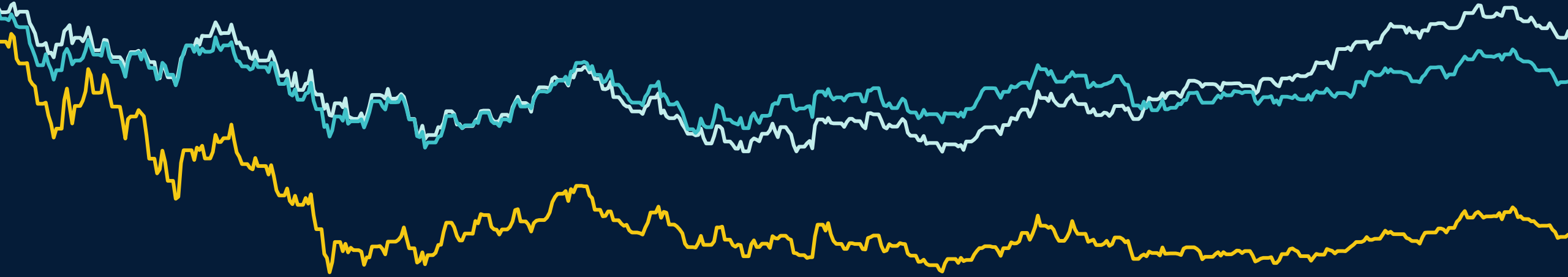




QUANTITATIVE PERSPECTIVES

Turbulence on the Approach

Q3 2023



Turbulence on the Approach

Introduction

It has been roughly 18 months since the federal funds rate hikes began. While the increases have been steep, they seem to have accomplished much of their goal: slowing the fast acceleration of the economy and battling inflation without causing an economic nosedive. Public markets have begun their recovery, with most indexes up year to date, and as inflation continues to slow toward the Federal Reserve's 2% goal and further interest rate hikes seem less certain, the idea of a soft landing has gained steam.

While the economy finds balance, the venture market is still struggling with a low supply of capital. More than 51,000 private companies in the US are VC backed, an enormous number of companies demanding capital that investors are unwilling to provide. The high number of companies may not seem like a problem, but the extent to which that figure has grown—doubling since 2016—highlights how problematic it has become, especially at a time when investors are keeping their dry powder close.

The major hurdle for venture has been the exit market, specifically public listings. In 2021, more than \$660 billion in exit value was generated through IPOs and deSPAC mergers, each event adding to the venture flywheel that produced records for deals, exits, and fundraising during that year. With a recent spate of listing activity, there is cautious optimism that the market for VC-backed IPOs could turn and the broader funding market could rebound before there is a major increase in down rounds or, worse, startup closures.

Published on September 20, 2023

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Key takeaways

- Macroeconomic indicators continue to point to a high probability of a recession in the next 18 months, which will contribute to uncertainty in the private markets.
- Tech indexes and performance indicators show challenging market conditions and will remain significantly below 2021 levels despite short-term rebounds.
- As US VC exit activity slowly picks up, there is a long road to recovery. Our IPO backlog estimates that 77 US startups are waiting to go public. With less capital being distributed to and recycled back into the VC ecosystem, more than \$800 billion was trapped in remaining value as of the end of 2022.
- VC dealmaking activity declined significantly in 2022 and 2023 but remains near long-term growth trends as investors become more risk-averse. However, artificial intelligence & machine learning (AI & ML) VC dealmaking activity remains resilient in the face of macroeconomic pressures.
- As capital availability has fallen significantly, all stages of the VC market have become the most investor friendly in the last decade, and startups are struggling to raise in a sluggish exit environment.

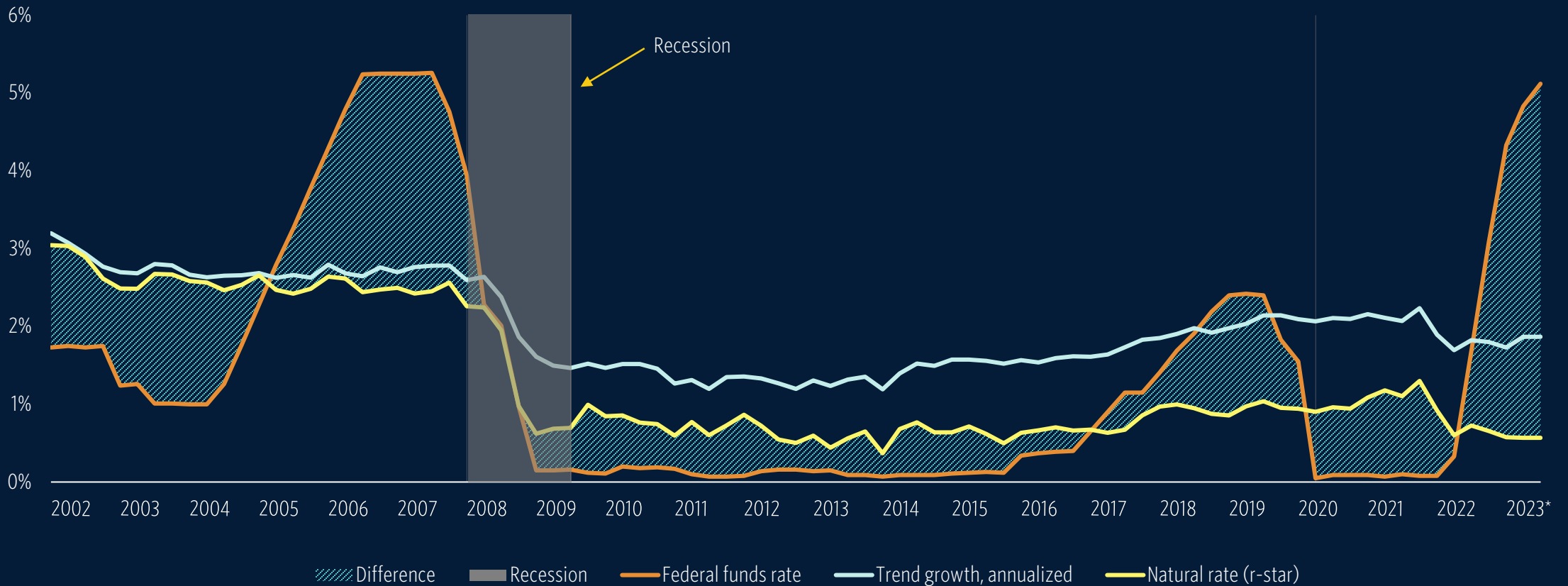


The economic backdrop



The Fed's restrictive monetary policy has created a gap between the fed funds rate and the r-star rate that is larger than it was prior to the financial crisis, indicating a potential market slowdown.

Federal interest rates and real rate of interest (r-star)



Sources: [FRED](#), [Federal Reserve Bank of New York](#) · Geography: US

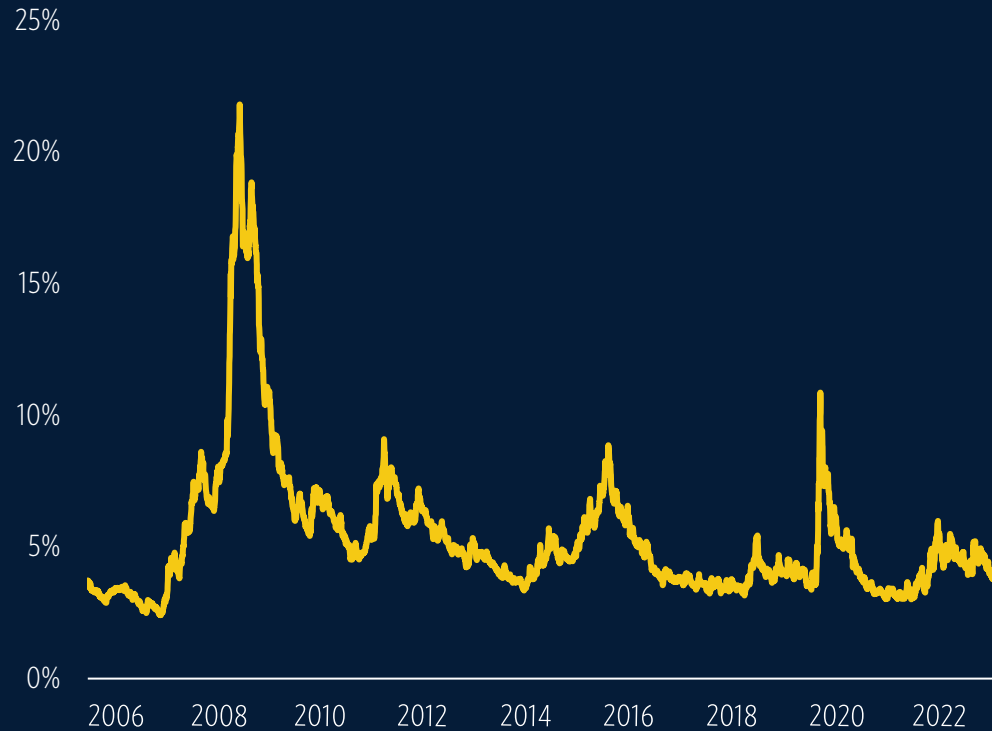
*As of July 1, 2023

Note: The R-star value for July 1, 2023, is rolled forward from the value for April 1, 2023.



Despite the stable levels of the High Yield Option-Adjusted Spread, a negative yield curve has been another forward indicator of every recession since 1955.

ICE BofA US High Yield Index Option-Adjusted Spread*



10-Year Treasury Constant Maturity Minus 2-Year Treasury Constant Maturity*

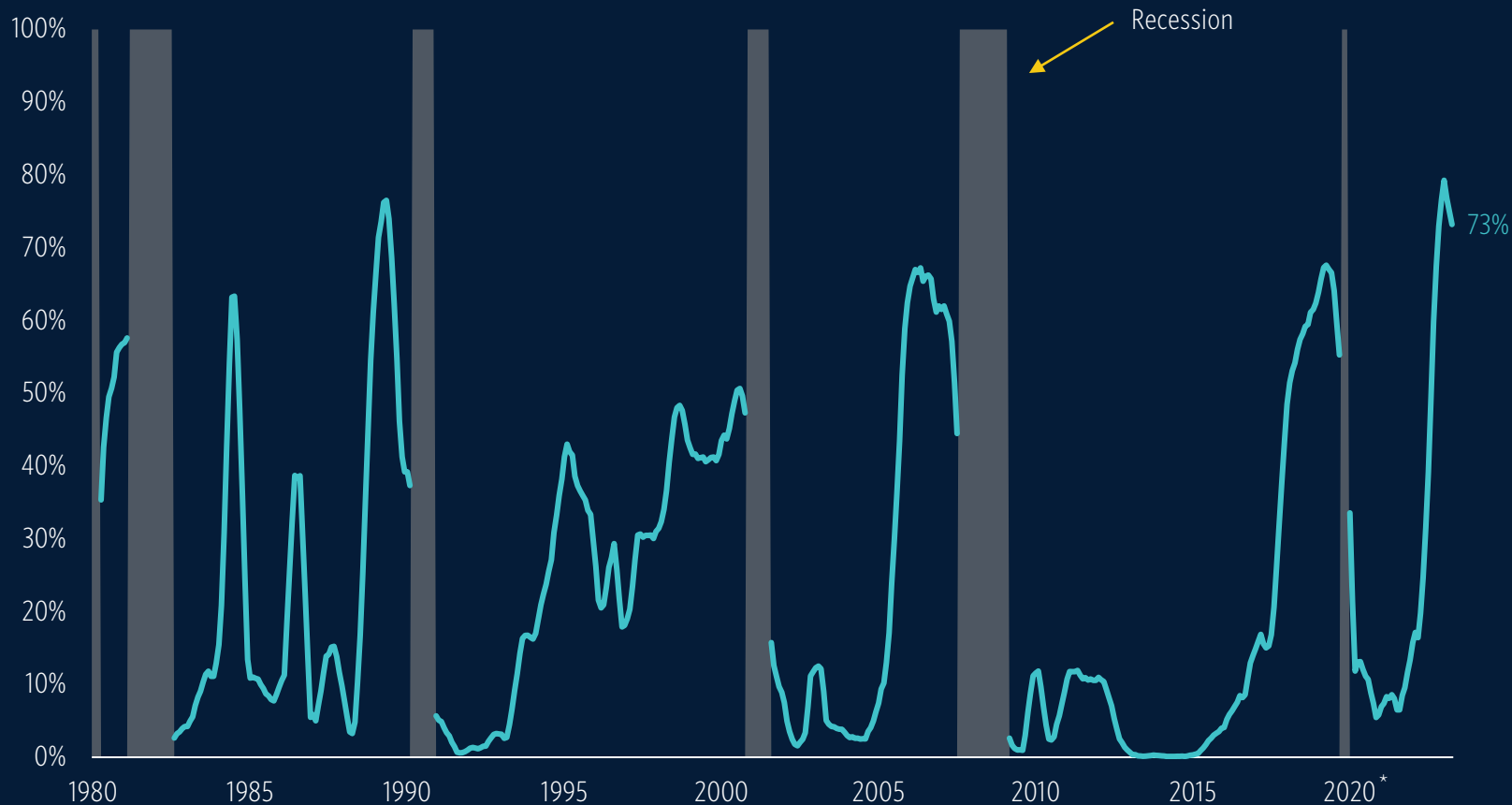


Sources: [FRED](#), [FRED](#) · Geography: US
*As of August 11, 2023



A spike in short-term interest rates and the inverted yield curve continue to suggest an elevated chance of a recession starting in H1 2024...

