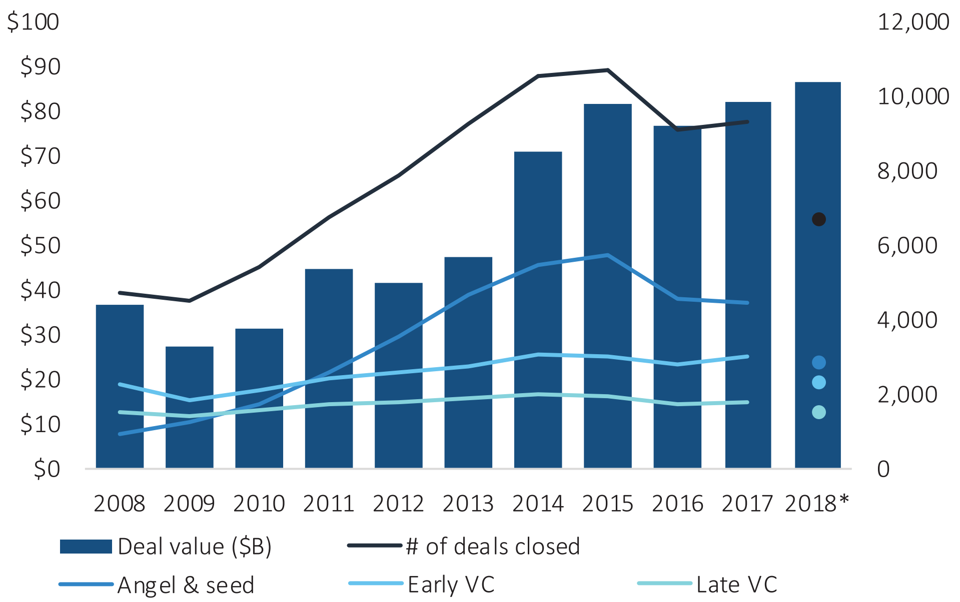
$140.0M
median late-stage valuation with CVC participation YTD

Overview

Capital invested in US venture-backed companies has reached a decade high of $86.4 billion in 2018. A shift toward fewer but larger deals has concomitantly fueled a sizable increase in valuations. Startups have seen annual valuation increases in the double-digits across deal stages over the past two years. Median pre-money valuation of angel & seed deals has increased 11.8% YoY, and early-stage valuations are up even further at 27.5% YoY. But valuation gains have been most remarkable in late-stage rounds, with median pre-money valuation of late-stage deals increasing 50.7% YoY. The rise in valuations can be partially attributed to the buildup of dry powder, enabling mega-funds to funnel significant capital into mature and high-growth ventures, as well as increased competition for a finite number of high-growth, late-stage opportunities.

Capital invested soars to new highs

US VC deal activity



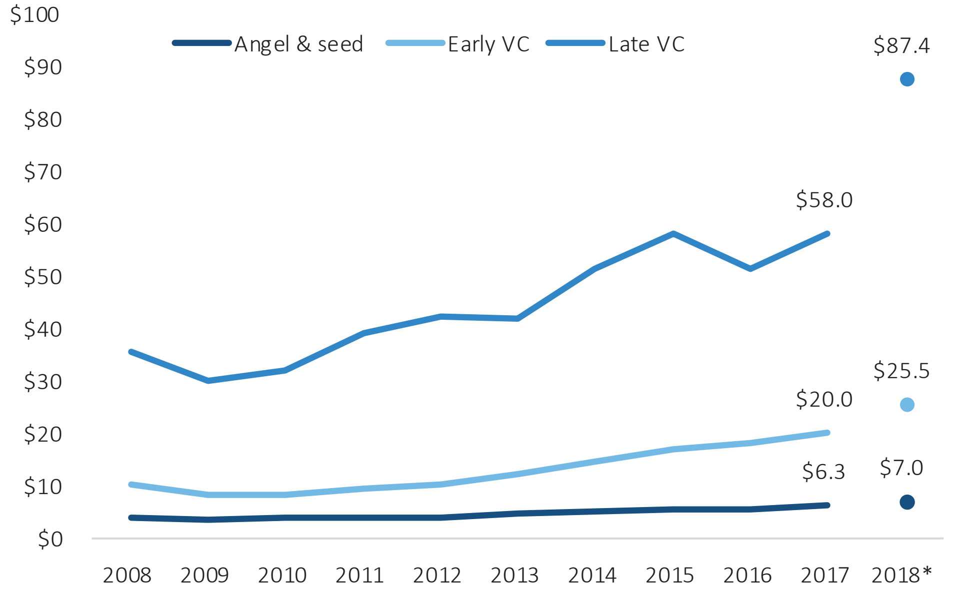
Source: PitchBook
*As of September 30, 2018

As startups have seen a rise in valuations and deal sizes, investors have also been taking a larger ownership position at the very early stages. While median investor stake acquired in angel & seed deals remained steady between 2011 and 2016 at about 20%, this has shifted over the past two years, with founders now giving up a median ownership stake of 25.0%. This shift may be explained by the increasing age of startups raising angel & seed rounds. Median age of companies raising angel & seed financing has increased 23.1% in the past year, landing at 3.0 years. The increased maturity of these ventures allows investors to more accurately ascertain value. Indeed, growth in check size is outpacing growth in valuation, indicating that investors are comfortable writing larger checks at earlier stages. Increased competition and capital availability among venture investors may also be leading founders to accept unnecessarily large investments.

Appreciation from the post-money valuation in one round to the pre-money valuation in the next round (what we refer to as "valuation step-up") continues to grow on an annual basis. The median valuation step-up for early-stage rounds increased from 1.7x to 1.9x YoY. Likewise, median valuation step-ups for late-stage rounds increased from 1.3x to 1.4x, indicating that the step-up at both stages reached a 12-year high. Across investment stages, median valuation step-ups have increased from a low of 1.3x in 2013 to a high of 1.6x in 2018. In total, all venture rounds have seen a 1.6x valuation step-up in each of the past three quarters, suggesting a level of stability.

Late-stage VC valuations skyrocket in 2018

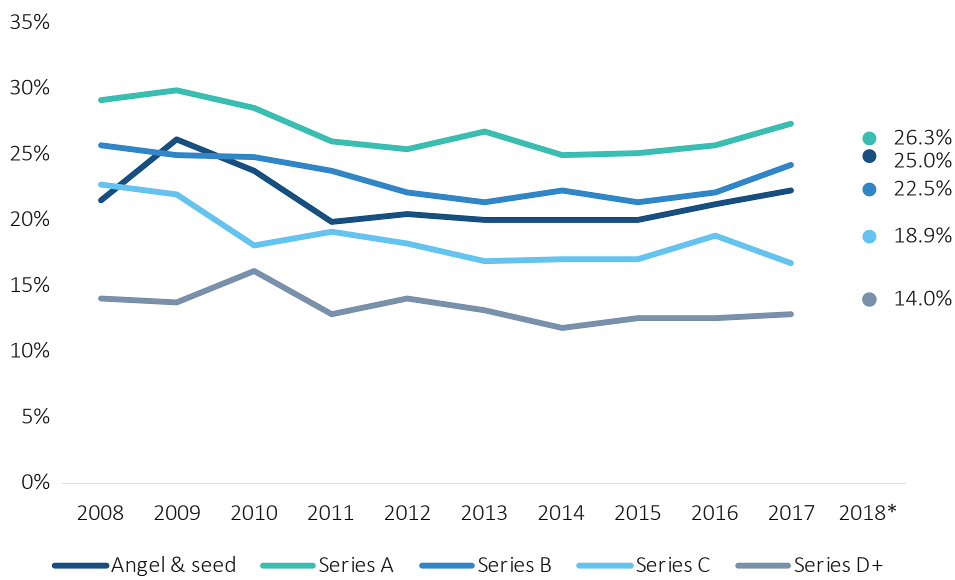
Median US VC pre-money valuation ($M)



Source: PitchBook
*As of September 30, 2018

Angel & seed ownership crosscuts Series B

Median US VC equity stake acquired (%)



Source: PitchBook
*As of September 30, 2018

Juxtaposing valuation step-ups against median percentage acquired helps to illustrate founder negotiation strength. Equity acquired in early- and late-stage VC declined approximately 4.3% and 2.9%, respectively, between 2017 and 2018. This decline, along with the increased step-ups at these stages, reveals that, on average, founders are raising more capital in exchange for less equity.

