PitchBook

PitchBook Data, Inc.

John Gabbert Founder, CEO

Nizar Tarhuni Vice President, Institutional Research and Editorial

Daniel Cook, CFA Head of Quantitative Research

Institutional Research Group

Analysis

Nathan Schwartz
Quantitative Research Analyst
nathan.schwartz@pitchbook.com

Zane Carmean, CFA, CAIA
Lead Analyst, Quantitative and Funds Research
zane.carmean@pitchbook.com

Andrew Akers, CFA
Senior Quantitative Research Analyst
andrew.akers@pitchbook.com

Publishing

Designed by **Chloe Ladwig**

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Private Capital's Path to $20 Trillion

Forecasting the growth of private capital AUM over the next five years

PitchBook is a Morningstar company providing the most comprehensive, most accurate, and hard-to-find data for professionals doing business in the private markets.

Key takeaways

- The growth of private capital has substantially outpaced the expansion of public markets over the decade ending in 2022. But at $14.7 trillion, there is plenty of room for private fund AUM to expand further. We forecast global private capital to reach nearly $20 trillion by 2028, with upside to almost $24 trillion should the macro environment cooperate.

- However, across direct investing strategies within private capital, we expect wide deviation. Our projections anticipate sustained growth across PE, private debt, and real assets, while VC and real estate face more difficult paths ahead.

- We provide a range of forecast scenarios—a base case, a good case, and a bad case—for each strategy to represent potential economic and fund-return environments. We include estimates for substrategies as well, with buyout, PE growth, infrastructure, and direct lending funds likely to see strong growth over the next five years.

- Last year, we published our forecasts for the primary fund strategies of PE, VC, real estate, real assets, and private debt. Now, we have added funds of funds and secondaries fund access points, though the two categories have been going in opposite directions. We expect secondaries to continue to experience tailwinds to bring total AUM from $462.5 billion to over $700 billion in our base-case scenario. Meanwhile, despite having nearly $1.0 trillion in AUM, funds of funds have recently seen a drop in fundraising, which, if it persists, will result in essentially no growth for the strategy.

Overview

Private market allocations have become a cornerstone in institutional investors' portfolios over the past decade. From 2012 to 2022, investors put more and more of their marginal dollars into private capital markets, leading to a 12.8% annualized growth rate and $14.7 trillion in assets under management (AUM).[1] Over the same period, private capital outpaced the growth of public equity and fixed-income market assets by 2.5 times.[2] As we survey the current landscape, we are asking ourselves if this growth will continue and how private markets may evolve over the next five years.

An apt descriptor for 2023 might be "heat check" in comparison with the highs of 2020 and 2021. The past two years have been marked by subdued fundraising, a muted exit environment, and returns strained by elevated interest rates. Despite these stressors, a recent Adams Street Partners survey reported that 67% of institutional investors expect to increase their private market deployment in 2024, and 88% believe private markets will outperform public markets in the long run.[3] This confidence was also reflected in the world's largest sovereign wealth fund, managed by Norges Bank Investment Management (NBIM), which petitioned to include unlisted equities in its portfolio.[4] The policy change was eventually rejected by the Norwegian government,[5] but it is still meaningful in that NBIM has considered moving away from its long-implemented strategy of transparent, passive, broadly diversified, and low-cost public market investments that has minimal exposure to real estate, infrastructure, and illiquid assets. Compelling performance of today's funds and sustained investor demand for alternative exposures will be key in the growth of private markets.

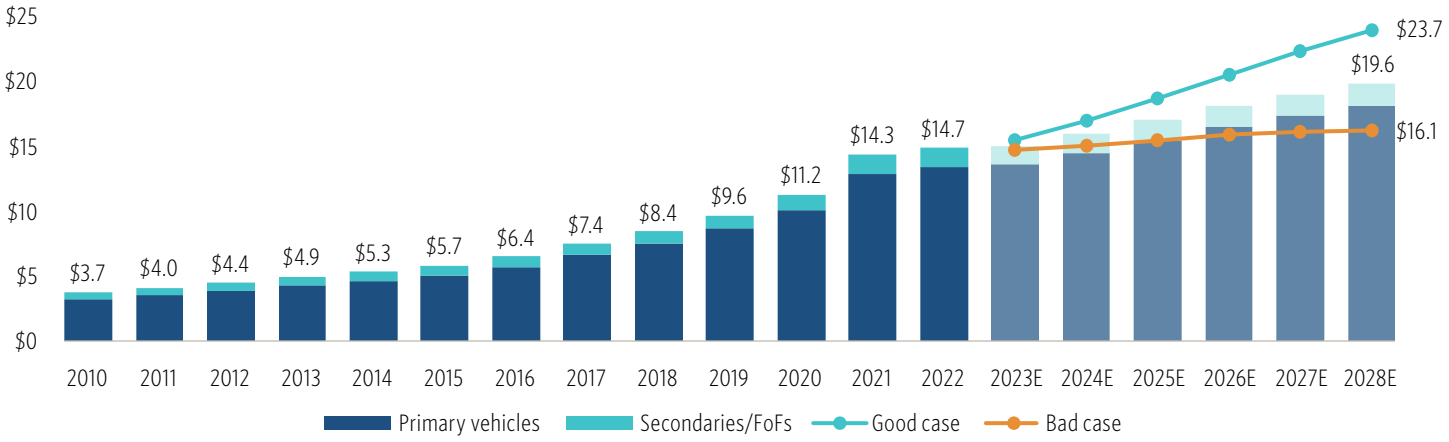
Our Q1 2023 analyst note What the Future Holds for Private Capital introduced our forecasting methodology that employs a data-driven approach to forecast global, closed-end AUM growth by using historical trends and estimates of future fundraising, cash flows, and NAV growth. We revisit the methodology and extend our forecasts to all private fund strategies that PitchBook tracks: PE, VC, private debt, real estate, real assets, funds of funds (FoF), and secondaries. We also provide forecasts for substrategies across private capital fund offerings, including buyout, direct lending, and infrastructure vehicles. We produce a range of outcomes—good, base, and bad—to reflect potential global macroeconomic environments and each strategy's expected performance in those environments. In our base case, we forecast private capital to grow 33.3% to $19.6 trillion in total AUM by 2028.[6]

Perhaps the single biggest macro factor influencing the industry's growth is the future path of interest rates. Major central banks—the Bank of Japan excluded—are expected to hold policy rates steady or cut rates marginally. Recent US inflation

1: We include primary funds, secondaries, and fund-of-funds access points in the AUM total. AUM includes both dry powder and fund net asset value (NAV) estimates.
2: "2023 Capital Markets Fact Book," SIFMA, Katie Kolchin, Justyna Podziemska, and Dan Song, July 2023.
3: "Navigating Private Markets in 2024: Opportunity Knocks as Change Accelerates," Adams Street Partners, Jeffrey Diehl, March 4, 2024.
4: "Norges Bank Recommends Opening Up for Investments in Unlisted Equities," NBIM, November 28, 2023.
5: "Norway Wealth Fund Will Not Invest in Private Equity, Government Says," Reuters, Gwladys Fouche, April 12, 2024.
6: For now, we exclude evergreen and permanent capital structures from our analysis, although we are acutely aware of their growing prominence. Over the next year, we will be expanding our tracking of these vehicles and will be providing updates as we improve our coverage.

measures have come in higher than anticipated, prompting a shift in market expectations around the Federal Reserve's (the Fed's) policy path. Earlier this year, the market was pricing five interest rate cuts for 2024, but now only one or two cuts are anticipated. The Bank of England is presumed to move largely in tandem with the Fed, and in a similar vein, the European Central Bank is weighing reductions of its own. Lower interest rates generally provide a tailwind for risk assets, both due to returns on holdings and bigger allocation budgets from LPs. However, even if these policy rate cuts come to fruition, rates will likely still be at decadelong highs. Materially higher financing costs as compared with the zero-interest-rate policies of the past decade will continue to weigh on deal and exit activity and lower returns for managers relying on financial engineering. Investors and dealmakers wishing for a reprieve from higher rates may be caught in a waiting game for the foreseeable future. That said, even with rate headwinds, we expect most private capital strategies to see substantial growth over the next five years, although by how much depends on a variety of factors.

