QUANTITATIVE PERSPECTIVES

Cleared for Takeoff?

Q1 2024

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Introduction

Venture capital investment is a critical driver of innovation and economic growth, providing funding to startups with high growth potential. The VC landscape has undergone significant shifts in recent years, influenced by ever-evolving market conditions and emerging technologies. While startups' need for VC investment continues to outpace the supply of dollars available, the spread of investment activity across verticals underscores shifting investor interests.

In this report, we dissect the dynamics of the verticals software as a service (SaaS) and artificial intelligence & machine learning (AI & ML) within the venture capital landscape. We compare the challenges, opportunities, and investment prospects of these verticals over the past five years and evaluate the outlooks for each within the current market environment. The decline of VC deal activity has left many SaaS startups capital starved, while AI & ML remains a focal point of venture dollars. The release of transformative technologies like OpenAI's ChatGPT further fueled investor interest in AI & ML startups. However, our analysis suggests that early-stage SaaS companies are still likely to outperform AI & ML companies, yet we see upside not factored in due to AI & ML's impact being still in its nascency.

Despite a challenging IPO drought and concerns over unsustainable consumer spending, there are signs of optimism, with job gains, improvements in consumer sentiment, and a potential resurgence in public listings pointing toward a resurgence in exit activity.

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PitchBook Data, Inc.

