PitchBook

Basics of Cash Flow Management

PRIVATE FUND CASH FLOW SERIES

Credits and content

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Series overview

Analyses of private market performance tend to focus on how the GP generates returns—and understandably so. But while selecting top-tier managers and funds is paramount, the treatment of uncalled capital is also critical when evaluating the total return of a private market allocation, which is what truly matters to investors. An LP's decision to commit to a fund often comes several years before that capital is ever transferred to the GP to be invested. This creates a challenge for LPs, who must balance the need to meet capital calls with the desire to maximize return.

Effective management of uninvested capital, primarily minimizing the amount of capital held in reserve while maximizing its return, can have a material impact on the ultimate performance of a private market allocation. Conversely, LPs need to formulate a strategy to efficiently redeploy capital as it is distributed back.

Warren Buffett and his vice chair at Berkshire Hathaway, Charlie Munger, thrust this rather arcane aspect of private markets into the spotlight in the first half of 2019 when they criticized the PE industry for not accounting for this potential drag from uninvested capital. "We have seen a number of proposals from private equity funds where the returns are really not calculated in a manner that I would regard as honest," Buffett said. "It makes their return look better if you sit there for a long time in Treasury bills. It's not as good as it looks."

A thorough understanding of cash flow patterns will allow LPs to better plan for both capital calls and distributions, enabling them to enhance returns by keeping a smaller portion of their uncalled commitment in low-yielding liquid assets. But even the most sophisticated LPs, who can reliably predict their capital calls and distributions, will inevitably have to allocate some portion of uncalled capital to an asset with inferior returns to private market funds. The precise timing of contributions and distributions is impossible to know in advance, but historical data can offer helpful insight. In this series, we explore various aspects of private market funds to help investors better understand how to manage a private market allocation and evaluate its true overall performance.

In the conclusion to our series on cash flow management, we bring together pieces from prior analyses to introduce new commitment pacing and cash flow models.

All the models introduced in this series are available for customization by PitchBook clients. We welcome any questions, comments, or inquiries at benchmarks@pitchbook.com.

PE contributions analysis

Key takeaways

- On average, PE funds call down about 5% of committed capital per quarter during the heart of the investment period, but the size of contributions can swing widely; half of all PE funds historically have made a capital call of at least 18.9% of the total commitment size at some point in the fund's life, but a fund may also experience multiple consecutive quarters without capital being called.
- When trying to anticipate capital calls, fund age and dry powder prove to be the most reliable indicators. Capital calls taper off during a fund's third year, which typically corresponds with dry powder falling to 25% of the fund size.
- Drawdown rates evolve throughout the market cycle, with PE funds calling capital more quickly during economic expansions. Furthermore, we observe a structural slowdown in the pace of capital deployment for more recent vintages.

Introduction

Investing in private funds is unique in that the investment decision isn't accompanied by an immediate deployment of capital. In fact, when an LP commits to a fund, it now typically takes more than five years for a GP to call down all that capital. This creates a challenge for LPs, who must balance the need to meet capital calls with the desire to maximize return. Threading the needle between risk and return while maintaining adequate liquidity is a fundamental challenge of allocating to private market funds. The worst-case scenario is failing to make a capital call, which has serious repercussions, but a sin nearly as egregious for an LP is to simply let uncalled capital sit idly in a cash account. Most LPs are willing to go out a little further on the risk spectrum than a simple cash allocation, with many opting to park uncalled capital in Treasurys, but this still leaves much to be desired. Indeed, even incremental improvement to the management of uncalled capital can reap major returns for LPs, particularly those with large and mature portfolios.

It is unrealistic to think that an LP could ever perfectly time cash flows, but LPs can more effectively manage their portfolio by better understanding the mechanics of how funds tend to function. How often do capital calls tend to occur? What is the biggest capital call that can be expected? Does the business cycle have an impact on cash flows? Additionally, LPs need to consider how their unique circumstances affect portfolio management. What is the total expected return, and how will uncalled capital be managed accordingly? How much risk can and will be assumed?

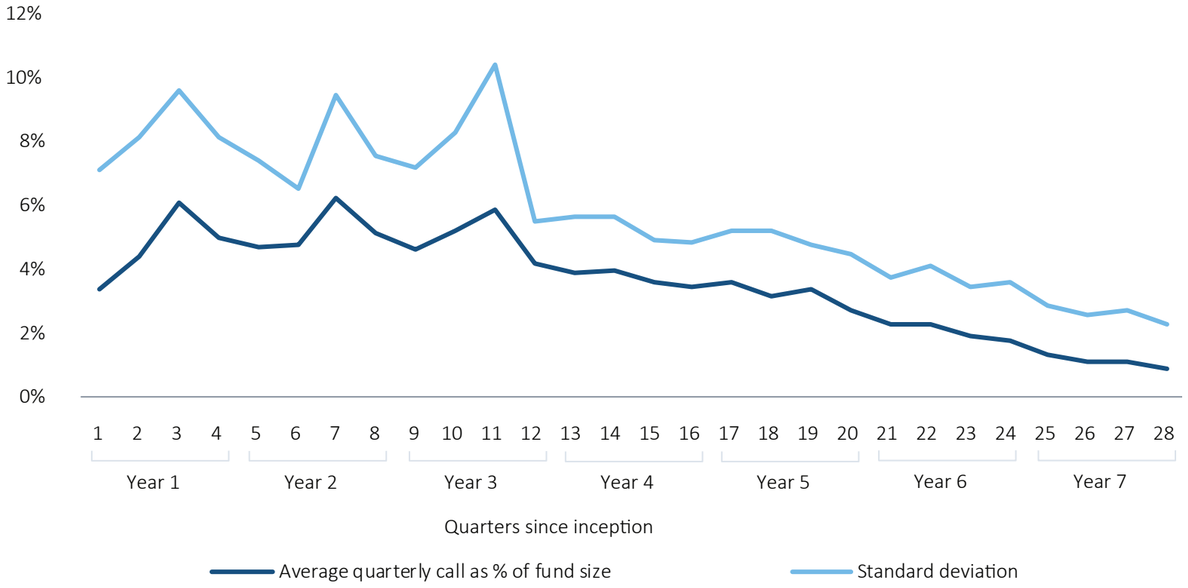
Understanding cash flow patterns

Age and dry powder

On average, PE funds call down about 5% of committed capital each quarter through the heart of the investment period, which has continued to lengthen—as we will examine in the next section. Keep in mind this is only on average, and the size of capital calls can vary widely. While most tend to be relatively small, LPs need to be prepared to write larger checks because half of all PE funds historically have made a capital call of at least 18.9% of the total commitment size at some point in the fund's life. Furthermore, one quarter of PE funds have made a capital call of at least 24.6% of the total commitment size. These large capital calls naturally tend to occur toward the initiation of the fund's investment period, when the fund is most likely to be executing large platform deals. The standard deviation of capital calls is also significantly higher at the early part of the investment period, steadily declining as the fund ages.

Figure 1. The size of capital calls drops sharply during a fund's third year

Average capital call as % of fund size by quarters since inception



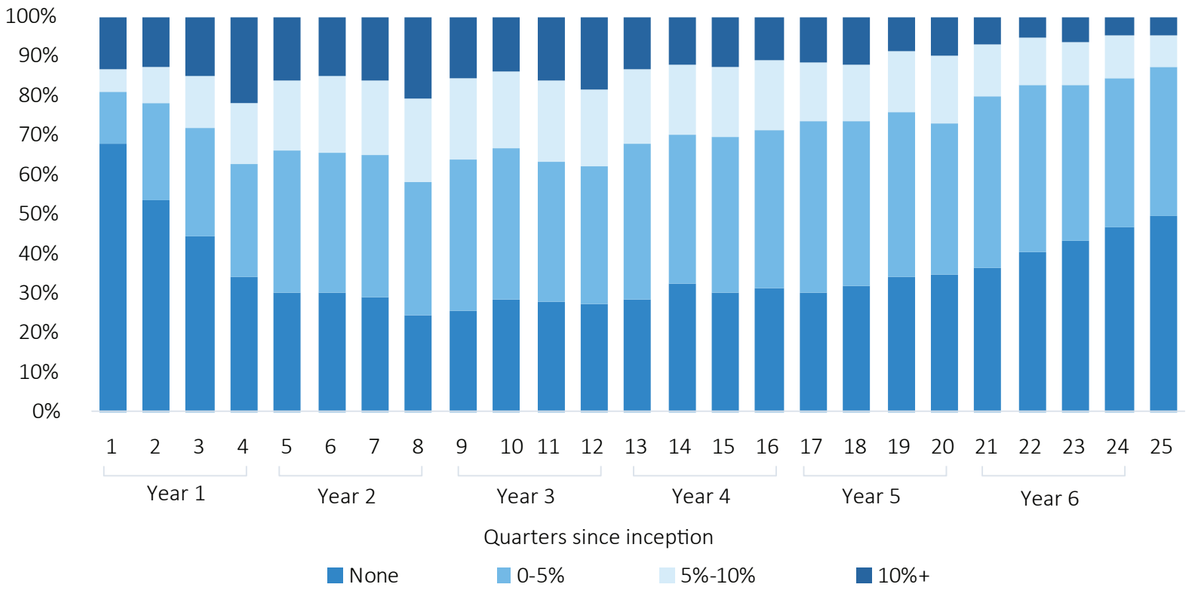
Source: PitchBook
*As of December 31, 2018

A fund's age is a straightforward way to gauge its maturity, but incorporating its dry powder into the equation provides a better way for investors to anticipate the magnitude of capital calls. As to be expected, funds with more dry powder tend to make larger capital calls. The average and median sizes of a capital call hover around 5% of the commitment size until 75% of the fund is invested, at which point the average tapers off. This is in part because funds simply have less capital to deploy, but PE funds also tend to transition their strategy during the investment period. Particularly in recent years, many GPs have emphasized add-on deals as a cornerstone of value creation strategies. These transactions naturally come later in the fund's investment period and require smaller checks, as the businesses are intended to be bolted on to larger platforms.

Even though the size of capital calls begins to taper once 75% of a fund has been called, we find the frequency of capital calls stays relatively consistent. It is not until more than 90% of a fund is called that we see a precipitous drop in the frequency of capital calls.

Figure 2. Capital calls are largest and most frequent in a fund's second and third year

Capital calls (#) as percentage of fund size by quarters since inception



Source: PitchBook
*As of December 31, 2018

Vintage and cyclicality

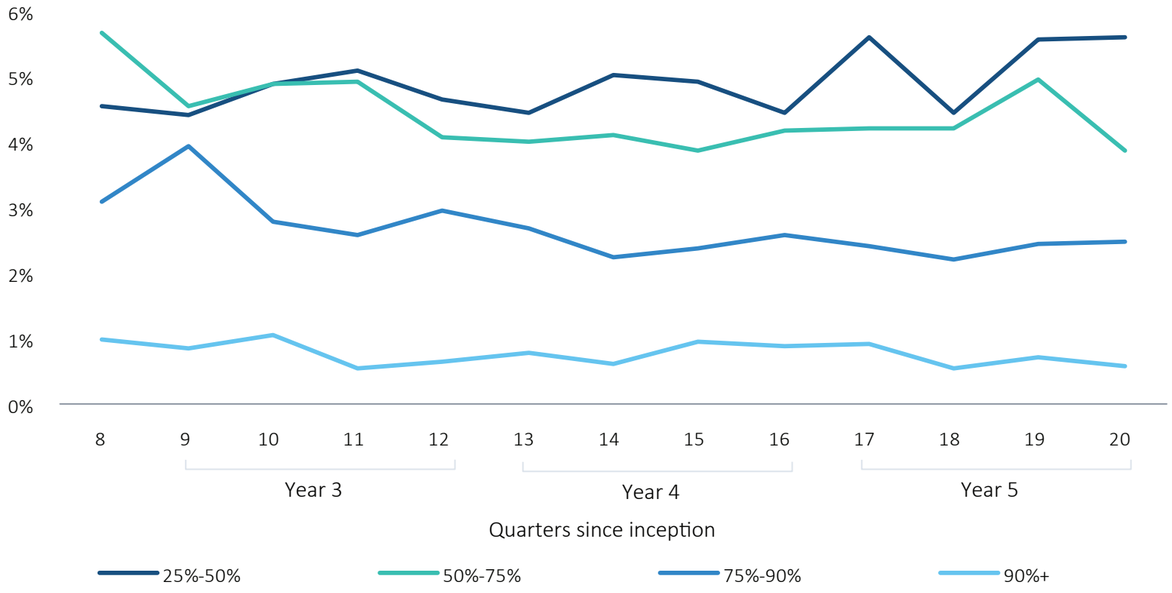
The prior charts and analyses have amalgamated PE funds across every vintage year; however, vintage year proves to be pivotal in determining the trajectory of cash flows for two reasons. The first is that drawdown rates of PE funds have fundamentally changed over the last two decades. Prior to 2000, on average, PE funds hit the 75% drawdown mark during their third year. More recently, however, it has taken nearly five years for funds to reach that mark, with the trend of slower drawdowns consistent throughout the stages of the investment period. We have certainly seen funds extending their investment periods in order to fully deploy their lot of capital, with most funds now calling capital well into their sixth year.

Bucketing funds by vintage year helps remove some of the noise and identify long-term trends, but assessing the drawdown patterns of individual vintages also proves interesting. In addition to long-term structural changes in drawdown rates, we found that the pace of PE investment ebbs and flows with the broader investment cycle. This cyclicality can be seen by taking a snapshot of how much capital different vintages had called at the three-year mark, juxtaposed with global GDP growth data from the subsequent three-year period to illustrate the prevailing market environment during the heart of the investment period.

Broadly speaking, PE funds deploy capital more quickly in positive economic environments, particularly in the run-ups to major downturns such as the dotcom bubble and global financial crisis. The inverse is also true, with funds that are active through the depths of recessions deploying capital more slowly. This aligns with broader trends in M&A markets and makes sense from an intuitive perspective. But it also seems to suggest that PE firms are prone to the same foibles as all investors, exuberant when prices are high but reluctant in tumultuous times when bargains are likely to be found. That said, the best GPs are likely to be those willing and able to invest through those turbulent times, as many of the top-performing funds historically have been those that were able to identify opportunities in the aftermath of downturns.

Figure 3. The size of capital calls drops once funds are about 75% invested

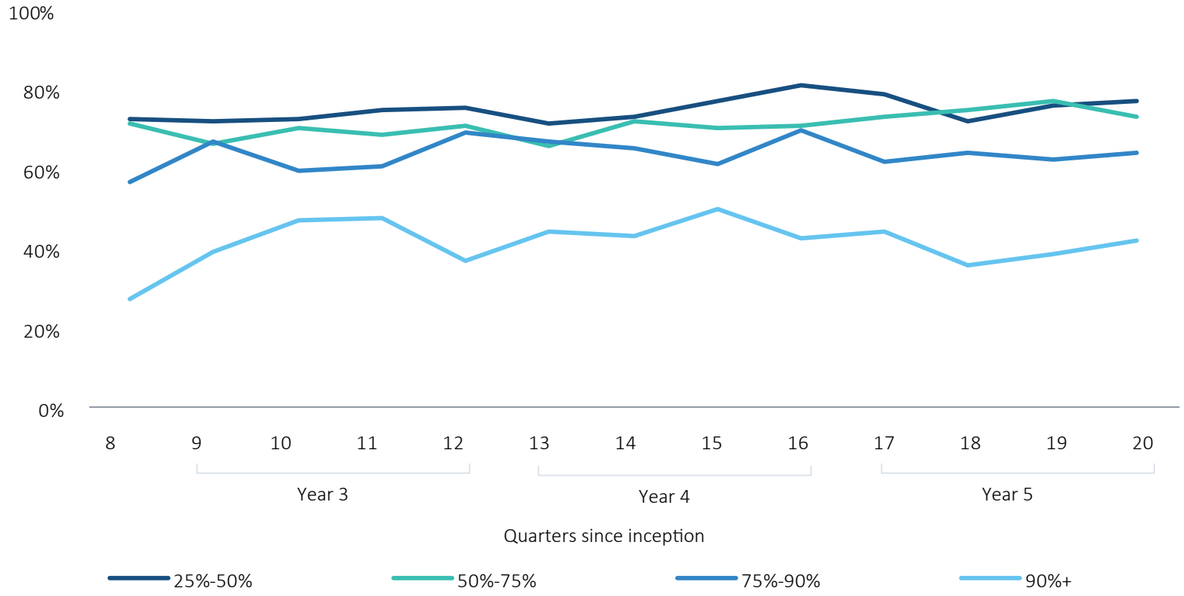
Average capital call size as % of commitments by total capital called



Source: PitchBook
*As of December 31, 2018

Figure 4. The frequency of capital calls plummets after funds are 90% deployed

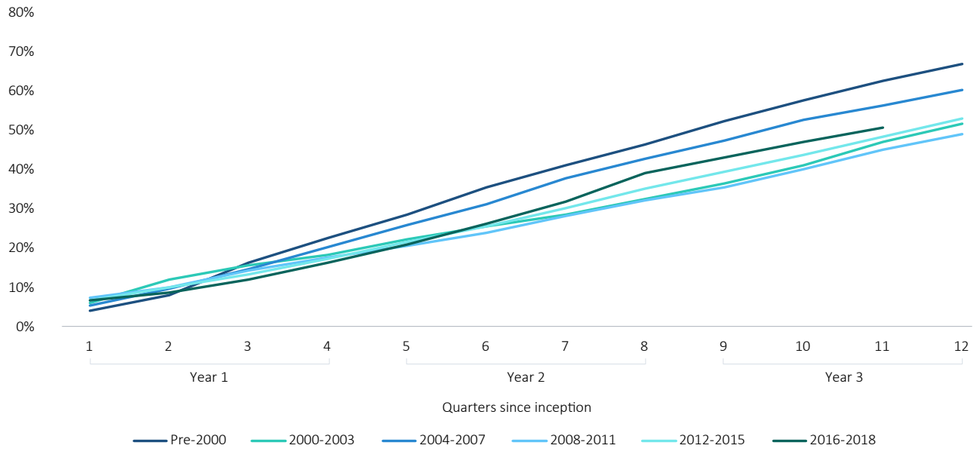
Percentage of funds with a capital call in the quarter by total capital called