Private capital closed-end funds AUM ($T) forecast*

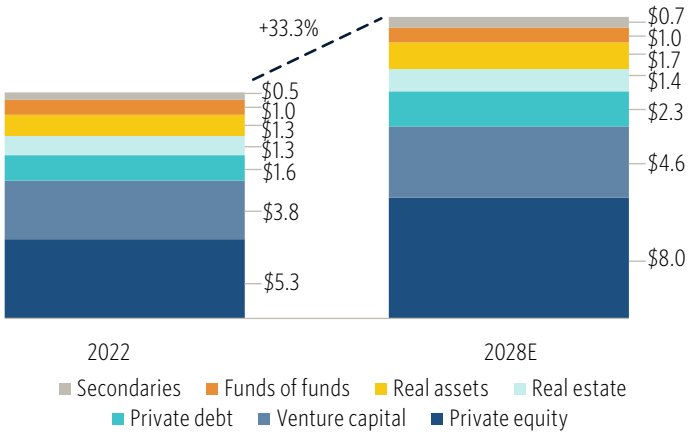


Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024
Note: The 2023-2028 bars represent the base-case forecast. The good case and bad case are inclusive of secondaries and FoFs.

Within our models, the two most impactful assumptions are asset growth from fund performance and future fundraising, both of which are dependent on the macro climate and distribution recycling from maturing funds. Better fund returns and distributions lead to better fundraising for future vintages, which in turn generates more AUM growth and future distributions. It is a cycle that many know well. On the other hand, the difficult exit environment has already impacted recent fundraising figures; the recycling wheel is turning slowly. That is particularly the case for VC, but across private holdings, LPs are generally looking for a bounceback in distributions sooner rather than later. If the present distribution pace were to continue, total AUM growth would be timid.

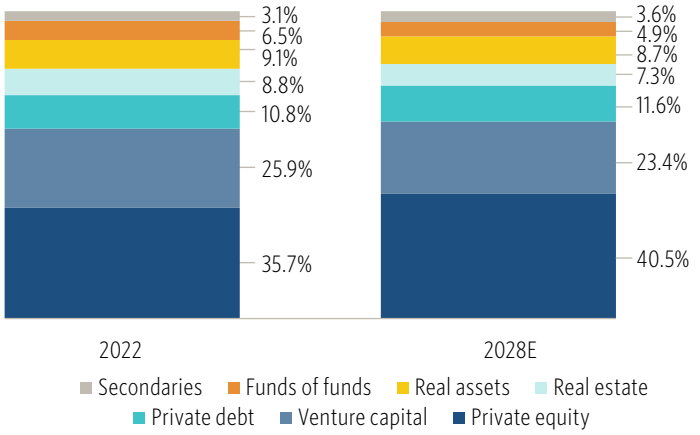
To account for how private markets may perform under different economic environments, we model three scenarios: a good case involving general economic expansion and high investor appetite; a base case that largely travels with long-term trends; and a bad case characterized by a more challenged economic backdrop, muted fund performance, and continued weak distributions. These scenarios provide an AUM range of $16.1 trillion to $23.7 trillion over the next five years.

Base-case AUM ($T) forecast by asset class*



Source: PitchBook • Geography: Global
*Historical AUM and forecasts generated on April 19, 2024

Share of base-case AUM forecast by asset class*



Source: PitchBook • Geography: Global
*Historical AUM and forecasts generated on April 19, 2024

The forecasts are performed at the strategy level, where our datasets are the most robust, complete, and useful for finding reliable trends. To create a picture of where substrategy AUM may end up in our forecast, we used a simple top-down approach. We looked at the trend in substrategy composition from 2018 to 2023 and extrapolated that trend out to 2028. The breakdown of substrategy AUM can be found in the following table, "Substrategy AUM ($T) forecasts."

The heterogeneous nature of private markets means that different asset classes will be influenced by different factors and to varying degrees. On one hand, VC faces constrained exit conditions that lead to reduced distributions and a challenging fundraising environment, thus capping VC AUM growth. On the flip side of this coin, secondaries managers are positioned to raise capital to provide the desired liquidity needed for LPs in aging funds, enabling robust AUM expansion. Meanwhile, private debt has grown considerably from a niche strategy a decade or so ago, and we expect that to continue, although at a more moderate pace. Our upside scenario forecasts direct lending funds in particular to double in size to $1.0 trillion over the next five years.

In real estate—which we separate from real assets, which encompasses infrastructure and natural resources—fundraising growth has been slowing, accompanied by a challenging pricing environment given higher rates and slow-moving cap rate expansion. We expect evergreen fund structures such as private REITs to continue to take share from the closed-end space. For real assets, we see two stories playing out: the continued interest in infrastructure as an attractive asset class, and inertia for fundraising of dedicated natural resources funds, which have seen a pullback in LP interest due to a history of volatile returns.

Private markets as a whole have many tailwinds still, though the environment has certainly shifted, and the range of potential outcomes is wide. In the following sections, we unpack details on the forecasts and macro assumptions for each strategy.

Substrategy AUM ($T) forecasts*

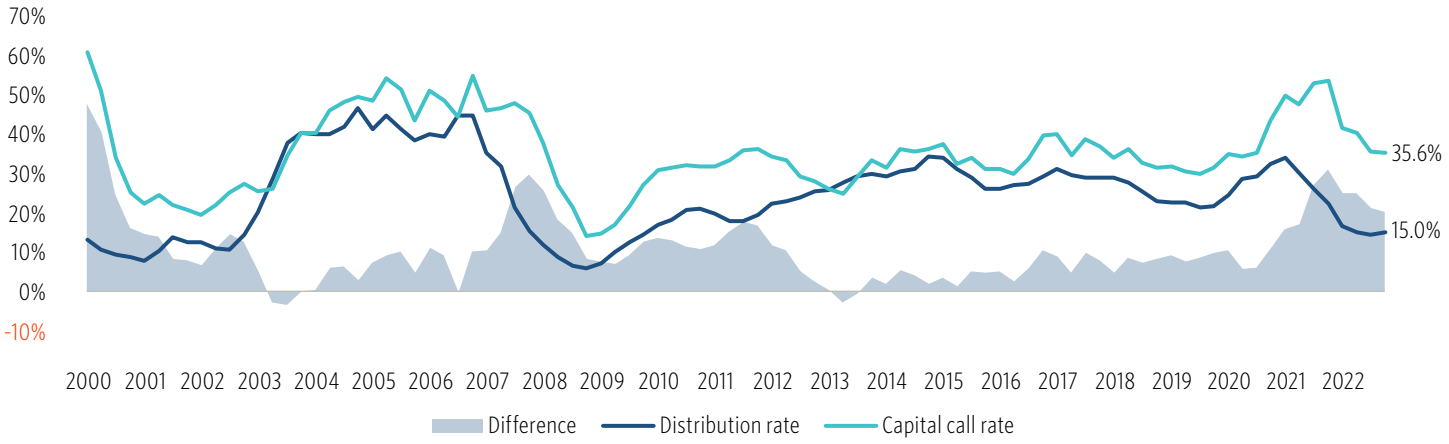
		2028E		
	2022	Bad case	Base case	Good case
Private equity	**$5.3**	**$6.5**	**$8.0**	**$9.7**
Buyout	$4.0	$4.9	$6.0	$7.3
PE growth/expansion	$1.1	$1.5	$1.8	$2.2
PE other	$0.1	$0.2	$0.2	$0.2
Venture capital	**$3.8**	**$3.5**	**$4.6**	**$5.6**
Private debt	**$1.6**	**$1.9**	**$2.3**	**$2.7**
Direct lending	$0.5	$0.7	$0.8	$1.0
Distressed debt	$0.3	$0.3	$0.3	$0.4
Mezzanine	$0.2	$0.2	$0.2	$0.3
Private debt other	$0.5	$0.7	$0.8	$1.0
Real assets	**$1.3**	**$1.5**	**$1.7**	**$2.0**
Infrastructure	$1.1	$1.3	$1.5	$1.7
Natural resources	$0.3	$0.2	$0.2	$0.3
Real estate	**$1.3**	**$1.2**	**$1.4**	**$1.7**
Real estate value-add	$0.4	$0.4	$0.5	$0.5
Real estate opportunistic	$0.6	$0.6	$0.7	$0.8
Real estate other	$0.3	$0.3	$0.3	$0.4
Funds of funds	**$1.0**	**$0.8**	**$1.0**	**$1.2**
Secondaries	**$0.5**	**$0.6**	**$0.7**	**$0.8**

Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024
Note: "PE other" includes diversified PE and restructuring/turnaround; "debt other" includes bridge financing, credit special situations, infrastructure debt, real estate debt, and venture debt; and "real estate other" includes real estate distressed, real estate core, and real estate core plus. Figures may not sum exactly due to rounding.

