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Venture Capital Primer

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Key Takeaways

- Venture capital ("VC") is a private equity strategy that entails investing in newer, less stable businesses.
- VC is generally considered to offer both the highest risk and highest potential returns of any major asset class.
- Manager selection is critical, as VC exhibits significant performance dispersion among managers.
- Top-quartile VC funds often have very limited access and are closed to new investors.
- The smaller fund sizes and limited access of venture capital make it difficult to deploy large commitments.
- The higher risks of venture-backed companies can be partially mitigated via portfolio construction and diversification.
- Vintage year diversification has been very important to VC investing historically.

Introduction

Venture capital has been an attention-grabbing, headline generating asset class from its very beginning. Many household names started out as (or still are) venture backed investments, including Apple and Microsoft in the 1970's/1980's, Google and Amazon in the 1990's, Facebook and SpaceX in the early 2000's, and Uber, Airbnb, DoorDash, and Peloton in the mid 2000's. More recently, venture capital has become a dominating presence in the cryptocurrency and artificial intelligence industries, driving innovation through investments in companies such as Coinbase and OpenAI.[1]

The primary allure of investing in venture capital lies in its risk/reward potential. Investors are typically drawn by the potential to generate some of the highest returns of any asset class, but they should be aware of the increased risks that brings. We have designed this primer to provide an overview of the venture capital asset class as well as contrast it to other private markets strategies, particularly buyouts.

[1] Sources: Harvard Business Review, "How Venture Capitalists Make Decisions," April 2021. PitchBook, "The 25 most valuable VC-backed companies in the US," May 2019.

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What is venture capital?

Within private equity, there are several mainstream strategies, including buyouts, growth equity, and venture capital ("VC"). Venture capital managers ("VCs") invest in new, typically not-yet-profitable companies with high perceived growth potential. Any industry can be targeted, though VC is dominated by technology-driven companies. Unlike other private equity strategies, venture capital funds typically aim for minority ownership while investing in a greater number of companies. This ownership position often comes with board seats that can allow the investor to influence a company's strategy. VC investors also may offer help in other ways, such as with financing, recruiting, customer introductions, providing industry connections, etc.

Venture capital is often referred to as the riskiest private equity strategy as it typically invests in newer, less stable businesses. The figure below depicts VC's annualized risk and returns in relation to other asset classes. It is evident that not only does VC have the highest return profile, but it also has the highest risk among major asset classes. It is important to note that the nature of private markets returns can artificially dampen volatility, thus making them appear lower risk than they truly are (i.e., investors should not assume that buyouts possess less risk than investments in publicly-traded companies).

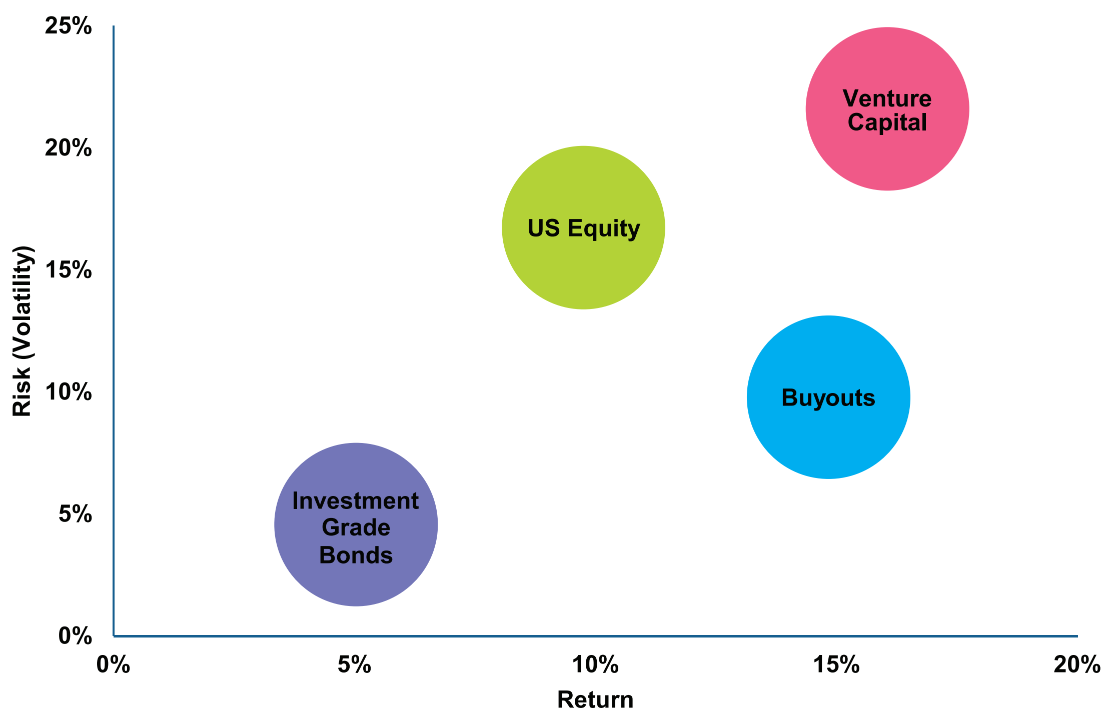

FIGURE 1

Risk and Return Profiles for US VC, Buyouts, Investment Grade Bonds, and Equity (Since 1990)

Source: Quarterly returns soured from Bloomberg and Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US Venture Capital Composite, Cambridge US Buyouts Composite, Russell 3000 TR, Bloomberg US Aggregate Bond Index. Period is Q1 1990 to Q4 2022.