Source: PitchBook
*As of December 31, 2018

Figure 5. Newer vintages have been calling capital more slowly

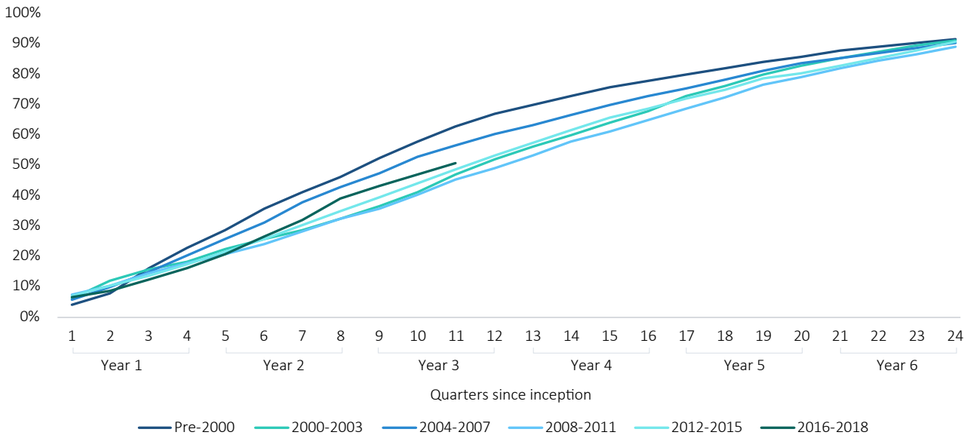
Total capital called by vintage bucket by quarter since inception



Source: PitchBook
*As of December 31, 2018

Figure 6. Most funds now call capital well into their sixth year

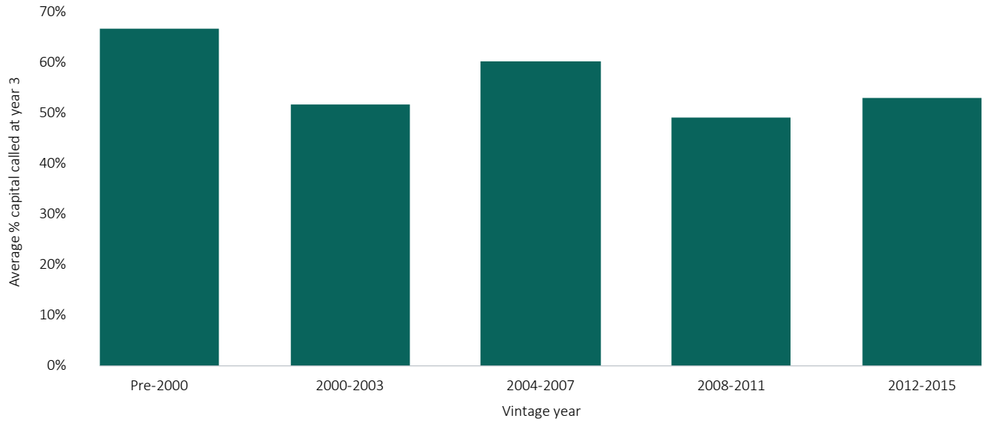
Total capital called by vintage bucket by quarter since inception



Source: PitchBook
*As of December 31, 2018

Figure 7. It now takes about three years for a fund to be 50% called

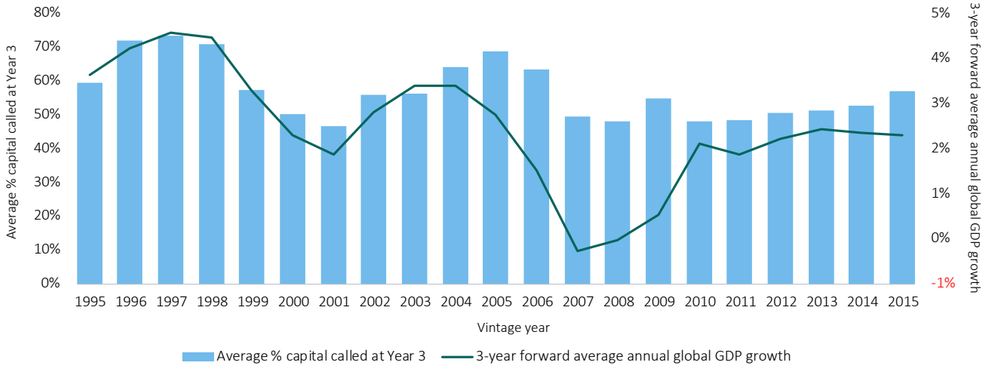
Average PE capital called at 3-year mark by vintage



Source: PitchBook
*As of December 31, 2018

Figure 8. Drawdown rates exhibit a high level of cyclicality

Average PE capital called at 3-year mark by vintage, with 3-year forward annualized TWR global GDP growth



Source: PitchBook
*As of December 31, 2018

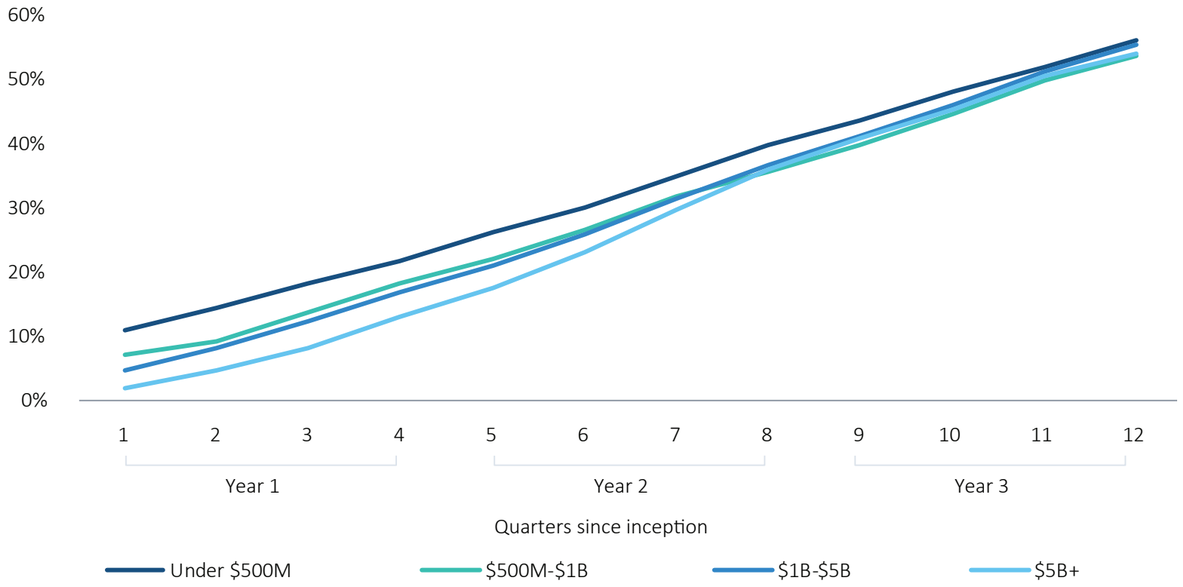
Size

Regardless of the strategy, it's an investing truism that larger pools of capital are more difficult to deploy—and private markets are no exception. Fund size is negatively correlated with drawdown rates (i.e. larger funds call capital more slowly), particularly in the first two years of the investment period. The gap is particularly pronounced for the largest and smallest vehicles. On the smaller end of the spectrum, GPs often execute fewer deals per fund, which translates large checks relative to the fund size and more concentrated portfolios. They also tend to rely less on buy-and-build strategies, diminishing the need to maintain reserve capital.

Conversely, mega-funds are almost uniformly raised by massive GPs that are in perpetual fundraising mode for all intents and purposes. This means that GPs often have dry powder remaining to be deployed in one fund when the successor fund has already been raised, which can be a drag on early capital deployment. Importantly, however, larger funds accelerate their pace of investment through the back half of the investment period, with total capital called converging with smaller vehicles at the midway point of their fourth year.

Figure 9. Larger funds take longer to deploy capital …

Total capital called by fund size bucket by quarter since inception



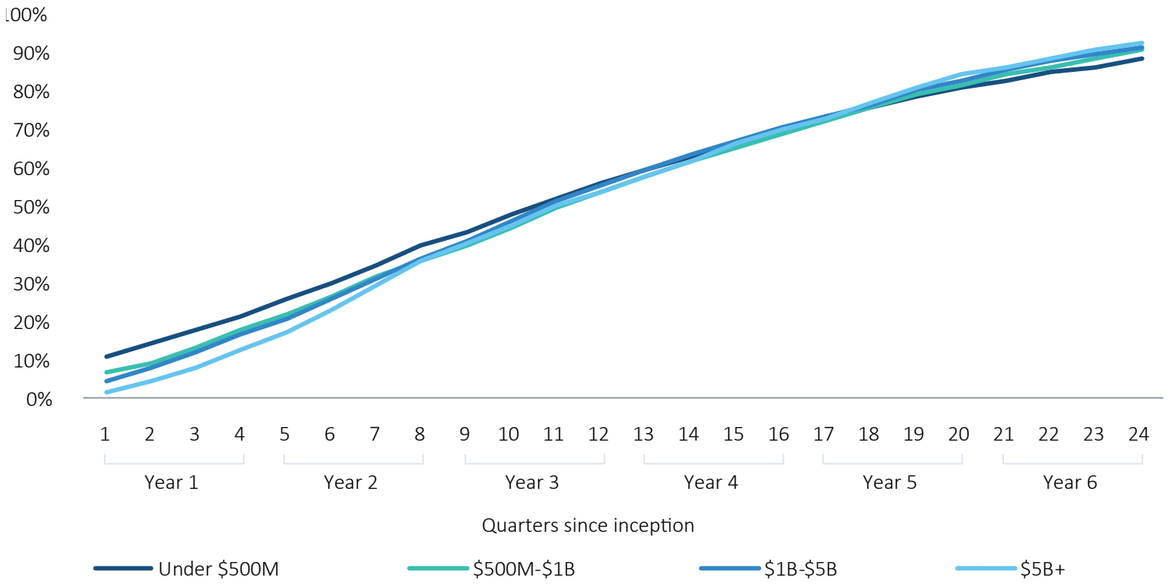
Source: PitchBook
*As of December 31, 2018

Diversification

Understanding the general mechanics of private market funds can provide insight into how a fund's cash flows are likely to materialize. But even in the best-case scenario, cash flow predictions for any individual fund are likely to conform only loosely to reality. An investor can remove some of the volatility in cash flows, however, by diversifying their private market exposure across a variety of funds. Just as adding more stocks to an equity portfolio dampens volatility, the addition of new fund commitments to a private market allocation results in smoother, more predictable cash flow patterns.
But diversification is inherently limited if investors restrict themselves to a single private market strategy. To that end, similar to how investors in public markets would be ill-served to allocate entirely to stocks, bonds or commodities, investors in the private markets benefit from expanding their purview beyond a single strategy, as we will explore in a future installment in the series.

Figure 10. … and have relatively more activity in their fourth and fifth year

Total capital called by fund size bucket by quarter since inception



Source: PitchBook
*As of December 31, 2018

PE distributions analysis

Key takeaways

- The average PE fund distribution tends to be relatively modest at about 5% of the fund size; however, the average largest distribution during a fund's life is 32% of the fund size—roughly double the 90th percentile in many periods—and 10% of funds will distribute more than half the fund's size in a single quarter.
- Distributions are most common during a fund's sixth and seventh year, with distributions occurring during roughly 60% of quarters in that period, but this can vary greatly for individual funds.
- We find that TVPI at the five-year mark serves as a helpful data point in predicting the ultimate level of distributions for a fund, with an R-squared value of 0.42 when regressed against DPI at Year 12. Conducting the same analysis with IRR instead of TVPI yields an R-squared value of just 0.20, underscoring the limited value of IRR early in the fund's life.
- PE fund distributions exhibit a high level of counter-cyclicality, with funds raised in the depths of economic downturns returning capital the most quickly. This is particularly interesting given our finding in the first installment of this series that capital calls are highly cyclical.

Overview

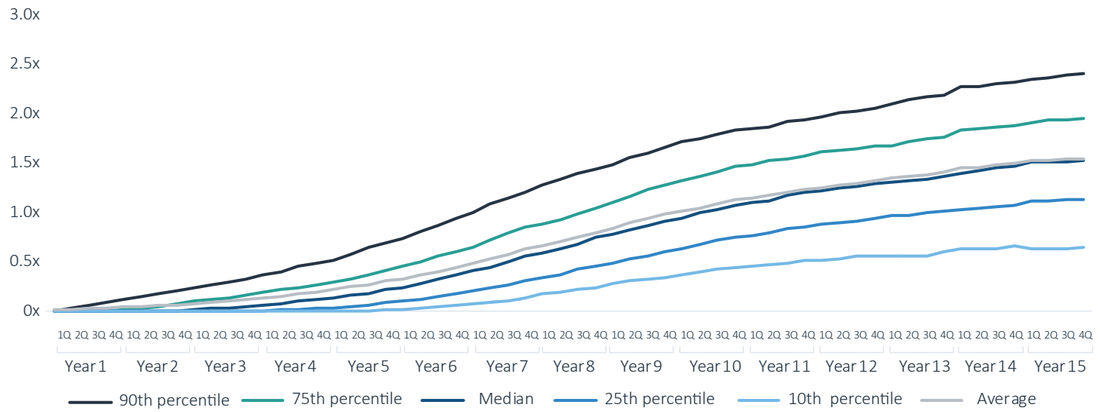
In the first installment of our series, we examined historical PE fund cash flow data to assess typical drawdown patterns and how they have changed over time and in different market environments. Admittedly, when it comes to timing capital calls, LPs benefit from the fact that capital must be deployed within a predefined investment period. Contributions can never be perfectly timed, but there is a general pattern and methodology to how GPs deploy capital due to the relative rigidity of the investment period. Distributions, however, pose a greater challenge.

Timing is everything

The cadence of PE fund cash flows is akin to a farmer sowing seeds and harvesting crops: the planting of seeds is dictated by the calendar with potential for only slight deviations, while the timing and abundance of the harvest is more capricious depending on multiple variables such as weather, fertilizer use and market prices. Similarly, a GP's decision on when to make investments—and the concomitant capital calls—is largely dictated by the investment period defined in the limited partnership agreement (LPA), but the nature of these contracts affords the GP significantly more flexibility in determining when investments are harvested (i.e. timing of exits and distributions). As Leon Black once said, "It's almost biblical. There is a time to reap and there's a time to sow."[1]

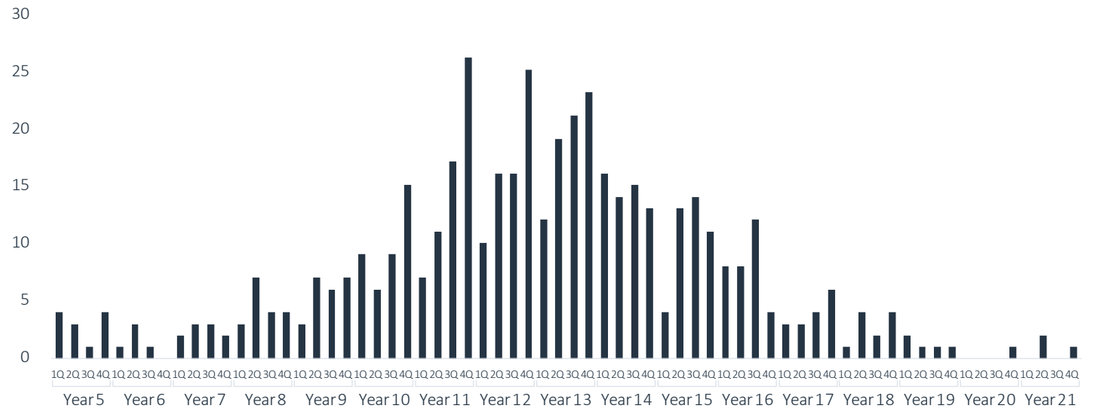
1: "A Time to Sell ... and Borrow," Barrons, Randall W. Forsyth, May 4, 2013

Figure 1. Distributions appear deceptively smooth in aggregate
Range of DPI values for PE funds since inception



Source: PitchBook | **Geography:** Global | *As of December 31, 2018

Figure 2. Most funds take 12 years or more to fully liquidate
Number of PE funds to fully liquidate by quarter since inception



Source: PitchBook | **Geography:** Global | *As of December 31, 2018

While the full lifespan of a private market fund is also outlined in the LPA, which theoretically places a limit on the holding times of investments, the truth is that additional flexibility is given to GPs when the realities of the market come to bear. A buyer may present an offer that compels a GP to sell just two years into an expected four-year holding period. Turbulence in public equity markets could delay an IPO. A GP may see more potential in rolling a fast-growing company over into a new investment vehicle, rather than selling and having to source fresh investments.

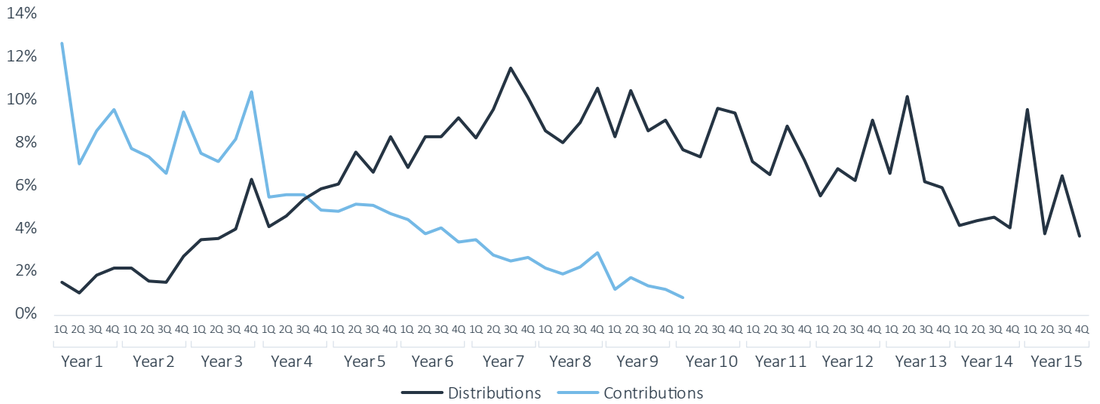
Textbooks claim that funds typically last 10 years, but that is now the exception and not the rule, with many funds lasting 15 years or more. This includes not only so-called zombie funds; many top-performing GPs have also extended holding times to 15+ years in some instances. The burgeoning secondary market is a growing tool that LPs can use to help manage portfolios in extreme circumstances, but these lengthening timelines still introduce unprecedented uncertainty into the timing of distributions. The result is that modeling distributions is a significantly more difficult task than predicting capital calls, even though simply viewing the data at the aggregate level can give a false sense of predictability.