Smoothed probability of a US recession occurring in the next 18 months*



Our recession model shows a slight 5% decrease in the probability of a recession since the last time we pulled the model in May 2023. This is in line with market sentiments, as easing inflation and resilient economic and job markets indicate lower expectations of a recession. But the probability of a recession in the next 18 months remains high at 73%.

Source: PitchBook · Geography: US

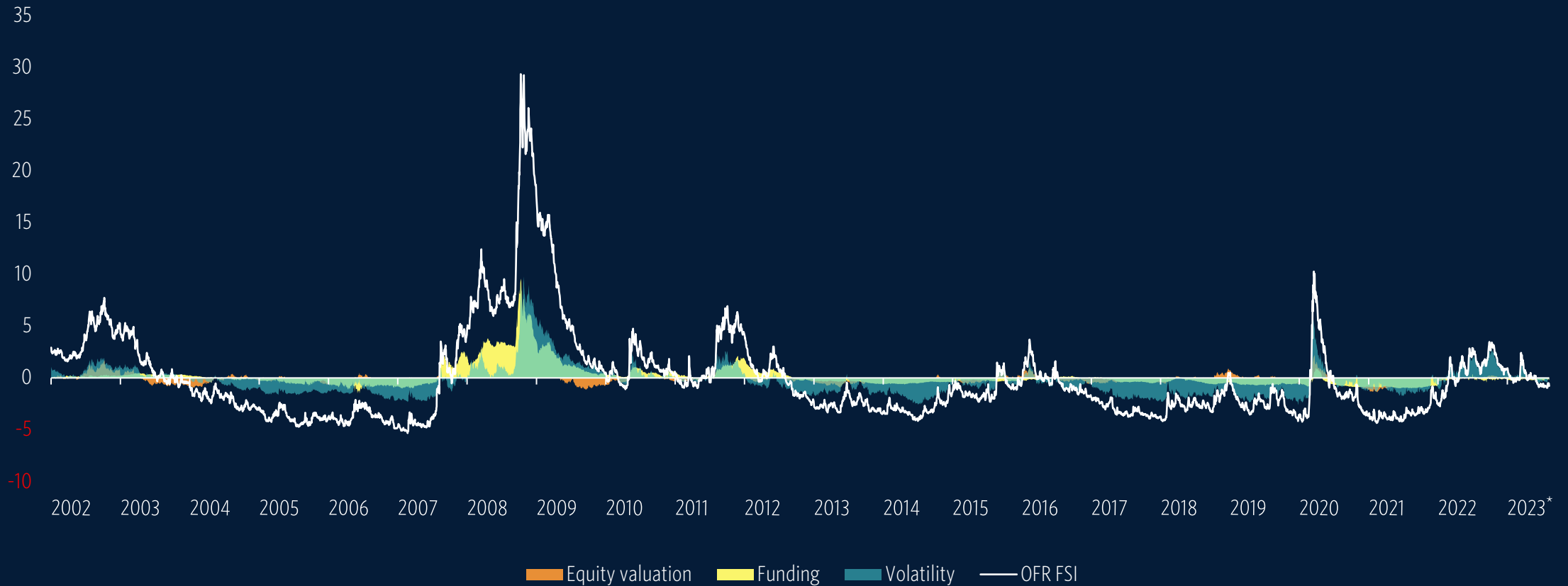
*As of August 31, 2023

Note: Predictions are out-of-sample and not made during a recession.



...which, in times of stress, creates the risk of rising uncertainty and a frozen funding market.

OFR Financial Stress Index (FSI)



Source: [OFR](#) · Geography: Global
*As of August 24, 2023

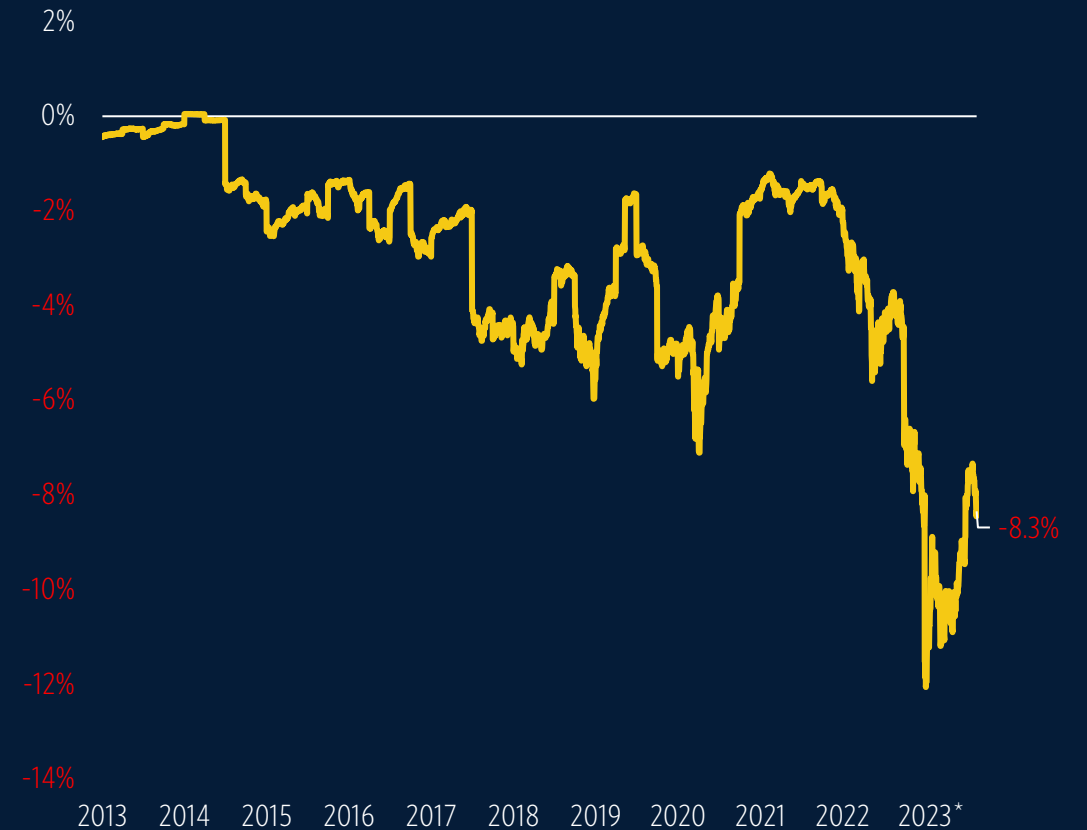


The price/sales (P/S) multiple of our VC-Backed IPO Index's tech constituents and their earnings yield are starting to rebound after market corrections in 2022...

Price/sales multiple of tech companies in the VC-Backed IPO Index



Earnings yield of tech companies in the VC-Backed IPO Index

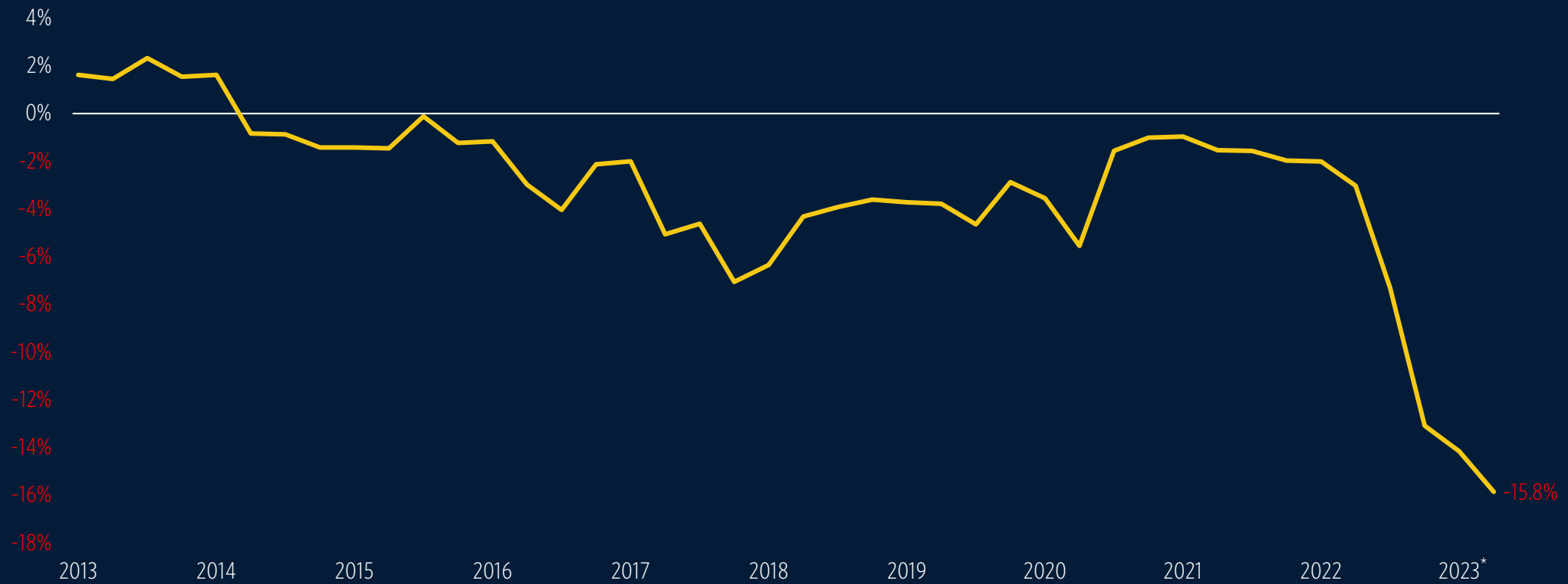


Sources: PitchBook, Morningstar · Geography: US
*As of August 18, 2023



...but their EBITDA/EV continues to decline, and high interest rates make less-risky alternatives more attractive.

EBITDA/EV of tech companies in the VC-Backed IPO Index

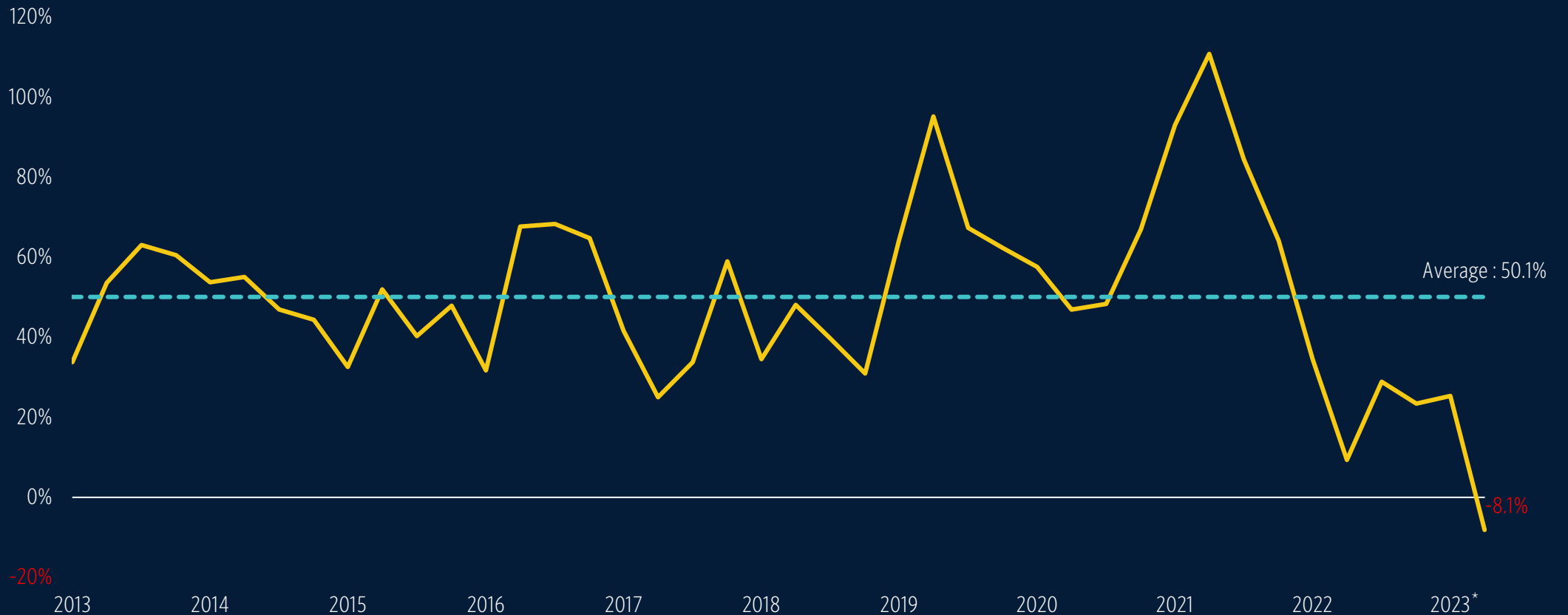


Sources: PitchBook, Morningstar · Geography: US
*As of August 18, 2023



Revenue growth in VC-backed public tech companies saw some short-term stability before further declining to much lower levels than the past decade's average.