John Gabbert Founder, CEO

Nizar Tarhuni Vice President, Institutional Research and Editorial

Daniel Cook, CFA Head of Quantitative Research

Research

Susan Hu Associate Quantitative Research Analyst

Kyle Stanford, CAIA Lead Analyst, Venture Capital

Zane Carmean, CFA, CAIA Lead Analyst, Quantitative and Funds Research

Miles Ostroff Associate Quantitative Research Analyst

Contact

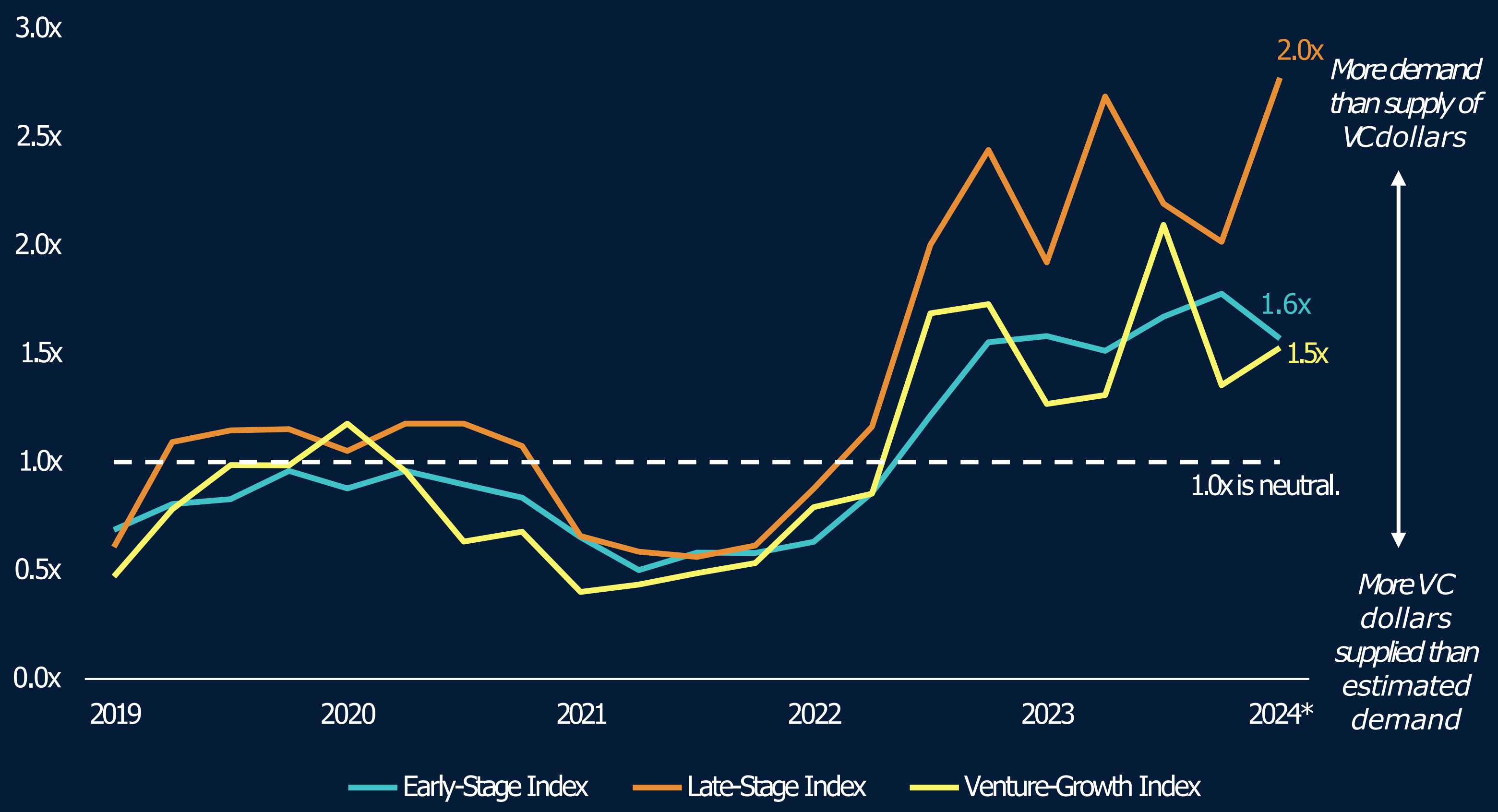
Key takeaways

- Overall, 2023 was a slow year for VC activity. The lack of capital availability continues to be highlighted by the demand/supply ratio across all stages and sectors of VC. AI & ML has dominated total dealmaking activity, making up 35.4% of the total capital invested in VC.
- Historically, SaaS has been the most lucrative area of investment for VC investors. However, following the release of ChatGPT, AI & ML has taken center stage, with valuations of private companies in the space growing faster than SaaS company valuations.
- The poor exit environment in the last two years led to a buildup of paper valuations within each sector that is roughly three times that of the public market capitalization of VC-backed companies that publicly listed in the last five years, signaling a significant backlog of capital waiting to exit and the overweight balance of value held within private markets.
- Encouraging macroeconomic conditions alleviate some uncertainty in the private markets and set an optimistic tone for 2024. Public companies that have recently completed an IPO have started to see a pickup in revenue growth and valuations.

Boarding has started

VC demand is outpacing supply, with investment activity not keeping pace with high proportion of startups seeking capital.

Estimated startup demand for VC investment relative to supply



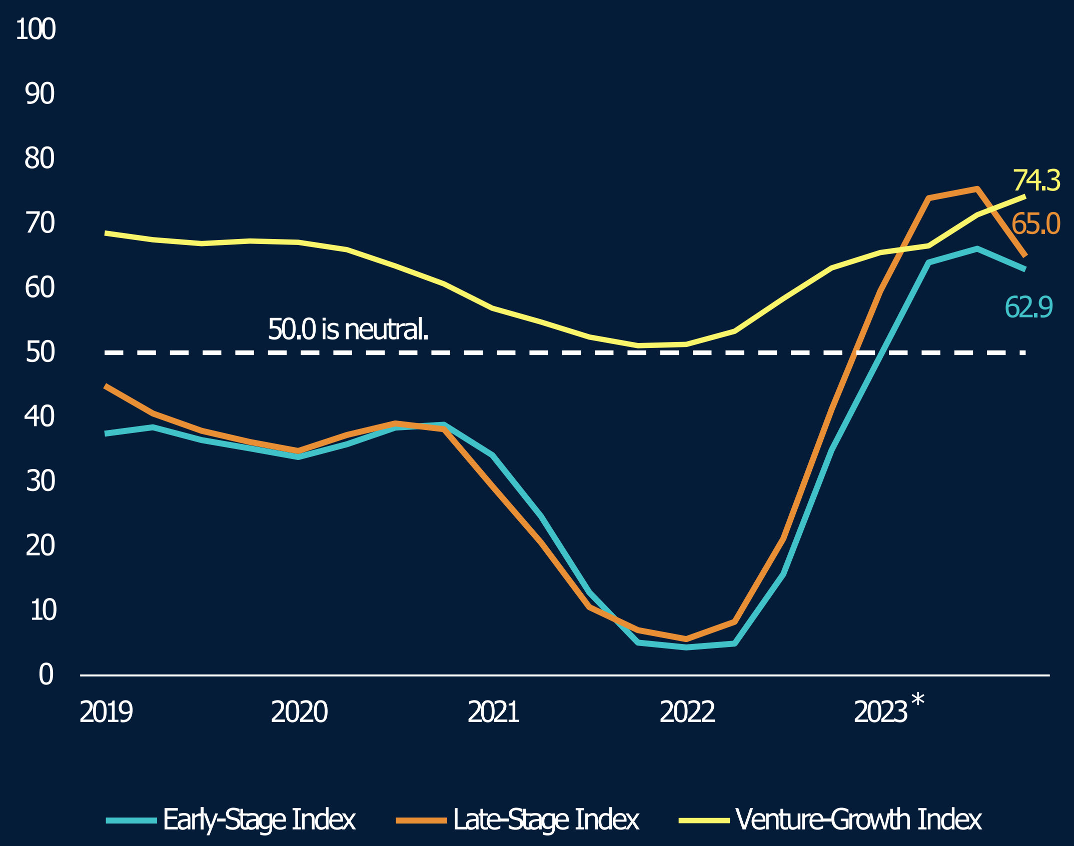
Source: PitchBook • Geography: US • *As of February 29, 2024

The capital demand/supply ratio estimates the amount of capital demanded by US startups as a ratio of supply broken out by stage.