The standard deviation of relative distribution sizes (i.e. the quarterly distribution size compared to total fund size) in a given quarter consistently hovers around 8% of the initial commitment size, which is similar to the level of variance observed in capital calls during the heart of the investment period. The difference with distributions, however, is that LPs in a fund often must endure this high level of uncertainty for nearly a decade, whereas the unpredictability of capital calls is frontloaded in the first three years of a fund's life.

Indeed, the sporadic nature of distributions is evident in the chart to the bottom right, which shows the range of distribution sizes for quarters in which funds had a distribution. As can be seen, the average tends to be relatively modest at about 5% of the fund size; however, similar to contributions, simply assessing the average can be quite misleading. The top 90th percentile is often an order of magnitude larger than even the 75th percentile, but even that chasm doesn't adequately depict the extent to which outliers drive total distributions. To that end, the average largest distribution during a fund's life is 32% of the fund size—roughly double the 90th percentile in many periods—and 10% of funds will distribute more than half the fund's size in a single quarter. Conversely, the 25th and 10th percentiles barely register on the chart in most periods.

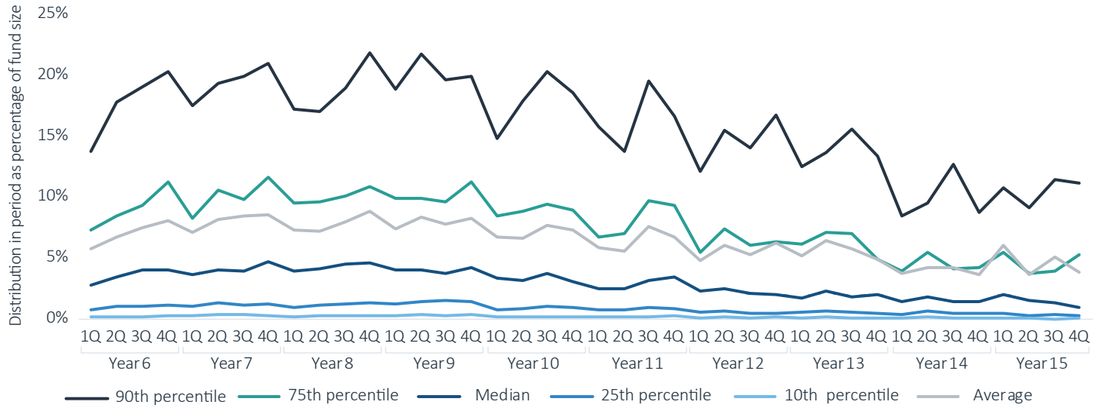
While this level of variance may seem extreme, the volatility of distributions becomes even more pronounced when broadening the scope to all periods during a fund's life, including those in which funds didn't distribute capital. Not only are the 10th and 25th percentiles nonexistent (because more than 25% of funds will not distribute capital in a given quarter), but the median never even reaches 1.0%. At the same time, the mean and 75th percentiles mirror each other throughout the average fund life, further emphasizing how outlier events drive distribution activity.

Figure 3. Distributions are highly volatile throughout fund's life
Standard deviations of relative contribution and distribution sizes for PE funds since inception



Source: PitchBook | **Geography:** Global | *As of December 31, 2018

Figure 4. Most funds will see at least one distribution larger than the 90th percentile
Range of distribution sizes for PE funds since inception (excludes periods with no distributions)



Source: PitchBook | **Geography:** Global | *As of December 31, 2018

The GPs' crystal ball

Given the extreme level of variance in distribution patterns between funds, the best place to go for insight into the probable path of distributions for any particular fund is at the source—the GP. Assessing a GP's track record can provide insight into likely holding times and exit routes, but discussions with the GP can also provide deeper insight into specific situations within the portfolio. As holding times extend, it is more important than ever that LPs understand how the GP plans to generate value for each investment and return capital to investors. About half of all funds, for example, will make their first distribution by the 1.5-year mark; however, about 25% of funds will go nearly 2.5 years before their first distribution, and 10% will go 3.5 years. This occurs for a variety of reasons, and LPs should be prepared for how they will reallocate that capital—whether they recycle it into the same vehicle, hold it in reserve to be deployed into a new fund or funnel it into a different asset class.

Understanding the GP's strategy can also provide insight into the likely frequency and size of distributions. We find that distributions are most common during a fund's sixth and seventh year, with distributions occurring during roughly 60% of quarters in that period, but this can vary greatly for individual funds. If the GP plans to utilize dividend payouts, for example, the LP can expect distributions to be initiated relatively early and occur more frequently throughout the fund's life. Furthermore, an outsized distribution is less likely than it would be if that capital was reinvested into the business, as dividends in effect extract value from the investment. Conversely, a small GP with a concentrated portfolio is likely to deliver chunky distributions as the result of full liquidity events that are relatively large in relation to the total fund size.

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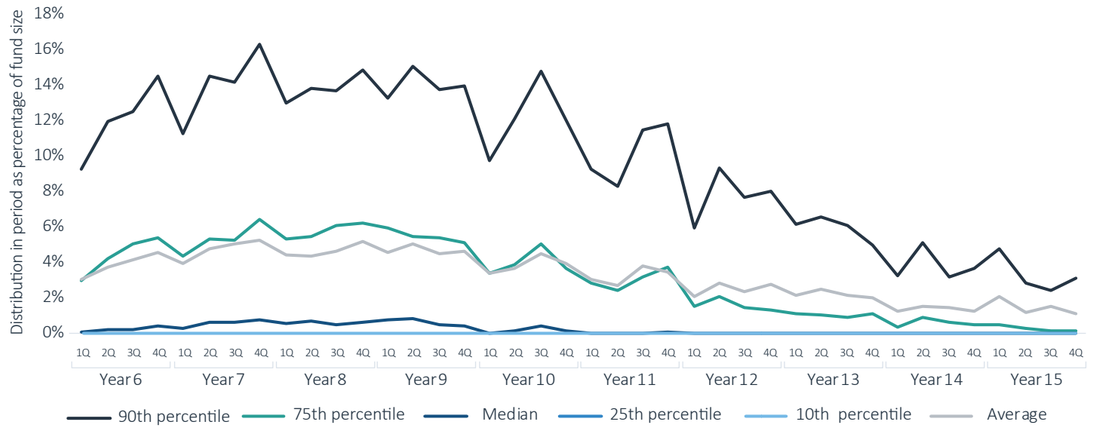
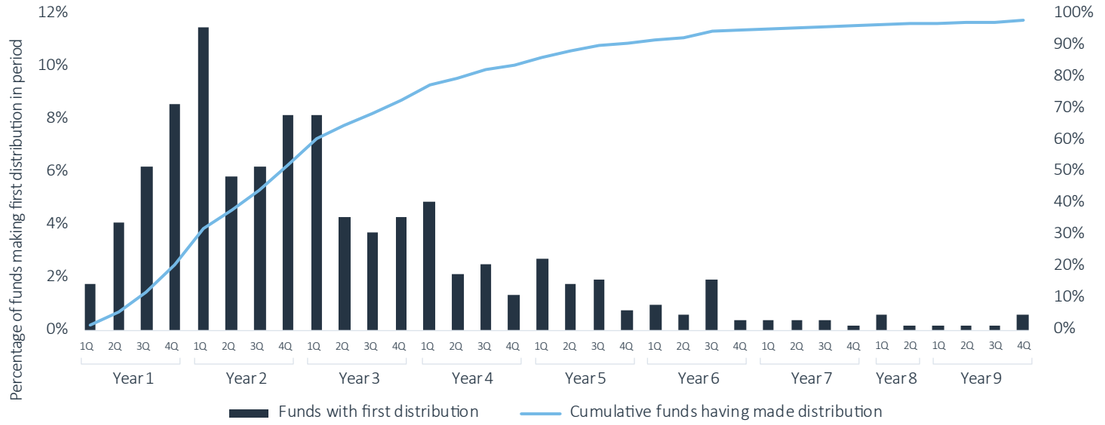
Figure 5. Outlier events drive distribution activity
Range of distribution sizes for PE funds since inception (includes periods with no distributions)



Source: PitchBook | **Geography**: Global | *As of December 31, 2018

Figure 6. Half of funds make distribution in the first year and a half, but many take much longer
Percentage of PE funds making first distribution by time since inception



Source: PitchBook | **Geography**: Global | *As of December 31, 2018

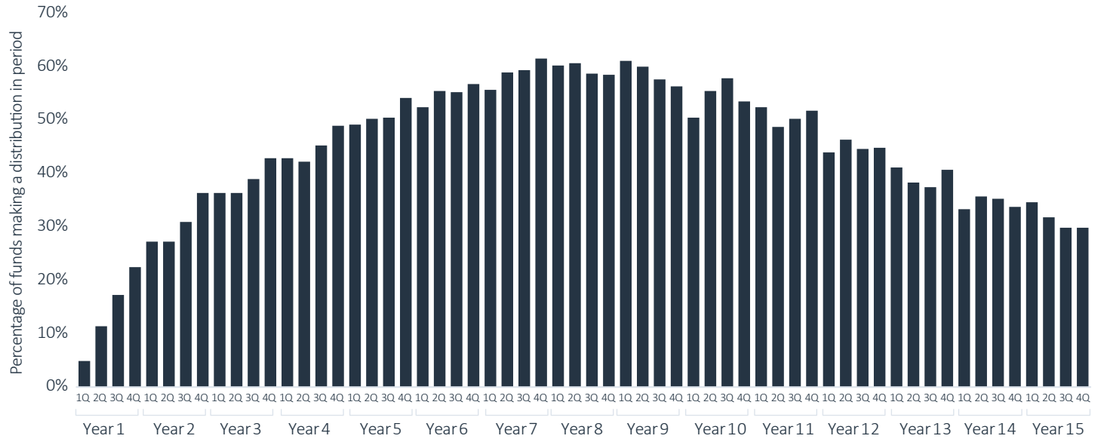
The bigger picture

In addition to reading tealeaves and relying on prognostications from GPs, historical data provides some broad tendencies that can help to calibrate expectations for future distributions. The overall performance of the fund is naturally the biggest variable when it comes to modeling distributions. We find that the TVPI at the five-year mark serves as a helpful data point in predicting the ultimate level of distributions for a fund, with an R-squared value of 0.42 when regressed against DPI at Year 12. Conducting the same analysis with IRR instead of TVPI yields an R-squared value of just 0.20, underscoring the limited value of IRR early in the fund's life.

While we expected a fund's RVPI to be a strong predictor of distributions, we found the R-squared value to be only 0.28 when regressing RVPI in the prior period with distributions from the next, examining each reporting period from Year 5 through the end of the fund's life. The correlation rises slightly in subsequent years, but the R-squared value never rises above 0.35. Where we do find some predictive power in RVPI is at the tails of the sample range. First, the frequency of distributions begins to fall once RVPI dips below 0.5x, as does the relative size of distributions. Conversely, funds with an RVPI above 1.0x tend to provide larger distributions, particularly at the later stages of the fund's life.

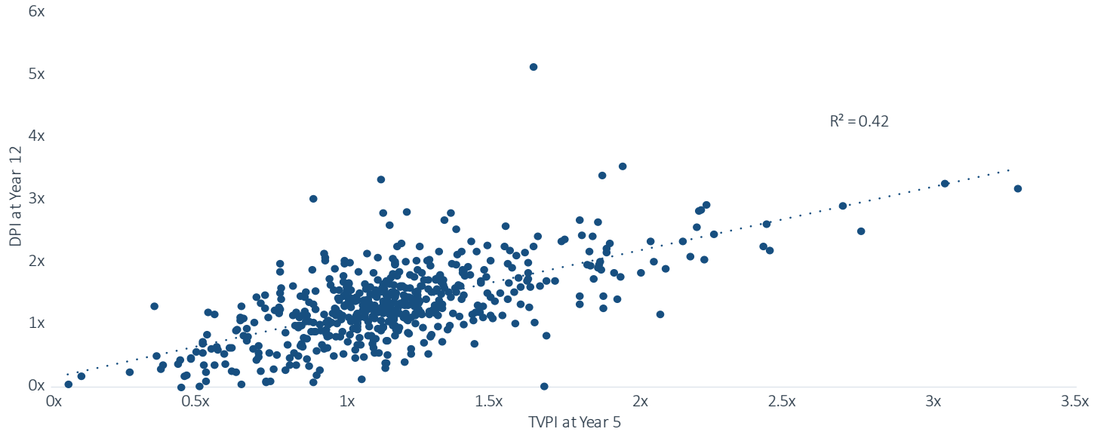
(text continues on page 13)

Figure 7. Distributions are most common through fund's sixth and seventh year
Percentage of PE funds making a distribution by time since inception



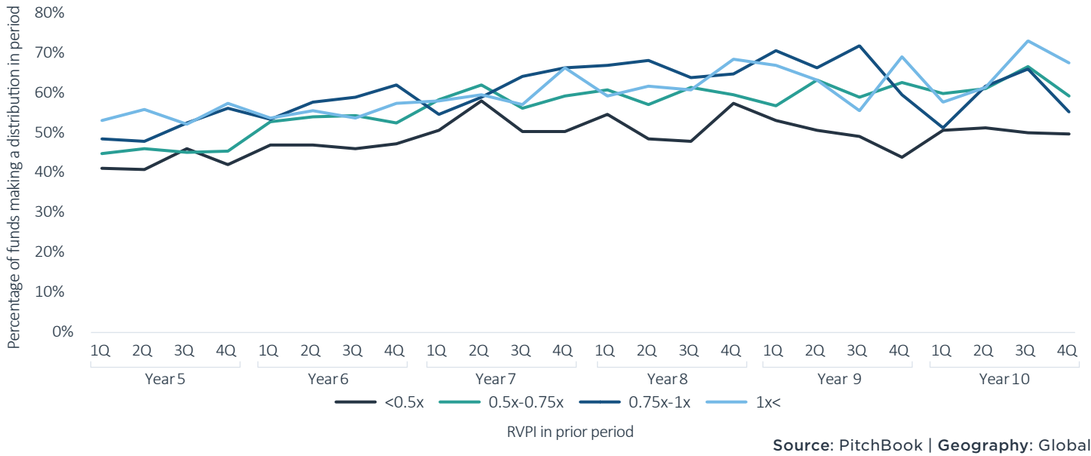
Source: PitchBook | **Geography**: Global | *As of December 31, 2018

Figure 8. TVPI early in fund's life a strong predictor of future distributions
Plot of PE funds' TVPI at Year 5 & DPI at Year 12



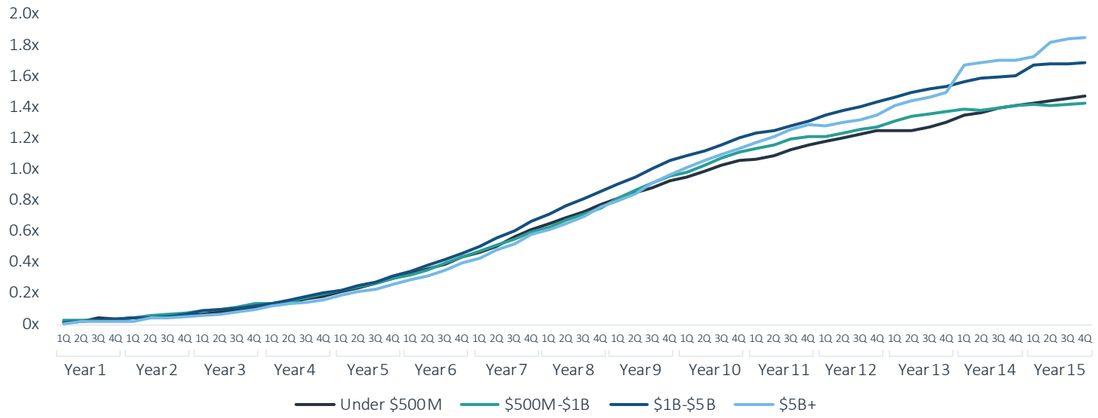
Source: PitchBook | **Geography**: Global | *As of December 31, 2018

Figure 9. Distributions become less frequent when RVPI dips below 0.5x
Percentage of PE funds with distribution in the quarter by prior period RVPI



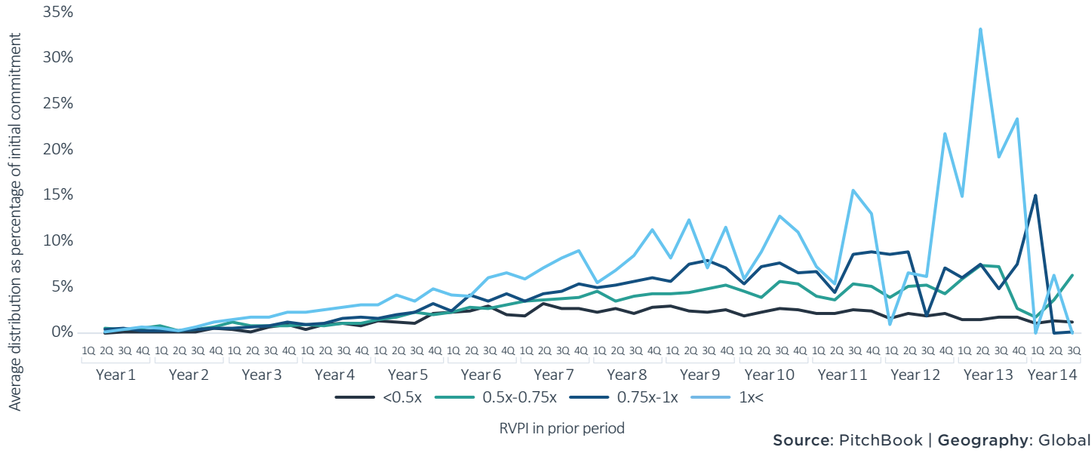
Source: PitchBook | **Geography**: Global
*As of December 31, 2018