YoY change in revenue of VC-backed public tech companies



Sources: PitchBook, Morningstar · Geography: US
*As of August 18, 2023



While the performance of our VC-Backed IPO Index has stabilized, it continues to lag well behind other public indexes.

Performance of PitchBook VC-Backed IPO Index versus Nasdaq 100 and Russell 2000 Growth (rebased to 100 in 2022)*



Sources: [PitchBook](#), Morningstar · Geography: US
*As of August 28, 2023

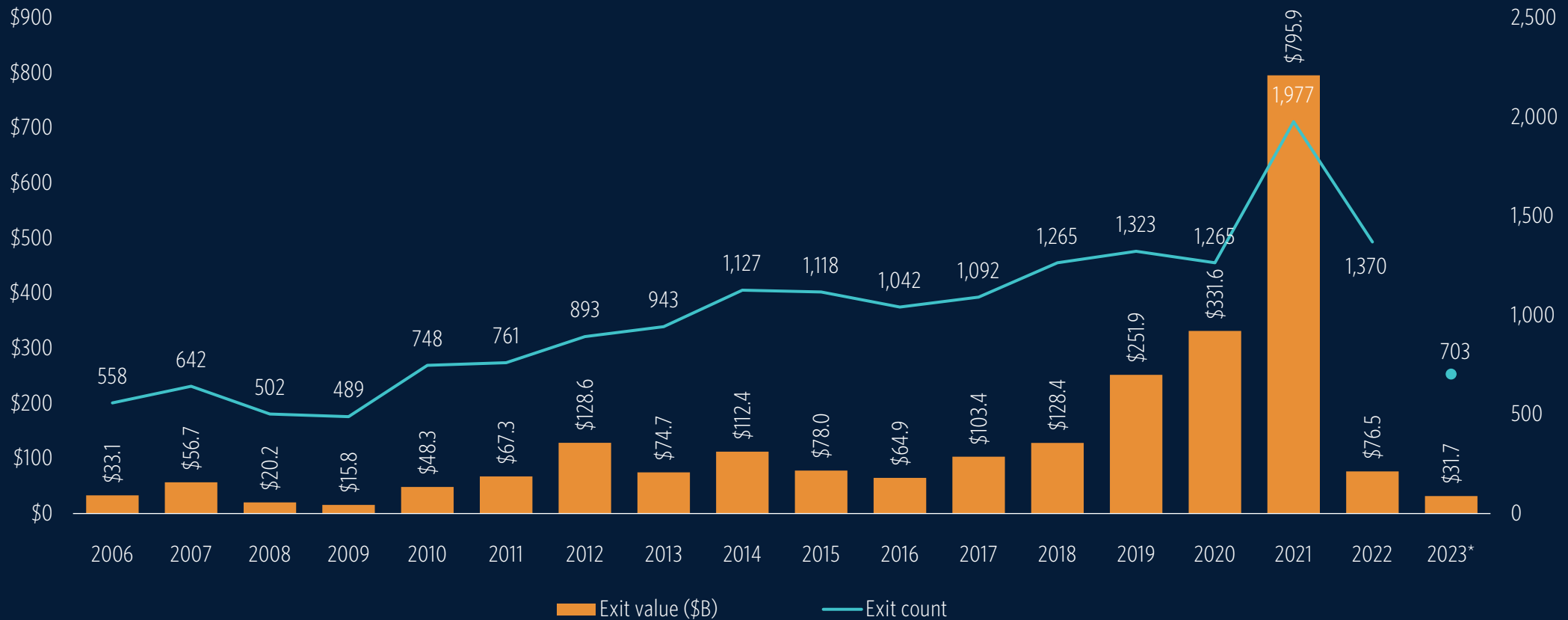


Backlog of VC-backed exits



Macro instability has shown through in VC-backed exits data. With the slow IPO market and a lack of M&A, 2023 is on pace to be the slowest year for exit value since 2009.

VC exit activity

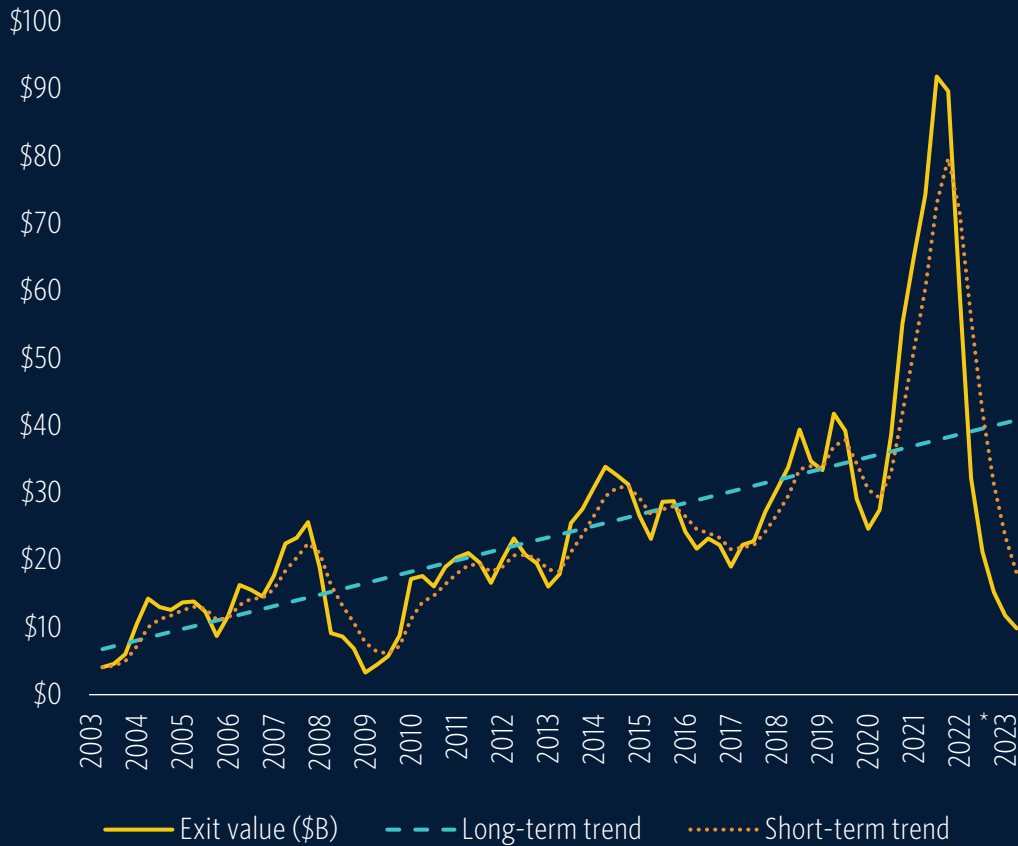


Source: PitchBook · Geography: US
*As of September 14, 2023

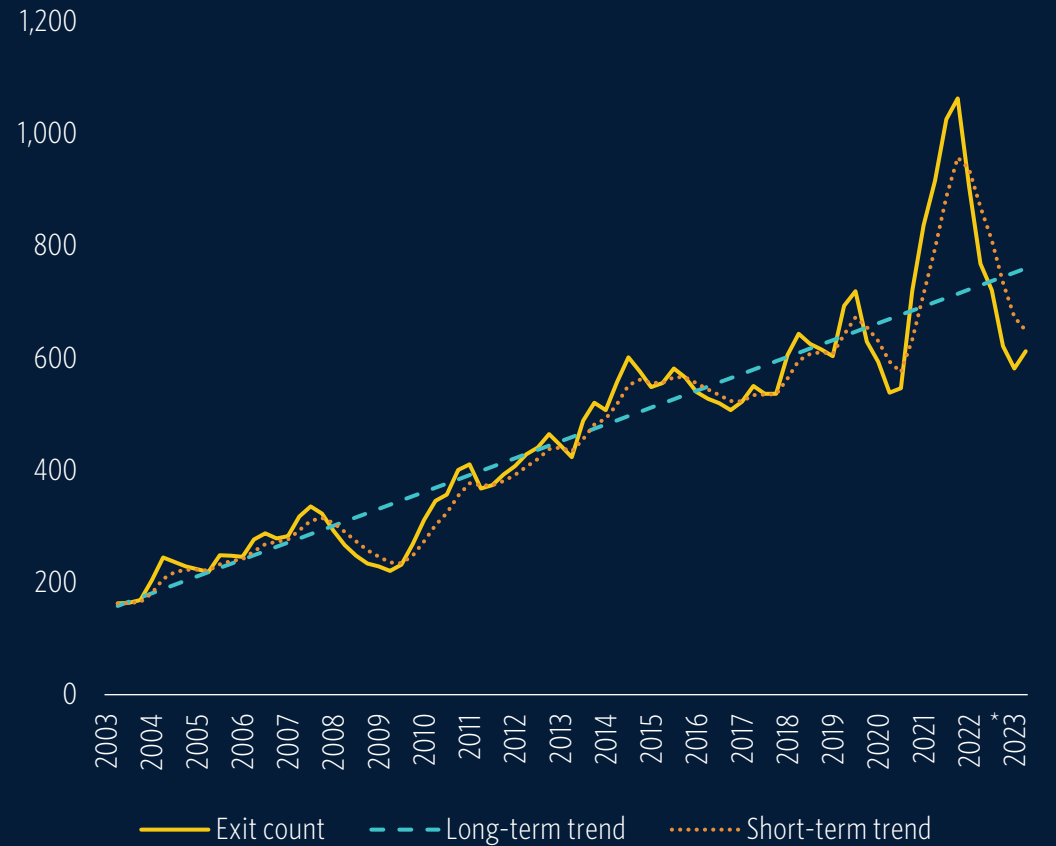


This is highlighted by the divergence between short- and long-term trends in exit activity.

VC exit value short- and long-term trends



VC exit count short- and long-term trends

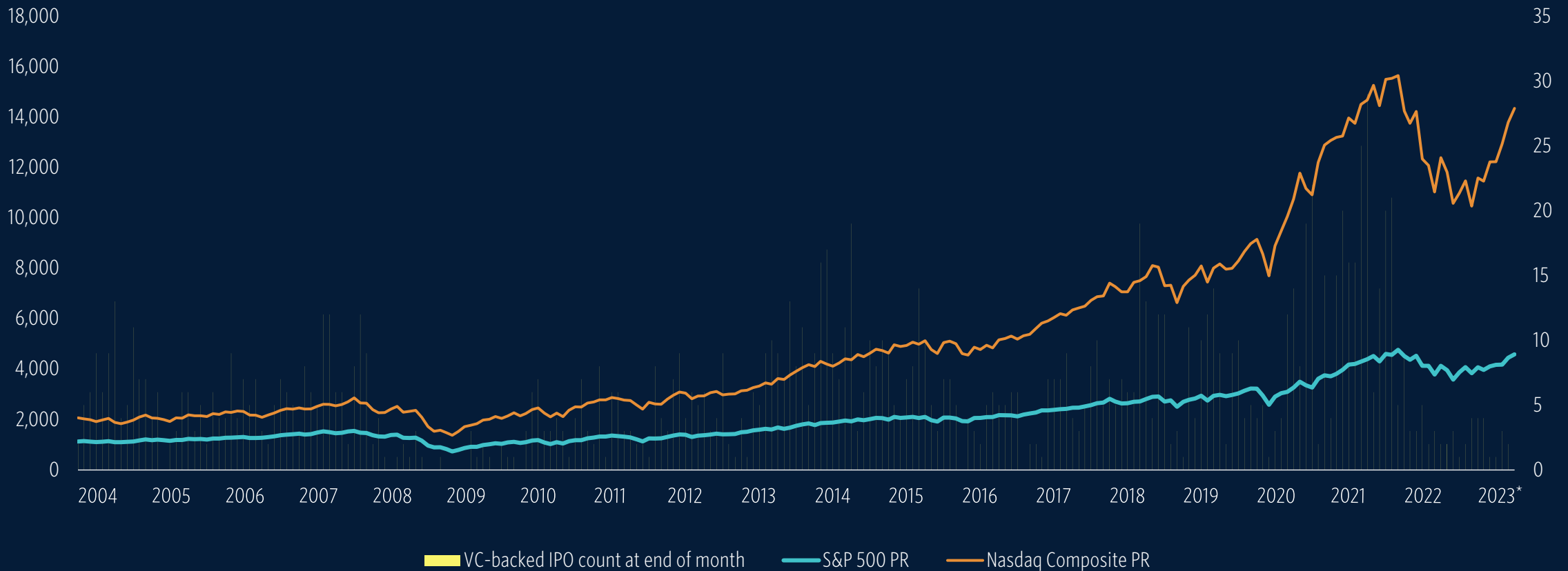


Source: PitchBook · Geography: US
*As of June 30, 2023



New public listings have been slow to return to previous levels despite rebounds in some tech indexes.

Monthly VC-backed IPO count versus S&P 500 price return and Nasdaq Composite price return



Source: PitchBook · Geography: Global
*As of August 31, 2023



A continued challenge has been the swift decline in P/S multiples, which has created a market in which even growing companies face lower valuations.