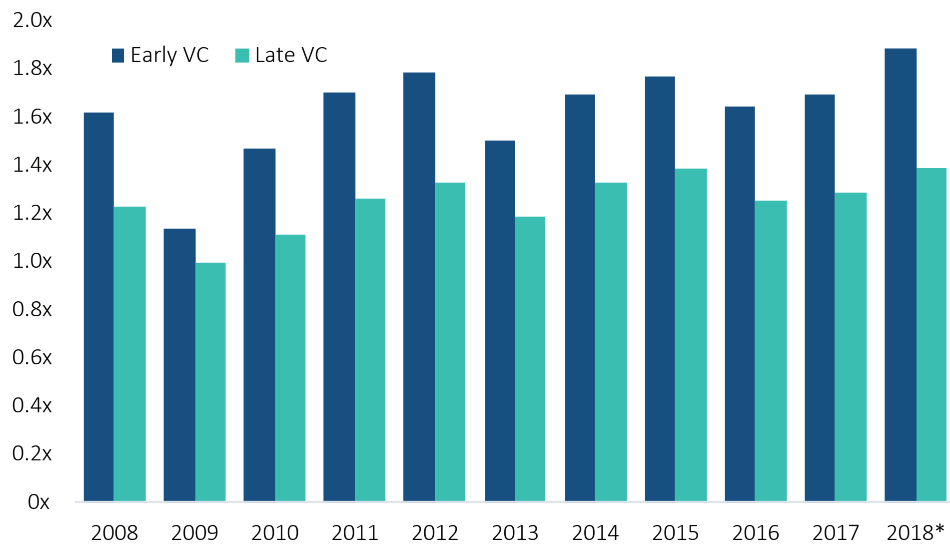
With copious amounts of capital pouring into early-stage ventures, we would expect that startups run the risk of taking on too much capital, leading to overvaluations, unrestrained capital expenditures and subsequent down rounds. Instead, down rounds are nearing historic lows at 2.7% of total deals.

Another factor correlated with pre-money valuation is corporate participation. Across stages, deals with corporate VC (CVC) participation consistently receive higher valuations than those without. At the early stage, the influx of dry powder has given significant valuation bumps to deals both with and without CVC participation, yet the difference between the two is diminishing. What was a 73.6% premium paid on rounds with CVC participation in 2014 has been reduced to 30.0% in 2018. This shift is the inverse of what we're observing at the late stages, where the premium paid for deals with CVC participation was 154.5% higher than deals without in 2018, up from a premium of 132.2% just two years ago.

Corporations may give such a significant valuation premium at the late stage for two possible reasons: Either companies chosen for investment by CVCs have specific use cases and potential exits that fit with the CVC investment thesis, or CVCs actively seek out startups that are fundamentally different from their peers. CVC participation or not, median pre-money valuation is up across stages, and we see no signs of that letting up.

Despite elevated valuations, late-stage step-ups grind higher

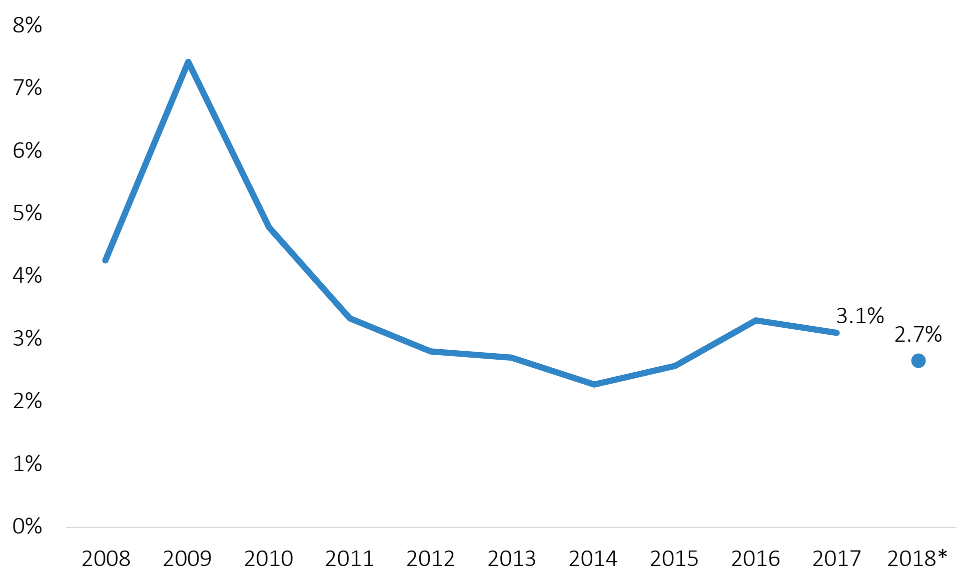
Median US VC valuation step-up by stage



Source: PitchBook
*As of September 30, 2018

Down rounds become scarcer

Down rounds as proportion of total US VC



Source: PitchBook
*As of September 30, 2018

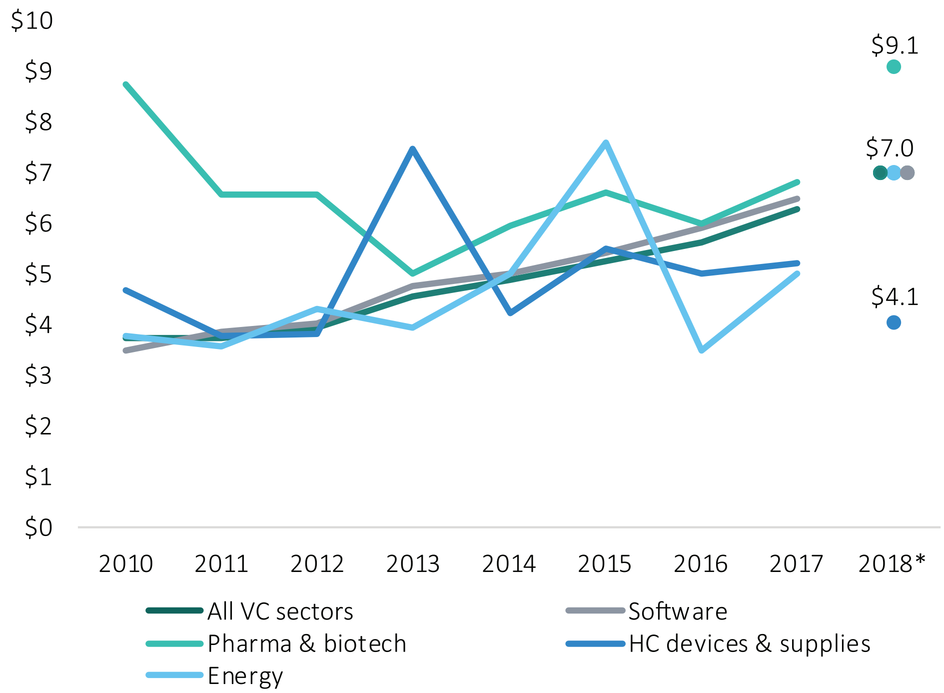
Angel & seed deals saw a healthy rise in pre-money valuation, gaining 11.8% YoY. Among angel & seed startups, the energy sector stood out with the largest annual valuation gain, swelling 40.0% since 2017. We combine the angel & seed stages because deals and companies at these stages can often look quite similar; however, it's important to note that companies often refrain from setting a valuation until seed stage or later. As such, there are limited valuation data points at the angel stage, where investments are often structured as convertible notes or simple agreements for future equity (SAFE) that don't set a specific price. This plays a factor in the valuation bump. Regardless, Sunfolding stood out among energy firms in this category, closing on $8.6 million at a $25.0 million pre-money valuation. The firm develops hardware and software to track and monitor solar technology.