Private equity

The halcyon days of the 2010s may have come to an end for PE. A perfect confluence of low interest rates, multiple expansion, higher LP allocations, and strong asset class performance buoyed PE assets and dry powder to a combined $5.3 trillion in 2022, almost 200% more than in 2012. During that period, managers relied on market multiple expansion and leverage to drive returns. The playbook for the next decade is likely different as financial leverage gives way to operational leverage and higher financing costs dampen leverage's utility. Increases in buyout purchase price multiples have largely been taken for granted since the global financial crisis (GFC). Median EV/EBITDA multiples increased steadily from 7.9x in 2009 to a peak of 11.8x in 2022 before declining marginally in 2023. Similarly, debt/EBITDA for large corporate loans increased from 3.7x in 2008 to a peak of 5.3x in 2021 before falling a turn to 4.4x in Q4 2023. As valuation multiples find a plateau and debt remains expensive compared with recent norms, managers may need to look to strategies

PE capital call rates versus distribution rates (proportion of dry powder and NAV, respectively)*



Source: PitchBook • Geography: Global • *As of September 30, 2023

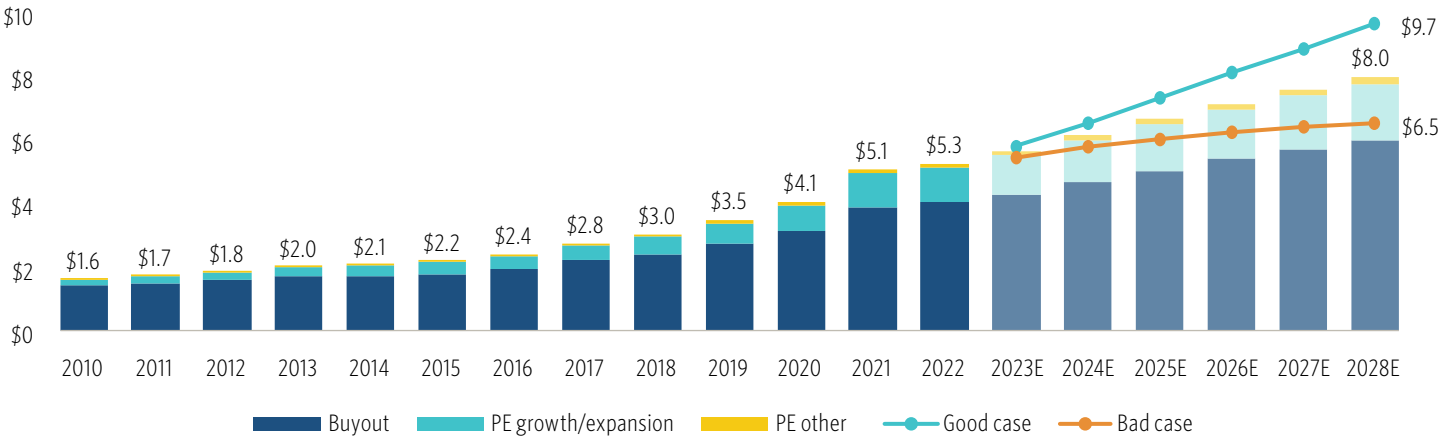
such as buy-and-build for top-line growth and margin improvement. Given this backdrop, we expect PE asset growth to slow over the next five years, relative to the prior decade, but remain robust. Our forecasts suggest a base case of $8.0 trillion in AUM by 2028, a cumulative expansion of 51.1% from 2022.

PE fundraising in 2022 and 2023 remained strong in the face of negative sentiment. However, the asset class's lower-than-normal distributions are a primary factor driving a forecasted decline in fundraising in 2024 and slow recovery through 2027. The current normalized difference in distributions and capital calls is only rivaled by times of economic distress: the GFC and the dot-com bubble. In our base case, we model IRRs of 15%, which is in line with the median 12-month return of 14.5% that the asset class achieved from 2010 to 2022. The new operating environment may challenge that assumption, but over the history of the industry we have seen innovative PE managers adapt to the economic and business regimes of the day, and we expect the same today.

Within PE subcategories, we expect buyout funds to continue to garner the bulk of fundraising in the coming years, but growth funds have seen increasing LP interest and offer an alternative to the VC asset class. Growth equity tends to focus on cash-generating, positive-income portfolio companies in need of expansionary investment. That should remain attractive as allocators balance hunger for growth-style returns within their private market portfolios with lower risk than venture investing. Against that backdrop, our base case expects growth funds to expand from $1.1 trillion in AUM in 2022 to $1.8 trillion in 2028. Meanwhile, we see buyout funds reaching about $6.0 trillion from a 2022 starting point of $4.0 trillion.

Our good case assumes PE funds find their footing in the new macro environment and grow on pace with the prior decade, reaching $9.7 trillion. In this setting, returns are a robust 20% annualized, roughly in line with the strongest periods of performance PE has seen. Along with the strong fund performance in this scenario, distribution rates are expected to recover above historical averages, leading to improved fundraising growth as capital is recycled into future vintages. The more

PE AUM ($T) forecast*



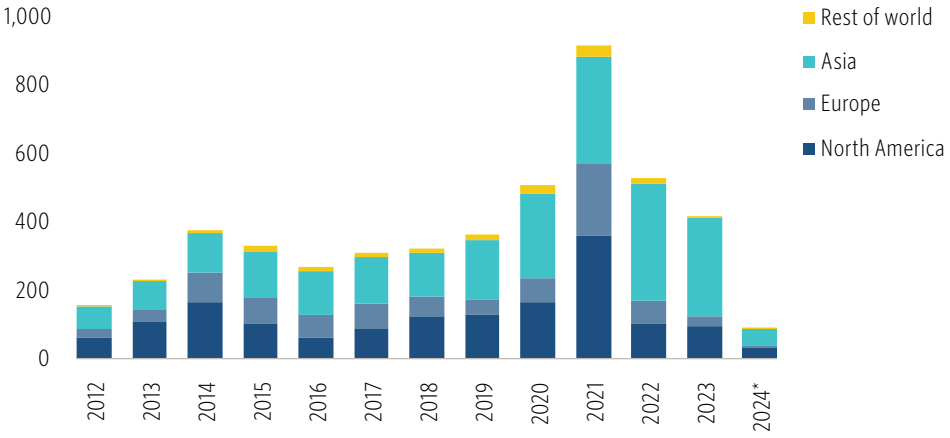
Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024
Note: "PE other" includes diversified PE and restructuring/turnaround. The 2023-2028 bars represent the base-case forecast.

optimistic assumptions result in the growth strategy doubling in size and buyout funds expanding by more than 80%. On the other hand, a prolonged distribution winter, challenging fundraising conditions, and well-below-historical returns provide a downside scenario in which total PE AUM lands at $6.5 trillion.

Venture capital

VC has had an exceptional run since the GFC. Commitments poured into the space at a record pace, and valuations rocketed in tandem, driving fund AUM to $3.8 trillion in 2022 from just $350.4 billion in 2010. Recently, air has been taken out of the VC sails as fundraising moderates and down rounds persist. VC-backed exit activity has been anemic since 2021, and PitchBook's estimated backlog of VC-backed IPOs is the greatest it has ever been. Global public listings have been treading water recently with US and European IPOs grinding to a near halt.