Trailing 12-month P/S multiple of VC-Backed IPO Index (excluding pharma & biotech)

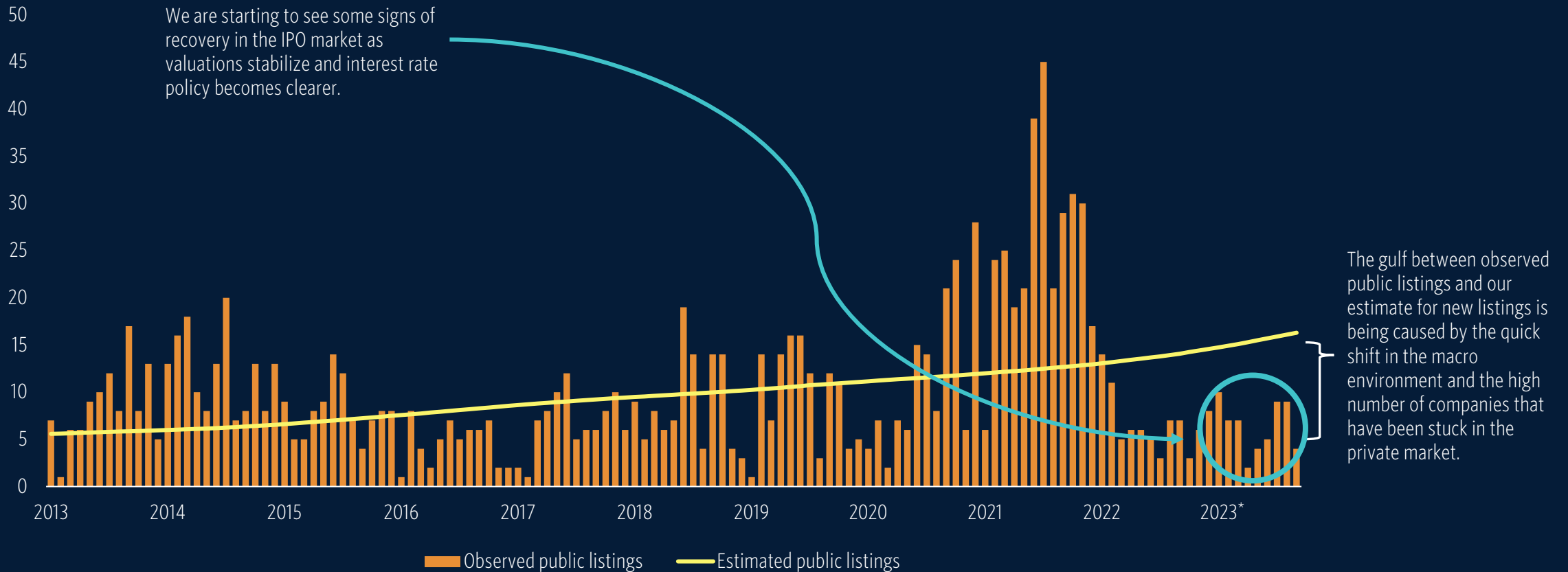


Source: PitchBook · Geography: US
*As of September 14, 2023



The number of completed listings has not outpaced our estimate for the number in 18 months, leading to a backlog of companies waiting to go public and stifling venture returns.

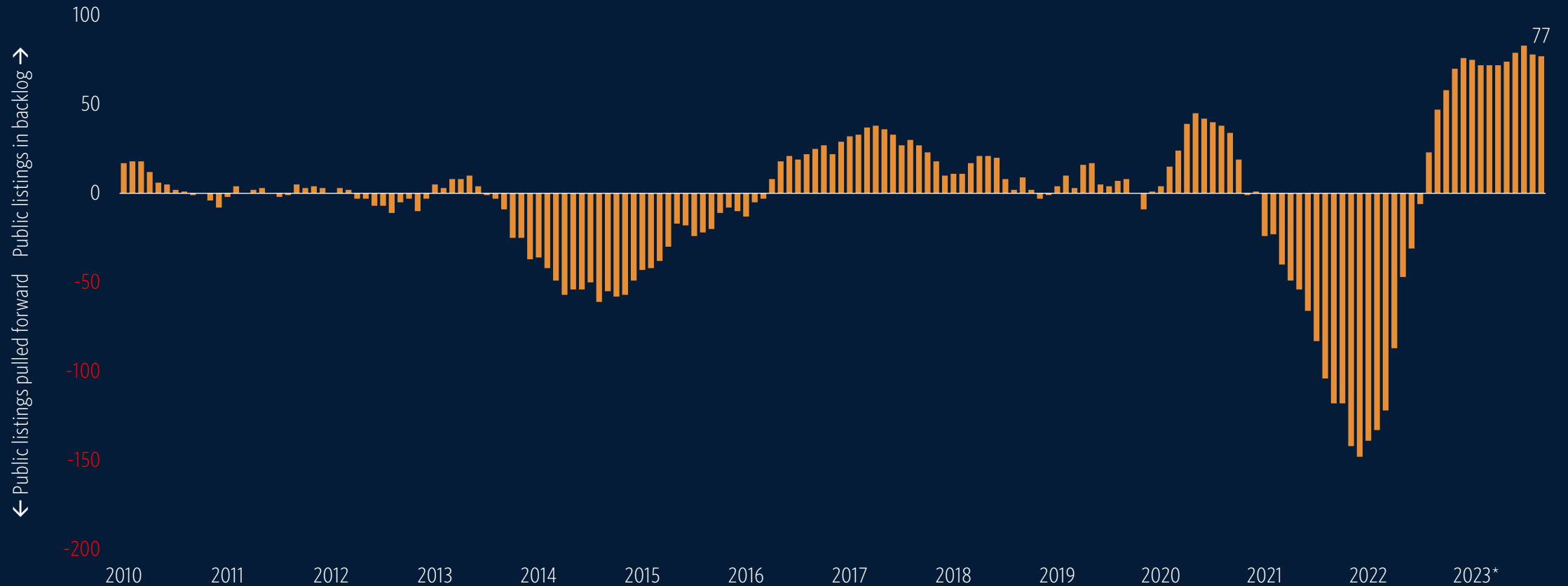
Monthly VC-backed public listings versus estimated IPO backlog





Pent-up demand for public listings is peaking as startups continue to wait for positive market conditions.

Estimated IPO backlog



Source: PitchBook · Geography: US
*As of September 14, 2023

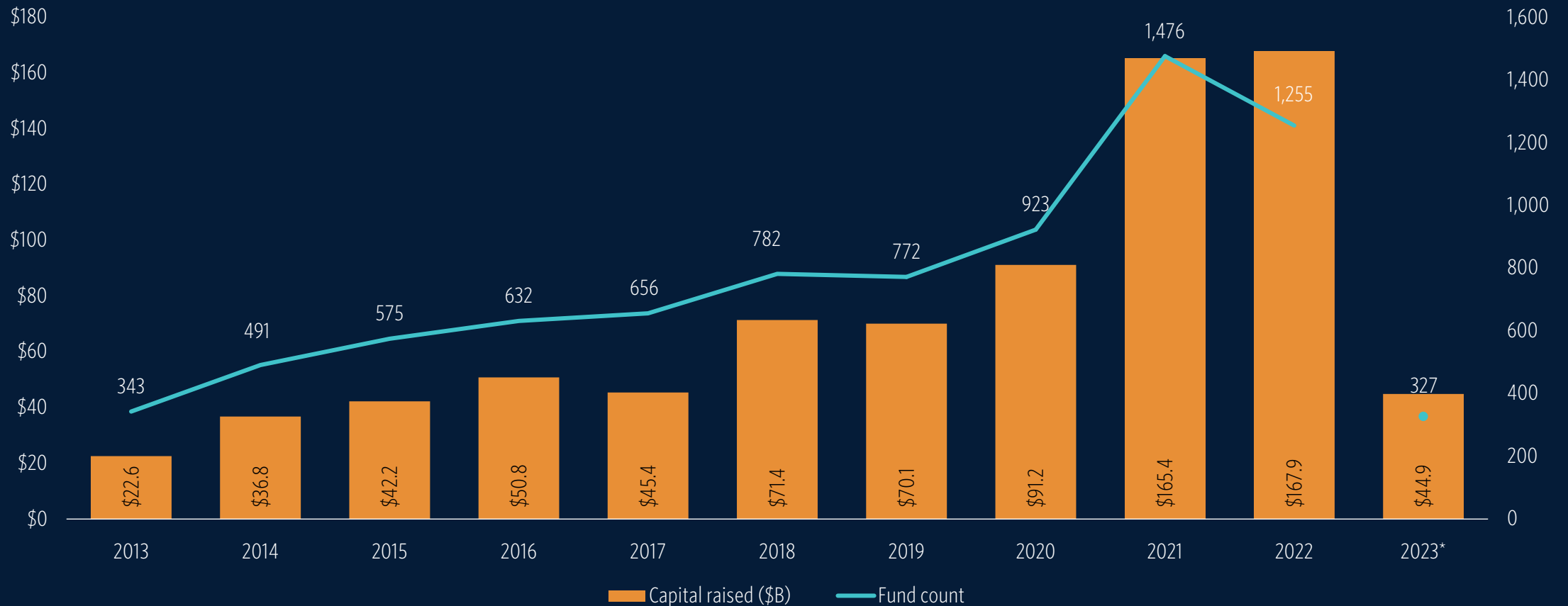


Current fundraising environment



Venture fundraising remains slow through H1 2023, setting the pace for full-year fundraising to hit a six-year low...

VC fundraising activity

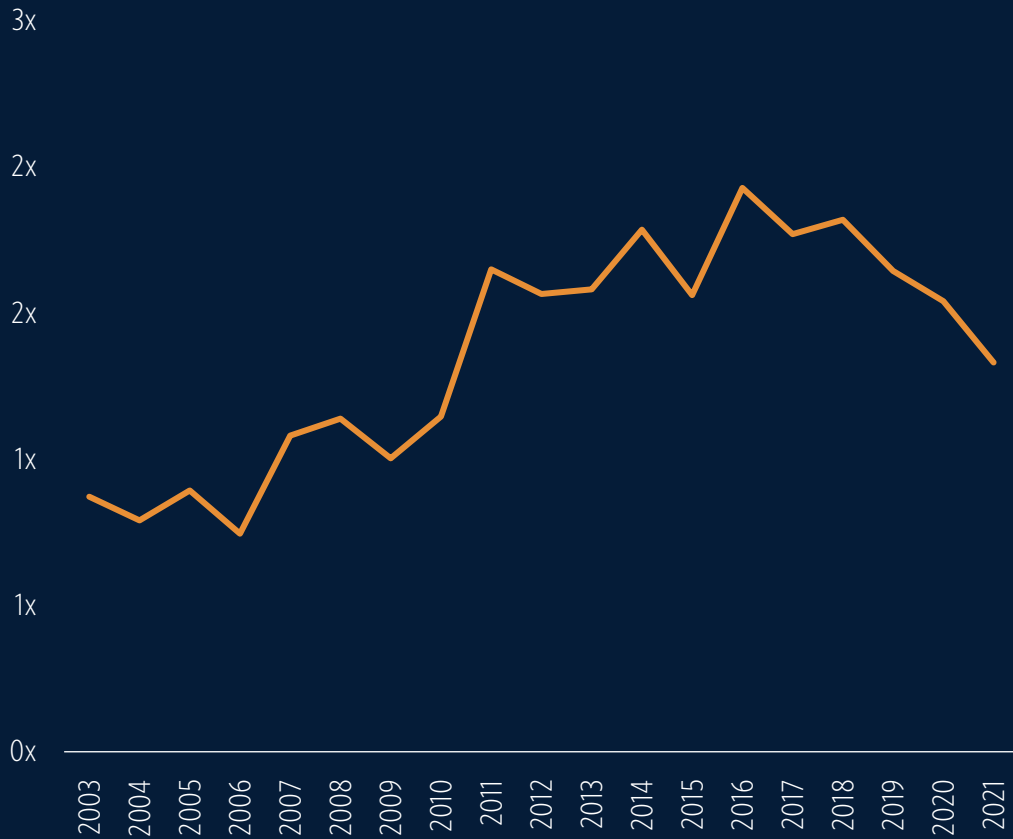


Source: PitchBook · Geography: US
*As of September 14, 2023

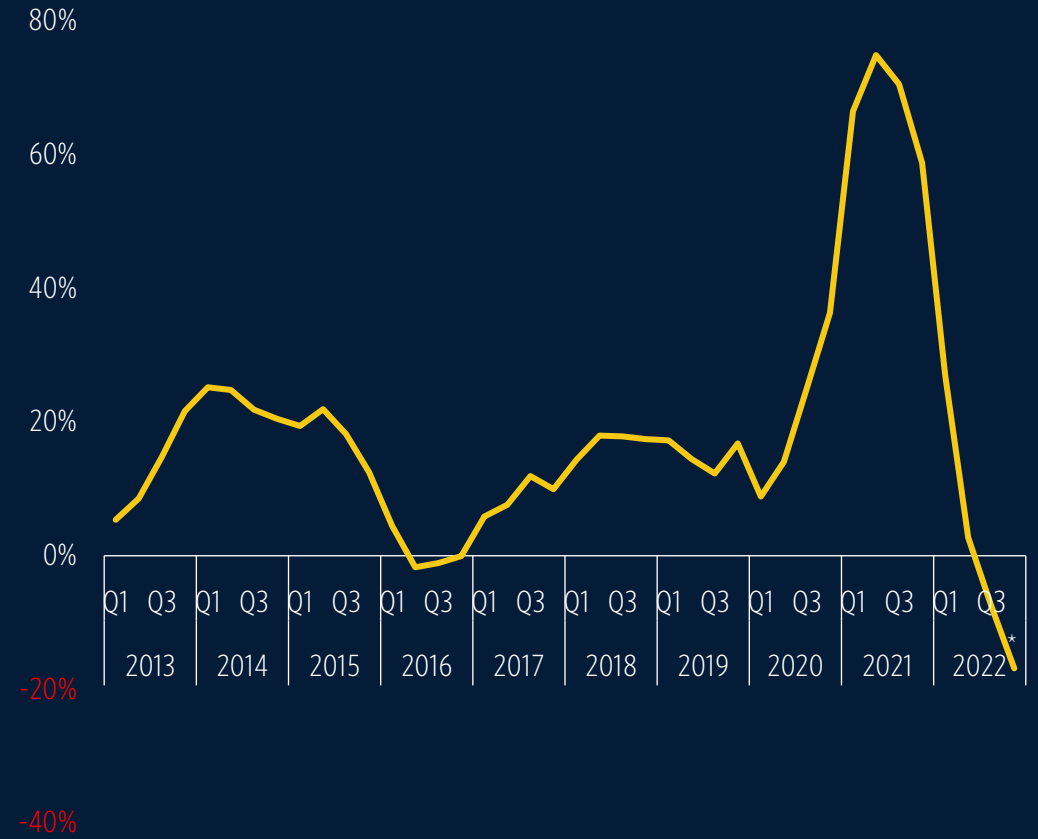


...possibly due to the falling performance of US VC funds relative to the public market.