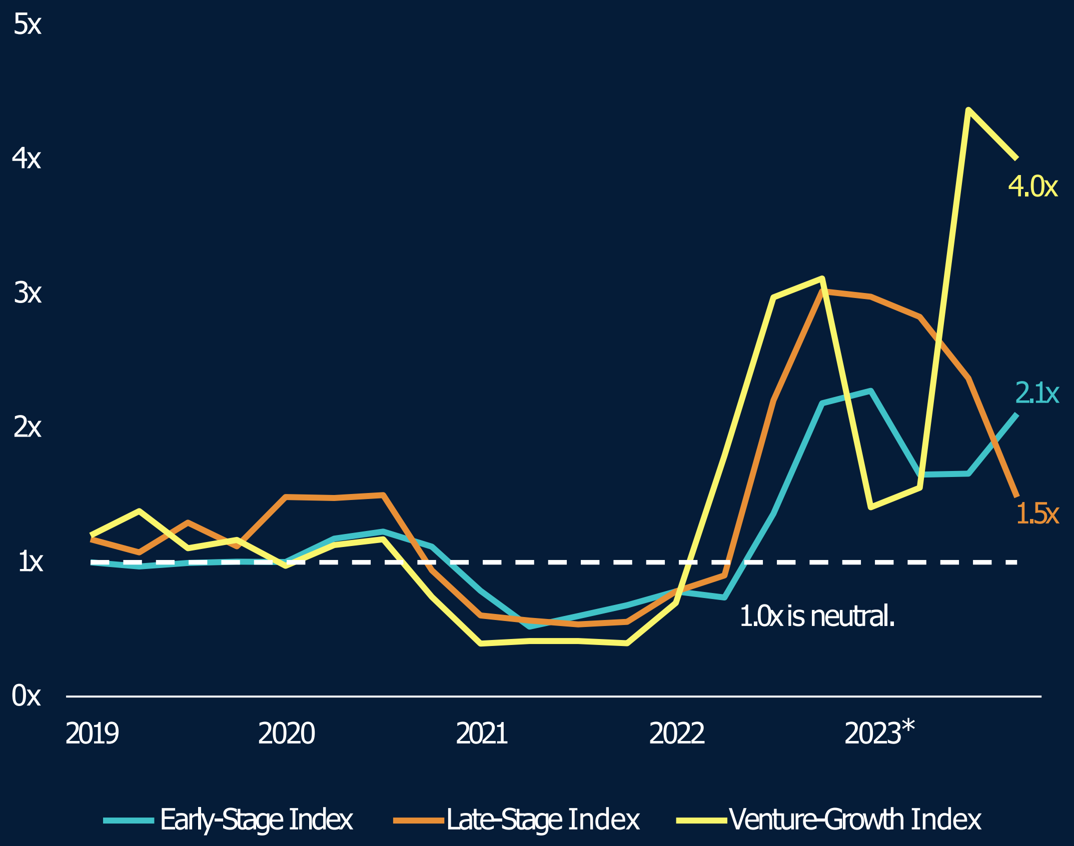
Demand is calculated by estimating how much capital companies will raise in their next round and spreading that amount over the historical probability of raising in the future. Capital supply uses observed VC deal value.

SaaS has been a staple of many VC investment portfolios in the last decade, but with the decline in VC deal activity, SaaS startups' need for capital has been largely unmet.

SaaS VC Dealmaking Indicator by quarter



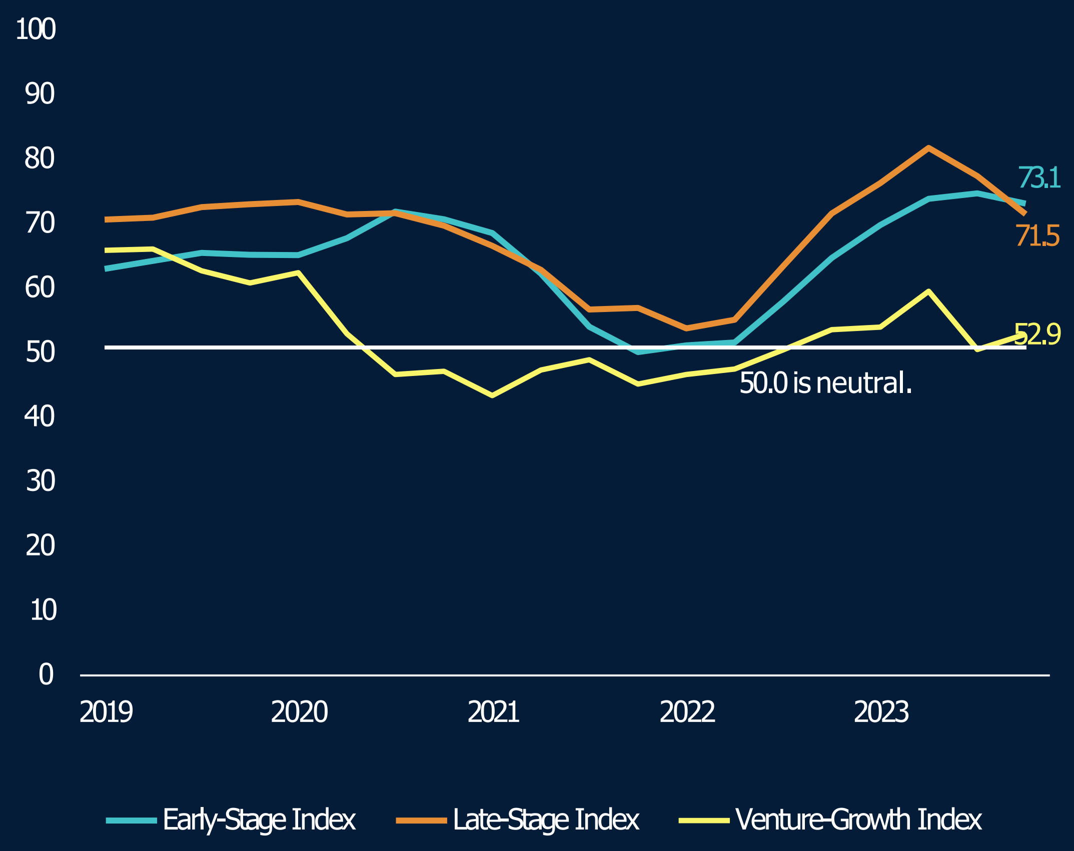
SaaS capital demand/supply ratio by quarter