Note: For purposes of return comparison, throughout this document we linked quarterly IRRs of VC and Buyouts as reported by Cambridge Associates. This is because time-weighted returns for these series were not available and the quarterly IRRs used should not differ materially from time-weighted quarterly returns. Note that the trailing returns we present by linking the quarterly IRRs are different from the trailing IRRs as the trailing IRRs are running the calculation over a longer period in which the weighting of cash flows has a more substantial impact.

Getting in early

VC gets its name from investors providing capital to new ventures. They do so with the understanding that the company may not be profitable in the near future and the hope that it may grow rapidly and eventually provide a significant return on their investment. How big of a return (and how much risk is involved) often depends on how early – or in what stage - the investment is made.

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Venture capital investments can span a wide range of stages as companies evolve. Figure 2 lists the various investment stages, what a typical dollar investment range may be, and for what the investment is typically used.

Stage	Typical Round Size	Description
Angel & Pre-Seed	$25,000 to $2 million	Investing in a pitch deck; pre-revenue
Seed	$2 million to $5 million	To develop a business plan and create a product
Early: "Series A" or "Series B"	$5 million to $50 million	To fund growth and establish market position
Expansion/Late: "Series C" and later	$50+ million	To fund revenue-generating, fast-growing businesses that are profitable or close to profitable

FIGURE 2
Venture Capital Fundraising Stages

Early stage and late/expansion stage US VC have had comparable returns over the long and mid-term. Figures 3 and 4 below compare returns from two different perspectives: TVPI[2] and DPI[3] . Figure 3 shows that since 2006, early-stage VC has had better TVPIs in most mature vintage years, while Figure 4 shows that late/expansion stage has had better DPIs in more recent years. This highlights a key return difference between investing in the two fund stages. Late-stage VC funds tend to distribute capital more quickly, while early-stage VC funds tend to ultimately generate a higher return per dollar invested but take longer to realize investments.

[2] TVPI stands for "Total Value-to-Paid-In", which represents the overall value generated as a ratio of all capital contributed into the fund. The performance calculation equals distributions plus remaining value, then divided by contributions.

[3] DPI stands for "Distributed-to-Paid-In", which represents how much value has been distributed back to investors as a ratio of total contributions into the fund. The performance calculation equals distributions divided by contributions.

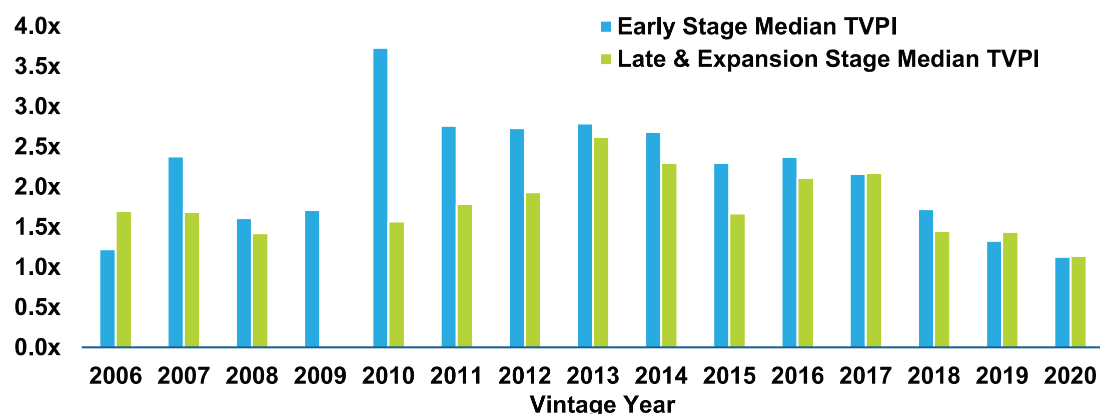

FIGURE 3
Early and Late/Expansion Stage US Venture Capital Median TVPI

Source: Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US VC Early-Stage Composite, Cambridge US VC Late & Expansion Stage Composite. Late & Expansion US VC stage does not have data for 2009.