Figure 10. Larger funds more likely to have distributions beyond the Year 12 mark
Average DPI for PE funds by fund size since inception



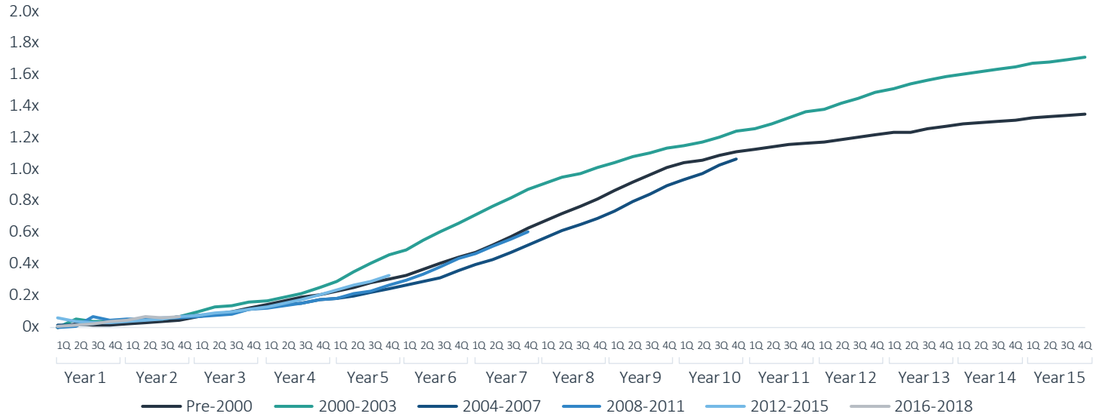
Source: PitchBook | **Geography**: Global
*As of December 31, 2018

Figure 11. Distribution sizes highly correlated with RVPI
Average distribution size for PE funds in the quarter by prior period RVPI



Source: PitchBook | **Geography**: Global
*As of December 31, 2018

Figure 12. Distribution profiles early in funds' lives exhibit little structural change
Average DPI for PE funds by vintage year since inception



Source: PitchBook | **Geography**: Global
*As of December 31, 2018

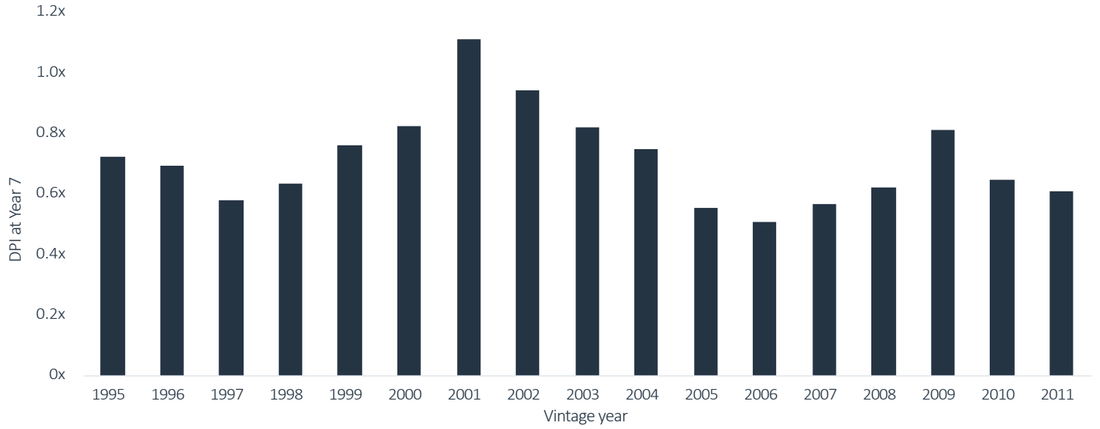
Fund size also appears to play a role in the distribution profile. The pace of distributions for smaller funds begins to taper at Year 10 but sustains well past that point for larger funds, partly because they often have extended timelines and are frequently expected to persist for 15 years or more. This difference in timelines is important to keep in mind when comparing cash multiples, such as TVPI and DPI. To that end, a fund may post a superior TVPI or DPI metric compared to some of its peers, but how long it took that fund to return capital must be considered. Therefore, we recommend juxtaposing multiple metrics during analyses to get a complete picture of performance.

In addition to fund-specific data points, investors should understand and appreciate the broader market forces at play. To start, the PE industry has undergone significant changes that have fundamentally changed the absolute return profile. Put bluntly, PE returns simply aren't as stellar as they were in the early days of the industry. This was naturally bound to occur as more competition entered the space, but this is also part of a global recalibration of long-term return assumptions as the global financial crisis (GFC) has led many investors to accept new market realities. In PE specifically, the average TVPI has slipped from roughly 2.0x in the early 2000s to around 1.6x for vintages in the early 2010s.[2] However, we find little evidence of structural changes in distribution profiles.

Rather, we find PE fund distributions exhibit a high level of counter-cyclicality, with funds raised in the depths of economic downturns returning capital the most quickly. This is particularly interesting given our finding in Part I of this series that capital calls are highly cyclical. In other words, funds raised in the aftermath of an economic recession deploy capital more slowly but return it more quickly. Funds initiated during an expansion, on the other hand, invest rapidly but are slower to return capital. From a portfolio management perspective, this suggests that LPs are well advised to maintain diversity across vintage years and to not simply commit to new funds opportunistically when distributions are strong—which tends to come at the end of the market cycle. That can be difficult to achieve, however, as net cash flows to LPs tend to decline and often turn negative during economic downturns. Furthermore, as we saw during the GFC, drawdowns in public portfolios can lead the illiquid allocation to seemingly increase via the so-called denominator effect, which can hamper the LP from making new fund commitments.

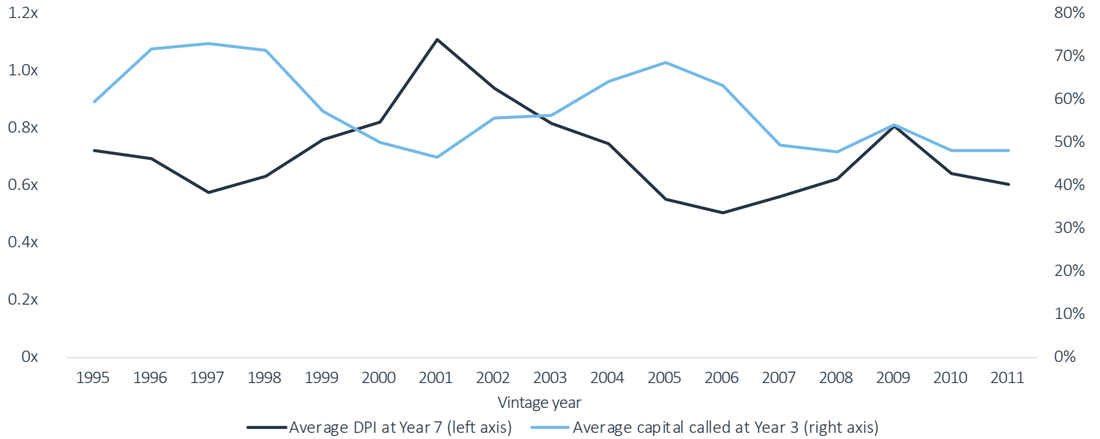
This is a particularly salient point in the current environment, in which LPs have enjoyed positive net cash flows for nearly a decade, providing a steady stream of capital to be reallocated to new vehicles. While we are not predicting the next recession, there will inevitably be one at some point. When it happens, history suggests that it will be an opportune time for LPs to commit to new funds. But with distributions likely to dry up, LPs with a long-term view and a diversified PE portfolio will be best positioned to capitalize.

Figure 13. Distributions oscillate with business cycle
Average DPI for PE funds at Year-7 mark by vintage



Source: PitchBook | **Geography**: Global | *As of December 31, 2018

Figure 14. Pace of contributions negatively correlated with future distributions
Average DPI for PE funds at Year 7 & capital called at Year 3 by vintage



Source: PitchBook | **Geography**: Global | *As of December 31, 2018

2: The most recent vintages (i.e. less than seven years old) exhibit low TVPIs due to the nascent nature of the funds and tend to be less meaningful.

Allocation construction: Initial commitment pacing model

Key takeaways

- Spreading annual commitments across 10 funds rather than allocating to a single PE fund can reduce the standard deviation of quarterly capital calls in the first three years from 8.0% to 4.0%.
- When initiating a PE allocation, an initial "ramp" period of relatively larger commitments decreases the time it takes to reach full allocation but can also lead to overshooting the target allocation; however, our model suggests that LPs can prudently incorporate a ramp period that decreases the time to full allocation with limited risk of overshooting.
- Once a target allocation has been met, the unfunded portion of the allocation trends toward 30%.

The prior installments of the series examined contribution and distribution profiles for individual funds in isolation. While this exercise can be helpful in comprehending the general nature of fund cash flows, it does not accurately depict what an LP truly experiences. Few (if any) LPs commit to a single private market fund. Rather, they spread commitments across a range of vehicles of differing sizes, strategies, geographies and vintage years. As such, private market portfolios tend to comprise a variety of funds that are at different points in the fund lifecycle and that have fundamentally disparate cash flow profiles. Balancing these dynamics is a challenge, but when a private market portfolio is built in a thoughtful manner, the various funds can complement one another. This can also lead to a more predictable pattern of capital calls and distributions, allowing the LP to better manage uncalled commitments and their overall allocation to private markets.

Picking the pieces

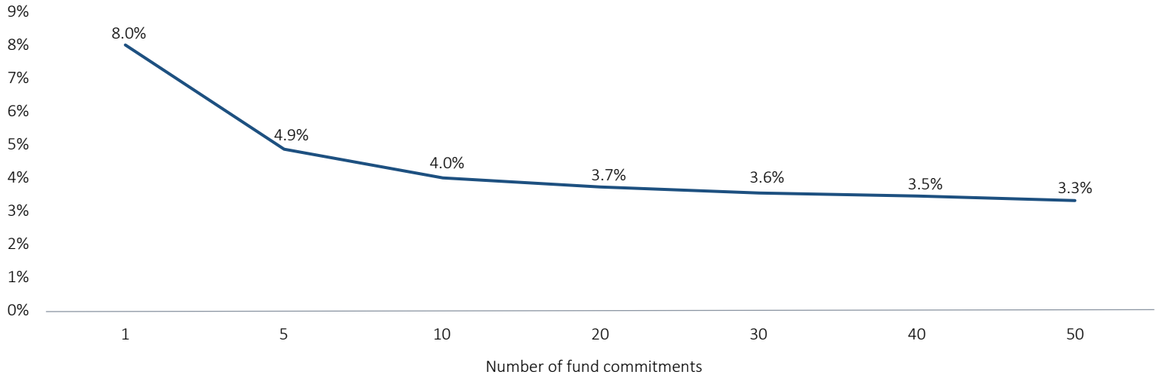
For LPs initiating a private market allocation, it is important at the outset to think holistically about how the portfolio will be constructed, because it takes several years to build up an allocation and gain diversified exposure. In many ways, constructing a portfolio of private market funds is similar to developing diversified exposure in traditional asset classes such as public equities and fixed income—but there are unique considerations.

Beginning at the most fundamental level, committing an entire private market allocation to a single fund is akin to putting a whole public equity allocation into a single stock. Concentrating capital in a single position naturally leads to a high level of volatility, which can be dampened as positions are added. While volatility is often thought of in terms of standard deviation of absolute returns, private market investors must also consider volatility in the timing of contributions and distributions. In previous research, we highlighted the high level of variability in capital call profiles for different PE funds and the drag this unpredictability can have on performance.

Diversifying an allocation across funds is one way for LPs to address the volatility in capital calls, with the biggest benefits realized in the initial stages of diversification. Spreading an annual allocation across 10 funds rather than a single fund can reduce the standard deviation of quarterly capital calls in the first three years from 8.0% to 4.0%. That being said, just as adding new names to a stock portfolio quickly reaches a point of diminishing returns, the same is true of private market fund commitments, as illustrated in the accompanying chart.

Figure 1. As commitments are added, capital calls become more predictable—to a point

Standard deviation of quarterly contributions as proportion of commitments



Source: PitchBook | Geography: Global
*As of March 31, 2019

To comprehend the impact of this lower volatility, consider an LP with a commitment of $100 that wants to be prepared for a capital call that is two standard deviations above the average quarterly call of about $4.80. If an LP committed that sum to a single fund, they would need to keep $20.86 of it available in highly liquid (presumably low-yielding) assets, whereas that amount can be reduced to $12.75 if it is spread across 10 funds thanks to the reduced variation in capital calls.

In addition to improving the predictability of cash flows from the private market allocation, diversifying exposure across different GPs and funds can reduce idiosyncratic risk; however, this also means sacrificing some upside potential. This point is particularly pertinent when selecting private market funds due to the wide disparity in return outcomes depending on the specific fund(s) chosen. The standard deviation of returns for mid-cap mutual funds was 1.7% from 2008 to 2018,[1] whereas for PE funds with vintages in that same period, the standard deviation of returns ranges from around 10% to 31% per vintage. To that end, the rewards for selecting the best managers (and the ramifications of selecting the laggards) are amplified in private markets.

1: Morningstar data

As a result, success in private markets is largely predicated on the ability to select superior managers. That task naturally becomes more difficult as LPs increase their number of commitments and manager relationships. Indeed, many LPs that realized initial success in private markets have found that performance subsequently suffered and dipped toward the average when they spread commitments across more funds and managers. Because of this, some LPs have adjusted their strategy to concentrate more of their allocation with specific GPs, often committing across several different underlying fund strategies managed by the same GP. Another driver of the move by LPs to cull their roster of GPs is that some believe consolidating commitments with fewer managers affords more bargaining power to LPs when it comes to terms and fees, which can erode the performance of a private market allocation.

This begs the question of what the optimal number of funds in an LP's roster should be. The answer is our old standard: "It depends," with the two biggest variables to consider being the size of the private market allocation[2] and the resources of the LP. Those on the upper end of the size spectrum will require more fund commitments in order to reach their target allocation, which creates challenges particularly at the onset.

CalPERS serves as a prime example. At its height, CalPERS had active commitments to more than 400 funds, but it reduced that number significantly, concentrating on 30 "core" GPs. Narrowing the amount of commitments inevitably means writing bigger checks, as evidenced by CalPERS closing commitments in excess of $500 million. For many of the largest LPs, including CalPERS, the challenge is to deploy capital in an efficient manner when the allocation may require $10 billion or more in commitments each year. To put capital to work more quickly, many big LPs are more aggressively pursuing direct investing, but this requires significant resources and internal expertise.

For smaller LPs that can more easily reach their allocation, we found that the benefits to cash flow predictability are largely achieved once at least 10 funds are included in the annual allocation. While adding more commitments can further dampen volatility in capital calls, it can be burdensome for LPs with limited resources and internal expertise in private markets to oversee a portfolio of numerous fund commitments.

Getting off the ground

As we previously noted, regardless of the LP's sophistication or asset base, building a private market program from scratch takes time. Consider a new investor/LP that wants to allocate to stocks, bonds and private markets. In public equities, they can easily purchase a basket of stocks with different cyclical characteristics depending on their view of the current economic environment. Furthermore, they can utilize dollar-cost averaging to build up a sizable position without being overly exposed to pricing dynamics during a specific point in the market cycle. Fixed-income investors enjoy a wide range of products with varying durations, allowing virtual turnkey exposure to diversified positions.

In private markets, if an LP were to commit the entirety of the new allocation to vehicles currently fundraising, the capital will inevitably be concentrated in vehicles exposed to a certain period of the business cycle. This is due to the private market funds' well-defined investment periods and fund lives, which can introduce significant market cycle risk. The process of building a private market allocation, making continual commitments to build up an allocation, is akin to dollar-cost averaging. But while investors in many asset classes have the luxury of being able to buy-and-hold, private market funds distribute cash back to LPs, effectively lowering their allocation. The result is that LPs in private markets are engaged in a Sisyphean exercise of continually committing to new funds each year to maintain their allocation and vintage year diversification.

An LP attempting to build an initial allocation to private markets of $1,500, for example, is likely to commit a portion (e.g. 25%) each year during an initial "ramp" period to ensure that capital isn't unduly exposed to certain macro environments. While vintage year diversification remains a challenge for new LPs, the proliferation of the secondary market has provided a convenient shortcut to gain exposure to older vehicles. By using secondary funds as a launch pad to private markets, LPs also benefit from J-curve mitigation due to the tendency of secondary funds to both deploy and return capital more quickly than primary funds. Of course, secondary funds are not a panacea, and the same tenets of diversification hold (i.e. an LP would be ill-advised to use a single secondary fund as a turnkey solution for a new private market allocation).

In addition to recycling distributions into new funds and diversifying across vintage years, LPs must also grapple with the disparity between when capital is committed and when it is called (i.e. unfunded commitments). Once an LP commits to a fund, it will take several years before that capital is called down and fully invested. During that time, the capital earmarked for private markets is typically parked in lower-yielding assets, which serves to dampen overall performance. Citing these various headwinds to implementation, Yngve Slyngstad, the chief executive of Norges Bank Investment Management (which oversees the Norwegian Government Pension Fund), initially dismissed the idea of allocating to private equity in part because "the duration of implementation would be so long."