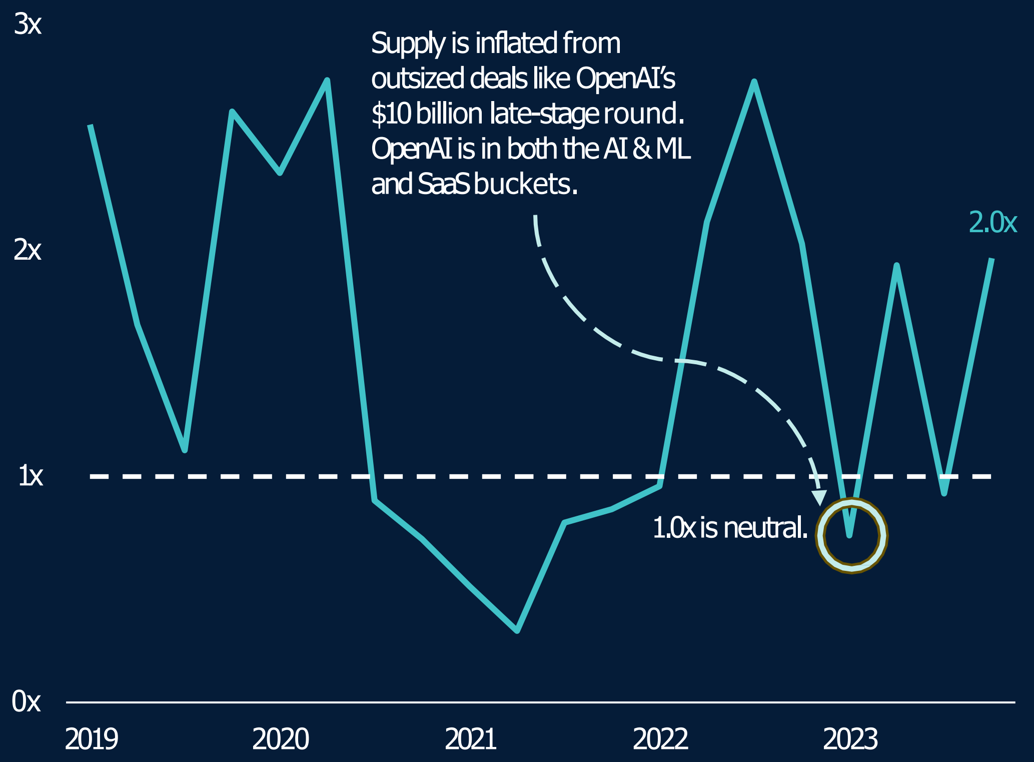
Source: PitchBook • Geography: US • *As of December 31, 2023

While AI & ML has remained less susceptible to changes in historical trends, outsized deals like OpenAI’s $10 billion late-stage round greatly impact the “supply” of capital.

AI & ML VC Dealmaking Indicator by quarter*



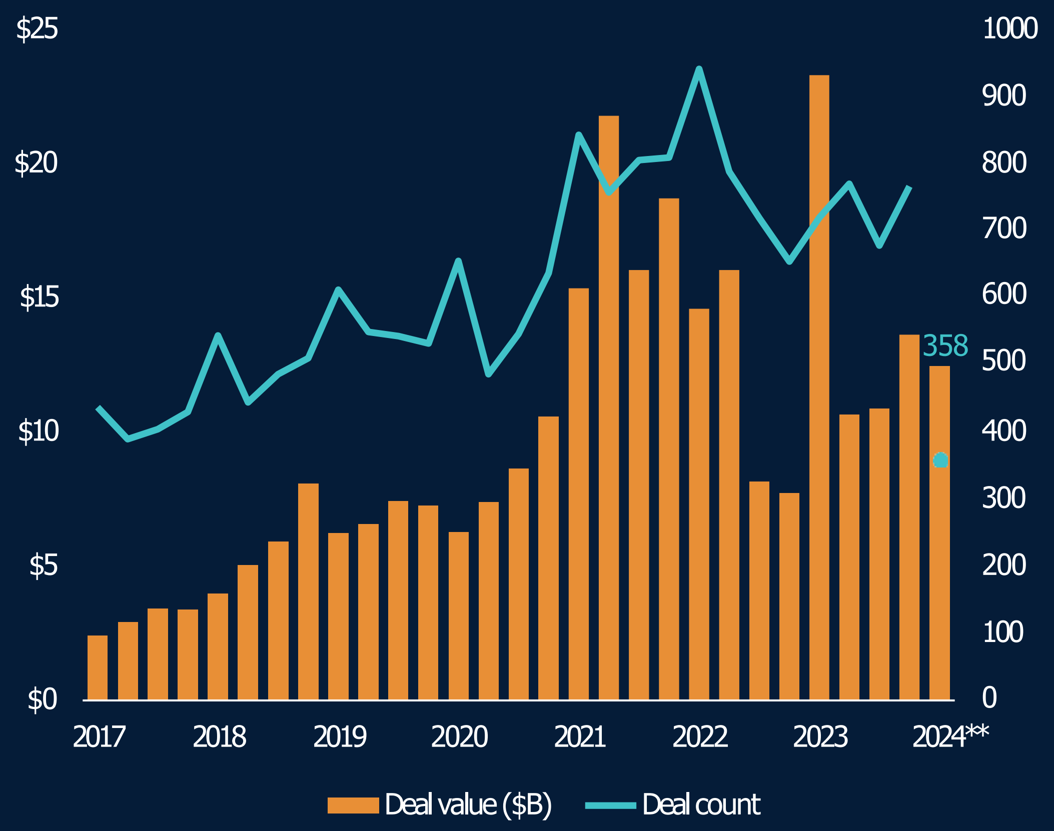
Aggregate AI & ML capital demand/supply ratio*