VC-backed public listing count by region

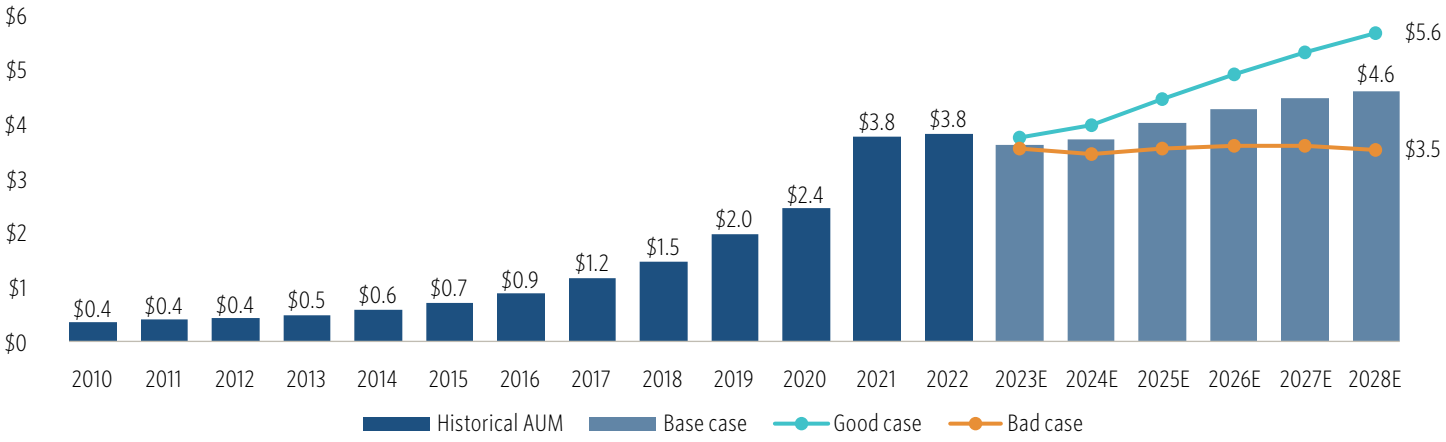


Source: PitchBook • Geography: Global • *As of April 24, 2024

The VC space is undergoing a reset. Returns data is incomplete for 2023, but NAV has fallen 10% through the first three quarters of 2023. Publicly traded tech multiples have contracted to pre-pandemic levels, investors are more disciplined, and capital availability is poor. The VC universe comprises over 55,000 companies, a number that has increased rapidly over the past 10 years. We expect there to be a shakeout of cash-needing startups with dubious routes to profitability. These companies will find it much more difficult to raise today than just a couple of years ago. Similarly, GPs will face pressure to be more restrained with their dry powder as it becomes more difficult to cash new checks from LPs, who have pulled back from the space.

Our base-case estimate is underlined by lower distributions and muted fund performance, more selective investors, and an increase in investment holding periods. However, we assume fund returns will rebound to 15% annually over the later years of the forecast. After years of strong VC fundraising, we are projecting commitments will continue to decline into 2024 and will not recover to 2021 and 2022 fundraising levels by 2028, stemming from the lack of distributions. The poor fundraising levels and annual fundraising growth estimate of 2.9% are highly impactful assumptions in our VC forecast, leading to our lackluster estimate of $4.6 trillion in AUM by 2028.

VC AUM ($T) forecast*



Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024

The uncertainty in the venture market drives the wide dispersion between our good and bad cases. In the good case, we anticipate improvements in the exit environment will propel fundraising growth to 5.9% annually. Recent IPOs such as Reddit, Astera Labs, and Rubrik prove there are green shoots developing, but a steady stream of IPOs, M&A, or secondary buyers is needed to funnel cash back to LPs. Forecasted fund returns in our good case progresses from 0% in 2023 and 10% in 2024 to 19% in the later years and leads to a projected AUM of $5.6 trillion. Inadequate capital availability and mediocre returns drive our bad-case AUM forecast to $3.5 trillion in 2028, a cumulative decline of 8.0% from 2022. In the bad case, estimated 2024 fundraising falls to lows not seen since 2015. This decline is intended to illustrate a significant retracement in the industry and show how falling from recent fundraising trends can influence a decline in overall AUM as the

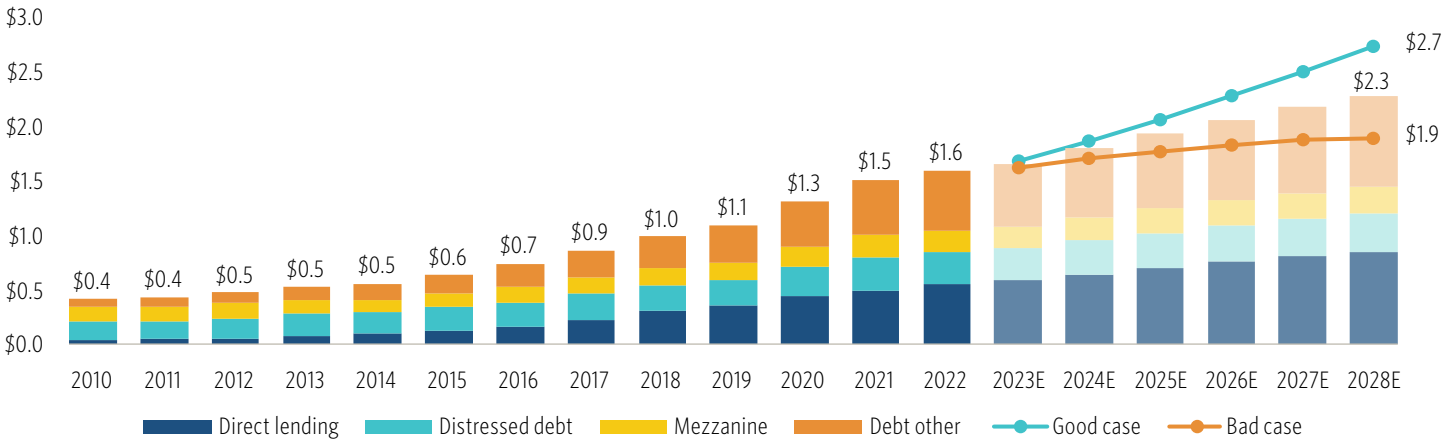
flywheel of lower nominal distributions translates to lower commitment recycling in subsequent periods. Across our scenarios, the projected year-over-year change in VC AUM is drastically different than its history.

Private debt

The private debt market has seen a remarkable ascent in the past 10 years and gained a foothold as an alternative to traditional bank lending activities. Over the past few decades, greater regulation and stricter capital requirements have depressed bank origination of lower-quality corporate credit. As banks catered to higher-quality and larger institutions, private debt funds stepped in to fill the void in middle-market credit and pushed the private debt market to $1.6 trillion in AUM in 2022, up nearly 250% from a decade prior.

The current economic environment continues to be a boon for private debt as all-in yields are supported by elevated central bank policy rates and default rates are not signaling alarms. The floating-rate feature of private debt helped weather the rate-hiking storm of 2022 and provided diversification to typical equity and duration portfolio risks. Default rates—proxied by the Morningstar LSTA Leveraged Loan Index—have been ticking up since the lows of 2021 but have settled around long-term median levels. Another attractive feature of private debt is the ability for GPs to work closely with portfolio borrowers to amend terms and reprice as necessary. These characteristics may be key as the higher-for-longer rate regime stresses middle-market borrowers.

Private debt AUM ($T) forecast*



Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024

Note: "Debt other" includes bridge financing, credit special situations, infrastructure debt, real estate debt, and venture debt. The 2023-2028 bars represent the base-case forecast.