Deals at the early stage saw an even larger valuation bump, climbing 27.5% to a median $25.5 million pre-money valuation. The consumer goods & recreation sector saw the largest one-year rise in valuation, climbing 87.5%. Notably, nine of the top ten companies by valuation step-up were ecommerce ventures. Grailed saw the largest valuation step-up in this category, rising 3.7x post to pre and settling at a $90.0 million pre-money valuation. Investors Thrive Capital, Index Ventures and Simon Ventures invested $15.0 million in the NYC-based online apparel marketplace.

Late-stage deals saw the greatest relative valuation increase, with median valuation climbing 50.7% YoY. This can be attributed to the massive capital being deployed into late-stage ventures by mega-funds, such as SoftBank's mammoth $100 billion Vision Fund, which is enabling companies to stay private at more mature stages than was previously feasible.

Angel & seed energy valuations rise 40.0%

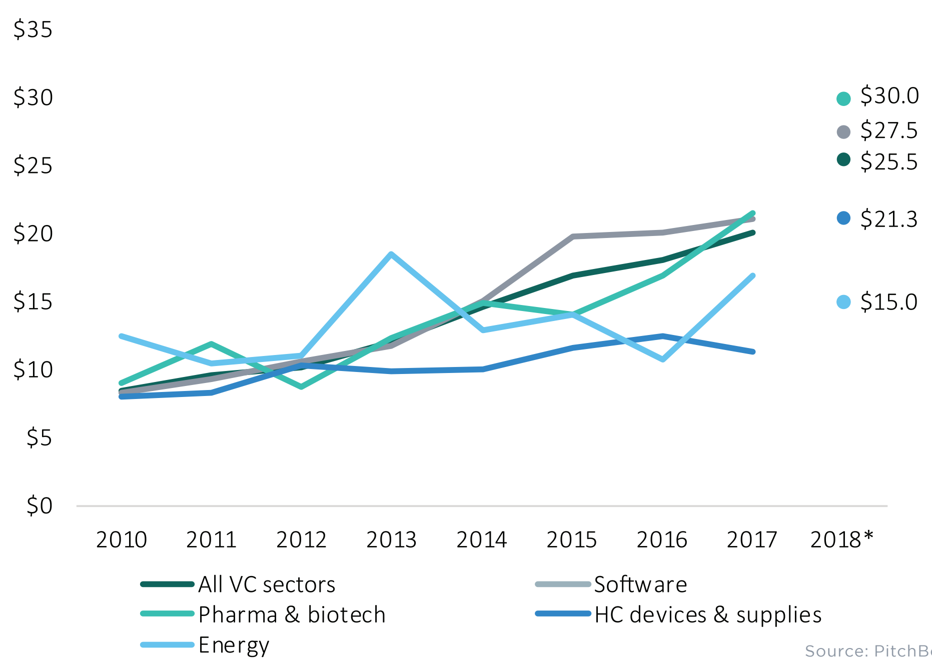
Median angel & seed pre-money valuation ($M) by sector



Source: PitchBook
*As of September 30, 2018

Consumer goods & recreation valuation rises 87.5%

Median US early-stage VC pre-money valuation ($M) by sector



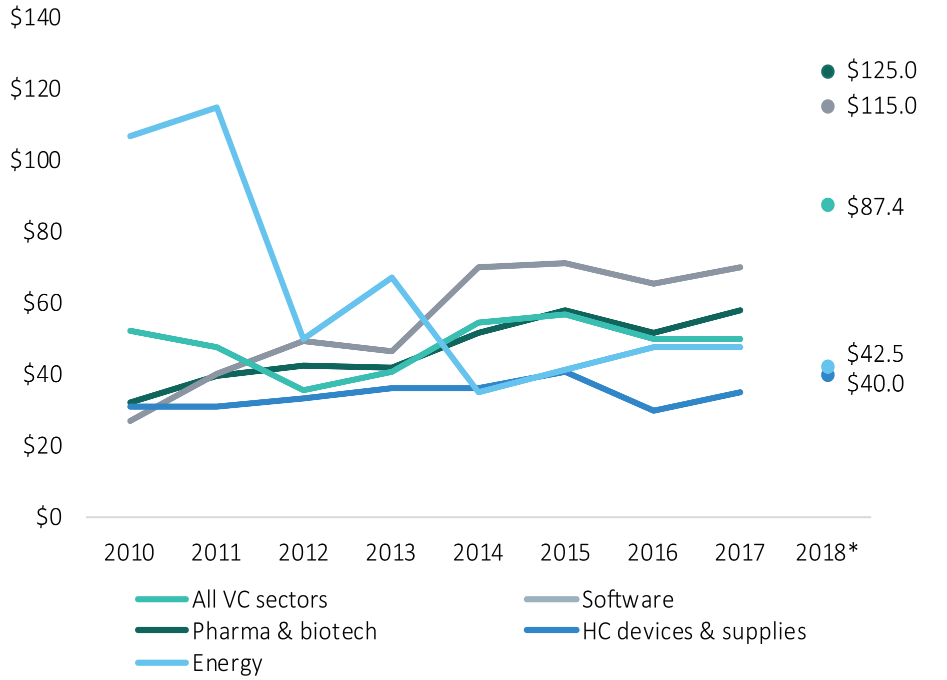
Source: PitchBook
*As of September 30, 2018

Companies in the pharma & biotech sector are often differentiated by high initial R&D costs, and the binary milestones and high expenses of the clinical trial process. In 2018, late-stage pharma & biotech deals saw, far and away, the most significant lift in valuation, swelling 152.5% to $125.0 million pre-money, in part, an exaggerated example of the capital availability in private markets. Investors have intensified their focus on this sector, investing $6.5 billion YTD into late-stage pharma & biotech ventures, up from $4.3 billion in 2017. Investor focus on the space is also reflected in the public markets, with IPO count up 20.4% YTD and total IPO exit value up 23.1% YTD, with pharma & biotech firms generating a cumulative $18.5 billion of liquid capital YTD through IPOs.