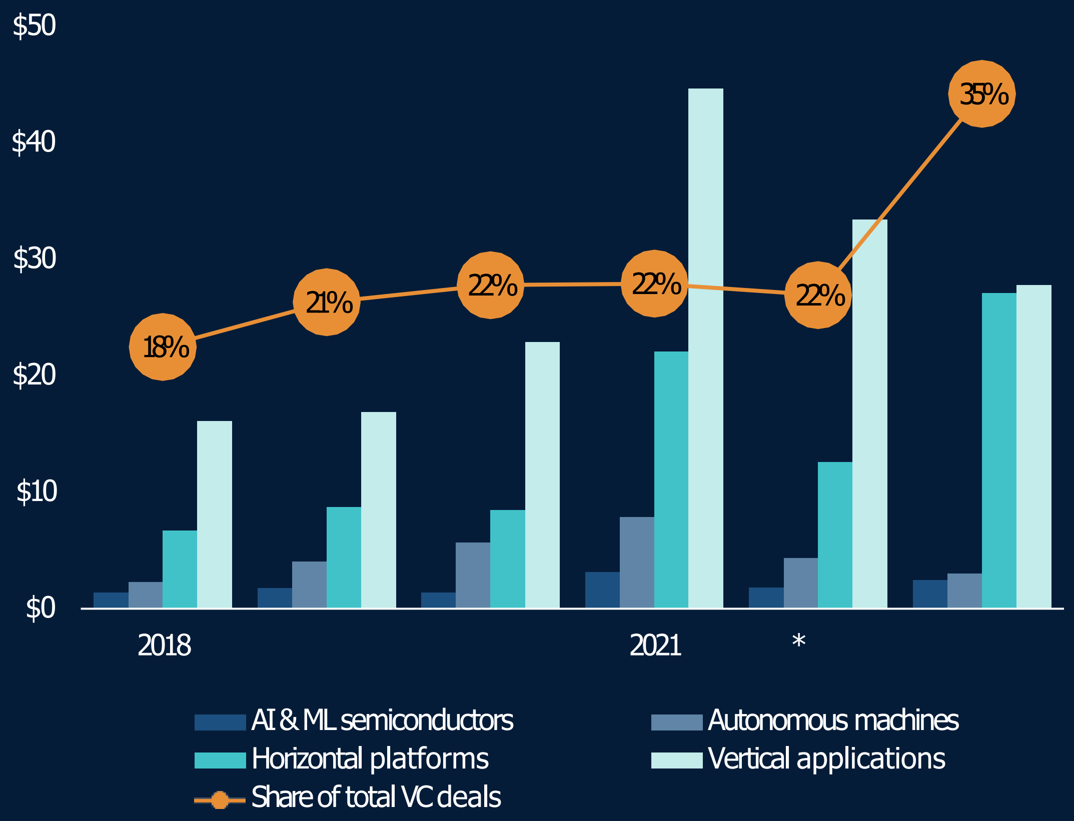
Source: PitchBook • Geography: US • *As of December 31, 2023

VC investors appear to be pivoting. Despite being a slow year for dealmaking, the share of VC dollars invested in AI & ML accelerated to 35.4% in 2023…