VC Kaplan-Schoar PME (Russell 2000 Growth) by vintage*



VC IRR by quarter

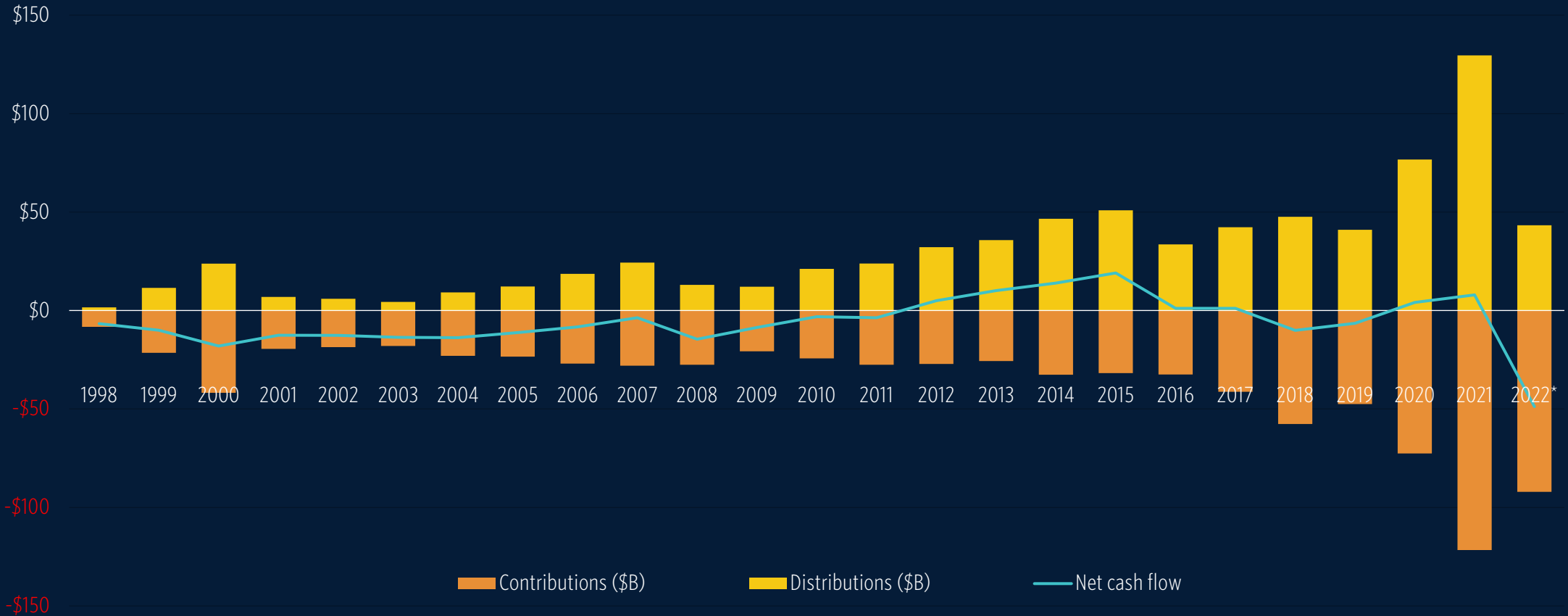


Source: PitchBook · Geography: US
*As of December 31, 2022



Net cash flow sharply decreased through 2022...

VC cash flow

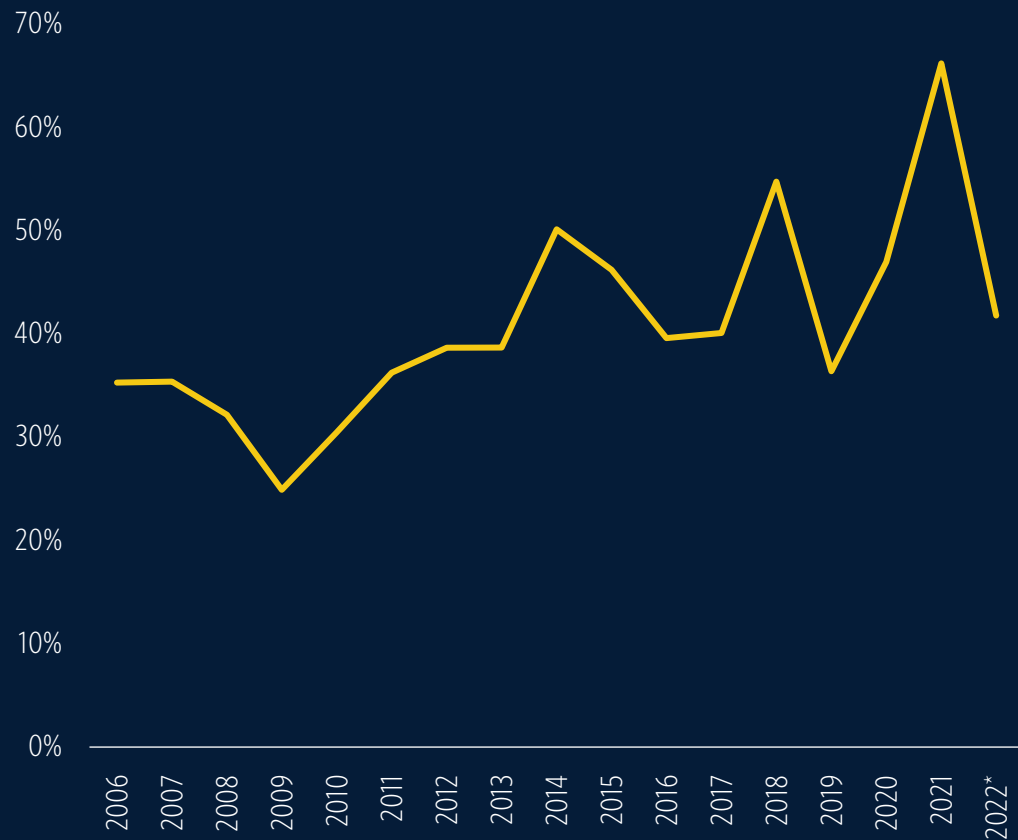


Source: PitchBook · Geography: US
*As of December 31, 2022

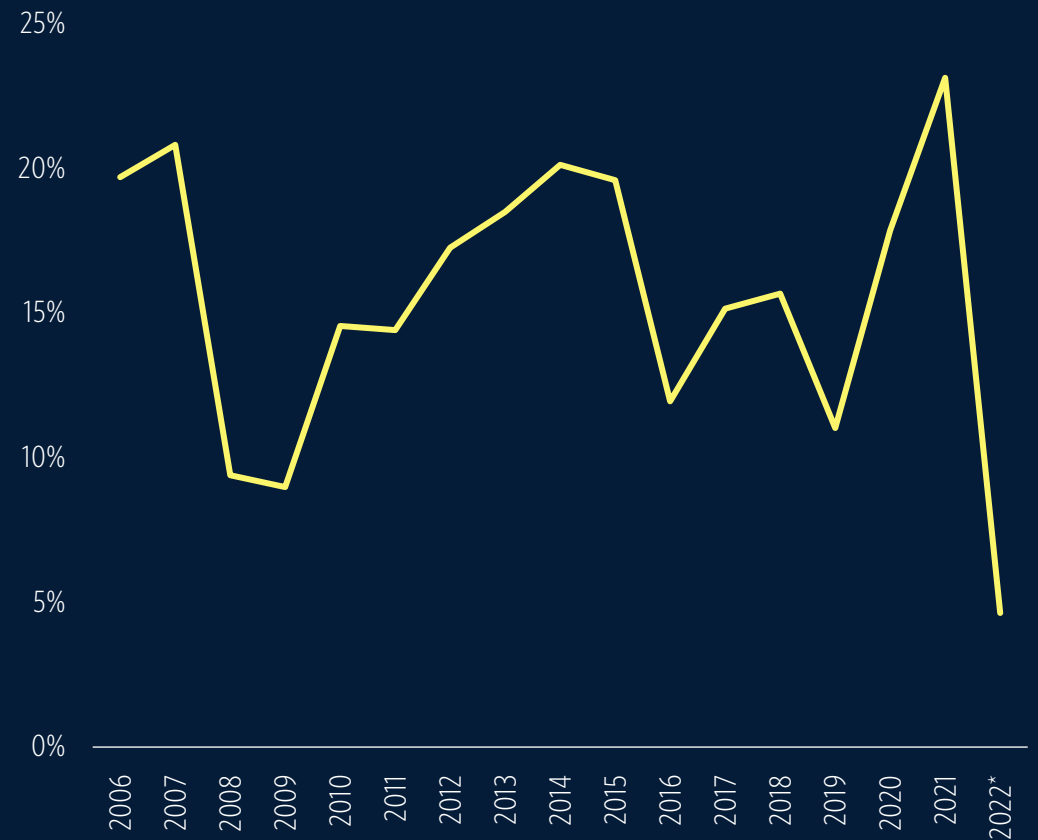


...and figures show a swift decline in cash flow percentages as both LPs and GPs remain passive in the face of market instability.

Contribution/prior year's dry powder of VC funds



Distribution/prior year's NAV of VC funds

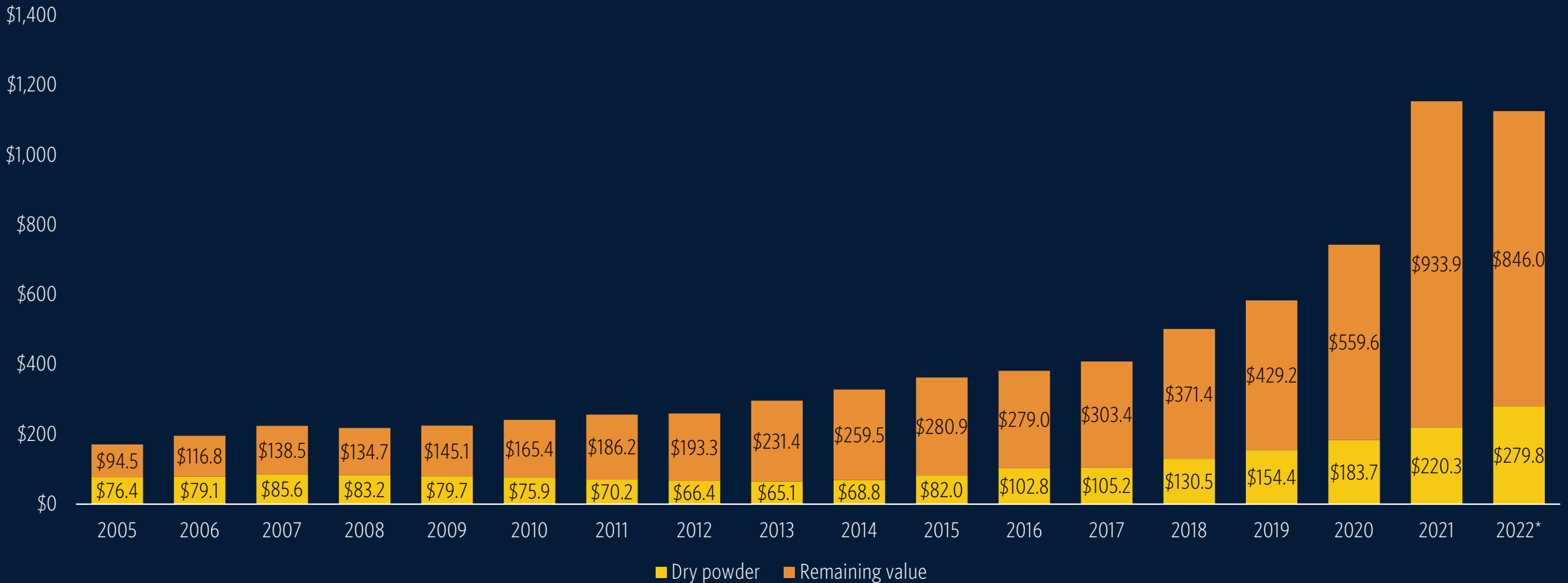


Source: PitchBook · Geography: US
*As of December 31, 2022



Large amounts of returns are still locked in the private market, creating a stoppage in the VC ecosystem flywheel.