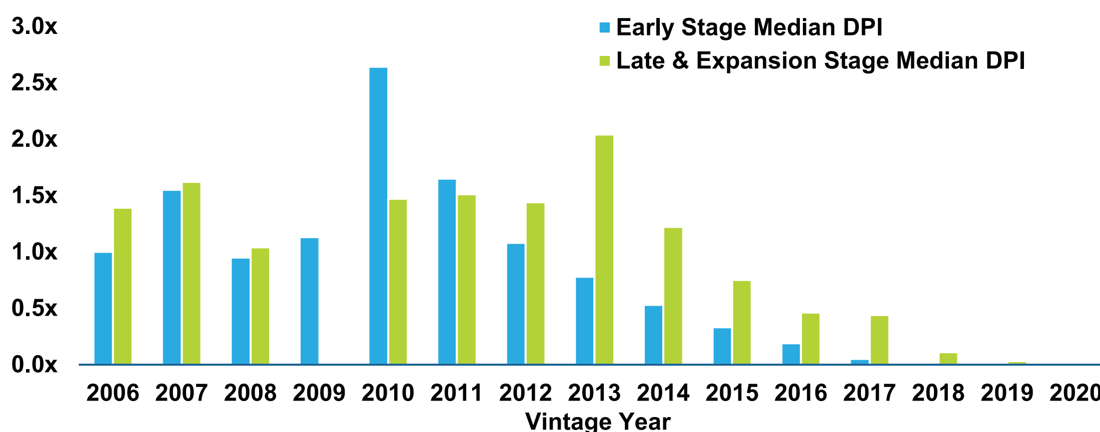

FIGURE 4
Early and Late/Expansion Stage US Venture Capital Median DPI

Source: Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US VC Early-Stage Composite, Cambridge US VC Late & Expansion Stage Composite. Late & Expansion US VC stage does not have data for 2009.

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The US has historically comprised the majority of the venture capital market, representing over three fourths of VC funds raised since 1981.[4] Hence, throughout this paper we focus primarily on US VC. Figure 5 shows that the majority of venture capital funds target early-stage investments. While late- and expansion-stage venture saw substantial growth over the last decade, it is mostly limited to established venture firms/platforms. In contrast, the early-stage venture space is more accessible to smaller funds and managers.

[4] Source: Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge VC Composite, Cambridge US VC Composite. Europe Developed, China, and Asia/Pacific represent the majority of the rest of the Ex: US VC funds raised by vintage year.

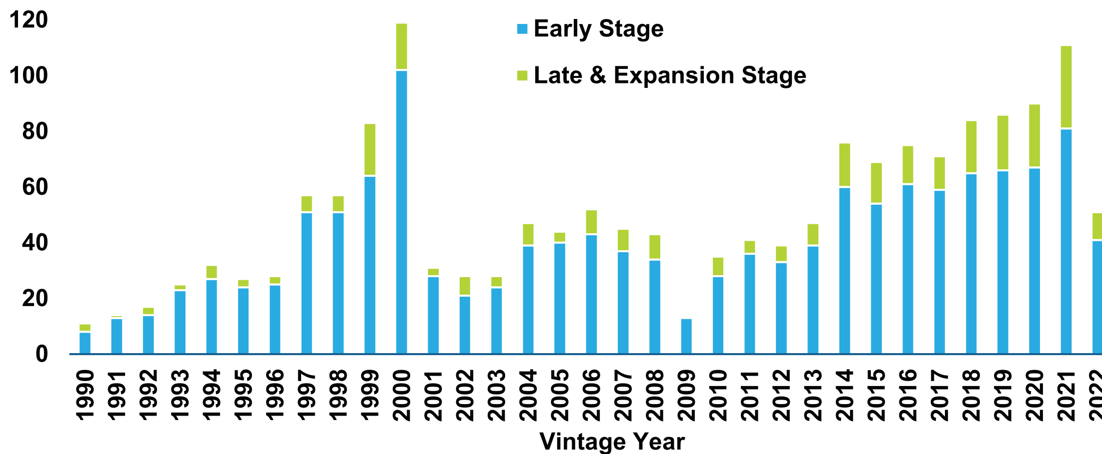

FIGURE 5
Number of US Venture Capital Funds Raised by Stage

Source: Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US VC Early-Stage Composite, Cambridge US VC Late & Expansion Stage Composite.

Note: Figure 5 captures only a minority of overall VC funds raised; however, it was chosen because it is a more accurate and reliable source of fund stage classification.

Despite late-stage VC typically having a larger dollar amount per investment, early-stage still comprises the majority of total capital raised. Furthermore, while both have grown over the past decade, the gap between early- and late-stage aggregate capital raised has widened (see Figure 6 below). This widening gap indicates that VC is not only growing overall as an asset class, but that it is particularly growing within the early-stage range.

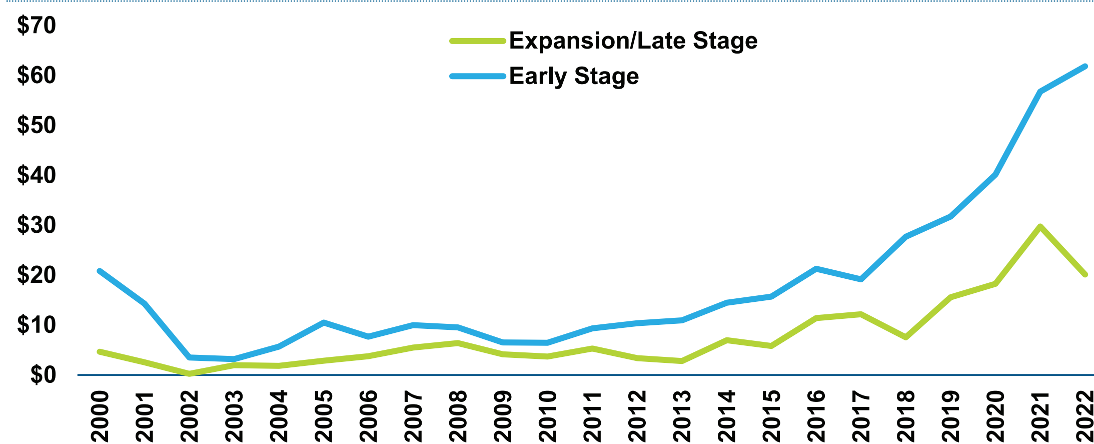

FIGURE 6
Global Aggregate Capital Raised (Billion USD)

Source: Preqin, as of July 2023.