AI & ML VC deal activity by quarter



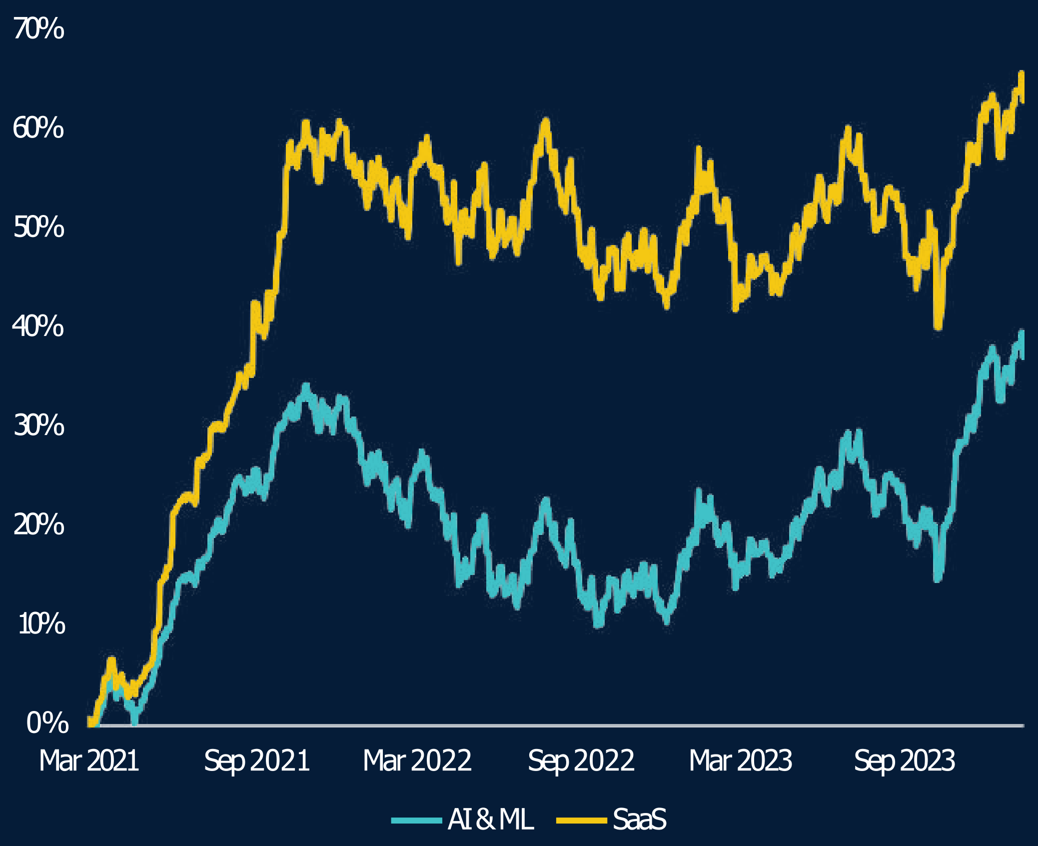
AI & ML VC deal value ($B) by segment and share of all VC deal value



Source: PitchBook • Geography: US • *As of January 31, 2024 • **As of February 28, 2024

…with late-stage unicorn valuations rebounding faster than VC’s previous darling, SaaS. Since the launch of ChatGPT in late 2022, AI & ML unicorns have outperformed on paper.

Morningstar PitchBook Unicorn Index returns by select sector *

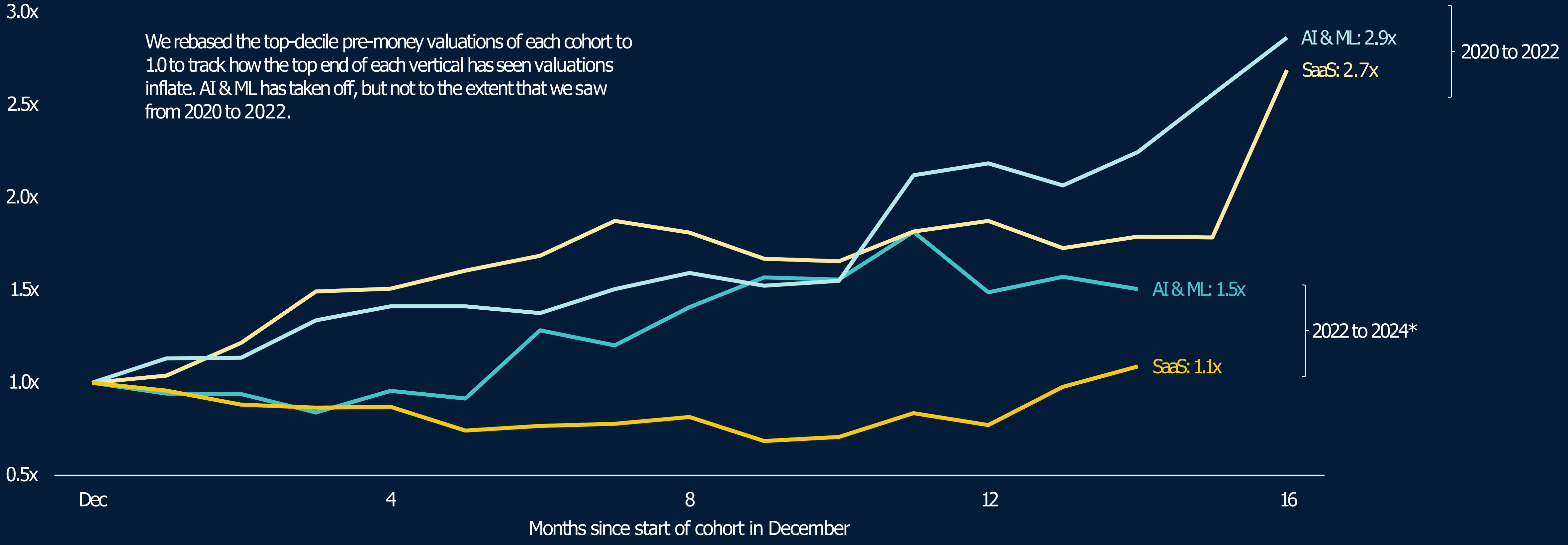


Morningstar PitchBook Unicorn Index returns by select sector

Sources: Morningstar, PitchBook • Geography: Global • *As of January 31, 2024

Top valuations of early-stage AI & ML startups have seen an uptick since ChatGPT's release, though not to the extent seen in 2021. Growth of top-decile SaaS valuations has been subdued.