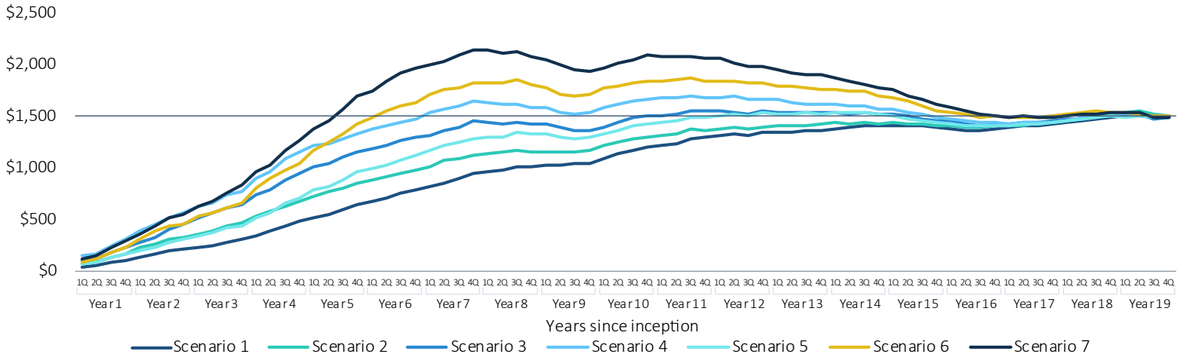
Sprinting to get ahead

This presents a hurdle for many LPs, but the challenge is not insurmountable. Knowing that the full amount of a fund commitment will never be actively deployed at any given point in time, LPs that wish to reach and maintain their target allocation to private markets must do so by adopting an approach of overallocation and preparing to recycle distributions into new vehicles. In simple terms, developing a PE allocation can be thought of in two phases. The first phase is the implementation as the LP builds up the initial allocation. Second, once the target allocation is met, the LP can reduce the magnitude of commitments during a maintenance phase.

To better understand these dynamics, we developed a Monte Carlo system that creates model portfolios using historical PitchBook data. The goal in our hypothetical scenarios is to show how an investor can build and maintain a private market allocation of $1,500 (roughly $1,000 actively invested and $500 of uncalled commitments). We experimented with a variety of scenarios, adjusting the size of commitments as well as the duration of the ramp period. Regardless of these variables, we programmed the maintenance phase to consist of ongoing annual commitments of 10% of the $1,500 target allocation. To construct the model for each scenario, we aggregated data from 50 portfolios comprised of five randomly selected PE funds from each vintage year starting in 2001 and ending in 2018.

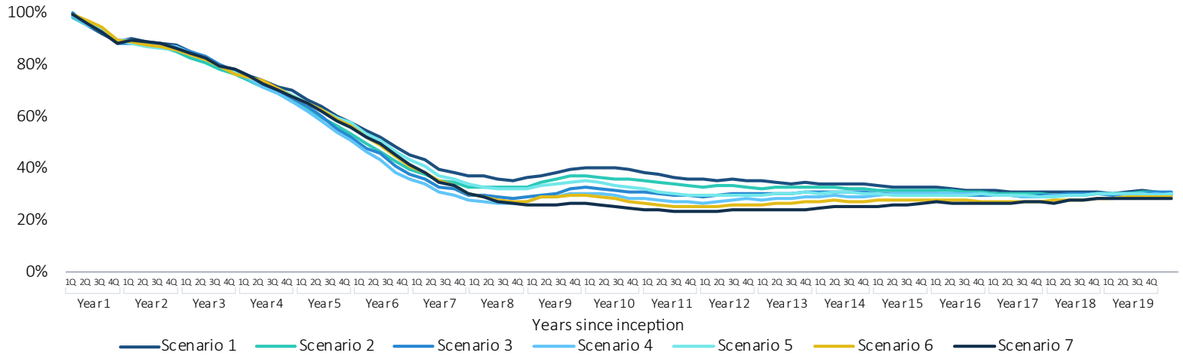
2: For our purposes, we'll assume that the LP has properly calibrated to account for their specific risk/return profile, liquidity needs and other constraints.

Figure 2. LPs can tailor approach to minimize overshooting or accelerate time to full allocation
Modeled PE portfolio construction beginning in 2001



Source: PitchBook | Geography: Global
*As of March 31, 2019

Figure 3. The unfunded portion of the allocation trends toward 30% over time
Unfunded commitments as proportion of PE allocation



Source: PitchBook | Geography: Global
*As of March 31, 2019

As seen in the chart above, LPs can tailor their implementation plan to match their specific goals. The target allocation can obviously be reached more quickly by increasing the size of commitments and duration of the ramp period, but the tradeoff is that the LP is likely to overshoot the target and introduce a higher degree of portfolio concentration. The most extreme example is Scenario 7, wherein 27% of the target allocation is committed each year

	Ramp period		Maintenance period		
	Length	Annual commitment (% of target allocation)	Annual commitment (% of target allocation)	Years to hit target	Years overallocated by 10%+
Scenario 1	--	--	$150 (10%)	18.00	--
Scenario 2	3 years	$225 (15%)	$150 (10%)	17.25	--
Scenario 3	3 years	$330 (22%)	$150 (10%)	9.75	--
Scenario 4	3 years	$405 (27%)	$150 (10%)	6.00	2.50
Scenario 5	5 years	$225 (15%)	$150 (10%)	11.00	--
Scenario 6	5 years	$330 (22%)	$150 (10%)	5.25	8.25
Scenario 7	5 years	$405 (27%)	$150 (10%)	4.50	10.00

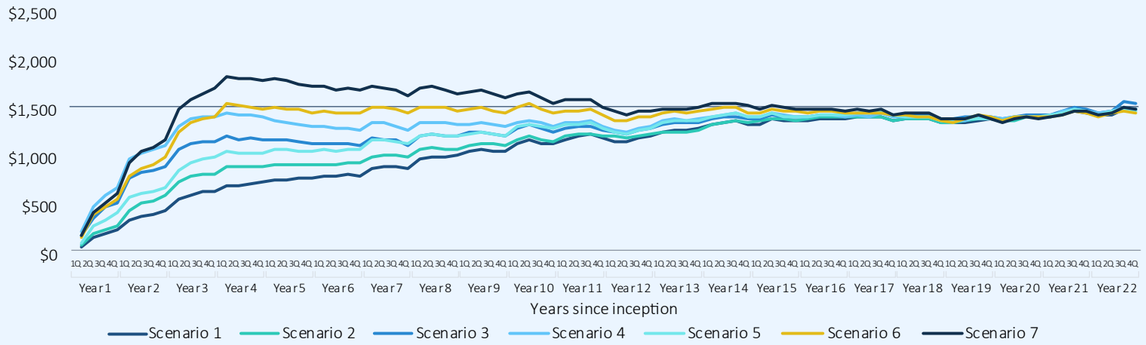
Source: PitchBook | Geography: Global
*As of March 31, 2019

during a five-year ramp period, allowing an LP to hit the target of $1,500 in 4.5 years; however, the portfolio tends to overshoot the target by a significant amount for the following decade as a result. Conversely, a slower ramp period leads to a steadier cash flow pattern but will take longer to achieve a target allocation. If the LP were to instead commit 15% of the target during the three-year ramp period, as shown in Scenario 2, it then takes about 17.25 years to reach the full allocation—roughly the same as the steady deployment in Scenario 1.

Overshooting the allocation has serious ramifications for an LP, but as noted earlier, long implementation periods can be viewed as prohibitive. Our model suggests that LPs can prudently incorporate a ramp period that decreases the time to full allocation with limited risk of overshooting. In Scenario 3, for example, the target allocation is achieved in just 9.75 years without the LP ever experiencing overallocation of 10% or more. Regardless of the approach taken, the nature of the maintenance period leads to an eventual convergence of the allocation, with the overshooting portfolios reverting to their target allocations, and vice versa.

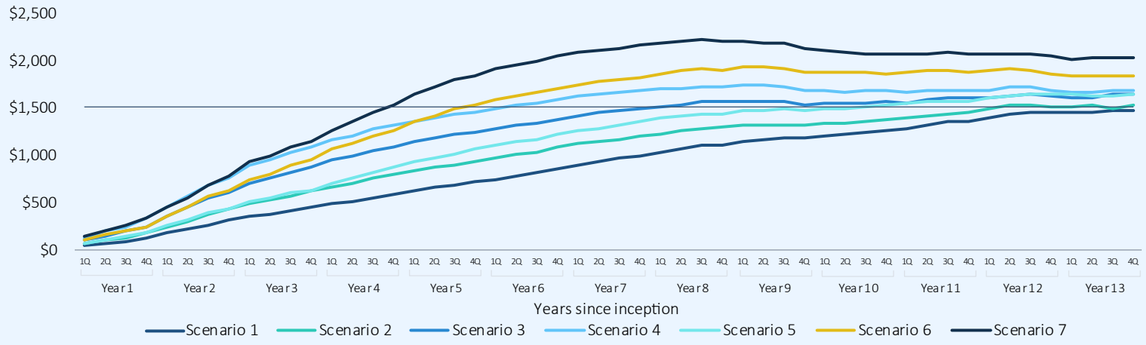
We think it is important to deconstruct the allocation between capital actively invested and uncalled commitments when analyzing a private market allocation. At the onset, the entire allocation sits on the uncalled side of the equation. During the ramp period, we see the composition of the allocation shift from uncalled commitments to NAV as capital is called down. Once the maintenance phase is reached, the uncalled portion settles around 30% of the overall allocation regardless of the implementation approach. This is one area where the effects of the ramp period are apparent, with a more intense ramp period resulting in a smaller share of uncalled commitments. How this uncalled capital is managed can have a material impact on fund returns, which is a primary reason we think it warrants consideration.

Figure 4. Cyclical forces are apparent for allocations initiated ahead of dotcom boom
Modeled PE portfolio construction beginning in 1996



Source: PitchBook | Geography: Global
*As of March 31, 2019

Figure 5. Allocations initiated in the post-crisis era have benefited from a rising tide
Modeled PE portfolio construction beginning in 2007



Source: PitchBook | Geography: Global
*As of March 31, 2019

Timing matters—but it's not everything

Based on our prior research, we expected cyclical factors to play a role in how a private market allocation is modeled. In addition to the specific analysis featured in the Spotlight, we conducted a similar exercise initiated at different points in time. We found that the relative relationship of each of the scenarios remained fairly constant, but the trajectory can vary—sometimes significantly.

When the allocation is initiated in 1996, capital deployed in the ramp period is committed to vehicles investing at the height of the dotcom era. For the most aggressive scenarios, this results in reaching the full allocation exceptionally quickly; however, the slower ramp strategies take longer to reach full allocation because of the subpar performance of those initial funds.

Opposite forces are at play when we set the model to begin in 2007. In these scenarios, capital committed during the ramp period is largely flowing into post-crisis funds, which invested capital more slowly than funds had historically. Theoretically this should lead to a longer time to reach full allocation compared to our 2001 Scenario in the Spotlight, but we actually found the opposite to be the case. The reason for this is that all funds included in this analysis have benefited from a prolonged bull market, supporting strong absolute returns and enabling GPs to continually mark up investments, which in turns lead to higher NAVs.

In practice, an LP will need to incorporate external factors as well, perhaps the most important being their total AUM. Since allocations are expressed as percentages of AUM, the absolute value of the allocation will inevitably evolve over time. In our illustrative example, the LP is attempting to allocate $1,500 based on a target allocation of 8% to a portfolio of $18,750. Our example assumes that these figures remain static, but the total portfolio AUM is likely to be growing over time due to appreciation in various asset classes. As a result, the dollar amount committed to private markets will have to grow in tandem as well.

The allocation treadmill

To be sure, balancing these factors is difficult. CalPERS has engaged outside consultants as it has struggled to manage its PE allocation. The pension system's current consultant, Meketa Investment Group, recently issued a report noting that CalPERS' pace of commitments in recent years has been woefully inadequate to maintain its target allocation. Whereas CalPERS' commitments to PE have ranged from $3.3 billion to $6.7 billion in recent years, Meketa claims it would need to commit in excess of $10 billion each year going forward to reach and maintain its 8% target allocation to the asset class.[3] Interestingly, following CalPERS aforementioned reduction in GP relationships, Meketa has suggested recently that the nation's largest pension fund reverse course, arguing the "expansion of the manager set provides opportunity, not only to increase scale, but also pursue strategies beyond the mega and large buyouts in order to add portfolio diversification."

CalPERS receives more than its fair share of attention, but it serves as a helpful (and relatively transparent) case study into the challenges LPs face when investing in private markets. General guidelines can be developed, but the plan needs to be dynamic to account for idiosyncratic events and the cyclical aspects of the market.

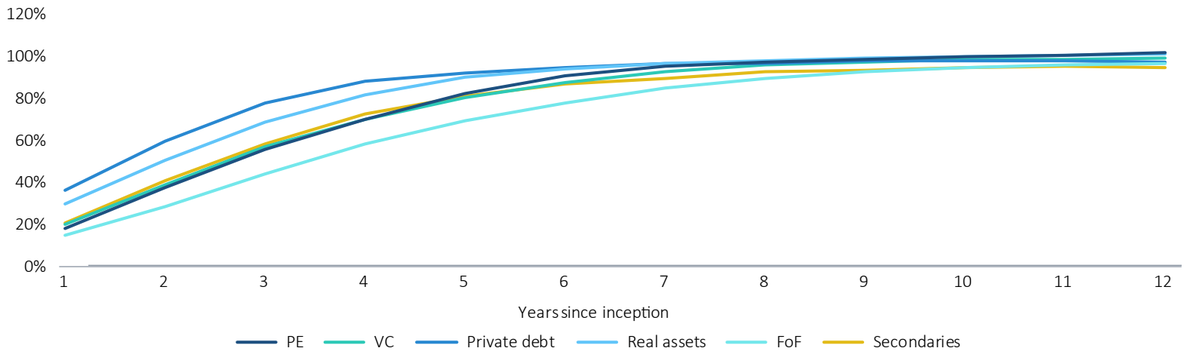
3. Total PE allocation of approximately $30 billion is based on current CalPERS AUM of $380 billion.

Contribution profiles non-PE strategies

Key takeaways

- More than 80% of VC funds will call capital during any given quarter in the first three years of the investment period, compared to roughly two-thirds for traditional PE funds.
- Private debt vehicles tend to experience the fastest drawdown rates of any private capital strategy, calling down more than 60% of their total commitment on average in the first two years. Real assets funds have the second-quickest drawdown rate of any strategy, with over half of committed capital called by Year 2 and over 80% by Year 4.
- FoF understandably have taken longer to begin calling capital, but we've seen evidence that FoF are deploying capital more efficiently as the strategy has matured.
- Secondaries funds remain in a state of flux, as the landscape for the strategy is constantly evolving with novel deal structures unlocking previously inaccessible opportunities.

Figure 1. Average capital called as proportion of fund size by strategy



Source: PitchBook | Geography: Global
*As of June 30, 2019

Introduction

Analyses of private market performance tend to focus on how the GP generates returns—and understandably so. But while selecting top-tier managers and funds is paramount, the treatment of uncalled capital is also critical to consider when evaluating the total return of a private market allocation, which is what truly matters to investors. An LP's decision to commit to a fund often comes several years before that capital is ever transferred to the GP to be invested. This creates a challenge for LPs, who must balance the need to meet capital calls with the desire to maximize return. Managing uninvested capital effectively can materially affect overall portfolio performance, especially minimizing the portion of uncalled commitments parked in low-yielding, highly liquid assets.

The first three installments of our Basics of Cash Flow Management series focused exclusively on PE funds (primarily buyout and growth vehicles). Over the next two installments, we'll expand those initial analyses to compare the cash flow profiles of other private market strategies. In this edition, we provide targeted analyses of drawdown rates for venture capital, private debt, real assets, funds of funds (FoF) and secondaries.

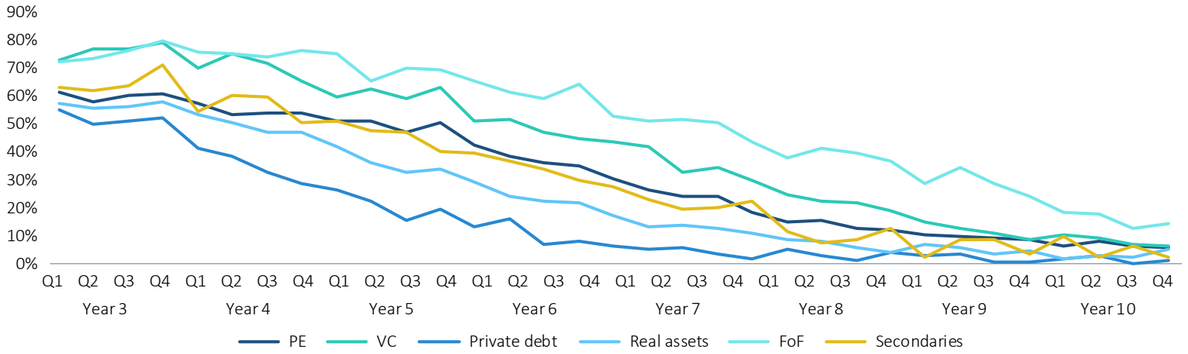
Venture capital

Due to the high failure rate of startups and the Power Law nature of VC returns,[1] venture funds' underlying holdings tend to be some of the most diversified among private market strategies in terms of the number of positions held. The typical VC fund will make investments into two dozen or more unique companies, with successful deals typically requiring follow-on financings. This characteristic can lead to relatively small, frequent capital calls that create an administrative burden for GPs and LPs alike. Capital call facilities, which have been much maligned recently, are one tool often used by GPs across all strategies to provide interim financing for deals. This allows capital calls to be conducted at regular intervals with larger sums, streamlining the process for all parties. The tendency to utilize these lending lines to cluster capital calls can be observed in the data, as average quarterly contributions as a percentage of fund size for VC funds tracks closely with that of traditional PE funds. With that said, VC funds' higher number of investments relative to other private market strategies and propensity for follow-on financings can be observed in the frequency and timing of capital calls. More than 80% of VC funds will call capital during any given quarter in the first three years of the investment period, compared to roughly two-thirds for traditional PE funds.

Another trademark of venture funds is that their GPs typically earmark a portion of their funds as "reserve capital" to later invest into their most promising portfolio companies as they develop. To maintain their proportional equity stake in a company, these GPs often must participate in subsequent financings as the VC model necessitates multiple infusions of equity. Many VCs strive to obtain a large chunk of ownership in their first round and avoid dilution thereafter, while others prefer to try to increase ownership of their winners over time, which can be difficult when competition is high. The result is that venture GPs tend to call capital later in their funds' lives, with 6.5% calling at least 1% of the total commitment in Year 10, the highest of any direct investing strategy (i.e. PE, VC, private debt, and real assets).