Why invest in venture capital?

There are several reasons why investors may choose an allocation to venture capital, the foremost of which is the potential for higher returns. This potential for better performance comes from both the nature of investing in newer (i.e., riskier) companies as well as from the prospect of choosing superior funds (i.e., alpha potential).

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Historical performance

Since 1990, US venture capital has had an annualized return of 16.1%, higher than both US buyout's 14.8% and the Russell 3000's 9.8%.[5] This includes VC's eye-watering performance during the dot-com bubble and the subsequent bust that depressed VC returns for several years. Even when looking at a more recent period, venture capital still outperformed buyouts and public equity. Since 2010, US VC has produced an annualized return of 16.7%, compared with US buyout's 16.6% and the Russell 3000's 11.9%.[6]

[5] Quarterly returns sourced from Bloomberg and Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US Venture Capital Composite, Cambridge US Buyouts Composite, Russell 3000 TR. Period is Q1 1990 to Q4 2022. The Russell 3000 is a broad composite of the approximately 3,000 largest stocks in the US.

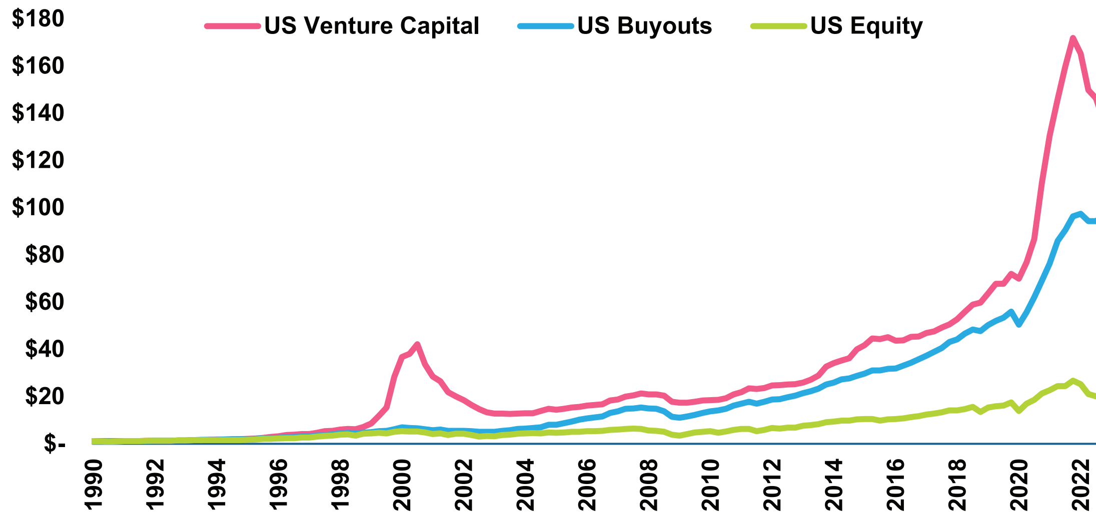

FIGURE 7
Growth of a Dollar for US VC, US Buyouts, and US Equity

Source: Quarterly returns sourced from Bloomberg and Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US Venture Capital Composite, Cambridge US Buyouts Composite, Russell 3000 TR.

Venture capital also has a high level of cycle dependency. When only looking from Q1 2000 to Q4 2019 (i.e., excluding the dot-com bubble and COVID-19 spikes), VC underperformed both buyouts and US equity. Over the same period, VC had the lowest return at 4.8% and the second highest volatility (behind US equity) at 13.7%, whereas buyouts had a 11.7% return with 9.9% volatility. This high cycle dependency emphasizes the importance of diversifying VC investments by vintage year, as missing out on a good vintage year or concentrating capital in a particularly bad year can significantly impair overall returns.

[6] Quarterly returns sourced from Bloomberg and Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US Venture Capital Composite, Cambridge US Buyouts Composite, Russell 3000 TR. Period is Q1 2010 to Q4 2022.