VC AUM (\$B)



Source: PitchBook · Geography: US
*As of December 31, 2022

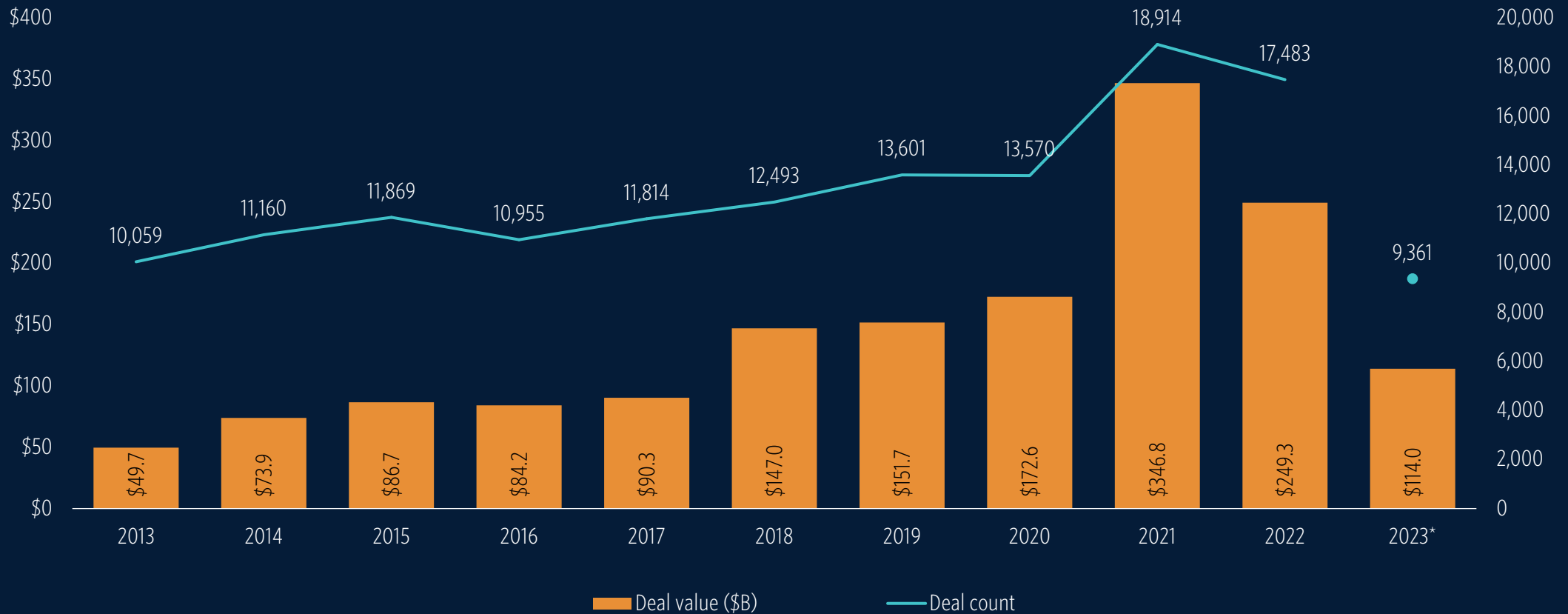


Impact on VC dealmaking



Dealmaking has remained above annual paces prior to 2021; however, deal value has fallen significantly and leaves many startups with diminished options for growth.

VC deal activity

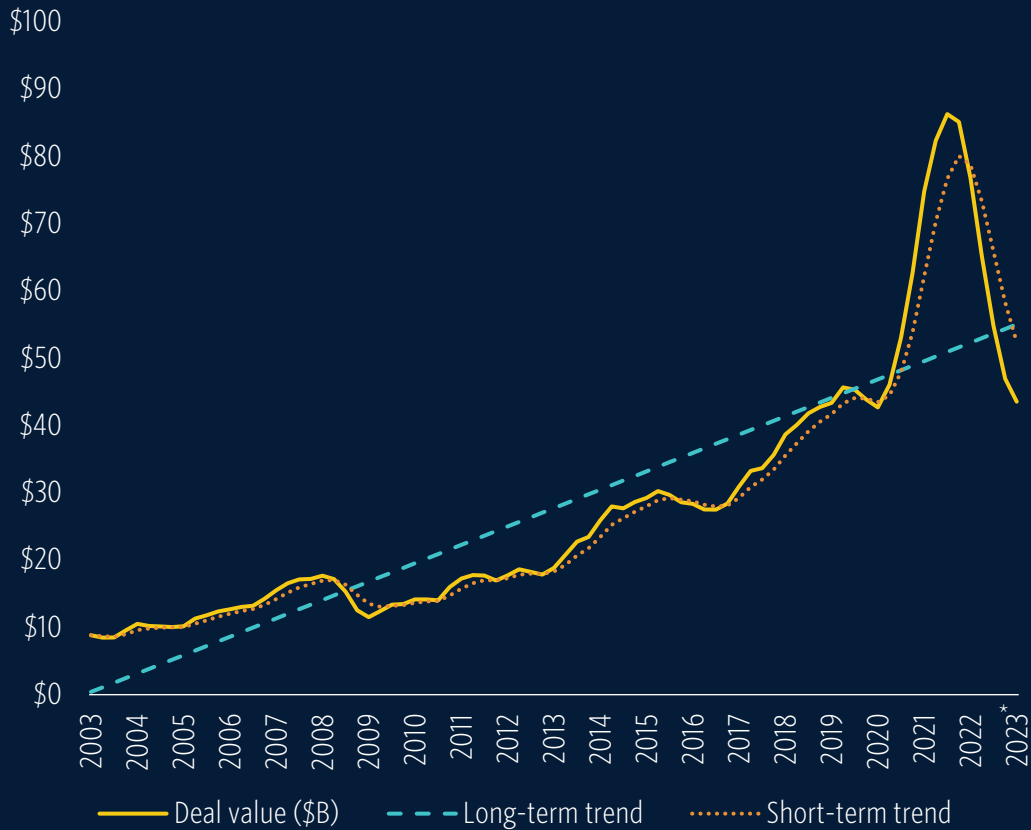


Source: PitchBook · Geography: US
*As of September 14, 2023

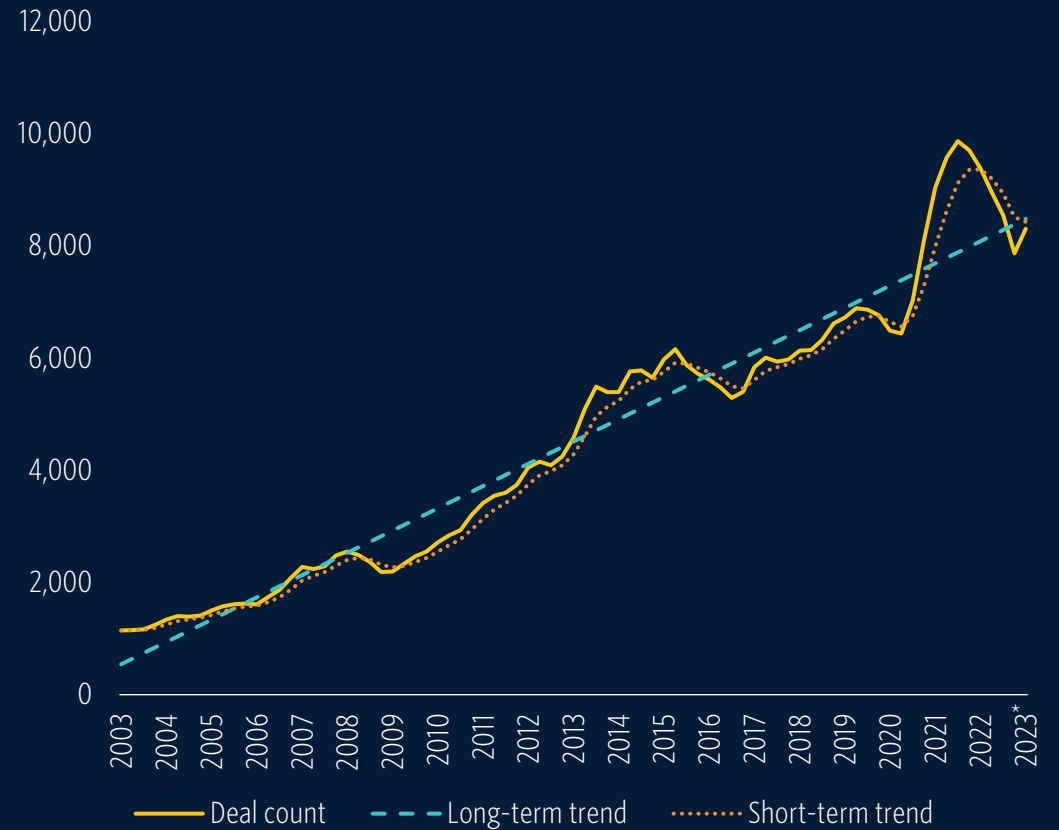


Deal count trends show a possible bottom of the dealmaking market, but deal value tells a different story.

VC deal value short- and long-term trends



VC deal count short- and long-term trends

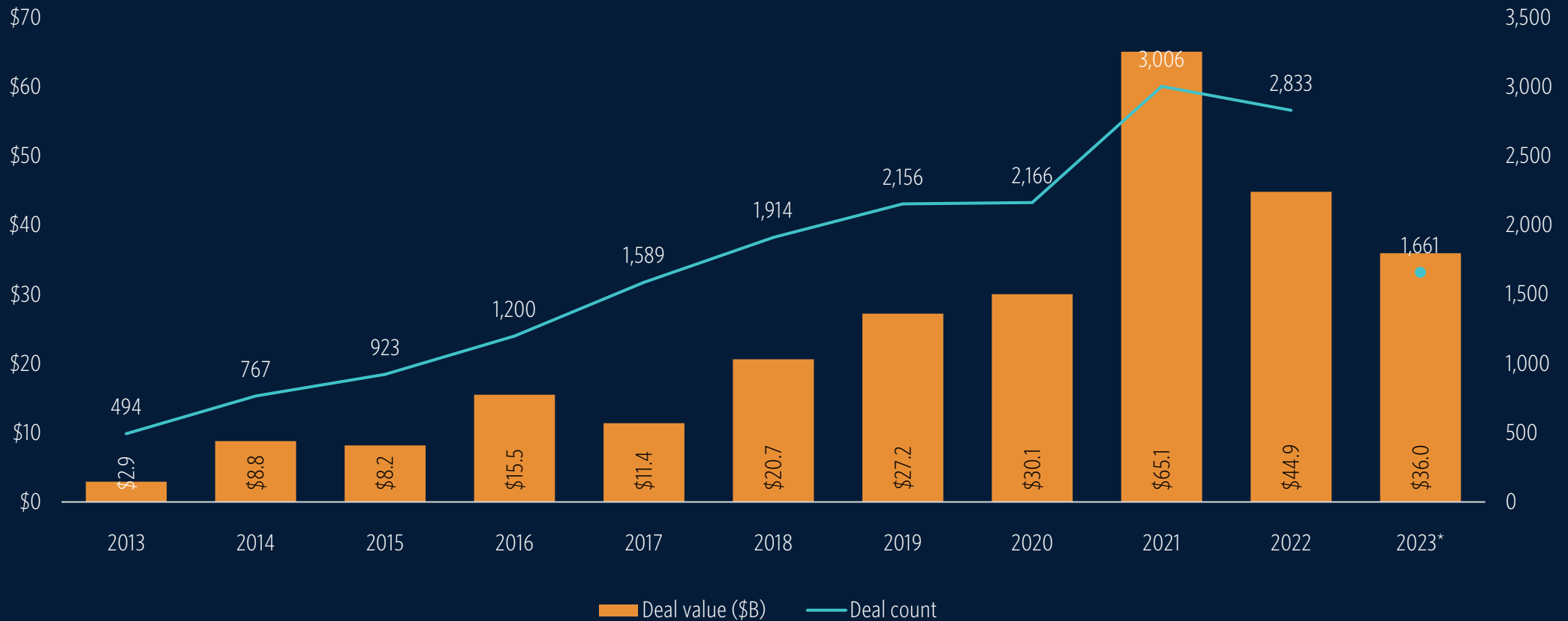


Source: PitchBook · Geography: US
*As of June 30, 2023



A bright spot within venture has been AI & ML, which is pacing to new records for deal count and deal value despite the broader slowdown.