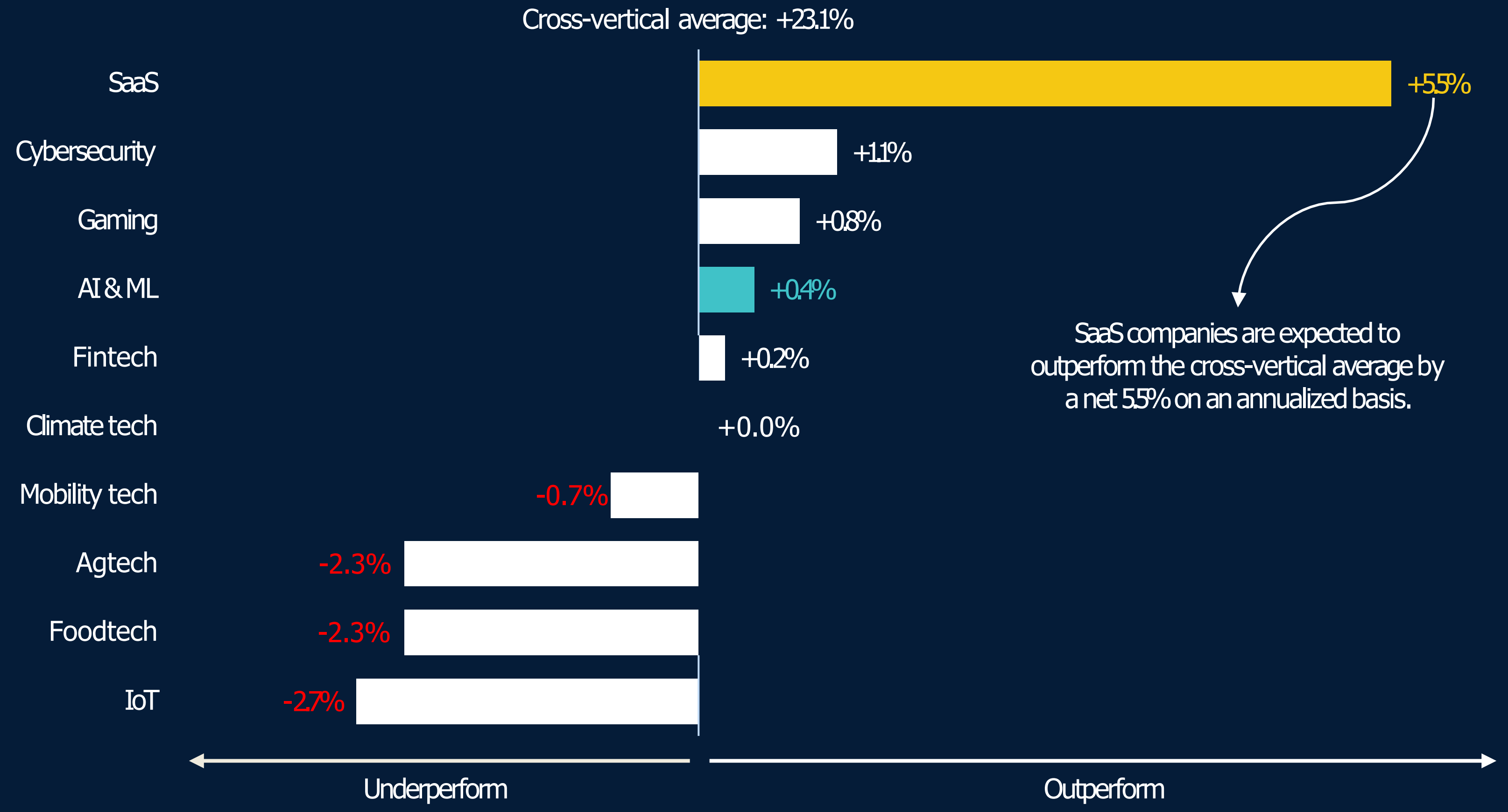
Rolling six-month average top-decile pre-money valuation multiples for new deals by select vertical, rebased to December of starting year



Source: PitchBook • Geography: US • *As of February 28, 2024

Despite the focus on AI & ML, our analysis still suggests that early-stage SaaS companies are likely to outperform the average vertical…