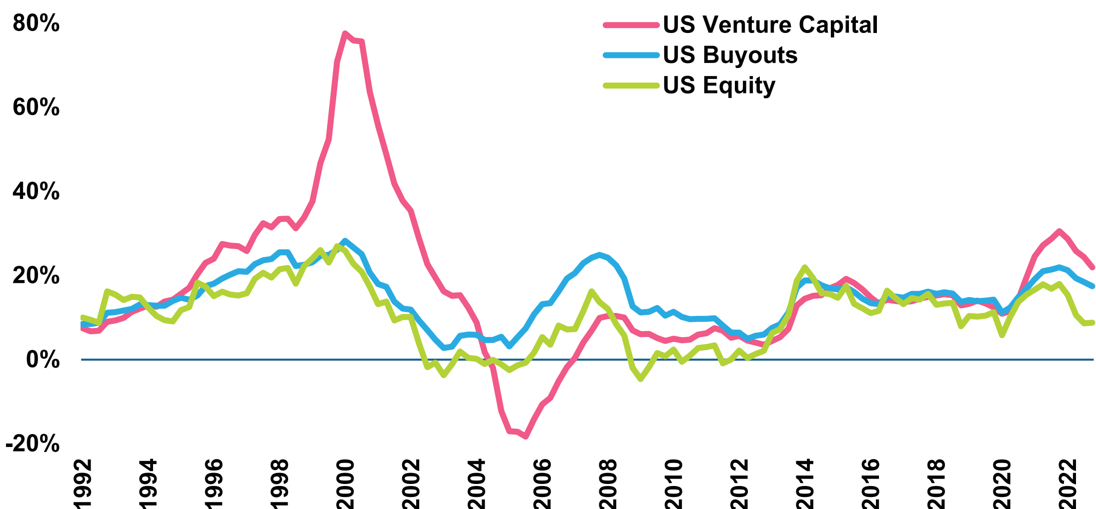

FIGURE 8
Rolling 5 Year Returns

Source: Quarterly returns sourced from Bloomberg and Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US Venture Capital Composite, Cambridge US Buyouts Composite, Russell 3000 TR.

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The importance of manager selection

Manager selection is critical in venture capital, as VC shows the highest level of performance dispersion of any major asset class as measured by interquartile spreads (see Figure 9). These interquartile spreads can be interpreted as how much potential value lies in selecting superior funds or managers within each asset class. The high level of dispersion in venture capital funds is perhaps unsurprising given that it is not unusual for a large proportion of investments to be written off entirely[7] while others potentially produce 10x-100x multiples on invested capital, particularly in the early stages.

[7] PitchBook reports that the number of VC-backed companies filing for bankruptcy or shutting down has hovered around 1,000 per year since 2016. Source: PitchBook, "Startup life expectancy expected to fall," January 11, 2023.

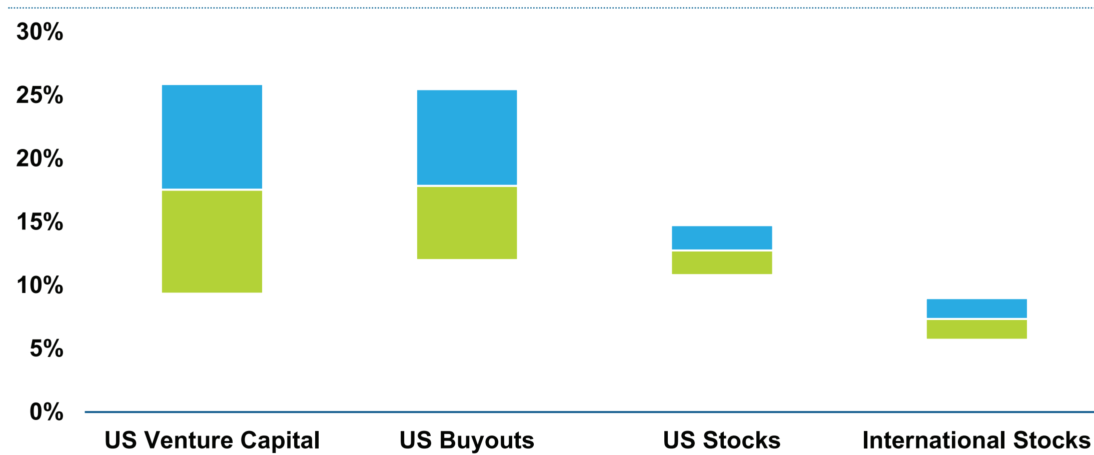

FIGURE 9
Trailing 10-Year Interquartile Returns

Source: Data sourced from eVestment and Cambridge Associates via IHS Markit. US Venture Capital and Buyouts funds raised Vintage Year 2011 to 2020. US Stocks and International Stocks fund data for the trailing 10 years as of December 2020. Cambridge data sourced July 2023, eVestment data sourced August 2023. Indices: Cambridge US Venture Capital Composite, Cambridge US Buyouts Composite, eVestment US Equity Universe, and eVestment ACWI ex-US Universe.

Hence, investing with top-performing venture capital managers can make a significant difference. For example, in the late 1990s, there was an exceptionally large return spread between the best and worst performers, as exhibited by the 36% average interquartile spread (see Figure 10).[8] This was followed in the 2000s by a more challenging market and a narrower interquartile spread of 14%.[9] Still, fund/manager selection was often the difference between low positive returns and negative returns during this period. Vintage year funds from 2010 to 2020 have exhibited an average interquartile return spread of 17%.[10]

[8] Source: Vintage year returns from Cambridge Associates via IHS Markit as of July 2023. Index: Cambridge Venture Capital Composite. For the period 1990 to 1999.

[9] Source: Vintage year returns from Cambridge Associates via IHS Markit as of July 2023. Index: Cambridge Venture Capital Composite. For the period 2000 to 2009.

[10] Source: Vintage year returns from Cambridge Associates via IHS Markit as of July 2023. Index: Cambridge Venture Capital Composite. For the period 2010 to 2020.