Pharma & biotech differs from other sectors in that firms tend to have relatively low valuations at the early stage before (hopefully) becoming exponentially more valuable as they receive positive research results and near commercialization. One such example is Taiga Biotechnologies, developer of novel protein and cellular therapies intended to fight diseases such as cancer, HIV and influenza. The firm's pre-money valuation increased 14.6x between rounds, climbing from $24.0 million post to $350.0 million pre. A three-year gap between rounds is not unusual for pharma & biotech startups that follow unique timelines based on the clinical trial process. As has become the norm across venture capital, there is a clear trend towards fewer yet larger deals. This has occurred to an excess in the pharma & biotech sector. Deal count rose slightly while capital invested climbed precipitously YoY through the first three quarters of 2018. In light of the 40.1% increase in early-stage valuations and 152.5% increase in late-stage valuations, it appears that deals are becoming more founder-friendly.

Pharma & biotech valuation rises 152.5%

Median US late-stage VC pre-money valuation ($M) by sector



Source: PitchBook
*As of September 30, 2018

Select 2018 biotech & pharma deals

Company name	Deal size ($M)	Pre-value ($M)	Series stage	HQ location
Moderna Therapeutics	125	7,000	Series H	Cambridge, MA
Indigo Agriculture	250	3,200	Series E	Boston, MA
Grail (Biotechnology)	300	2,900	Series C	Menlo Park, CA
23andMe	300	2,200	Corporate	Mountain View, CA
10x Genomics	125	875	Series D	Pleasanton, CA
Rubius Therapeutics	101	850	Series C	Cambridge, MA
Alector	133	780	Series E	South San Francisco, CA

Source: PitchBook
*As of September 30, 2018

PitchBook

Step-ups

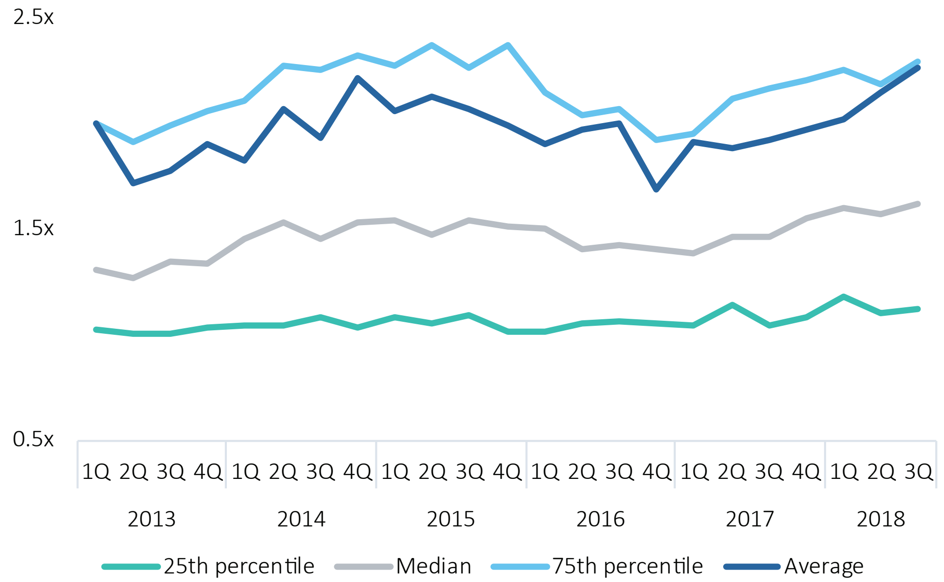
In tandem with the growth in absolute valuations across stages, valuation step-ups continue to sit at or near decade highs. At the end of 3Q, average and median step-ups across all stages moved to 2.3x and 1.6x, respectively, illustrating the accelerating pace of valuation growth. The robust dealmaking environment remains a key factor for valuations, with increasing magnitudes of dollars chasing a finite number of quality deals in the VC space likely continuing these step-ups in the future. While the focus in this regard is usually on the late stage and plethora of investors doing unicorn deals, Series A and C step-ups saw the most significant increase over the past few quarters, as companies achieve elevated valuations earlier in their lifespan. Higher absolute valuations will increase the difficulty of maintaining high step-up statistics in the future. However, we haven't seen any evidence of that so far in 2018.

Importantly, we're still seeing a decade-low proportion of down rounds in the market. With no evidence of drastic changes to overall percentage acquired or aggregate deal terms, it seems much of the lack of down rounds can primarily be attributed to favorable market conditions facilitating plentiful funding and the achievement of growth targets.

Similarly, we see the present health of the exit market as a tailwind for sustaining valuations at current levels or higher. A multitude of companies, including those with outsized valuations, achieved successful exits so far in 2018, sending positive signals for companies on the cusp of an exit. Recent volatility in the public equity markets, particularly as it pertains to technology, is something that deserves further vigilance to determine if it will influence any VC-backed company's recently announced IPOs or potential IPO plans.

Step-ups trending larger across the board

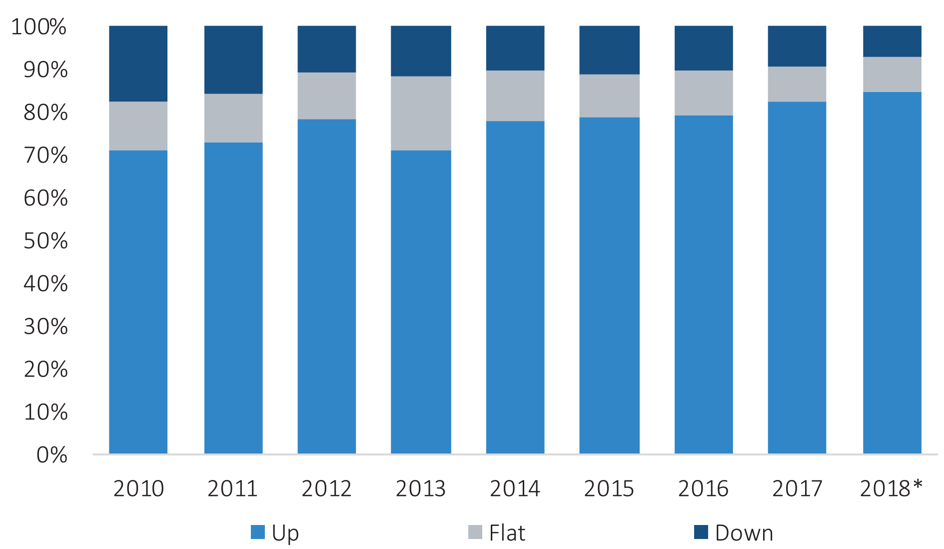
US VC valuation step-ups across all rounds