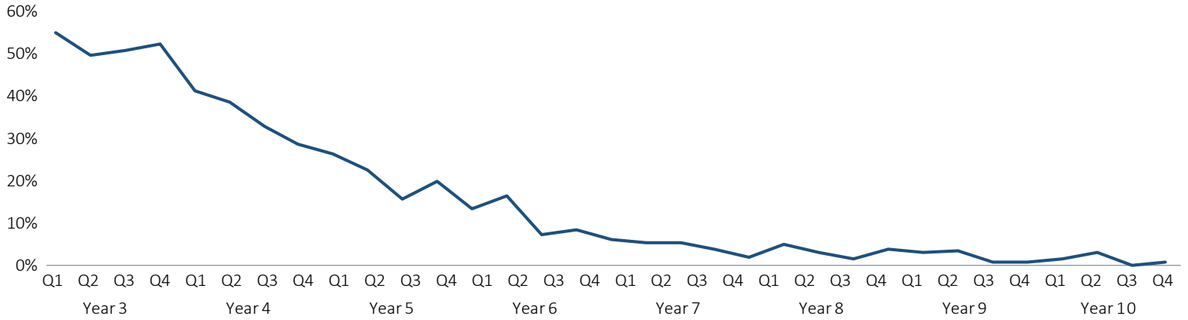
1. The Power Law describes the dynamic in which a few outlier companies in the venture universe drive the preponderance of the strategy's returns.

Figure 2. Proportion of funds with a capital call of greater than 1% of fund size in any given quarter by fund strategy



Source: PitchBook | Geography: Global
*As of June 30, 2019

Figure 3. Proportion of private debt funds with a capital call of greater than 1% of fund size in any given quarter



Source: PitchBook | Geography: Global
*As of June 30, 2019

The data supports our observations around structural changes to VC investing. VC funds raised prior to 2000 deployed capital at an unrivaled pace, propelled by the dynamics of the dotcom era. In the aftermath of the dotcom boom, the pace of capital deployment plummeted as VC investment contracted significantly. Whereas pre-2000 vintage funds were more than 90% called by the five-year mark on average, the 2000-2003 vintage fund was less than 75% called by that point. The pace of capital deployment has steadily risen for more recent vintages, which suggests that while reserves are more important now than they were for pre-2000 funds, reserves may be losing some of their importance for the most recent vintages. Rather than expecting all follow-on rounds to be financed from reserves, we have observed many VCs consciously adjusting how they fundraise to meet the needs of their growing portfolio companies. It is becoming increasingly common to see discrete vehicles raised exclusively for follow-on financings, which can supplement reserve capital. As this happens, we anticipate that VC firms will become less concerned with holding reserve capital, instead opting to finance successful portfolio companies with dedicated pools for late-stage transactions. This would, in turn, continue the recent trend of GPs fully investing VC funds more quickly in a market of rising valuations, as we saw with pre-2000 vintages.

Private debt

Debt vehicles tend to experience the fastest drawdowns of any private capital strategy, partly because some funds buy existing baskets of credits with relatively large checks early in their lives. Private debt funds call down more than 60% of their total commitment on average in the first two years, compared to about 50% for real assets and just 37% for PE. This quick initial drawdown means that subsequent calls quickly diminish in size and frequency after Year 4, when 88% of capital has already been called down on average. Interestingly, the drawdown rate for private debt funds has persisted throughout market cycles, exhibiting the lowest level of cyclicality among private market strategies.

Consistent with the faster drawdown rates, private debt funds exhibit relatively larger capital calls earlier in their lives but see much smaller and less frequent capital calls after those first few years. Quarterly calls average between 7% and 13% of the fund size for the first seven quarters after inception before tapering off to the low single digits thereafter. For LPs, this means being more attentive to cash management for around two years, with the benefit of near-zero capital calls in later years. Private debt is the only private capital strategy with quarterly calls that are less than 1% of the fund size on average in any given quarter after Year 5. By this point, interest payments have been flowing out of the fund for some time, and LPs are ideally receiving larger distributions from principal repayment on outstanding loans in the portfolio.

Real assets

With a heterogeneous composition of strategies including energy, real estate, and infrastructure, all of which exhibit a degree of cyclicality in terms of both fundraising and capital deployment, it is challenging to make sweeping conclusions regarding the cash flow characteristics of real assets funds. However, we do tend to see some high-level trends regarding when these GPs call capital and how much they call. Many of the strategies within real assets tend to spend heavily upfront when acquiring assets and do not hold back much in reserves for later in the fund's life. On average, real assets funds have the second-quickest drawdown rate of any strategy, with over half of committed capital called by Year 2 and over 80% by Year 4.

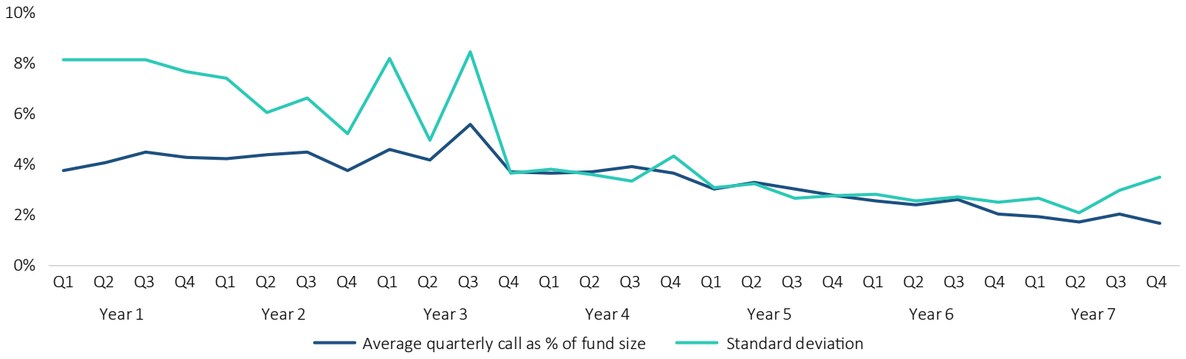
Contrasting with VC and private debt, real asset portfolios tend to hold fewer investments. "It's a little bit lumpier, just because of the nature of the assets you're buying, more concentrated," said Jonathan Gray of Blackstone during the firm's earnings call in early 2020. Massive deals consume significant chunks of real assets fund's capital rather quickly and leads to higher concentration levels than any other strategy on average. For example, Blackstone's $20.5 billion Real Estate Partners IX fund acquired $13.4 billion in US logistics assets from GLP in 2019. Even with hefty leverage levels tempering the cash required from the fund, this single transaction consumed a substantial amount of the fund's capital. Transactions such as these mean capital calls as a proportion of fund size tend to be significant as well. Quarterly capital calls range between 5.5% and 8.5% on average for the first two years of the fund's life.

Beyond the concentrated investment portfolios often seen in real estate and infrastructure, some energy strategies focus on shorter-term investing windows, resulting in faster drawdowns. For example, the depressed energy pricing seen in 2014 and 2015 was brief. Funds raised to benefit from the opportunity had to act quickly to take advantage of the relatively swift price depression and deploy capital before prices rebounded. With such a frontloaded investment cycle and lower levels of capital held in reserves, real assets funds often wrap up the investment phase more rapidly than other strategies. Five years after inception, fewer than half of real assets funds call capital in any given quarter, the second-lowest reading of any strategy.

Fund of funds

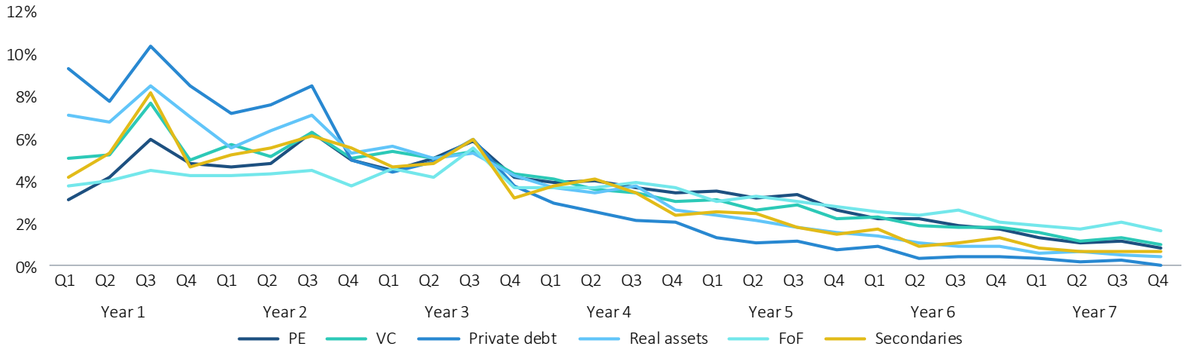
FoF have one of the most distinct drawdown profiles of any private market strategy, and with good reason. Other private market strategies are characterized by relatively large and frequent capital calls early in a fund's life that tend to taper around the third year. FoF, however, exhibit a stable pace of capital deployment throughout the investment period with smaller capital calls on average. Because FoF are committing to other funds in the first three years of their lives, capital calls are typically pushed out to later in the investment period. During the first two years, FoF capital calls relative to fund size are the lowest of any strategy on average; from Year 5 and onward, however, relative capital calls are the highest.

Figure 4. Average capital called as proportion of FoF size



Source: PitchBook | Geography: Global
*As of June 30, 2019

Figure 5. Average capital called as proportion of fund size by strategy



Source: PitchBook | Geography: Global
*As of June 30, 2019

While most funds deploy capital once an investment opportunity is closed, a FoF must grapple with the same issue as other LPs in waiting for the GP to call down capital. Once LPs have committed to the FoF, the GP must then commit capital to multiple primary funds, which in turn must source and close deals within their own pre-defined investment periods. The result is that FoF tend to have relatively small and infrequent capital calls during the initial three years of their lives, but subsequently have larger and more frequent capital calls in Year 5 through Year 7, when most of the underlying private market funds are at or nearing full investment.

As we wrote in **PitchBook Analyst Note: Investors Just Don't Want to Have Funds-of-Funds,** some FoF managers have revamped their approach and are now offering what are being billed as annual PE programs. Instead of raising massive vehicles every few years, these managers raise a new FoF each calendar year and strive to allocate committed capital under a truncated timeline." This shift in strategy seems to have led to faster capital deployment, as each FoF has exposure to fewer vintages. The funds using this approach have been drawing down capital at the fastest rate ever for the strategy, and we expect this new paradigm to persist going forward.

Secondaries

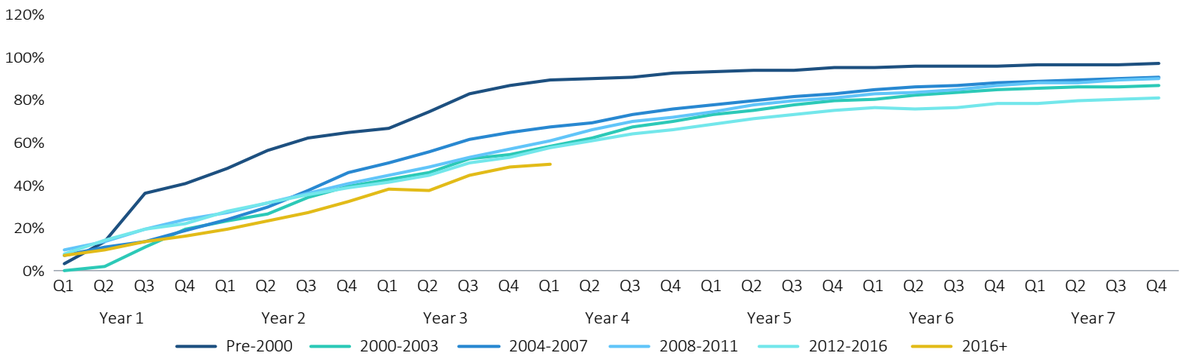
Secondaries funds fall into the middle of the pack when assessing drawdown rates across private market strategies, but we believe that historical data likely doesn't represent how the strategy will operate going forward. The somewhat nascent nature of the secondaries market—underscored by minimal levels of competition and low usage

of leverage—is evident in the relatively quick drawdown rates of early vintages. The pace of capital calls began to decelerate in the early 2000s and has slowed to unprecedented levels in recent years. As the secondaries market has quickly evolved and matured, a key question is whether certain changes are structural or transitory.

For the last several years, the most attractive assets in the secondaries market have transacted at a premium to NAV. While data on secondaries transactions is notoriously opaque, it appears this is beginning to change, with various sources reporting a dip in pricing in 2019 for the first time in several years despite a record year for dealmaking. In a bid to continue historical outperformance compared to other private market strategies amid a more competitive pricing environment, leverage levels have risen from the 15%-25% range to 40% or more, according to those close to the strategy.

As the secondaries market has matured and reasons beyond distress have become much more common for initiating deals, investors and allocators continue to push the envelope in terms of deal complexity. Several prominent advisors and investors have indicated that GP-led secondaries and single-asset processes were at or near record levels in 2019 on both an absolute basis and as a proportion of overall secondaries deal activity. Secondaries funds are increasingly teaming up with each other, as well as with institutional investors such as pensions and sovereign wealth funds, to execute larger transactions involving diversified portfolios and subsequently divvy up the underlying assets. Preferred equity deals have also gained traction in the secondaries market due to early successes from a few notable firms.[2] The bounds of deal creativity continue to be stretched, which should continue to unlock new opportunities and reshape expectations investors may have for cash flow modeling. Moving forward, we think that consistently heightened levels of competition and an increased use of leverage will cause drawdown rates for secondaries funds to abate from historical levels.

Figure 6. Average capital called as proportion of secondaries funds by vintage



Source: PitchBook | Geography: Global
*As of June 30, 2019

Conclusion

Various nuances must be considered when assessing private market funds, but we can make some broad generalizations that tend to distinguish the various strategies. Drawdown rates of PE funds have vacillated over time and have seen structural changes, with newer vintages calling more capital later in the investment period as holding times have extended and as add-ons have become integral to many GPs' strategies. VC funds tend to call down capital over the longest period because of the need to deploy it in follow-on financings for existing portfolio companies to prevent dilution. Private debt and real asset funds draw down capital more quickly than other strategies, but for very different reasons. FoF understandably have taken longer to begin calling capital, but we've seen evidence that FoF are being more efficient in deploying capital as the strategy has matured. Secondaries funds remain in a state of flux, as the landscape for the strategy is constantly evolving with novel deal structures unlocking previously inaccessible opportunities.

Understanding how these funds draw down and deploy capital in isolation is important, but it's only the first step for allocators that have diversified private market portfolios. To that end, the next installments of our Basics of Cash Flow Management series will explore distribution profiles of these strategies, followed by a comprehensive analysis of cash flow profiles for portfolios that utilize these strategies in various combinations.

	Average capital call as a % of fund size first 3 years	Volatility of capital calls first 3 years	Average % called at 3-year mark	Average % called at 5-year mark
Private equity	4.96%	8.14%	55.39%	82.15%
Venture capital	5.45%	7.53%	56.89%	80.34%
Private debt	7.08%	11.95%	77.52%	91.68%
Real assets	6.25%	11.43%	68.41%	89.39%
Funds of funds	4.34%	7.23%	44.20%	69.13%
Secondaries	5.33%	9.72%	57.69%	80.47%

2. Preferred equity deals are those in which an investor provides an infusion of capital that sits above common equity and provides existing LPs some liquidity while allowing them to maintain a stake.

Distribution profiles across non-PE strategies

Key takeaways

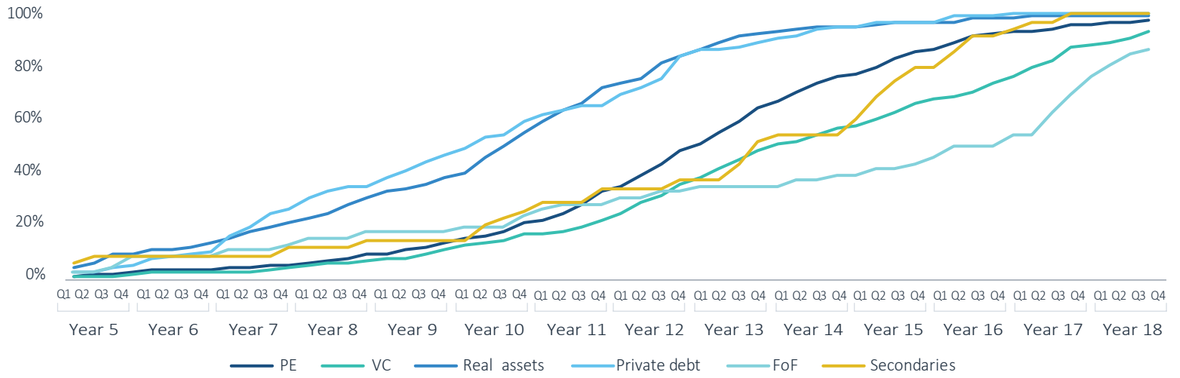
- Distribution rates have accelerated for every private fund strategy over the last decade, with newer vintages returning more capital earlier in the fund's life.
- There are fundamental differences in distribution profiles across private market strategies. Private debt and real asset funds, which often have income-producing features, distribute and reach full liquidation more quickly than other strategies. Secondaries funds are also quick to produce initial distributions but tend to have long tails, as they often have exposure to a multitude of underlying positions given the nature of the strategy.
- Distribution rates have exhibited significant cyclicality, with a high correlation to broader macroeconomic conditions. We expect this correlation to persist amid the market disruptions in the first half of 2020, leading to a slowdown in near-term distributions from the historically high levels of recent years.

Introduction

In the previous installment of our Basics of Cash Flow Management Series, we investigated capital call rates across private market strategies to provide insight into how LPs can better manage the uncalled portion of their private capital commitments.[1] But contributions are only one side of the equation. In order to maintain an allocation over time, LPs must also grapple with the challenge of reinvesting capital as it is distributed.