Given the demand for alternative credit risk, our base case sees fundraising growing at the recent annual trend of 6.9% and AUM settling at $2.3 trillion in 2028. Direct lending funds can still be expected to be the largest category, nearing $900 billion by 2028. We expect private debt distributions as a proportion of NAV to stay around the 25% mark, which is in line with what the asset class has experienced over the past decade. We assume fund returns maintain an annual 12% IRR, consistent with median performance from the 2010s. In the bad case, credit events and rate cuts eat

into fund returns and result in yearly IRRs of 8%. Even in our bad case, we estimate fundraising volumes will grow, albeit at a slower pace. The good case shows an acceleration of long-run IRR of 15% per year, above-trend fundraising at 12.9%, and strong distributions driving AUM to $2.7 trillion over the forecast period. In this setting, we expect direct lending to reach $1 trillion in AUM by the end of 2028, a doubling from 2022's level.

Real estate

Private real estate struggled to find its footing after the COVID-19 pandemic. Global fundraising for closed-end real estate funds hit the lowest commitment value since 2011. Even with our upward adjustment for lagged data collection, fundraising is expected to be near decade lows in 2023.[7] Large, experienced managers are taking the lion's share of commitments as LPs find comfort in their longer track records, brand recognition, and the diversification a larger fund can provide. Commitments to closed-end core and core plus strategies are also at significantly depressed levels, the lowest since before the GFC, as dollars in these lower-risk strategies are gravitating toward open-end, evergreen vehicles. Along with dismal fundraising, deal counts have been muted as it appears the market cannot settle on a clearing price. Pressure from both sides of the transaction is leading to reduced price discovery as sellers are not thrilled to engage in deals at lower valuations and buyers are staring down higher borrowing costs and an asset class in flux.

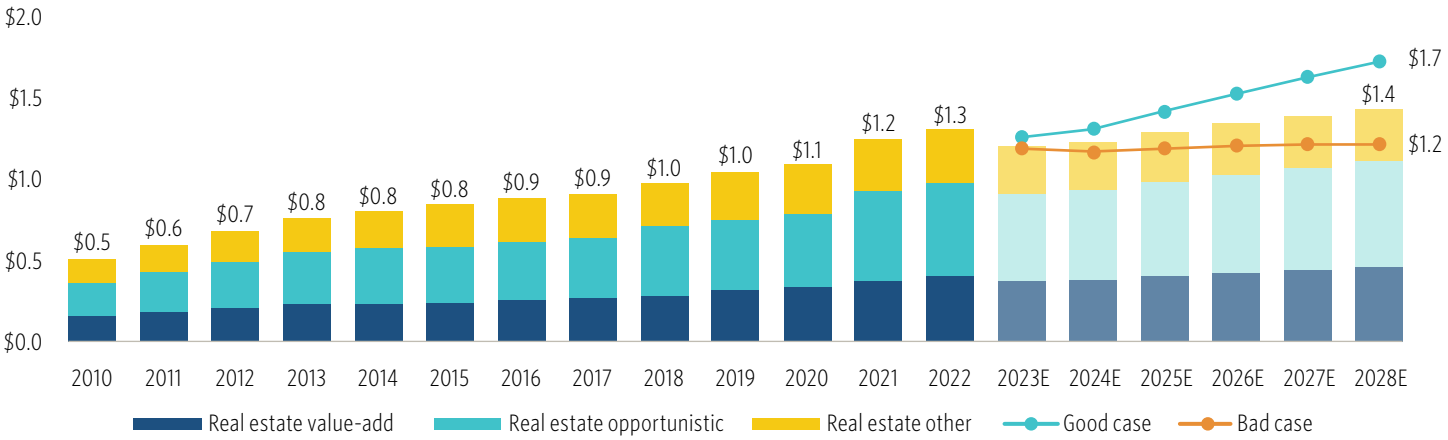
Our base case builds upon the lack of transactions and subdued commitments. To revive deal counts, we expect a repricing of assets will be necessary to get buyers to bite. Through Q3 2023, real estate's one-year IRR was -2.6%. We included a 3% NAV markdown in 2023 before hitting a longer-term annual return of 11% in 2025. Capital commitments have been on a general decline since 2019, which greatly impacts available dry powder. This means that even if we are projecting growth in fundraising in later years, total AUM will be knocked off its upward trend.

In the upside case, AUM reaches $1.7 trillion on the assumption of consistent, higher performance along with a return to robust fundraising and above-historical-average distributions. In the face of competition from perpetual capital vehicles, our bad case assumes fundraising stagnates around the level seen in 2023 and fund returns remain well off historical norms. These bad-case assumptions result in a decline in AUM to $1.2 trillion, a 6.6% fall from 2022.

In each of the scenarios, we expect opportunistic and value-add funds to garner more share of the dollars invested, especially as pricing resets across troubled property types and better entry points are found for assets that could generate stronger returns with some capital expenditure. In our base case, we see these strategies making up 46% and 32%, respectively, of a $1.4 trillion asset class, with the growth of the smaller categories stagnating at a combined $300 billion or so.

7: See "Fundraising forecasts" under the "Appendix: Methodologies" section for more details on the lagged data collection adjustment.

Real estate AUM ($T) forecast*



Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024
Note: "Real estate other" includes real estate distressed, real estate core, and real estate core plus. The 2023-2028 bars represent the base-case forecast.

Real assets

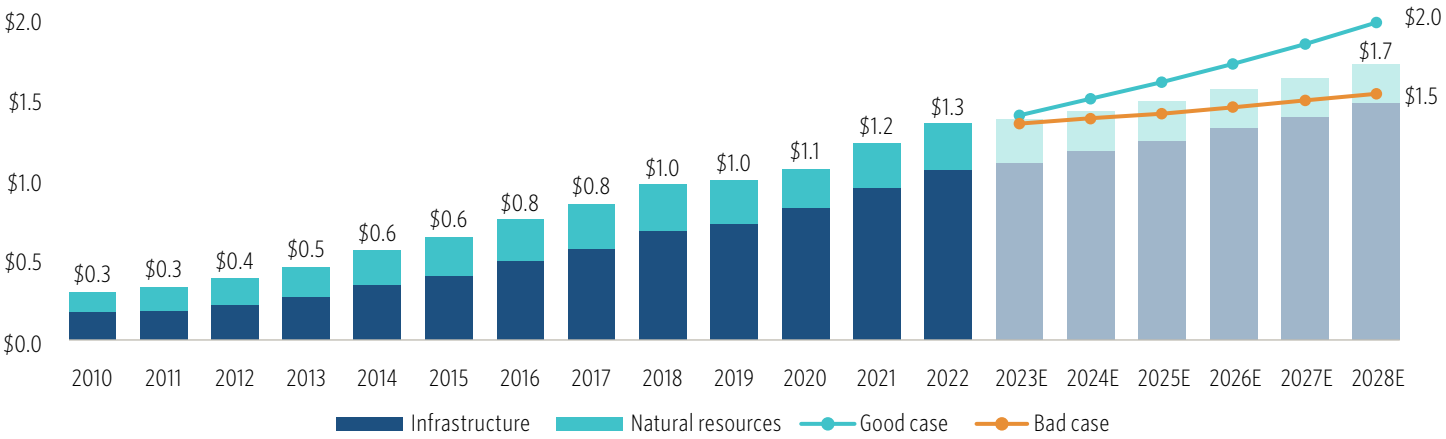
Real assets has been a bright spot within private markets as investors seek out the asset class's low volatility, inflation protection, and diversification properties. Shifting investor preferences have caused a significant change in the real assets universe over the past decade. Up until 2013, capital commitments to real assets were largely split evenly between infrastructure and natural resources. Since 2019, infrastructure has commanded over 80% of real asset fundraising in part because investors pulled back from traditional oil & gas in favor of investments focused on the clean energy transition. Our 2023 real assets fundraising total, while lower than the prior two years, shows a resilient appetite for the category. We expect this positive fundraising trend to continue, driven by the $15 trillion gap between infrastructure capital needs and infrastructure funding.[8] Government spending alone will not close this gap, so this dearth of capital provides opportunities for newly deployed private investment.

Alongside capital needs are a couple other tailwinds: the global energy transition, general aging of government assets, and increased need for digital infrastructure to handle the compute power required for generative AI. In our base case, we expect real asset AUM to grow to $1.7 trillion by 2028, a cumulative growth of 26.8% from 2022. Of that total, we forecast infrastructure to garner the preponderance with nearly $1.5 trillion in AUM.