Source: PitchBook

Down rounds shrink to decade low

US VC up, flat & down rounds



Source: PitchBook
*As of September 30, 2018

PitchBook

Spotlight: IPOs

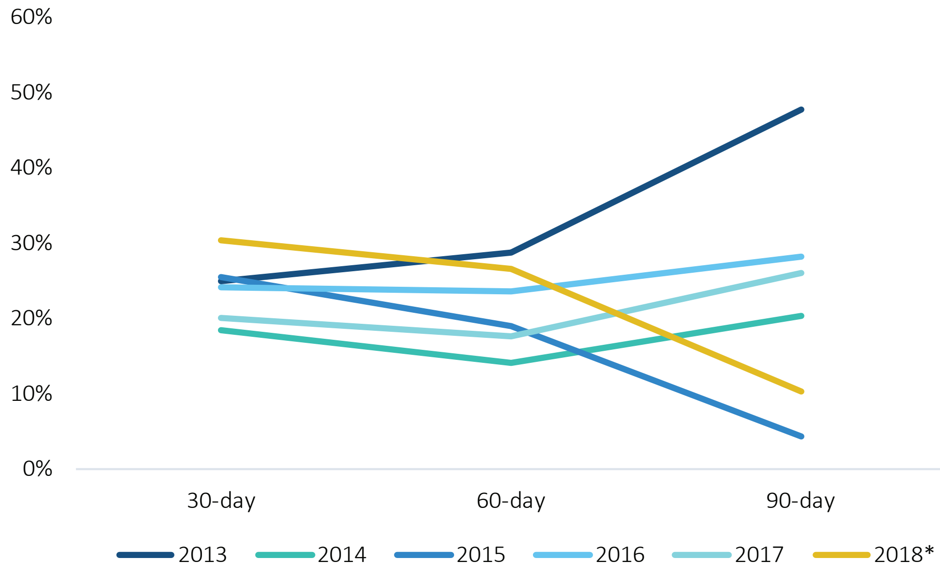
As VC-backed IPO activity accounts for significant proportions of total exit value over the past two years, the health of public markets and investor demand are crucial to providing liquidity to private backers. Above-average performance of public equity markets in 2016 and 2017 granted attractive valuation step-ups at IPO for most companies that chose to list. Importantly, however, the IPO rarely represents a full exit for existing backers since the main function of the transaction is to raise funds by selling newly issued shares. This means the performance of the newly listed companies in the first few months—a factor frequently overlooked in discussions of VC exits—often plays a meaningful role in determining the actual valuation at which investors exit.

To examine further, we look at average and median percent changes of each company's market capitalization at the 30-, 60- and 90-day intervals after the IPO date. We separated the companies into biotechnology and non-biotechnology groups to account for the stark differences of the biotech business model that often allows younger and commonly pre-revenue businesses to list publicly. The 90-day timeframe is also a common end to the IPO-lockup period for insiders, representing the point at which liquidity can be achieved fully. The relationship between the IPO market and the broader stock market is clear here, as aggregate market performance almost directly corresponds to the order of the calendar year's 90-day VC-backed IPO performance. On a percentage basis, these non-biotech IPOs are outperforming the broader market indices, signifying sustained demand for high-growth opportunities—particularly technology businesses.

The 2018 data points paint a unique picture of the IPO environment as it stands today. 30-day performance boasts the highest median over the time horizon at 30.6%, suggesting strong price performance from the initial pop as well as the ability to sustain that positive momentum during the first month. The story from that point on illustrates the volatility we've seen in public markets throughout 2018, culminating in October's slide. Due to the strong parallels between IPOs and index performance, the next quarter will be crucial in determining the number and success of IPOs currently in the pipeline.

90-day IPO performance heavily correlated with broad market price movement

Median percent change of market capitalization for US VC non-biotechnology companies



Source: PitchBook
*As of November 13, 2018

Annual return (%) in select market indices

	2013	2014	2015	2016	2017	2018*
S&P 500	32.4%	13.7%	1.4%	12.0%	21.8%	1.8%
Russell 2000	38.8%	4.9%	-4.4%	21.3%	14.7%	-1.4%

Source: PitchBook
*As of November 13, 2018

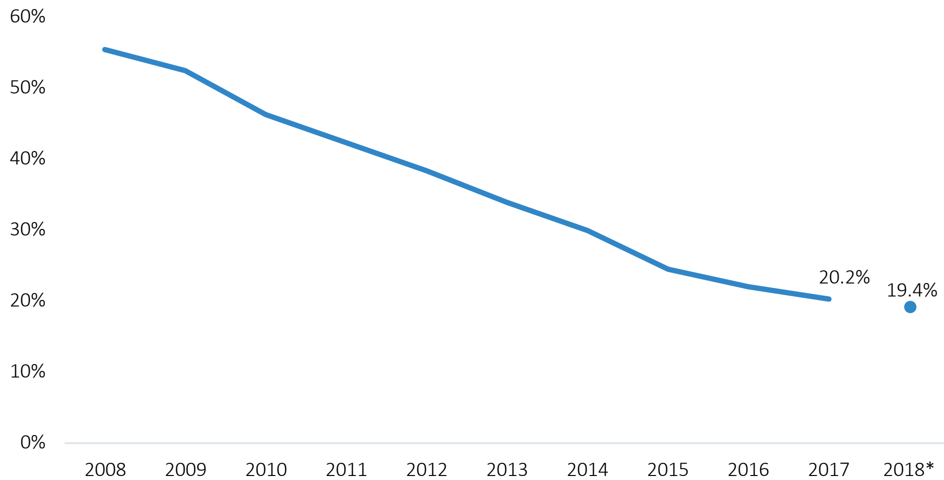
Deal terms

Diving deeper into aggregate deal terms data, we see an enduring dip in heavy investor protection terms such as participation rights and cumulative dividends. 2018 data points have flattened out the trendlines, potentially signaling a new normal with cumulative dividends included in around 5% of deals and participation rights in under 20% of deals. Given the fact that investor rights are most important in downside exit scenarios, it is logical that the more "founder-friendly" terms have emerged during this nearly decade-long bull market. With fewer down rounds and a relatively robust exit market, positive sentiment likely outweighed the negative for many investors when penning term sheets. This optimism is key in VC, as confidence in an attractive return of 3x+ can lead investors to forgo downside protection at the earlier stages. We are seeing a slight uptrend in protections in unicorns and mega-rounds, as downside risk is more top of mind for investors entering at that stage.

Furthermore, the success and growth of the technology sector over this period attracted dollars from a swelling number of investors. The elevated level of competition for the same or smaller volume of attractive assets is also a likely factor in the extended decline of investor protections. When competing against multiple term sheets, dropping protections like participation rights might be necessary to remove friction in closing a deal. Positive net cash flows to limited partners (LPs) have continued through the end of 2017, which should sustain the recent robust fundraising activity and leads us to believe that these competitive forces have not yet reached a negative inflection. Subsequently, we expect to see investors remain accommodative to company's desired deal terms in the near-term. Whenever the time comes that valuations begin to experience some downside pressure, we expect to see it reflected in the deal terms data first as companies give out more investor rights to avoid a down round.

Participation rights continue to slide in aggregate deal activity

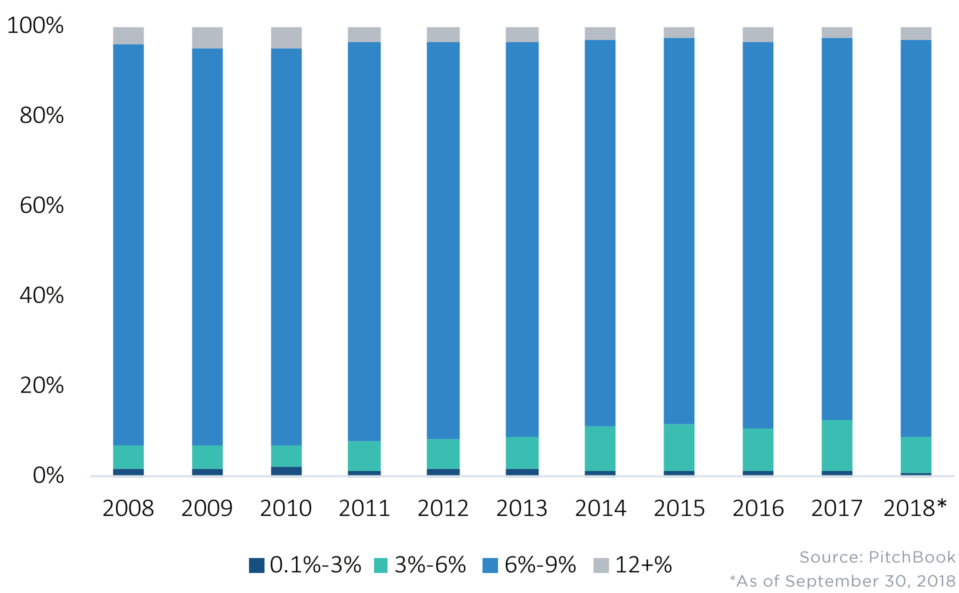
Proportion of US VC deals with participation rights