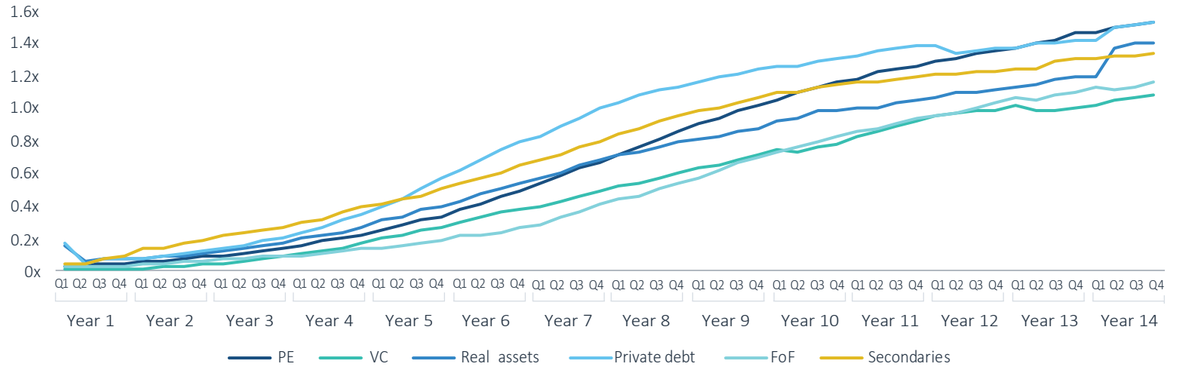
While the size and timing of capital calls are largely constrained by the initial commitment size and parameters outlined in the limited partnership agreement, distributions are much more variable in size and sporadic in frequency. As a result, while aggregate data can be a helpful guide in scenario planning, it is important to keep in mind that absolute performance is the biggest variable in distribution rates.

Figure 1. Proportion of private capital funds to fully liquidate by time since inception



Source: PitchBook | Geography: Global
*As of September 30, 2019

Figure 2. Average DPI for private capital funds since inception



Source: PitchBook | Geography: Global
*As of September 30, 2019

1: For an in-depth analysis of PE distribution rates, please refer to the second installment of the Basics of Cash Flow Management series.

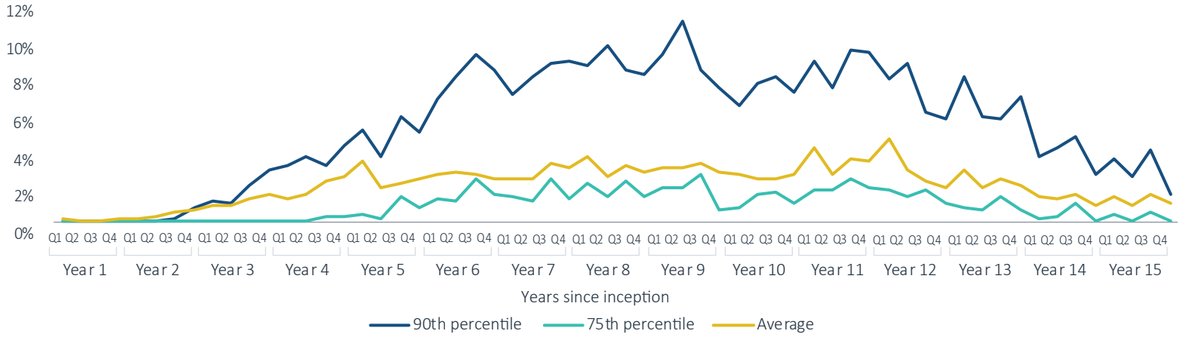
Venture capital

Due to the high failure rate of startups, VC undisputedly has the lowest performance floor of any private market strategy. Bottom-quartile funds generate an average DPI value of just 0.15x at Year 12. Even the median VC fund historically achieves a DPI of only 0.70x at Year 12 and will leave LPs in the red when all is said and done. Investors typically assume that higher-risk strategies are associated with greater payoffs. When it comes to VC, however, even the relative best performers often leave much to be desired, with the top-decile DPI values for VC funds often lagging the top-quartile returns for PE, private debt and real assets. To that end, while gaining access to the highest caliber managers is paramount in all private market strategies, it is particularly important in VC and often more difficult due to the capacity-constrained nature of the strategy. For successful venture funds, the payouts can be enormous; several such vehicles in our dataset distribute the entirety of their original size—and sometimes several multiples of it—in a single quarter.

The path to liquidity for successful venture investments tends to be long, resulting in distributions from VC funds being few and far between. The proportion of these funds making a distribution in a given quarter peaks at 40%, whereas vehicles in every other private market strategy have periods—typically between Years 6 through 9—when at least half of them are making a distribution each quarter. As a result, while the size of distributions peaks by Year 10 in most strategies, we find that distributions tend to be the most frequent and robust during Years 11 and 12 for VC funds, and only half of these vehicles fully liquidate by Year 14.

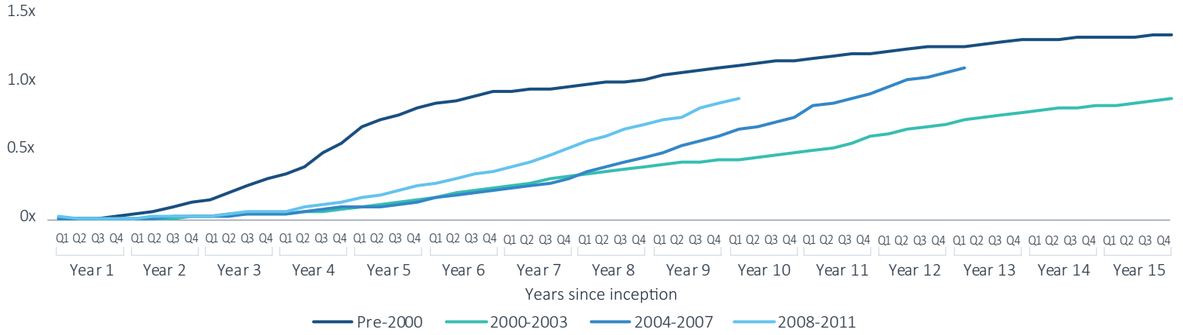
The data is likely to shift going forward, however, as VC funds have undergone a series of sea changes and continue to evolve. Deconstructing the data by vintage year underscores the extreme volatility experienced during the dotcom era; pre-2000 vintages produced distributions at a clip unlikely to be matched again, while the 2000-2003 vintage cohort suffered permanent impairment. After a prolonged downturn in VC performance following the dotcom boom, the rate of distributions has been quicker for vintages of the 2010s, which have benefited from a sustained economic expansion. Over the last decade, both absolute and relative distribution rates have grown considerably for old and new funds alike. In addition to economic tailwinds, VC funds have enjoyed a favorable exit environment with record levels of M&A activity, improvements in the IPO process and the development of more robust secondaries markets for both fund positions and private company equity.

Figure 3. Range of VC distributions as proportion of fund size since inception



Source: PitchBook | Geography: Global
*As of September 30, 2019
Note: Data includes funds that did not make a distribution in the period..
(For example, if there is no median value, that means fewer than 50% of funds made a distribution.)

Figure 4. Average DPI for VC funds since inception by vintage year



Source: PitchBook | Geography: Global
*As of September 30, 2019

Real assets

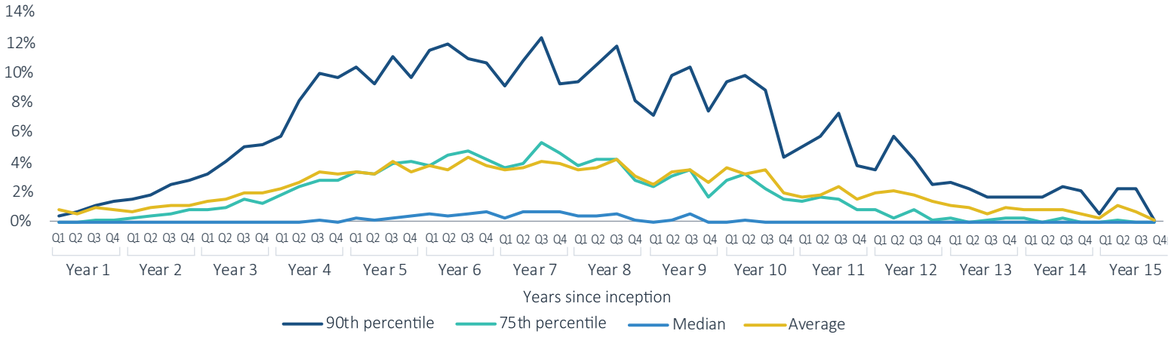
Real assets funds have become increasingly popular among institutional investors due to their low correlation with public equity markets and inflation-hedging attributes. Steady cash flows from rental income and infrastructure assets are attractive to many LPs looking to allocate to private market funds, particularly given the low-yield environment of the last decade; they also produce a relatively low standard deviation in quarterly distributions compared to many private fund strategies. Additionally, real assets funds boast a quicker average liquidation period, and strong performance is possible for top managers. Historically, the top-decile DPI for real assets funds clears 1.65x by Year 10, beating out all other strategies except PE (1.85x) and private debt (1.69x).

Even with the perception of steady cash flows, the boom and bust cycles that happen with real assets lead to relatively high volatility in aggregate return on capital. Real estate returns plummeted during the GFC, and oil & gas assets have been hammered by repeated collapses in energy commodities. All told, the strategy has had more duds than one might expect. The bottom-decile DPI reaches 0.23x at Year 10, the second-worst performance for that percentile group behind only risk-laden VC.

Much of the underperformance for real assets can be tied to the collapse of the real estate market at the end of the last cycle. That has weighed heavily on the relative performance between vintage years. The frothy real estate market prior to the GFC led to a quick return of capital for those invested in the 2000-2003 vintage cohort, averaging a 1.0x DPI by Year 4. Meanwhile, the 2008-2011 vintages needed 10 years on average before achieving the same multiple on invested capital .

The real assets strategy continues to shift focus over time. Not only is capital accumulating in the largest funds, but the concentration of capital within substrategies is changing. Infrastructure and renewable energy have supplanted oil & gas the last few years, and real estate has its own dichotomy of risk-reward profiles among property sectors. These changes, exacerbated by the present crisis, will alter the cash flow characteristics for real assets funds in the future.

Figure 5. Range of real assets distributions as proportion of fund size since inception



Source: PitchBook | Geography: Global
*As of September 30, 2019
Note: Data includes funds that did not make a distribution in the period..
(For example, if there is no median value, that means fewer than 50% of funds made a distribution.)

Figure 6. Average DPI for real assets funds since inception by vintage year

Source: PitchBook | Geography: Global
*As of September 30, 2019

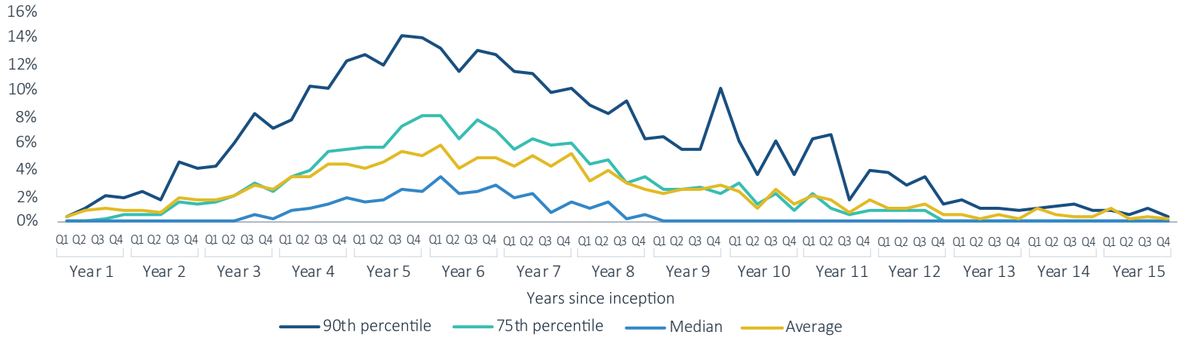
Private debt

Given their focus on income generation, private debt funds tend to return capital more quickly than any other private market strategy. The amortizing nature of many of the underlying loans also enables a consistent return of principal over time, whereas investors typically have to wait for a full sale of the portfolio company. On average, private debt funds return the entirety of paid-in capital between seven and eight years from inception. This compares favorably even to real assets—a strategy also predicated on income generation—which reaches the same mark in Year 11.

Though the rate of distributions for debt funds is faster as a group, there are still important differences when assessing funds that deployed capital through different periods of the economic cycle. For example, early-cycle vintages raised during downturns (2000-2003 and 2008-2011) tend to reach a DPI of 1.0x around Year 6 on average, whereas late-cycle vintages (2004-2007) take about three years longer to reach this mark. Debt is hardly unique in this way—the global financial crisis (GFC) delayed distributions across strategies—but we are likely to see a similar delay with the advent of the current pandemic.

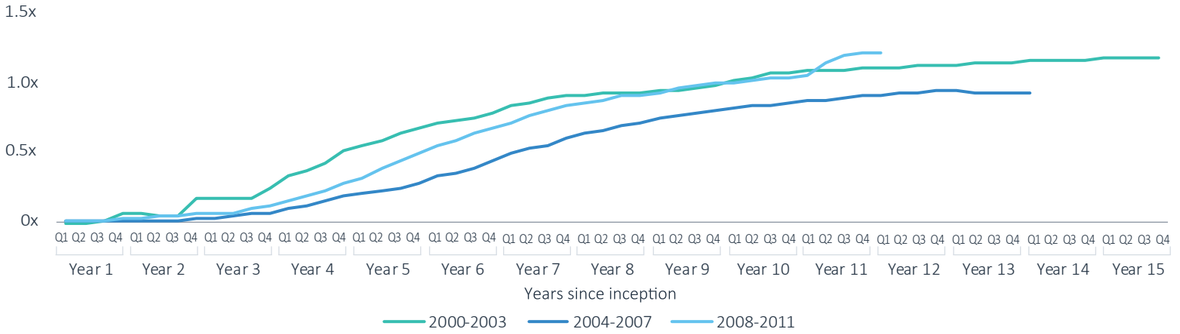
Private debt funds are also less likely to encounter "tail-end" situations and be extended past the 10- or 12-year mark that is typical of private fund structures. Unlike equity-linked investments, debt instruments tend to have fixed maturity dates and payment schedules, which make timely distributions more likely. From Years 3 to 9, at least 50% of debt funds make a distribution in any given quarter,[2] but beginning in Year 12, we see a sharp drop-off in that figure to less than 25%—lower than any other strategy.

Figure 7. Range of private debt distributions as proportion of fund size since inception



Source: PitchBook | Geography: Global
*As of September 30, 2019
Note: Data includes funds that did not make a distribution in the period..
(For example, if there is no median value, that means fewer than 50% of funds made a distribution.)

Figure 8. Average DPI for private debt funds since inception by vintage year



Source: PitchBook | Geography: Global
*As of September 30, 2019

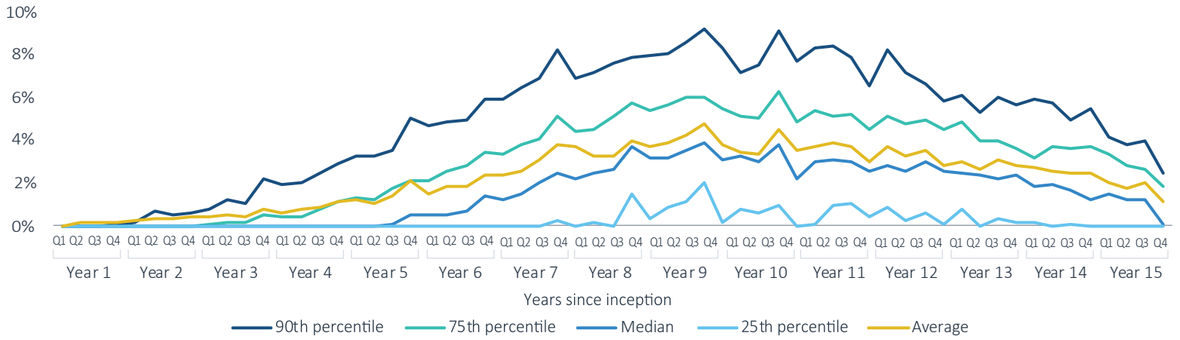
2: All except for one quarter

Funds of funds

The protracted nature of capital deployment necessitated by the fund-of-fund (FoF) structure, detailed in our prior research, makes it one of the slowest private market strategies to return capital to investors. Distributions tend to start later for FoF, with the average DPI value not reaching 0.5x until midway through Year 8—a year and a half longer than the next slowest strategy. Additionally, the size of quarterly distributions for FoF crests in Years 9 and 10, compared to Year 6 or 7 for most other private market strategies. But thanks to their diversification across several underlying funds, which typically results in hundreds if not thousands of underlying positions, FoF provide some of the most consistent distribution patterns of any private fund strategy.

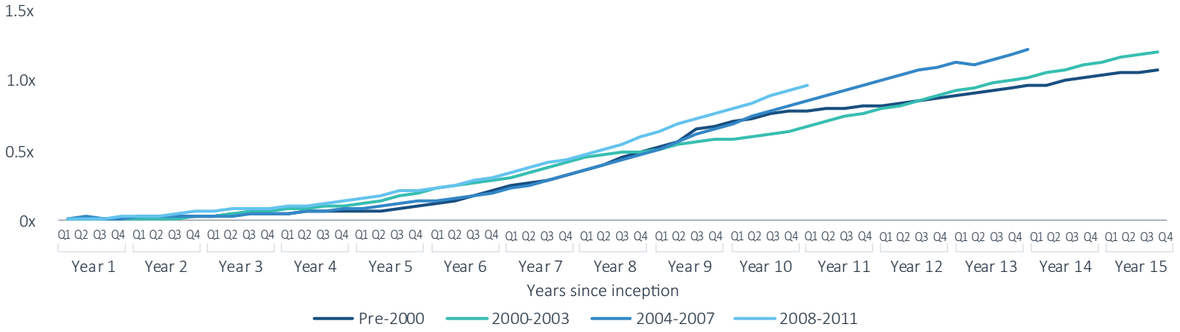
Beginning in Year 7, at least two-thirds of FoF make a distribution each quarter until they are fully liquidated. Distribution sizes tend to be consistent as well; the standard deviation of FoF quarterly distributions is roughly half that of PE funds. The tradeoff for this consistency is that distributions tend to be smaller, and it takes FoF longer than any other private market strategy to liquidate, with only half of funds liquidated by the end of Year 16. As with other private market strategies, distributions from FoF vintages of the mid-2000s were hampered by the great recession. In general, however, the trajectory of distributions for FoF has been fairly consistent across vintage years.