AI & ML VC deal activity

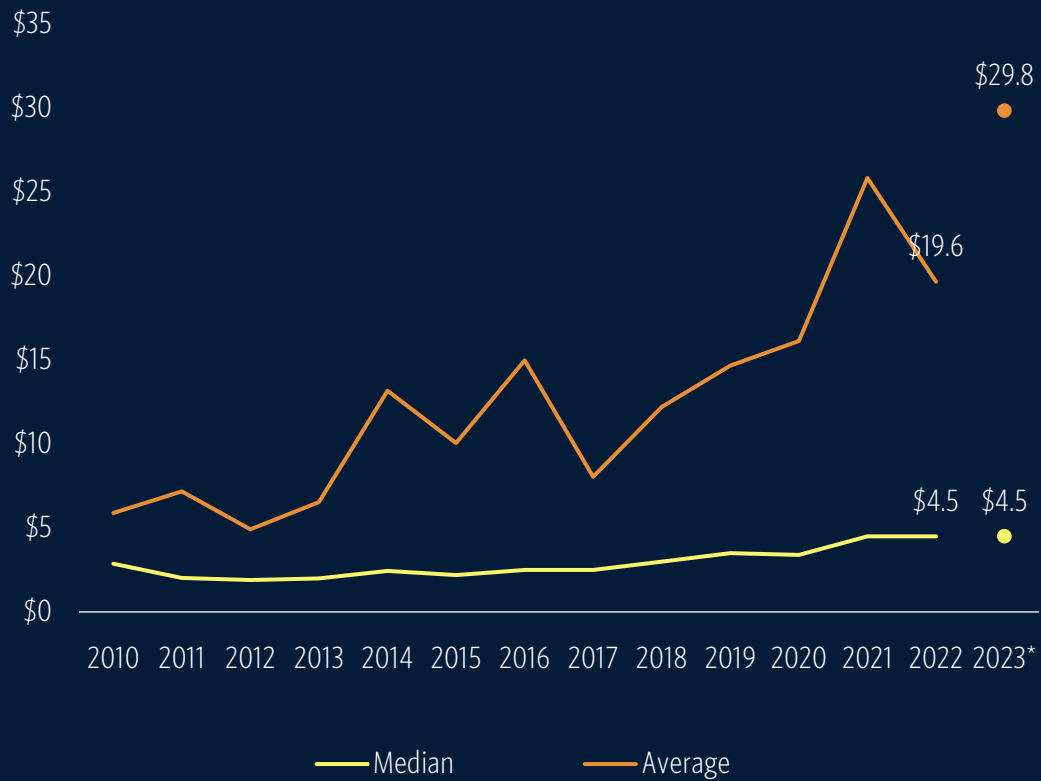


Source: PitchBook · Geography: US
*As of September 14, 2023

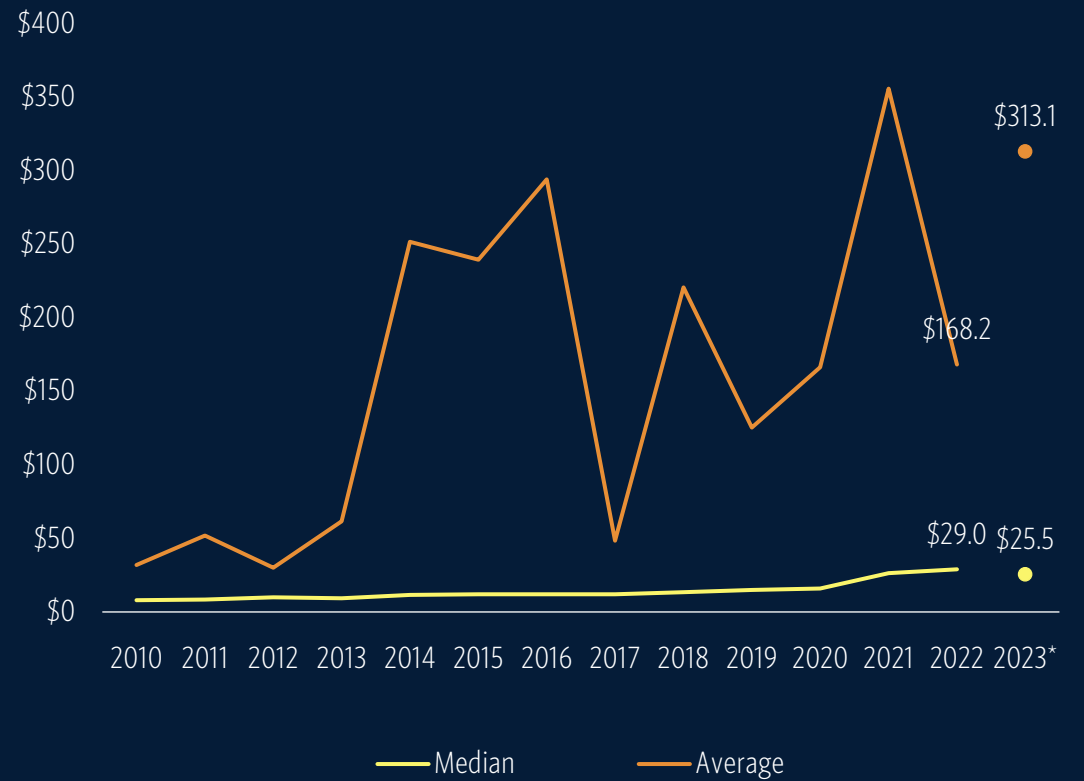


Average valuations for AI & ML companies have even increased...

Median and average AI & ML VC deal value (\$M)



Median and average AI & ML VC pre-money valuation (\$M)



Source: PitchBook · Geography: US
*As of September 14, 2023



...alongside global public market AI indexes.

Global X Artificial Intelligence & Technology ETF performance

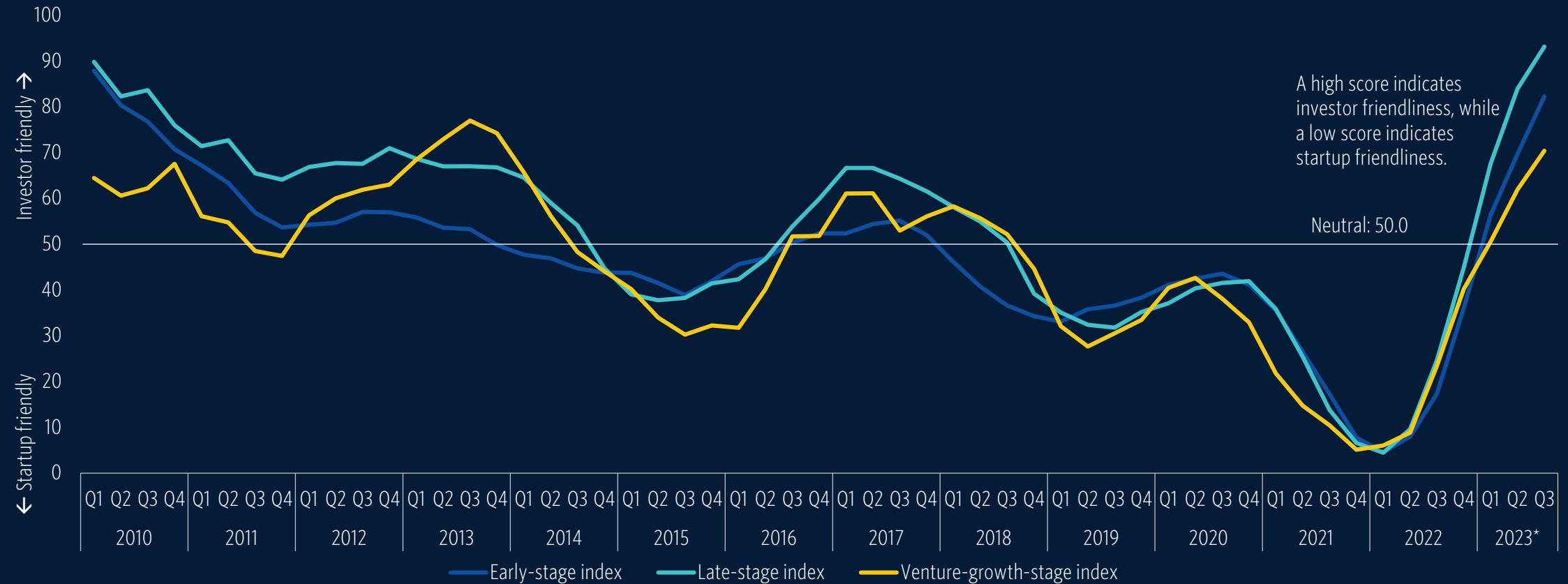


Source: Morningstar · Geography: Global
*As of August 28, 2023



The VC market has otherwise pushed deep into investor friendliness, pressuring companies to become more efficient with capital...

VC dealmaking indicator by quarter



Source: [PitchBook](#) · Geography: US
*As of August 31, 2023

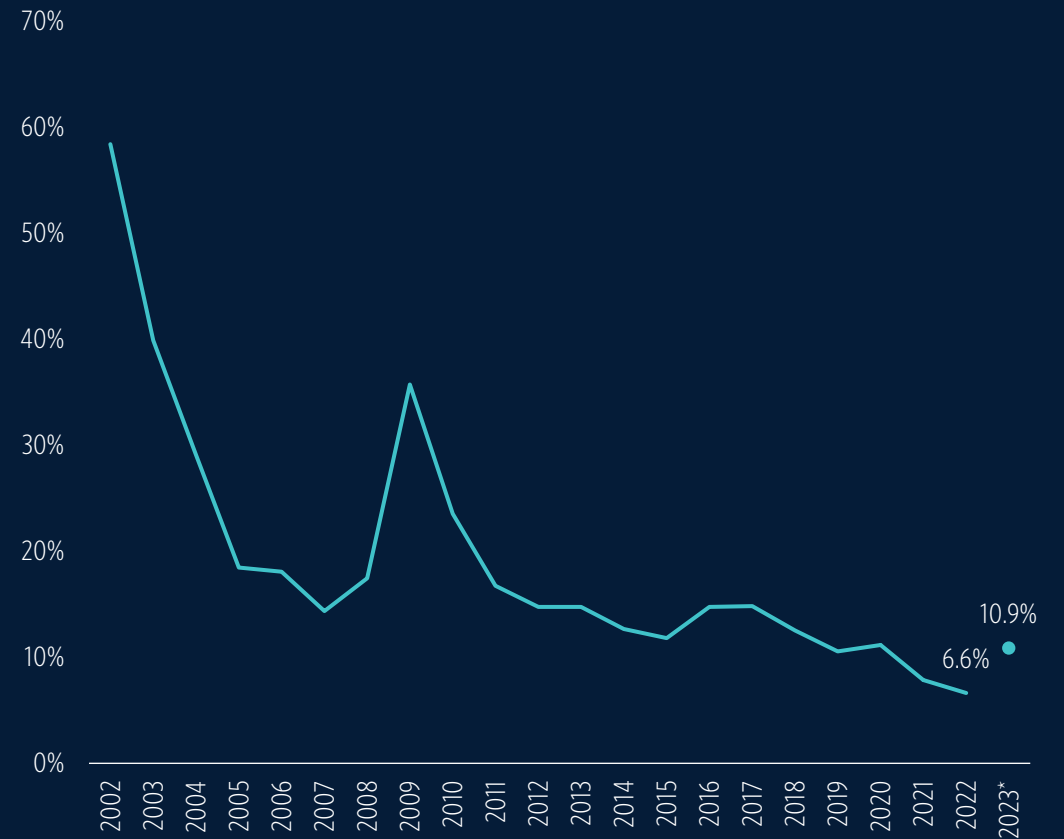


...and those re-entering the market are faced with lower valuations, causing down rounds to finally begin to increase.