Source: PitchBook
*As of September 30, 2018

Below-average sized dividends taking greater share of whole

US VC dividends by percentage buckets



Source: PitchBook
*As of September 30, 2018

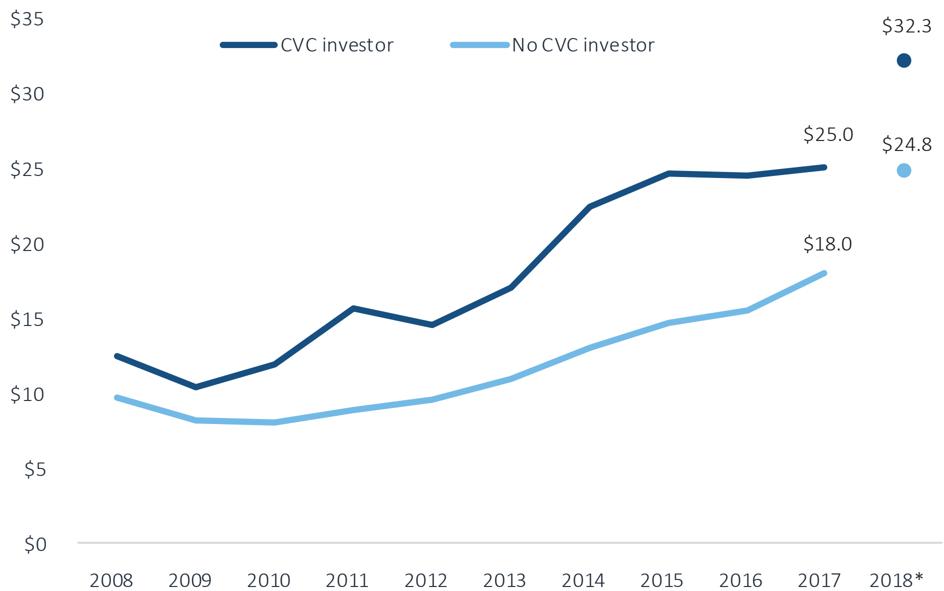
CVC valuations

VC companies receiving investment rounds with corporate backing have enjoyed steady valuation growth over the last decade. Following overarching trends in venture markets, deals with CVC participation have trended larger, with the median deal size increasing to $15.0 million in 2018 from $10.5 million in 2017. So far in 2018, the median pre-valuation of early-stage startups with corporate backing sits at $32.3 million, a 29.0% increase from 2017 valuations and 30.0% valuation premium over startups that received financing without CVC involvement. This is, in part, a product of the greater financing necessities of the more-mature startups that are now prevalent in the early-stage.

An early toehold in technologically-enabled companies provides the potential for venture-like returns on investment, as well as an eye into innovative technologies that may be implemented into incumbent operations. However, the statistics suggest that CVCs still lean toward more mature early-stage startups. One such example is machine learning startup CTRL-labs, whose $28.0 million Series A round in March of 2018 (which included investment from the Amazon Alexa Fund and GV) put the company's pre-money valuation at $90.0 million. The company's hardware products integrate neurotechnology and machine learning to theoretically allow the brain to control computers and smartphones—an attractive potential acquisition for Amazon's IoT-centric Alexa products. Additionally, the company's valuation suggests a well-developing early-stage company, which may be desirable for CVCs with intentions to acquire the technology, employees or both.

Early-stage startups with corporate backing have valuations 30% greater than those without

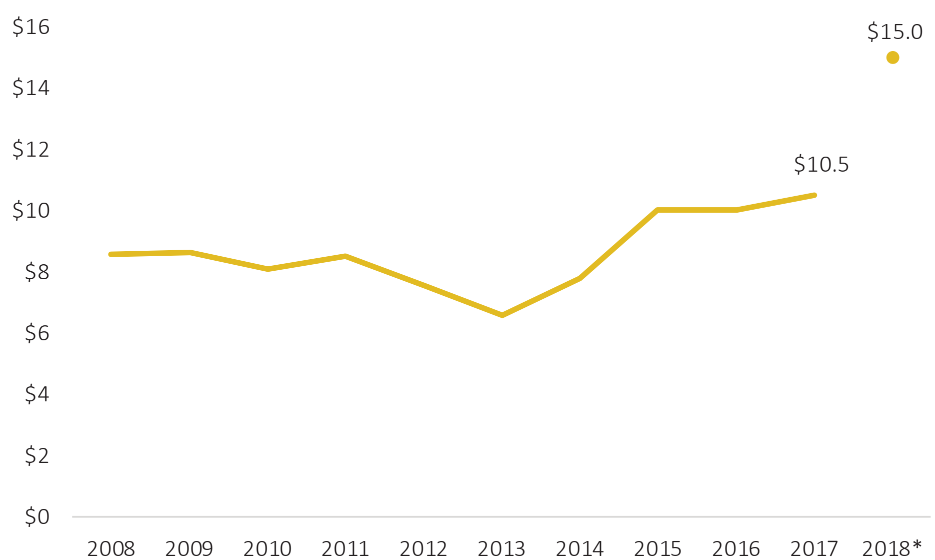
Median pre-valuation of early-stage startups ($M)



Source: PitchBook
*As of September 30, 2018

Deals with CVC participation reach high of $15.0M

Median US VC deal size ($M) with CVC participation



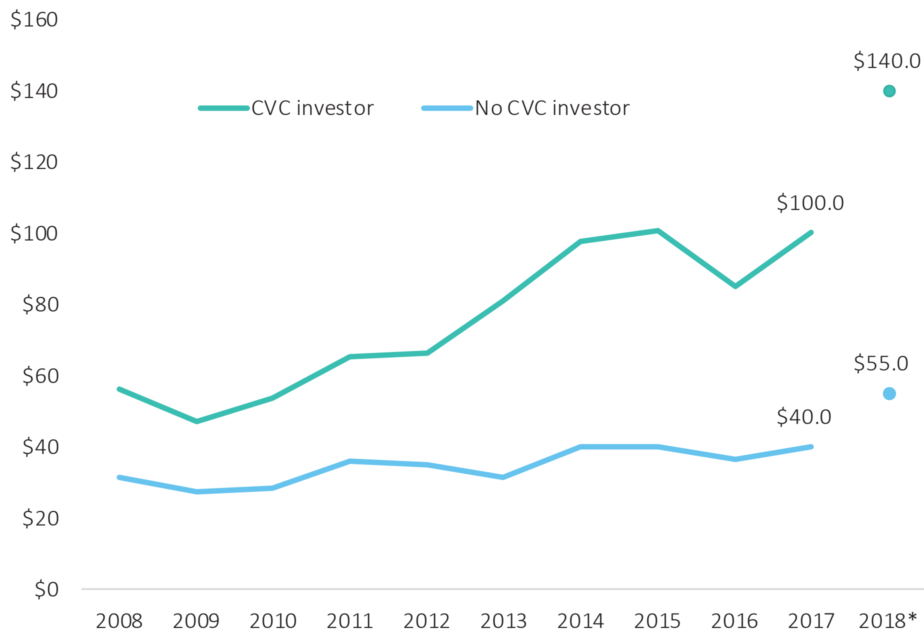
Source: PitchBook
*As of September 30, 2018