The good case for real assets AUM involves annual fundraising growth of 11.2% coupled with an asset class return of 15%. This scenario means new commitments would be coming into the space at a pace well above what was experienced in the past two decades and annual IRRs that will beat the prior decade's median return by a wide margin, owing to the smaller share natural resources funds will have. Our

8: "Global Infrastructure Outlook: Forecasting Infrastructure Investment Needs and Gaps," Global Infrastructure Hub, n.d., accessed April 26, 2024.

Real assets AUM ($T) forecast*



Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024
Note: The 2023-2028 bars represent the base-case forecast.

bad case has returns tracking with the prior two-decade bottom-quartile IRR for infrastructure, around 7%. Even though we project fundraising to increase in our bad scenario, fund performance will not keep up with distributions and real assets AUM will grow to only $1.5 trillion.

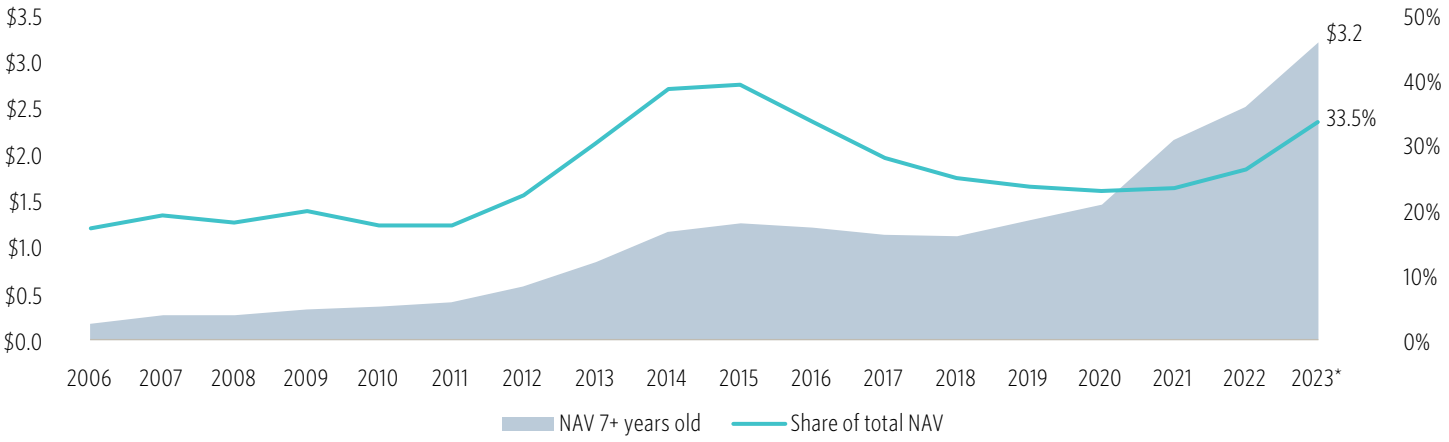
Secondaries

The slow exit environment in PE and VC has opened the window for secondaries managers to step in and unlock a fund's captive value. LPs desperate to receive distributions warily welcome secondaries as a source of liquidity. GPs looking to fully develop their portfolio companies see continuation funds as a way to extend their operational runway. Aging fund assets are expanding the secondaries opportunity set. A third of the $10 trillion in NAV held in private funds is at least seven years old.[9] With only $200 billion in secondaries dry powder, there is a significant disparity in capital supply and demand. To further illustrate this, in 2022, the total combined AUM in PE, VC, private debt, real estate, and real assets was $13.3 trillion. Secondaries AUM was $462.5 billion in 2022. Private market AUM increased 250% since 2012; secondaries AUM increased 203% over the same period. The secondaries market has ample room to grow into its investable universe. The current climate suggests that secondaries managers are in the driver's seat to purchase prime assets at attractive pricing from managers in need of capital flexibility. We expect secondaries AUM to reach $702.2 billion by 2028, a cumulative growth of 51.8% from 2022.

Our base case relies on secondaries fundraising that rivals the near-record commitments of 2023. As such, we expect fundraising growth to be 10% annually, which is above the recent trend of 7%. In our base-case scenario, we assume an annual return of 15%. This projection considers the position of secondaries managers to acquire discounted assets later in the investment cycle, thus

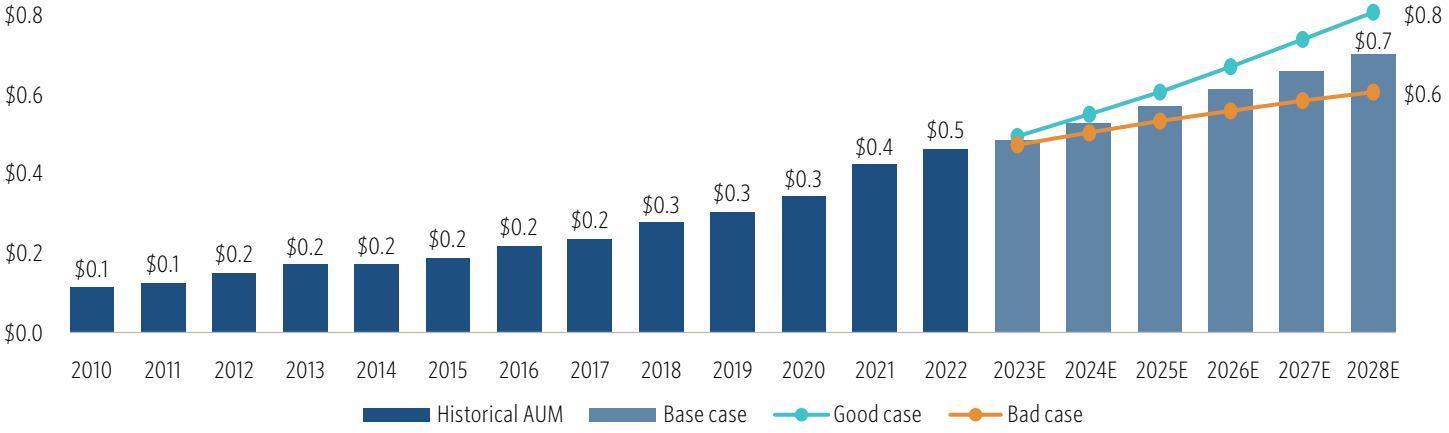
9: Here we exclude secondaries and FoF from the NAV total.

NAV 7+ years old ($T) held in private capital funds



Source: PitchBook • Geography: Global • *As of June 30, 2023

Secondaries AUM ($T) forecast*



Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024

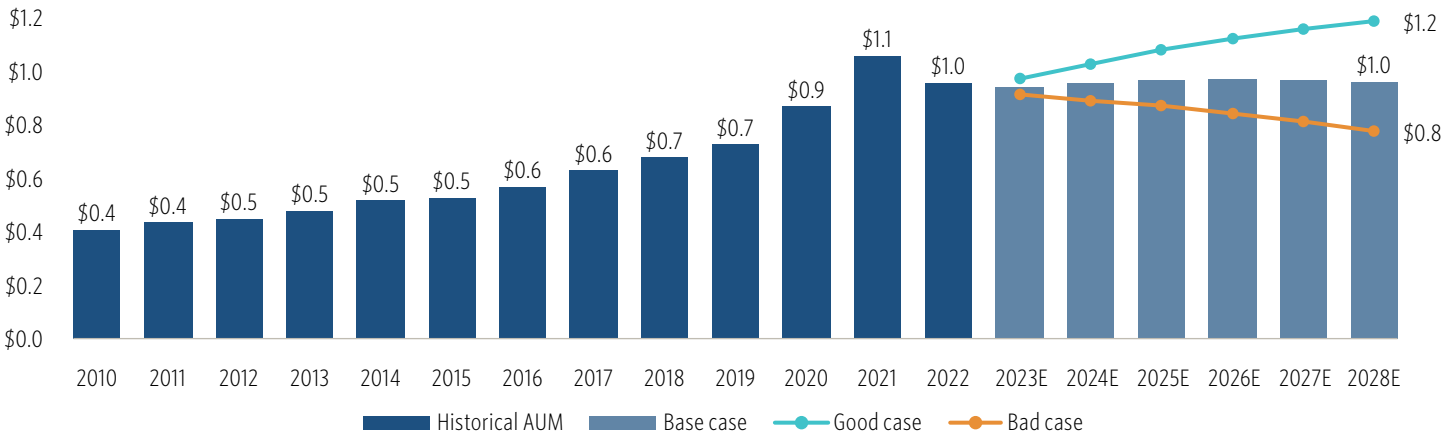
contributing to strong returns when those assets exit on a relatively truncated timeline. The good scenario for secondaries reaches $804.9 billion in AUM, benefiting from strong commitments, above-trend distributions and fundraising growth, and annual IRRs of 20%. The bad case sees the asset class grow to $605.4 billion and assumes on-trend fundraising growth and fund returns of 10%—slightly below the two-decade median one-year IRR of 11.2%.