Share of VC tech rounds by type



Down rounds as a share of all VC tech rounds

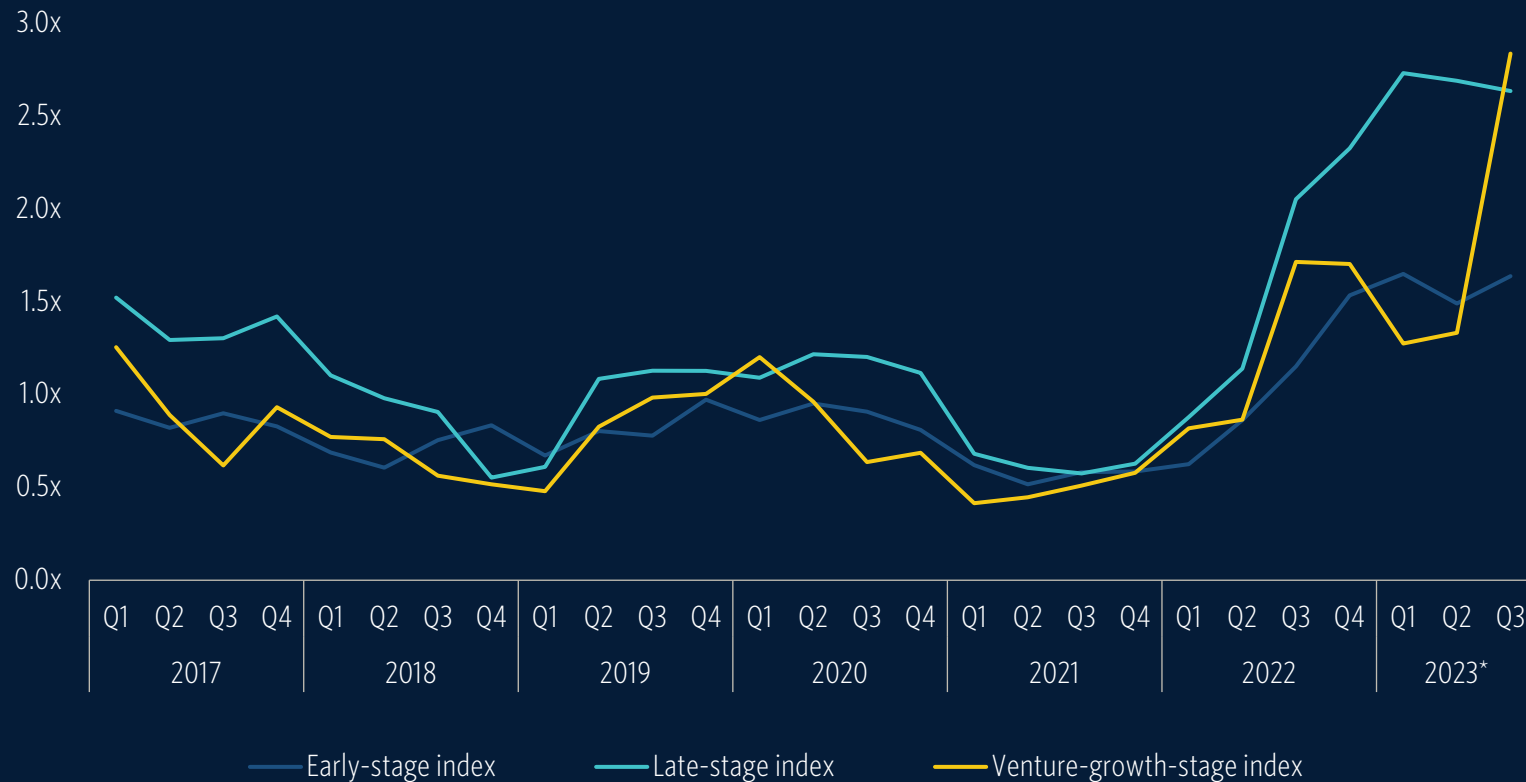


Source: PitchBook · Geography: US
*As of August 29, 2023



The undersupply of capital has reached every stage and is likely to continue to have growing impacts on venture financing.

Capital-demand-to-supply ratio by quarter



Capital-demand-to-supply ratio estimates the amount of capital demanded by US startups as a ratio of supply broken out by stage.

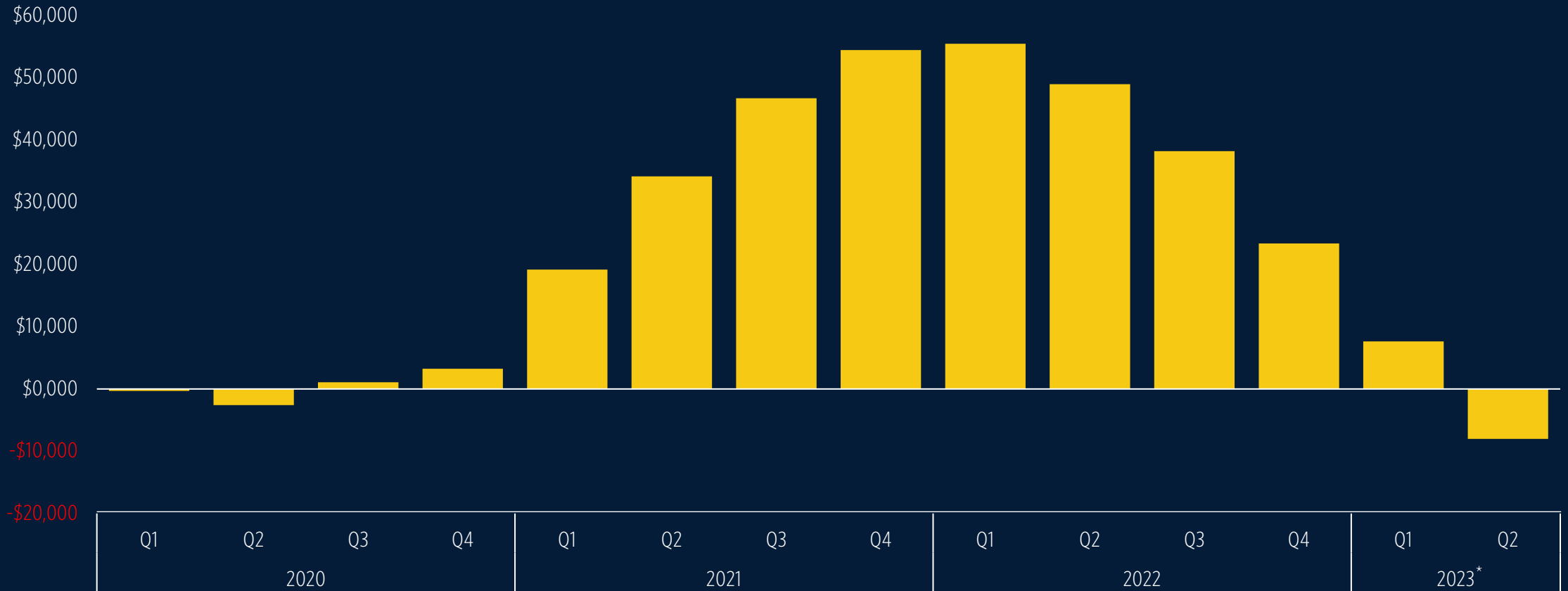
Demand is calculated by estimating how much capital companies will raise in their next round and spreading that amount over the historical probability of raising in the future. Capital supply uses observed VC deal value.

Source: PitchBook · Geography: US
*As of August 31, 2023



After a buildup of excess capital in venture during 2021, the slowed market has now shifted that excess into a deficit of funding...

Total capital oversupply/undersupply (\$M) by quarter

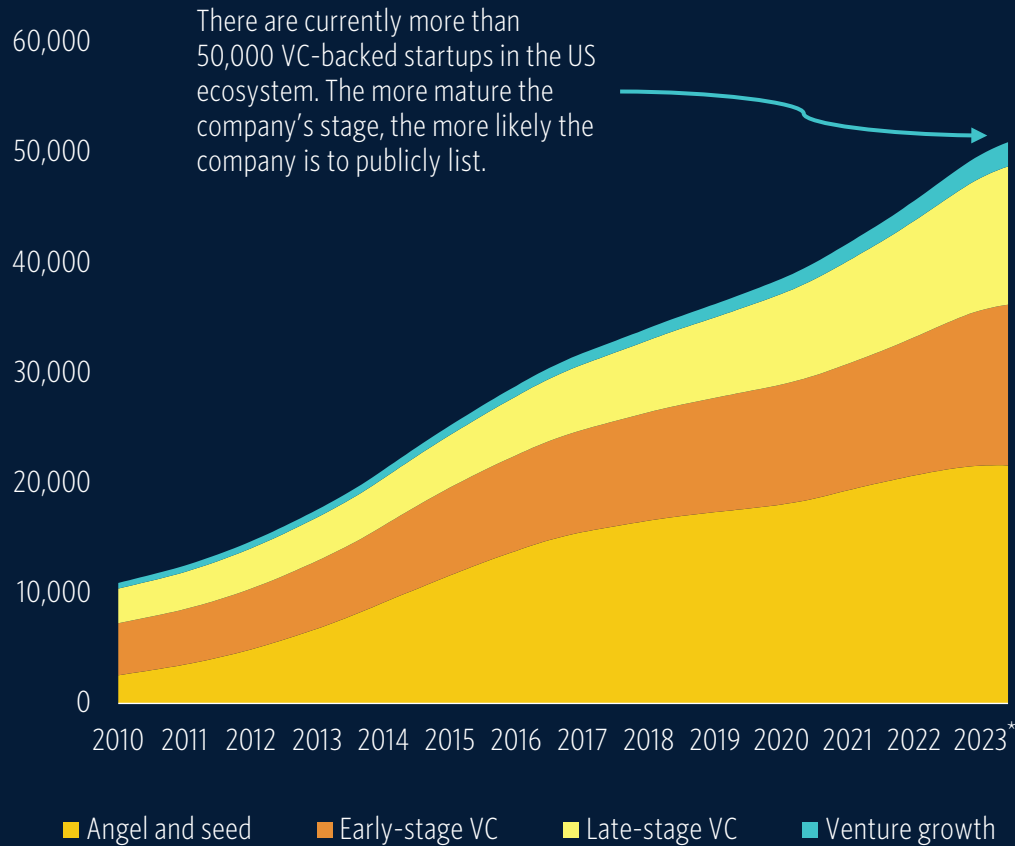


Source: PitchBook · Geography: US
*As of June 30, 2023

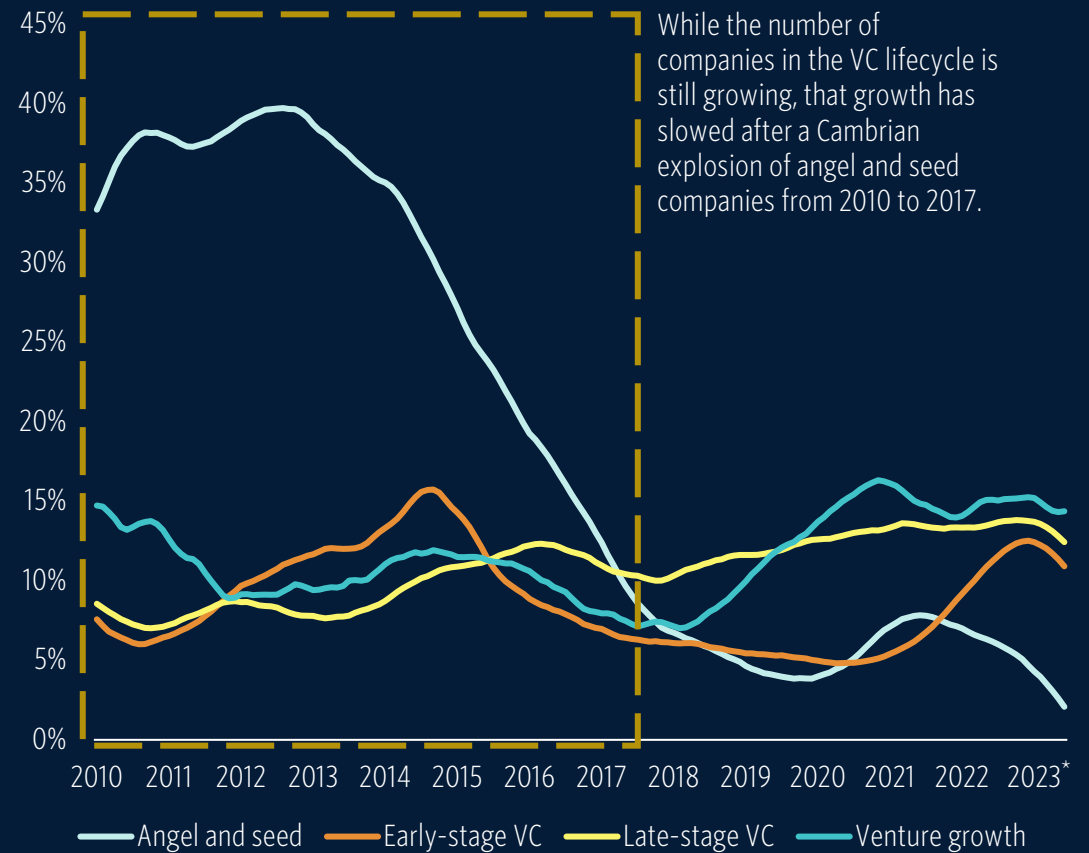


...at a time when the number of private VC-backed companies is at a record high.

VC company inventory by stage



YoY growth of VC company inventory



Source: PitchBook · Geography: US
*As of June 30, 2023

Additional research

Market updates



2022 PitchBook Benchmarks (as of Q4 2022 with preliminary Q1 2023 data)

Download the report [here](#)



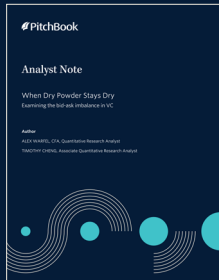
Q2 2023 Pitchbook-NVCA Venture Monitor

Download the report [here](#)



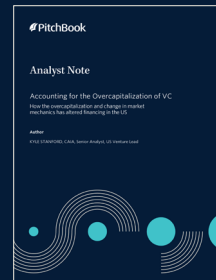
Q2 2023 US VC Valuations Report

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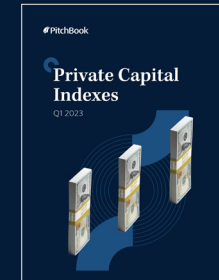
Q1 2023 Analyst Note: When Dry Powder Stays Dry

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Q3 2023 Analyst Note: Accounting for the Overcapitalization of VC

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Q1 2023 Private Capital Indexes

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