Looking down the road, late-stage valuations for CVC-backed rounds have reached unprecedented heights, resting at $140.0 million in 2018, a full 2.5x greater than startups without corporate backing. Unsurprisingly, the behemoth SoftBank Vision Fund has been a partial driver of these outsized valuations. SoftBank's investments in 2018 have included numerous mega-rounds (greater than $100 million) in companies such as Uber, Wag and WeWork. Unlike many corporate investors, SoftBank does not necessarily intend to acquire investments to fold into operations. The Vision Fund's approach more closely resembles a traditional PE or VC fund by aiming to invest in companies it believes will lead verticals, ranging from mobility to fintech.

Beyond the Vision Fund, however, corporates are still contributing to elevated valuations with historically large late-stage investments; the median CVC late-stage round size sits at $34.0 million as of 3Q 2018. The question arises whether higher valuations will be in corporate interest down the line. CVCs looking only for a return investment might enjoy a profitable exit, but for strategic investors interested in potential acquisitions, inflated valuations may lead to a higher premium to pay in the future.

Late-stage startups with CVC backing see median valuation soar to $140.0M

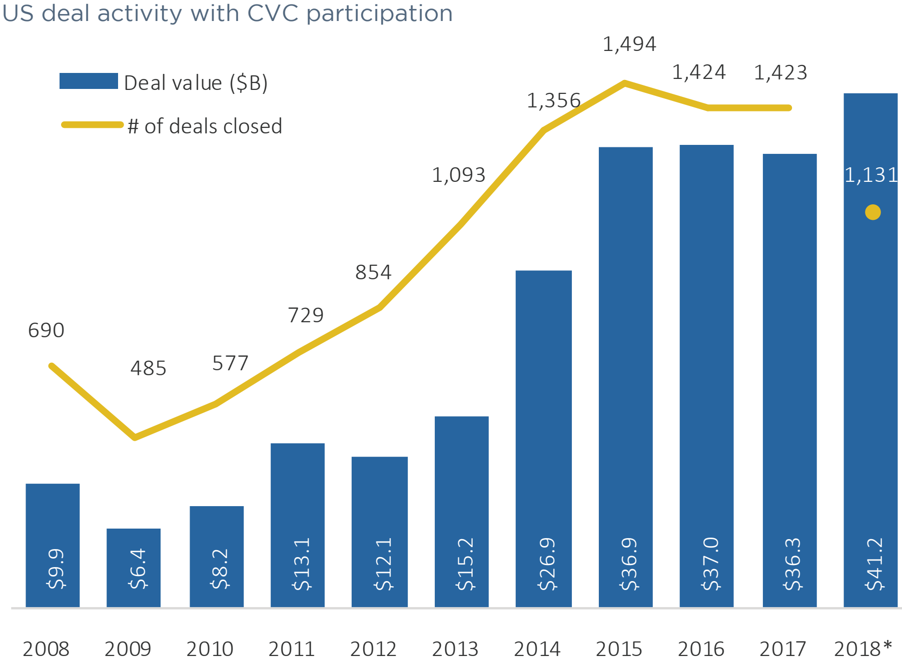
Median US late-stage VC pre-valuation ($M)



Source: PitchBook
*As of September 30, 2018

Capital raised in rounds with CVC investors reaches record highs

US deal activity with CVC participation



Source: PitchBook
*As of September 30, 2018

Unicorn valuations

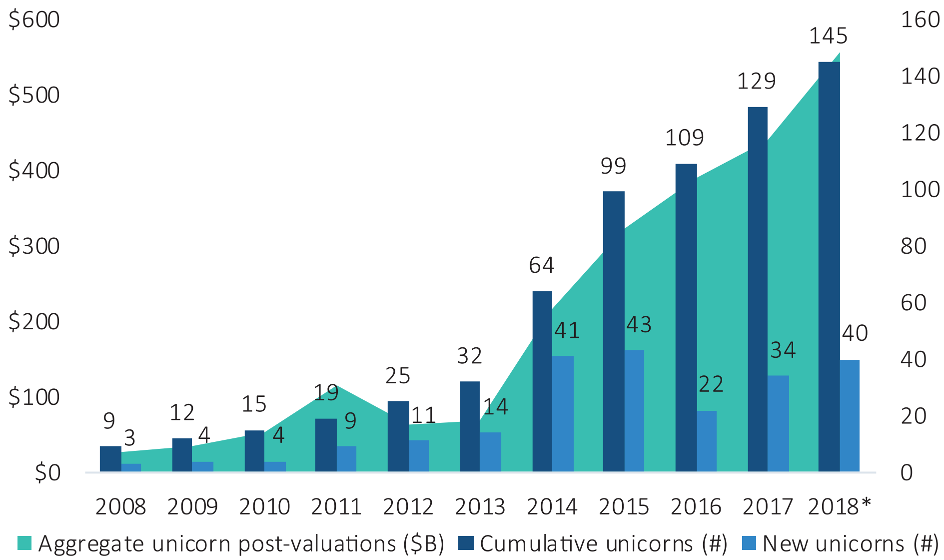
Unicorn startups—companies valued at $1 billion or more—were once a rarity in VC. Statistics from recent years, however, illustrate that the coveted unicorn valuation has become more common than ever before. The number of active unicorns in 2018 has reached 145 startups with an aggregate valuation of $555.9 billion, an all-time high. 2018's unicorn count represents a 12.4% increase from one year ago and a 353.1% increase from five years ago. The proliferation of startups with unicorn valuations can be largely attributed to capital availability in private markets in recent years. With $80.1 billion in dry powder held by venture funds at the end of 2017, startups have had ample access to capital for late-stage financings.

Rather than going public to raise additional equity financing, many startups have opted to remain private and instead source capital from venture and non-traditional investors. Subsequently, companies have found themselves reaching unicorn status at a faster pace, with median years to unicorn valuation decreasing from 7.5 years in 2015 to 6.0 years in 2018.