Funds of funds

FoF as a strategy is at an inflection point. Since 2017, FoF managers have seen a downward trend in committed capital, and FoF AUM topped out in 2021. A potential culprit for this decline is the expansion of evergreen and perpetual capital vehicles. Institutions and retail investors that could not easily or efficiently access the private markets in a diversified way without an FoF structure can now achieve, in part, their desired private market exposures through semiliquid offerings. This shift in how investors access private markets is the primary consideration in why we estimate FoF AUM to stagnate and remain at $1.0 trillion through 2028.

The assorted asset classes contained under the FoF umbrella make it difficult to forecast with precision. Obviously, a PE FoF will perform far differently from a private credit FoF. As such, we rely more heavily on historical trends of the FoF universe in our forecast. We expect FoFs to see 13% yearly returns with dismal 2% yearly fundraising growth. The recent decline in fundraising means materially lower dry powder. In the backdrop of the bad case, fundraising stagnates at current levels and we see muted performance, which leads to an 18.9% contraction in AUM. The good scenario sees FoF AUM growing to $1.2 trillion. However, to achieve this AUM growth, fundraising growth and fund returns are projected at 5% and 18%, respectively. Those assumptions may be challenged if evergreen vehicles continue to aggregate assets at their current clip and/or the performance of FoFs' underlying strategies fails to justify the double-layer fee structure.

FoF AUM ($T) forecast*



Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024

Appendix: Methodologies

Our estimation methodology utilizes a variation of the Takahashi-Alexander (TA) cash flow model to create an interplay between existing dry powder available to private fund managers and the NAV path each vintage is expected to follow in the forecast period.[10] We also implement a flexible linear trend model to historical fundraising. We then adjust a baseline growth trend by +/-3% in our good and bad cases, reflecting strong and weak fundraising environments. We also include a distribution yield component to reflect the realized returns to LPs that are redeployed in future fund commitments. Distributions estimated from the TA model feed into the distribution yield estimates, which in turn feed into the fundraising model used to generate the forecast. This methodology ties the cash flow and NAV models to the fundraising estimates and vice versa.

10: "Illiquid Alternative Asset Fund Modeling," DocPlayer, Yale International Center for Finance, Dean Takahashi and Seth Alexander, January 2001.

Due to data lags, we start our forecasts with 2023. In order to estimate future growth in AUM, we utilize several frameworks, breaking down our process into three core steps:

1. Historical NAV and dry powder estimation
2. Modified TA model for forecasted cash flows and NAVs
3. Fundraising forecasts

Historical NAV and dry powder estimation

Our historical NAV and dry powder reported figures are derived by analyzing known cash flow and NAV figures from funds that we gather data on. We extrapolate the average pace of capital calls, distributions, and NAV growth to similar funds based on fund type and vintage year.

For example, if the 2018 vintage year has 50 funds with known cumulative capital calls, we will take the average called down as a percentage of each fund's capital raised. We will use that percentage and apply it to the fund sizes of funds with unknown capital call rates in the same 2018 vintage year within the same fund type grouping. This provides an aggregate estimate for remaining dry powder for that vintage year's fund category. We will combine that figure with estimates from other vintage years at each time period to reach our overall estimates for remaining capital overhang. The same methodology applies to estimating aggregate NAVs.

Modified TA model for forecasted cash flows and NAVs

Our funds dataset provides insights into the growth of historical NAVs and dry powder, but we utilize a known industry framework for cash flow modeling to estimate what the future may hold. The TA model is an intuitive, formulaically driven estimation for the cash flow and NAV profile of private, closed-end funds. We employ this framework by treating each aggregate vintage year of funds as a single "fund" for modeling purposes. We take the known and extrapolated ending NAVs and dry powder for each vintage year and model out the rest of the funds' lives using the TA framework.

Several key assumptions are used when creating the forecasts for current "in-ground" vintages and the future vintage years. These inputs include remaining fund life, yearly returns, a bow factor for the distribution curve, and capital call rates by year since inception. For our purposes, we have modified the original framework using our historical fund cash flow and NAV data as guideposts. We adjust each of the series of inputs based on the strategy being modeled and for different scenarios of growth rates.

Each strategy has an assumed fund length of 18 years, with an adjustment made if there is still some remaining NAV in a vintage year that has already passed the 18-year mark. That means that the 2016 vintage, which at the end of 2022 is seven years old, would have 11 years of remaining life before full liquidation is assumed. For the 2004 vintage, which has already passed 18 years in age, any remaining NAV is

assumed to liquidate over the following year.[11]

The yearly rate of return uses the median historical one-year IRRs for each strategy from 2001 through Q3 2023 as a starting point. For each strategy and scenario, however, we make adjustments to the fund performance parameters to analyze AUM forecasts under different environments.

The bow factor for distributions influences the expectations for capital to be returned to LPs, as well as the shape of the vintage NAV path. We use bow parameters that have been adjusted for each strategy based on historical-average NAV profiles. For example, the average private debt fund historically has peaked at

Annual fund returns and TA model inputs*

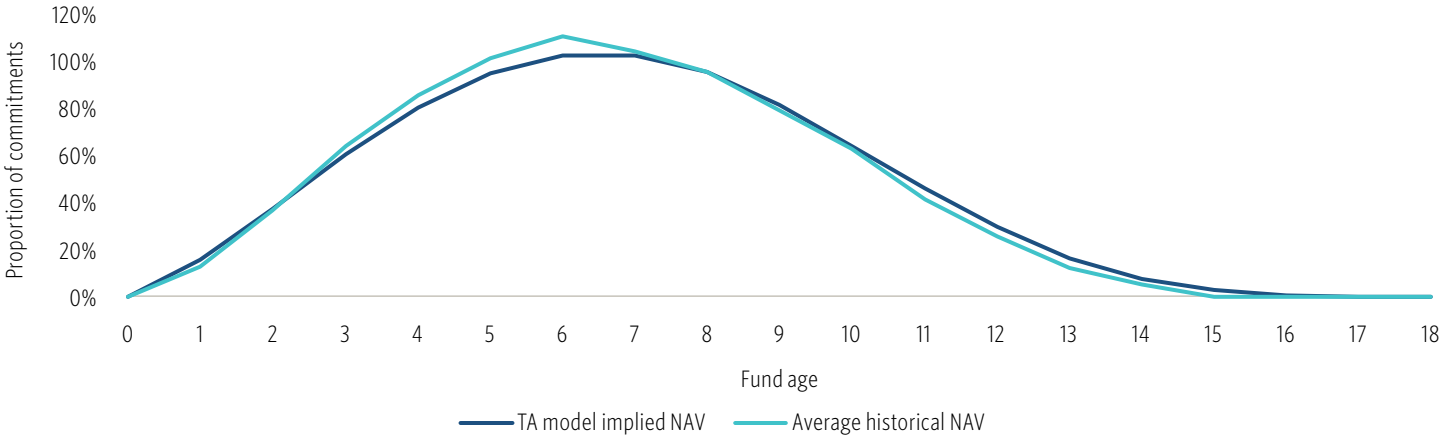
		Annual fund returns							
		2023E	2024E	2025E	2026E	2027E	2028E	Bow factor for distribution rate	Total years vintages remain active
Base case	Private equity	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	2.3	18
	Private debt	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	1.5	18
	Venture capital	-5.0%	7.0%	15.0%	15.0%	15.0%	15.0%	3.0	18
	Real estate	-3.0%	5.0%	11.0%	11.0%	11.0%	11.0%	1.8	18
	Real assets	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	2.0	18
	Funds of funds	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	2.5	18
	Secondaries	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	1.4	18
Good case	Private equity	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	2.3	18
	Private debt	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	1.5	18
	Venture capital	0.0%	10.0%	19.0%	19.0%	19.0%	19.0%	3.0	18
	Real estate	5.0%	10.0%	17.0%	17.0%	17.0%	17.0%	1.8	18
	Real assets	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	2.0	18
	Funds of funds	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%	2.5	18
	Secondaries	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	1.4	18
Bad case	Private equity	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	2.3	18
	Private debt	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	1.5	18
	Venture capital	-7.0%	0.0%	10.0%	10.0%	10.0%	10.0%	3.0	18
	Real estate	-5.0%	0.0%	7.0%	7.0%	7.0%	7.0%	1.8	18
	Real assets	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	2.0	18
	Funds of funds	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	2.5	18
	Secondaries	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	1.4	18