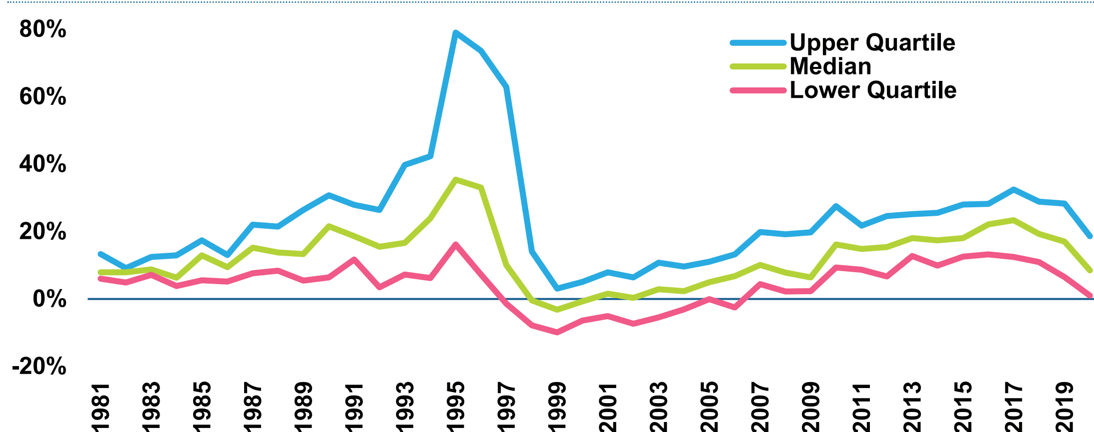

FIGURE 10
Global Venture Capital Quartile Performance by Vintage Year

Source: Vintage year returns from Cambridge Associates via IHS Markit as of July 2023. Index: Cambridge Venture Capital Composite.

Performance persistence

Performance persistence, the theory that a firm with a prior top-quartile fund is substantially more likely to generate top-quartile returns in its next fund, is prominent

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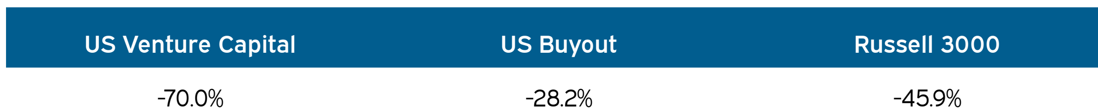
within venture capital. While there was performance persistence for both buyout and venture capital funds prior to 2000, that is no longer the case. Only venture capital has continued to show evidence of substantial performance persistence as VC managers with a prior top quartile fund had a 45% chance of achieving top quartile returns in their next fund and a nearly 70% chance of generating above-median returns.[11] This means that if an investor can get access to top-quartile VC funds/managers, then they are more likely to continue generating top returns. This may be due to certain managers having developed defensible advantages such as sourcing networks and strong reputations with entrepreneurs that bring superior deal flow. Thus, accessing top-quartile funds/managers is not only important for current fund performance, but potentially also for the performance of future funds.

What are the concerns?

The drawbacks to venture capital investing are similar to those of other private market investments, but in some cases they can be even more amplified.

Increased risk

A downside to venture capital's higher returns is that it has also been one of the riskiest investment strategies. US VC had an annualized return of -34.4% during the popping of the dot-com bubble.[12] Its worst historical cumulative drawdown far exceeds that for buyouts or public US equities (see Figure 11).



US Venture Capital	US Buyout	Russell 3000
-70.0%	-28.2%	-45.9%

FIGURE 11
Cumulative Maximum Drawdown

Source: Quarterly returns sourced from Bloomberg and Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US Venture Capital Composite, Cambridge US Buyout Composite, and Russell 3000 TR. For the period Q1 1987 to Q4 2022.

Since 1990, VC's annualized standard deviation is 21.6%, above buyout's 9.8% and the US equities' 16.7%.[13] Since 2010, VC's annualized volatility has been lower than that of public US equity, but it is worth noting that the smoothed nature of pricing in private markets artificially dampens the level of volatility for VC (and buyouts).[14]