To take a different view of valuations after startups are minted as unicorns, we look at a ratio we call velocity of value creation (VVC). For unicorn companies raising new rounds, we calculate this ratio by taking the change in valuation between rounds, divided by the days between rounds. Put simply, VVC measures value created (in millions) per days between valuations. Our calculations show that unicorns in 2014 created the most value between rounds, with the median ratio sitting at 5.9 ($5.9 million in value created per day between rounds). In the following years, we see median VVC steadily trending downward, hitting 1.1 in 2017 before rebounding to

Unicorn status becomes increasingly common, with 145 unicorns in 2018

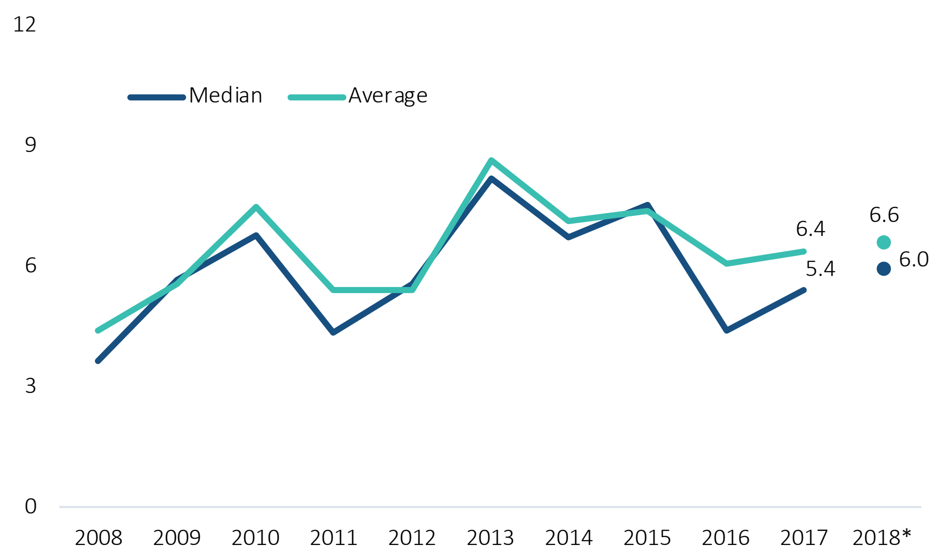
Active US unicorns



Source: PitchBook
*As of September 30, 2018

Startups reaching unicorn valuation at a faster rate in recent years

Time (years) to US unicorn valuation



Source: PitchBook
*As of September 30, 2018

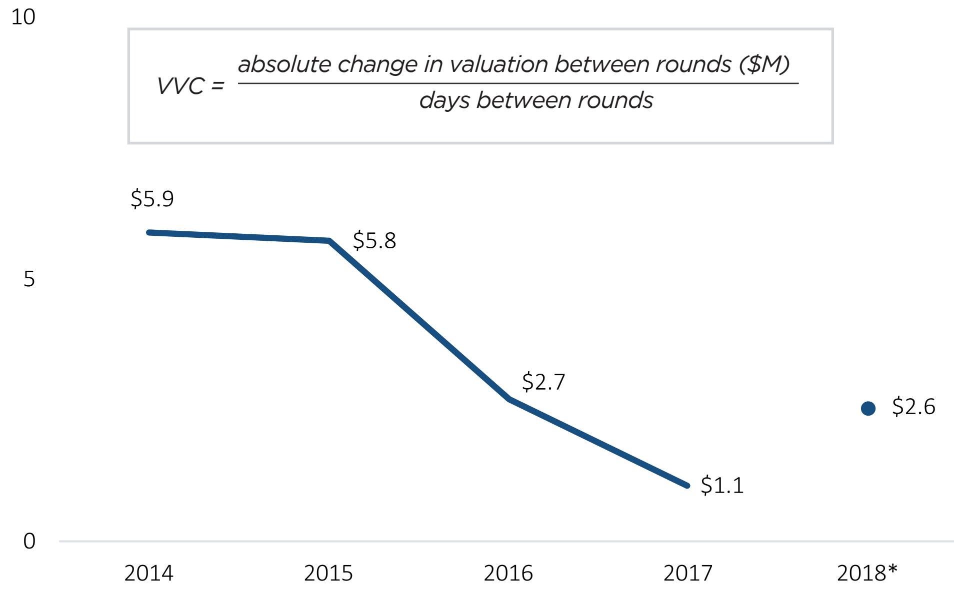
2.6 in 2018. These observations suggest that in the last three years, unicorns have seen slowed valuation growth and/or an increase in time between rounds.

Using an additional lens to measure value creation, we present a second metric we call relative velocity of value creation (RVVC). RVVC takes a similar approach, but the numerator leverages the growth rate in valuation between post-unicorn rounds, and the numerator annualizes time, dividing by years between rounds rather than days. RVVC measures the annualized percentage growth in valuation, smoothing outlier effects any outsized rounds have on the metric. The output illustrates similar trends, with the greatest growth in valuation in post-unicorn financings coming in 2014 and slowing in recent years.

Both conclusions contribute to the notion that the growth rate of VC-backed companies becomes more gradual as unicorn status is eclipsed. In previous years, these companies would likely have gone public to allow founders and VC investors to cash out while creating the ability to tap into capital from a wider swathe of investors. Yet, with access to ample sums of capital in the private market, unicorns now have bountiful resources to sustain their operations and reach levels of maturity that are unprecedented for VC-backed companies. Post-unicorn deal flow illustrates that after their initial unicorn round, these companies have raised over $53.3 billion across 95 deals in 2018, underscoring the high level of capital availability. Unlike traditional venture deals, these sizable financings have grown so large that they have earned the moniker "private IPOs." Given these dynamics, it is natural that unicorns' growth rates would slow and resemble more-established publicly traded peers, rather than startups.

Unicorn value creation slows in recent years

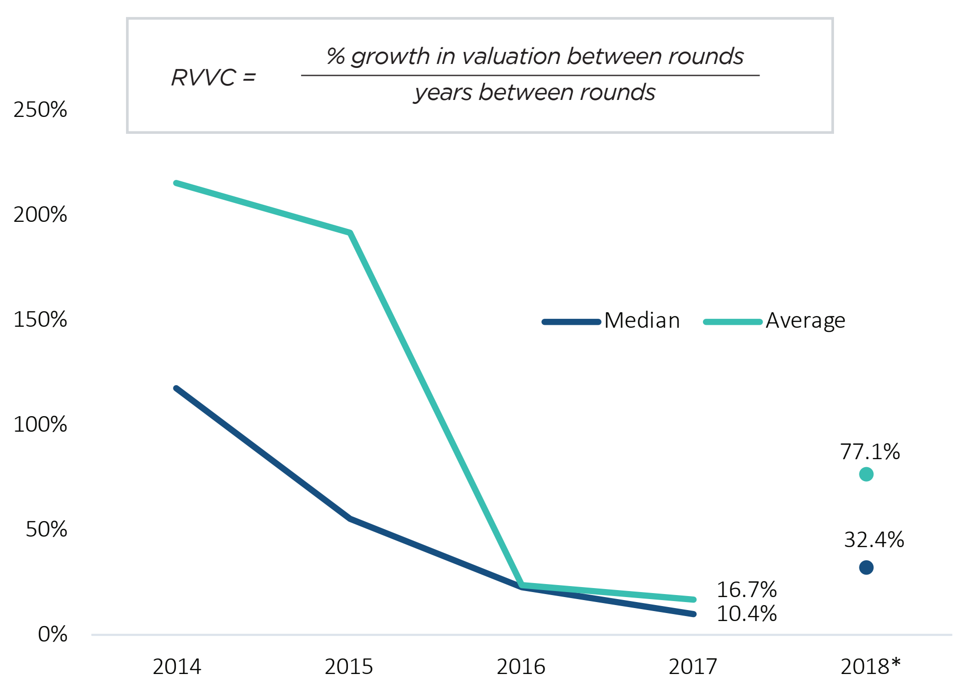
Median VVC for US unicorns (post-unicorn)



Source: PitchBook
*As of September 30, 2018

Unicorn startups created the greatest value in 2014

Median & average RVVC for US unicorns (post-unicorn)



Source: PitchBook
*As of September 30, 2018