Source: PitchBook • Geography: Global • *Forecasts generated on April 19, 2024

11: We chose 18 years despite the "10+2" rule of thumb for closed-end fund lives because, while many funds do liquidate after 12 years, our data suggests that a handful funds from each vintage year will continue well past the prototypical fund term.

around year 4, whereas VC funds on average peak around the seven-year point. The bow factors are chosen so as to fit the implied, modeled NAV curve to the historical NAV curve. Additionally, we increased the bow factor for PE and VC to represent the slow distribution environment and general trend of longer company holding periods.

Example of TA model parameters tuned to historical NAV profile for PE



Source: PitchBook • Geography: Global
Note: This chart is for illustrative purposes only.

Finally, the capital call rates for each strategy are derived from PitchBook's historical dataset once again. We use the average percentage called down by year for each strategy, which provides us with different cash flow curves for each. Specifically, we estimate the average capital called down as a percentage of uncalled commitments in each year of a fund's life. Averaging across funds and across vintage years within the strategy provides us with the baseline curve for our forecasted capital call rates.

Fundraising forecasts

Since we are modeling AUM of closed-end funds several years into the future, fundraising plays an important role in the overall forecasting model. Fundraising captures two components of the AUM growth process. The first is the capital recycling component, which accounts for capital being returned from mature funds and invested back into new funds. The second component captures new capital coming into an asset class. An investor building an allocation to private markets from scratch or an investor increasing an existing private market allocation are examples of new capital.

The foundation of our fundraising forecasts is a flexible linear trend model that was fit to quarterly data from 2004 to 2023.[12, 13] Rather than simply taking a full-period growth rate or manually specifying a look-back window, the model has built-in trend change-point detection, which allows the trend growth rate to be automatically updated as the data changes. Although this model is simplistic, a linear growth

12: "Forecasting at Scale," PeerJ Preprints, Sean J. Taylor and Benjamin Letham, September 27, 2017.
13: The fundraising dataset used in our trend model excludes guidance funds and continuation funds. We also removed SoftBank Vision Fund and SoftBank Vision Fund II on account of their extreme fund sizes, which distorted broader VC fundraising trends.

rate is a reasonable assumption based on the historical fundraising data across strategies. Additionally, a linear model is suitable for long-term forecasting because it is easy to extrapolate the forecasts well into the future without having to make additional assumptions.

The linear growth rate for a particular strategy can be thought of as a steady-state growth rate that combines new capital growth and capital recycling when distributions are at average levels. We compared distribution estimates to beginning NAV to calculate a distribution yield. To incorporate the cyclical component of capital recycling, we included the trailing four-quarter distribution yield as a regressor to the base model. The new model has a regressor coefficient that has a multiplicative effect on the trend. For example, if a strategy had a normalized distribution yield of 1.0 and a coefficient of 0.25, the fundraising forecast for the next quarter would be 25.0% above the trend. As expected, we found that when trailing distributions were above average, subsequent fundraising (in dollar terms) tended to be above average, and vice versa. While adding the distribution yield as a regressor significantly improved out-of-sample forecast accuracy, the more important benefit is that it explicitly ties the fundraising forecasts to the main cash flow model described above. When the NAV growth rate assumptions change, it will lead to changes in the distribution forecasts, which in turn will cause changes in the fundraising forecasts. Consistent with expectations, in good economic scenarios with strong returns and distributions, fundraising forecasts will be upgraded; in bad economic scenarios with weak returns and distributions, fundraising forecasts will be downgraded.

Data collection within private markets is lagged, and we expect fundraising values for recent years to be restated upward as fund closings are reported. We looked at the year-over-year changes in fundraising values due to lagged data collection and found that it is common to see a 20%-30% increase in fundraising values one year after the initial reporting date. To better reflect what the actual 2023 fundraising number will be at the end of our forecast period, we increased our raw 2023 fundraising values for PE and VC by 20% and all other strategies by 30%. This bump in 2023 fundraising is included in the time series data and impacts the baseline fundraising trend growth.

Lastly, our baseline fundraising growth trend is adjusted in our scenarios, in which the fundraising environment faces headwinds or tailwinds. The results of the fundraising trend adjustments and their interaction with the cash flow and NAV models are showcased in the following table, "Fundraising forecasts."

Fundraising forecasts*

		Forecasted fundraising ($B)						
		Trend growth	2023E	2024E	2025E	2026E	2027E	2028E
Base case	Private equity	6.2%	$674.0	$561.6	$588.4	$639.8	$701.6	$774.5
	Private debt	6.9%	$255.7	$272.9	$289.2	$312.6	$339.8	$373.2
	Venture capital	2.9%	$231.5	$198.8	$214.3	$234.8	$254.3	$276.7
	Real estate	6.1%	$118.2	$141.9	$147.7	$160.7	$173.1	$189.5
	Real assets	8.2%	$149.3	$170.8	$180.8	$194.8	$210.7	$229.4
	Funds of funds	1.9%	$65.5	$73.7	$70.1	$71.7	$74.9	$78.5
	Secondaries	10.1%	$105.6	$79.9	$84.5	$92.5	$102.1	$115.5
Good case	Private equity	9.2%	$674.0	$614.1	$656.3	$736.3	$836.8	$957.5
	Private debt	12.9%	$255.7	$292.7	$327.0	$373.7	$429.9	$499.7
	Venture capital	5.9%	$231.5	$230.7	$254.3	$288.9	$323.8	$364.6
	Real estate	9.1%	$118.2	$147.7	$154.5	$174.3	$194.7	$220.2
	Real assets	11.2%	$149.3	$173.3	$188.1	$208.6	$232.7	$261.1
	Funds of funds	4.9%	$65.5	$83.0	$80.7	$85.0	$91.7	$99.4
	Secondaries	13.1%	$105.6	$82.3	$89.4	$100.2	$114.4	$133.4
Bad case	Private equity	3.2%	$674.0	$512.6	$518.4	$544.5	$578.1	$617.8
	Private debt	3.9%	$255.7	$247.9	$255.1	$267.3	$281.8	$299.8
	Venture capital	-0.1%	$231.5	$148.6	$152.3	$161.4	$168.7	$177.4
	Real estate	3.1%	$118.2	$134.1	$132.6	$140.6	$147.5	$156.9
	Real assets	5.2%	$149.3	$169.3	$173.7	$181.6	$191.0	$202.2
	Funds of funds	-1.1%	$65.5	$64.7	$59.3	$58.7	$59.4	$60.4
	Secondaries	7.1%	$105.6	$77.5	$79.5	$83.8	$90.0	$99.1

Source: PitchBook • Geography: Global • *Historical AUM and forecasts generated on April 19, 2024