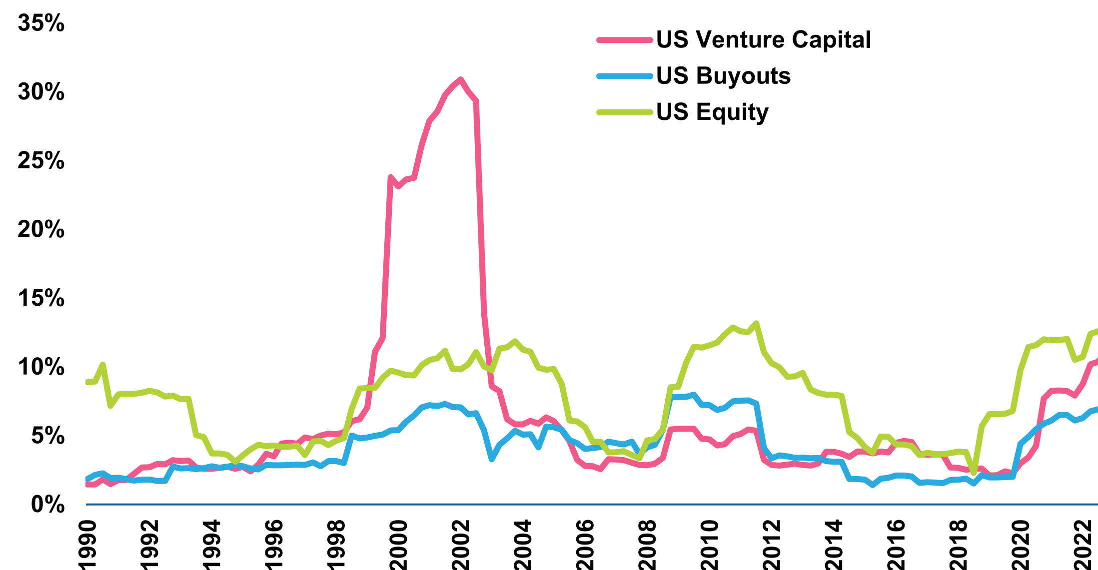


FIGURE 12
Rolling 3 Year Volatility

Source: Quarterly returns sourced from Bloomberg and Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US Venture Capital Composite, Cambridge US Buyouts Composite, and Russell 3000 TR.

[11] Source: Harris et. al., University of Chicago: Becker Friedman Institute for Economics, "Has Persistence Persisted in Private Equity? Evidence from Buyout and Venture Capital Funds," November 23, 2020. Figures are measured by PME (i.e., a public market equivalent return) and are for the post-2000 time period.

[12] Quarterly returns sourced from Cambridge Associates via IHS Markit as of July 2023. Index used: Cambridge US Venture Capital Composite. Period is Q3 2000 to Q4 2002.

[13] Quarterly returns sourced from Bloomberg and Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US Venture Capital Composite, Cambridge US Buyouts Composite, and Russell 3000 TR. Period is Q1 1990 to Q4 2022.

[14] Quarterly returns sourced from Bloomberg and Cambridge Associates via IHS Markit as of July 2023. Indices: Cambridge US Venture Capital Composite and Russell 3000 TR. Period is Q1 2010 to Q4 2022.

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Another way to quantify riskiness is through loss ratios, or the sum of investment-level losses as a percentage of total invested capital. Venture capital has had a significantly higher loss ratio than buyouts since 2000. Furthermore, as expected, early-stage VC has had a higher loss ratio than expansion- and late-stage VC since 2000.[15]

[15] Source: Preqin, as of June 30, 2023.

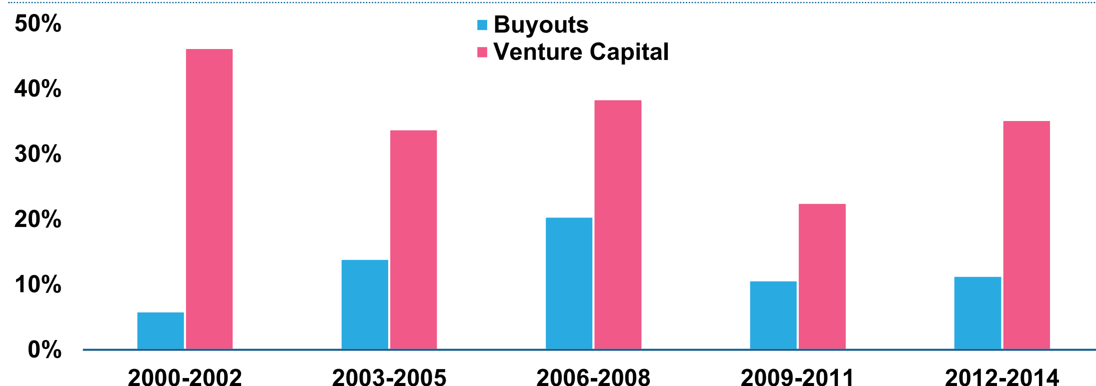

FIGURE 13
Loss Ratios (by % of Dollar Value)

Source: Preqin, as of June 30, 2023.

While venture capital companies have business risk (similar to that of growth and buyout strategies), they also are typically exposed to significantly higher financing risk. This financing risk arises due to the early nature of VC investments. VC-backed companies often need to receive continual infusions of capital in order to grow their business until they reach a point where they become profitable and generate enough cash flow to survive on their own. Hence a startup with traction in the market may still fail if they are not able to raise more capital during the early stages (i.e., when VC investments are typically made).

Some of these risks can be partially mitigated via portfolio construction and diversification. The choice of stage (e.g., early, late), commitment sizing (e.g., exposures to individual funds), and industry (e.g., information technology versus biotechnology) all contribute to the portfolio's risk.

Investing at scale

Another potential downside of venture capital presents itself for investors who wish to invest on a large scale. As a whole, venture capital typically has smaller fund sizes and limited access, which makes it difficult to deploy large commitments. Compared to buyout and growth equity strategies, venture capital's average fund size is substantially smaller. VC's average fund size since 2000 has been approximately $100 million, with a range spanning from $70 million to $177 million.[16] By contrast, the average size for a buyout fund over this period has been 7x larger.

[16] Source: Preqin, as of July 2023. Period is average annual fund size from 2000 to 2022.

FIGURE 14
Global Average Fund Size (in millions USD)

Source: Preqin, as of July 2023. Period is average annual fund size from 2000 to 2022.

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Access also remains a key consideration for investors when considering investing in VC. Top-quartile VC funds often have very limited access and are often closed to new investors, more so than in any other area of private markets. These more exclusive funds tend to dominate the top quartile of returns, thus often making access an even greater consideration for investors.