Annualized expected returns relative to the cross-vertical average*



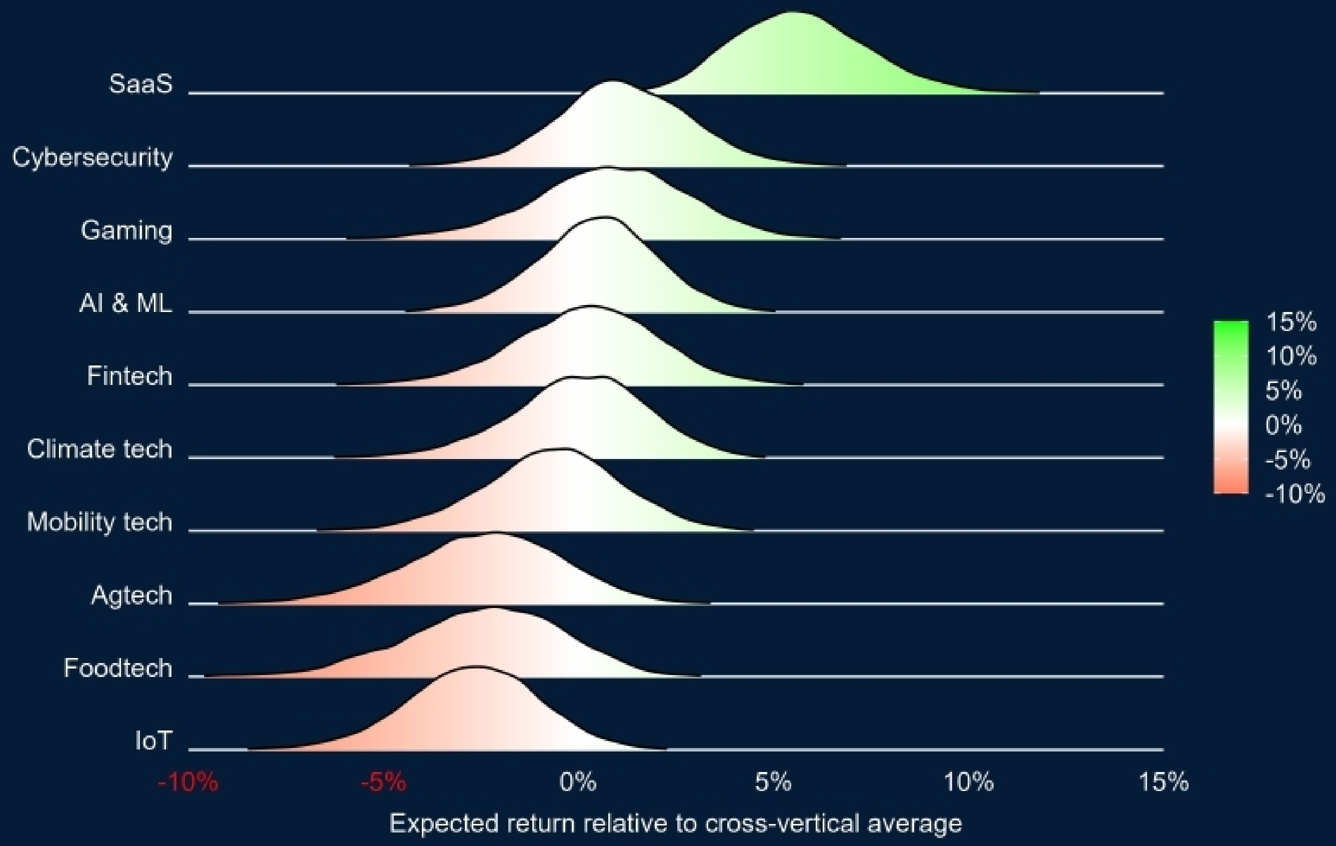
Source: PitchBook • Geography: Global • *As of December 31, 2023

Expected returns for each vertical are based on an aggregation of the expected returns for the underlying companies. Company-level returns are determined from the exit-type predictions and historical returns by series. For more information, please see our VC Emerging Opportunities report and the VC Exit Predictor methodology located in the PitchBook Help Center.

The cross-vertical average return of 23.1% is provided as a historical baseline value and should not be relied on as a forecast. This baseline value is derived from the average of deal-level return data from 2000 to 2021 and can vary significantly based on the environment at any given time. The relative returns for each vertical, however, are a more robust forward-looking measure because they are unaffected by factors that impact the entire VC ecosystem, such as interest rates, available funding, and economic growth.

…and simulations of exit outcomes provide evidence that bets placed in early-stage SaaS may lead to better payoffs.

Distributions of relative annualized expected returns based on Monte Carlo simulations*



Source: PitchBook • Geography: Global • *As of December 31, 2023

To assess the uncertainty of the relative expected returns shown on the prior page, we ran 10,000 Monte Carlo simulations that randomly generated exit outcomes for each company based on the exit probabilities from the VC Exit Predictor. At each iteration, we then used the random exit outcomes to calculate the return for each vertical. We assumed that exit outcomes between pairs of companies were positively correlated—the degree to which was based on a single common factor, as well as factors for each vertical.

This analysis suggests that there are three tiers of verticals based on expected performance. SaaS is expected to outperform with high confidence, while agricultural tech (agtech), foodtech, and Internet of Things (IoT) are expected to underperform. Meanwhile, the remaining verticals form a middle tier wherein the relative performance outcomes are much less certain.

Into the clouds

Public equity investors appear to agree with SaaS's prospects. VC-backed SaaS companies that recently completed an IPO are trading at higher multiples than AI & ML in the public markets.

Price/sales multiples of VC-backed IPOs in SaaS and AI & ML

Source: PitchBook • Geography: US • *As of February 28, 2024

Note: Five years of inclusion in indexed constituents