Freedom of Information Act ("FOIA") considerations

Though a less common factor, venture capital firms have been known to exclude investors where information may be released or made available to the public. This challenge is typically faced by public pension plans seeking to access elite firms. Investments by public entities are generally subject to the Freedom of Information Act, which allows any person to request certain financial documents.[17] Venture capital, like the rest of private equity, are private investments and typically prefer to keep their financials, company valuations, and other information private.

[17] The Freedom of Information Act (FOIA) gives any person the right to request access to records of the Executive Branch of the United States Government. Public pension plans typically fall under this encompassing category and their documents may be requested.

Implementation considerations

Investing in venture capital involves many of the same considerations that are common among private markets. These include issues such as fund structure, liquidity, the j-curve, vintage years, etc. Rather than addressing these issues exhaustively, we provide a summary of some of the more important considerations below.

Diversification

To invest prudently, both public and private equity portfolios should be diversified across many different individual investments. This typically means investments in companies of different sizes, situated in different geographic areas, and involved in different business activities.

In addition, private market investments should be diversified across time as well. Depending on macro economic events and available opportunities, some vintage years[18] have better performance than others. As discussed above, performance for VC funds during and after the dot-com bubble is a prime example of this phenomena. Therefore, it is prudent to structure investments and plan cash flows to provide for diversification across multiple vintage years.

[18] The year in which a partnership makes its first investment is known as its "vintage year."

Further, investors should try to balance a VC fund's size and investment stage when deploying capital. Even if well balanced, venture capital still requires a larger number of commitments than most other strategies.

Liquidity

VC funds are typically closed-end with a lifespan of 10-15 years, though they can go longer, during which the only liquidity events tend to be distributions resulting from the sale of portfolio companies. VC funds have a unique pacing profile, even compared to buyouts. VC funds tend to be meaningfully slower to distribute capital back to LPs and their average hold periods have been increasing over time.

Because of challenges in valuing often unprofitable businesses with any certainty and because VCs are highly selective over their LP base, there is a limited secondary

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market for venture capital funds. In some cases and environments, the secondary market may allow an investor to occasionally engage in portfolio maintenance through the selective addition or sale of VC funds. However, there is a risk that the secondary market would be quite limited during a financial crisis (i.e., when an investor may be in greatest need of liquidity). This lack of short-term liquidity can be a deterrent to some investors and should serve as a reminder to engage in liquidity stress testing.

Costs and fees

Like most private market investments, a typical venture capital fund will charge both a management fee and carried interest. The management fee is generally applied to a limited partner's aggregate commitment amount during the investment period and on net invested capital (invested capital less cost of realized investments and write-offs) thereafter. This fee can vary across fund types, fund sizes, etc., but typically ranges from 1.5% to 3.0% per year. Venture capital fees tend to be the highest among those in the industry, and this is especially true for GPs whose funds are typically in highest demand.

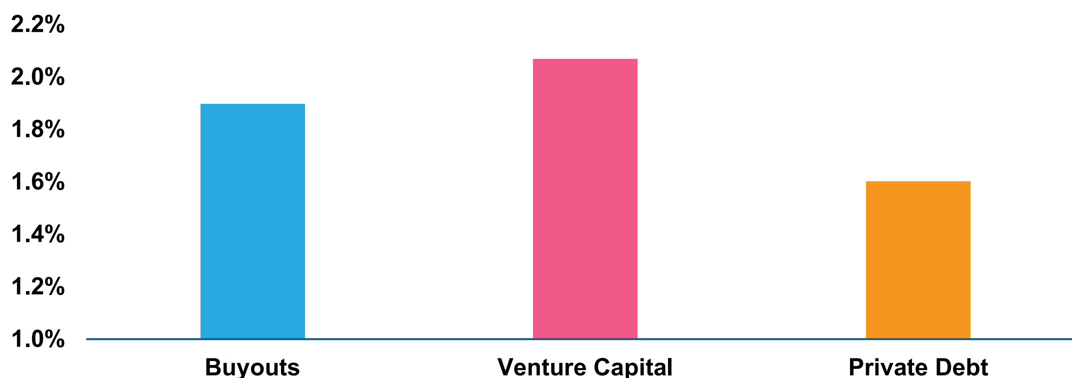

FIGURE 15
Mean Management Fee (Average 2016-2022)

Source: Preqin, "The 2022 Preqin Private Capital Fund Terms Advisor," September 2022.

The second type of fee, called "carried interest," represents a type of performance incentive fee for the general partner and is typically set at 20% (though top-tier VC funds often charge 25% or even 30% after a certain return threshold is reached). Unlike buyout funds, many venture capital funds have no return hurdle or "preferred return."

Summary

Venture capital is considered to be the riskiest of the three main private equity strategies as it invests in newer, less developed companies with seemingly high future potential. VC typically also offers the highest return and alpha potential. However, the large return spread between top and bottom tier managers acts as a double-edged sword, as below-average performance can significantly dampen returns.

VC has, on average, outperformed public equities and buyouts since 1990. These higher VC returns have been coupled with higher risk compared to buyouts and public equities.

The case for venture capital is compelling for those investors who can tolerate the risk profile and long-term illiquidity. Still, investors should be aware of the asset class's unique risks. VC investing is expensive and can be challenging to implement. As always, investors should conduct careful due diligence to make sure that investments match their objectives and constraints.

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