Figure 9. Range of FoF distributions as proportion of size since inception



Source: PitchBook | Geography: Global
*As of September 30, 2019
Note: Data includes funds that did not make a distribution in the period..
(For example, if there is no median value, that means fewer than 50% of funds made a distribution.)

Figure 10. Average DPI for FoF since inception by vintage year



Source: PitchBook | Geography: Global
*As of September 30, 2019

Secondaries

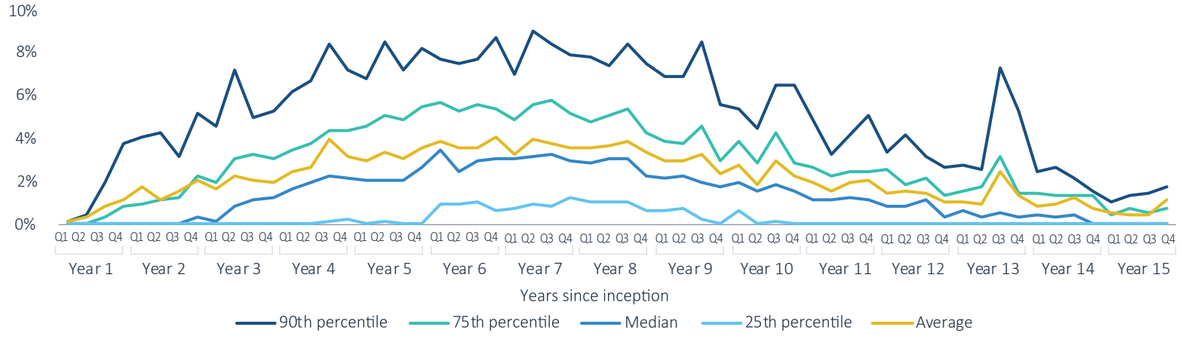
Secondaries have soared in popularity over the last decade due in large part to a range of perceived benefits, with perhaps the most important being J-curve mitigation. As we showed in the prior installment of this series, secondaries funds tend to call down capital at a similar rate to that of primary PE funds. Distributions from these vehicles, however, begin to flow much more quickly than for other strategies because the underlying positions are existing fund positions with mature underlying investments. As a result, secondaries funds achieve an average DPI of 0.19x by the end of Year 2—nearly double most other strategies. Despite the swiftness of the early distributions, which can help to reduce the initial J-curve, more than half of secondaries funds will take 13 years or longer to liquidate. We attribute this to the multitude of underlying positions associated with acquiring portfolios of LP stakes, which provides more opportunities for early distributions but also means that the chance for tail-end situations rises.

The secondaries market comprises the fewest funds and least amount of capital of any private market strategy covered in this analysis. Therefore, they provide an interesting case study because the space has evolved so rapidly and is heavily influenced by a relatively small number of players. The earliest secondaries funds largely focused on acquiring mature fund stakes, often at steep discounts, enabling unprecedented early distributions. In late-1990s and early 2000s vintages, secondaries funds achieve an average DPI of at least 1.0x by Year 7. Distributions naturally were slower and lower for the mid-2000 funds, which were largely deployed when the GFC hit, as GPs extended holding times and performance across strategies suffered. Distribution rates have rebounded for funds raised through and since the GFC, however. Absolute performance has also risen for these funds due to several factors, including discounted pricing in the early 2010s and an increasing use of leverage. Following this period of strong returns, we think distribution rates are likely to fall in aggregate not only because exits have slowed abruptly during the pandemic but because competition has pushed up pricing and forced secondaries investors to seek out less mature opportunities, resulting in a longer holding time.

Conclusion

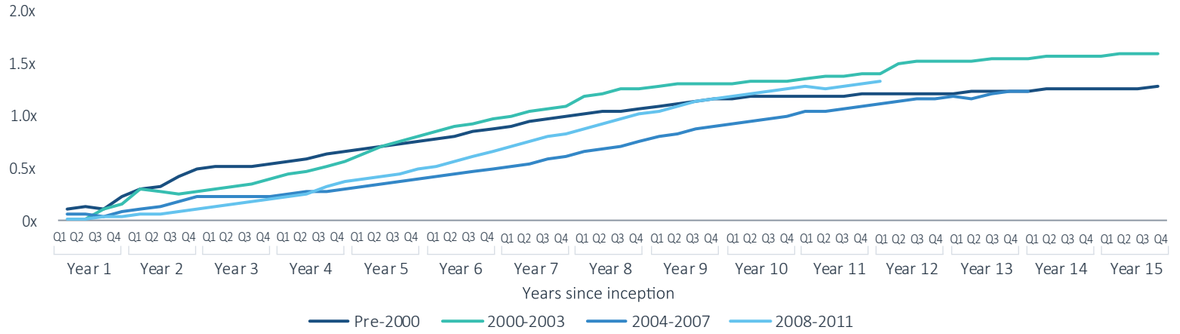
As mentioned throughout this analysis, distributions are highly dependent on the specific funds and the success or failure of the underlying deals in question. That said, data can be informative in understanding broad trends and how they evolve over time. Today's environment, marked by truly unprecedented levels of uncertainty and ongoing market intervention, makes it challenging to extrapolate from historical data for answers. Despite this ambiguity, we think that distributions will fall for private market strategies in the near to medium term. One mitigating factor is that fund managers now have more levers than ever before to tap liquidity, including new developments in secondaries markets and lending structures to unlock cash while sometimes remaining invested. Even with these innovations, however, private market investors should brace themselves for a journey through a distribution desert.

Figure 11. Range of secondaries distributions as proportion of fund size since inception



Source: PitchBook | Geography: Global
*As of September 30, 2019
Note: Data includes funds that did not make a distribution in the period..
(For example, if there is no median value, that means fewer than 50% of funds made a distribution.)

Figure 12. Average DPI for secondaries since inception by vintage year



Source: PitchBook | Geography: Global
*As of September 30, 2019

Commitment pacing and cash flow models

Introduction

Throughout the Basics of Cash Flow Management series, we have leveraged historical data to develop several models to help limited partners (LPs) better navigate private markets. Building on prior installments, this final chapter will illustrate all the steps required in designing, planning, implementing, and maintaining a private market allocation. Because private market investing is a unique endeavor for each LP due to a range of factors, including variations in risk appetite, return requirements, liquidity needs, and investment horizon, we built these models to be dynamic and allow users to tailor the inputs to their specific portfolio and profile.

To illustrate how LPs can utilize our models throughout the private market investment process, we have developed a hypothetical LP profile, as detailed in the accompanying table. Please note that users can adjust all the assumptions seen throughout this analysis based on an LP's specific allocations and assumptions. To make this highly complex task more straightforward for illustrative purposes, the examples throughout this analysis will ignore any inflows or outflows to the corpus of the portfolio. We also assume a single growth rate for public equities, fixed income, and cash, while excluding certain asset classes and strategies that are peripheral to the topic of private market cash flow modeling.

Figure 1. Target allocation for hypothetical LP

Public equities	Fixed income	Cash	Private markets	PE	VC	Real assets	Private debt	FoF	Secondaries	Total
30%	7%	3%	60%	20%	12%	12%	8%		8%	100%

Source: PitchBook

Planning initial commitments

Building a private market portfolio from scratch is a challenging, complex, and iterative process. The drawdown nature of private market funds poses one of the biggest difficulties because once an initial commitment has been made, it takes years for general partners (GPs) to call capital and for LPs to effectively build an allocation. Commitment pacing requires LPs to balance the desire to quickly reach the target allocation with the risk of overshooting it, while also maintaining diversification across vintage years and GPs. Threading this needle is not impossible, however. In our prior research, we found that LPs can prudently incorporate an initial "ramp period" of slightly larger commitments than in the subsequent "maintenance period," which decreases the time to reach full allocation while minimizing the risk of overshooting target allocations.

The first step in determining the initial commitment pacing is to establish baseline estimates for how the broader portfolio will grow (or shrink) in the future. This step is necessary because private market allocations tend to be set as a proportion of the total portfolio, rather than a fixed dollar amount. In practice, this involves modeling out any expected inflows or outflows from the corpus of the portfolio, as well as anticipated performance impacts. For our hypothetical LP, we set a target timeframe of eight years to achieve the private market allocation and assumed that the LP's total portfolio would equal $100.0 million at that time. We use this portfolio size to establish our target allocations to the respective private market strategies.

Figure 2. Estimated portfolio for hypothetical LP in 8 years

Total portfolio size	Private markets	PE	VC	Real assets	Private debt	FoF	Secondaries
$100.0M	$60.0M	$20.0M	$12.0M	$12.0M	$8.0M	$0.0M	$8.0M

Source: PitchBook

All charts are for illustrative purposes.

The question for LPs is how much to commit to a private market strategy each year to obtain the target allocation. To inform this commitment pacing process, we developed a model that utilizes historical data from thousands of private market funds to produce a commitment schedule based on an LP's target allocation size and timeframe. The model accounts for the disparate nature of cash flow profiles between private market strategies, as detailed in our prior research, and can be tailored to specific characteristics, such as fund size and location.[1] We also allow users to adjust the model based on their macroeconomic outlook, as our research shows that private market cash flows exhibit a high degree of cyclicality. For our hypothetical LP to reach their target allocation in eight years, the model suggests the commitment pacing schedule seen in the accompanying table.

As can be seen, we included an initial "ramp period" in this scenario for each strategy to curtail the period of underallocation early in the process. The length of this ramp period is about three years for most strategies, with a slightly longer ramp required for secondaries funds because they produce distributions earlier than other strategies, necessitating a quicker reinvestment plan. For the different strategies, the size of the commitments as a proportion of the target allocation also vary slightly due the different rates at which strategies draw down and return capital. Prior installments of this series provide additional analysis on how and why cash flow profiles differ between strategies.

Maintaining (ongoing commitment pacing)

The maintenance period from the initial commitment pacing schedule is designed to hit and maintain the allocation at a specific point in time—Year 8. For this analysis, we prescribed a quarterly commitment pacing schedule to be followed for several years. In practice, however, private market investing is never this clean and straightforward. LPs will not have the luxury to commit precise amounts on a set schedule; they are engaged in a Sisyphean exercise of continually committing to new funds each year to preserve vintage year diversification and maintain the target allocation, all while accounting for developments in other areas of their portfolio. This requires continual recalibration of the models.

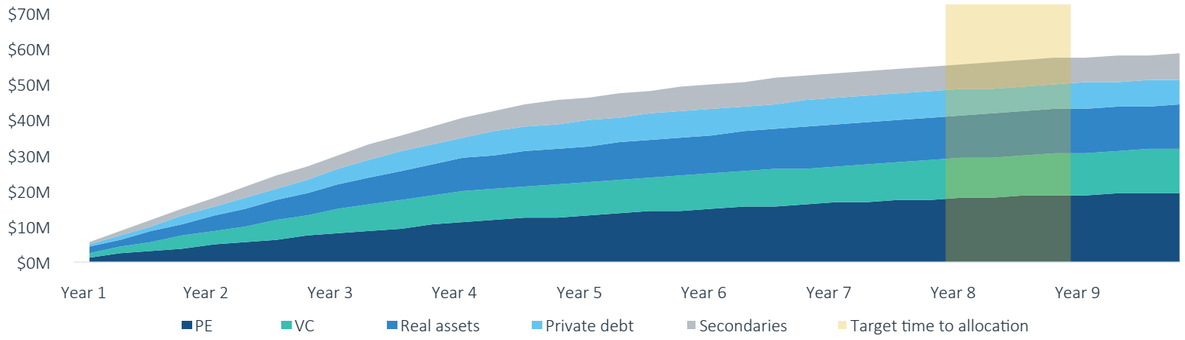
Building off the example schedule, we now assume that our hypothetical LP perfectly achieved their modeled portfolio in Year 8. To estimate how this mature portfolio is likely to evolve over time, we employ our various PitchBook models for the private market portfolio and use Morningstar Market Assumptions as the basis for traditional asset class returns.[2] For example, the public equity allocation is $30.0 million (or 30% of the portfolio) and is set to grow at 8.68% annually (i.e. the US Mid/Small Cap return from the Morningstar Market Assumptions). This exercise is repeated for the fixed income and cash allocations, while our previously discussed models maintain the original commitment pacing schedule and develop the return profile for the existing private market fund exposure.

Figure 3. Commitment pacing schedule for hypothetical LP

		Ramp period		Maintenance period
	Target allocation at eight years	Duration	Quarterly commitment size (% of target allocation)	Quarterly commitment size (% of target allocation)
PE	$20 million	3.5 years	$850,000 (4.25%)	$500,000 (2.5%)
VC	$12 million	3 years	$600,000 (5%)	$240,000 (2%)
Real assets	$12 million	3.5 years	$600,000 (5%)	$300,000 (2.5%)
Private debt	$8 million	4 years	$360,000 (4.5%)	$200,000 (2.5%)
Secondaries	$8 million	4 years	$360,000 (4.5%)	$140,000 (1.75%)

Source: PitchBook

Figure 4. Modeled private market portfolio for hypothetical LP



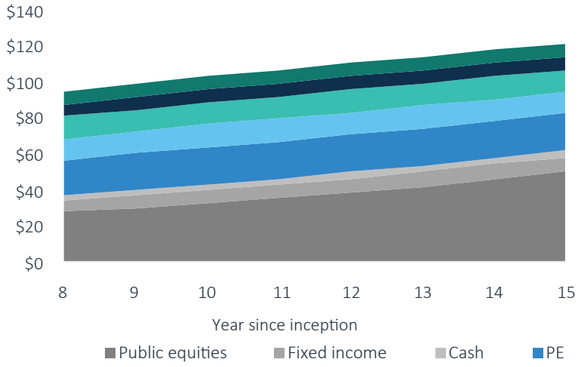
Source: PitchBook

1: For more information about the model, please contact benchmarks@pitchbook.com.
2: Morningstar Market Assumptions

All charts are for illustrative purposes.

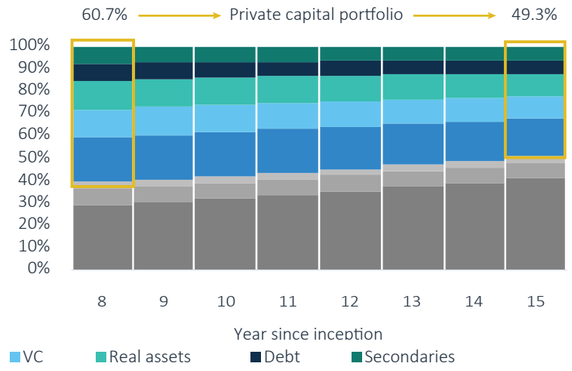
Figure 5. Modeled portfolio for hypothetical LP under original commitment pacing schedule

Figure 5.1



Source: PitchBook. Data as of December 31, 2019.

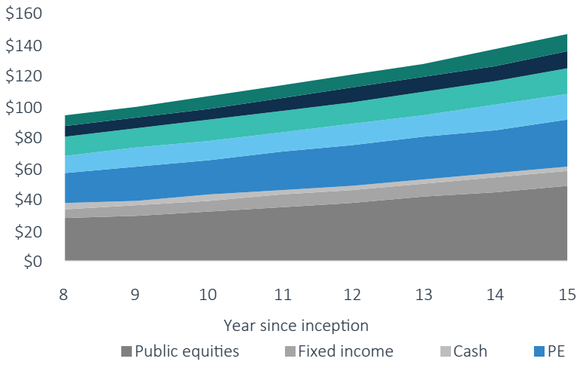
Figure 5.2



Source: PitchBook. Data as of December 31, 2019.

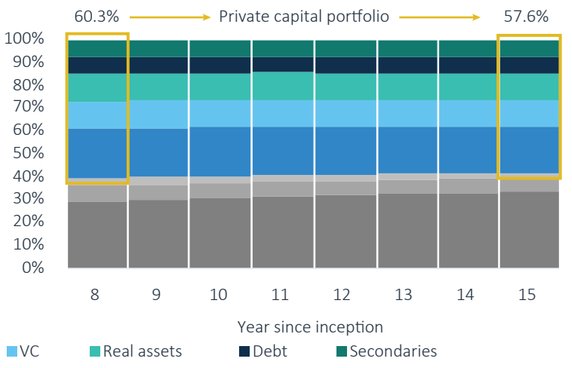
Figure 6. Modeled portfolio for hypothetical LP under updated commitment pacing schedule

Figure 6.1



Source: PitchBook. Data as of December 31, 2019.

Figure 6.2



Source: PitchBook. Data as of December 31, 2019.

Figure 7. Commitment pacing schedule comparison

	Original	Updated
	Quarterly commitment size as % of target allocation	Quarterly commitment as % of next year's target allocation
PE	2.50%	3.25%
VC	2.00%	2.75%
Real assets	2.50%	3.25%
Private debt	2.50%	3.00%
Secondaries	1.75%	2.75%

Source: PitchBook. Data as of December 31, 2019.

Figure 5.1 shows that committing capital under the original "maintenance period" pace results in the dollar value of the private market portfolio being maintained, as expected; however, as shown in Figure 5.2, the private market allocation will shrink relative to the rest of the portfolio, particularly the public equity portion, as the public equity and fixed income holdings continue to grow into the future. These developments complicate the analysis, but we can use these modeled returns to solve for the anticipated gap in the private market portfolio going forward.

Utilizing our model, we can then generate a new commitment pacing schedule beginning in Year 9 to close the gap and maintain the target allocation percentage into the future. The new commitment schedule prescribes a slightly higher pace of commitment based on the growth assumptions in the other parts of the portfolio. In practice, this means that the dollar value being committed will rise slightly even though the allocation percentage will remain constant. In Year 9, for example, the 3.25% quarterly commitment to PE represents $697,000, whereas that dollar value swells to $1,074,000 in Year 15 based on the same 3.25% due to portfolio growth. While this revised commitment pacing schedule incorporates additional portfolio assumptions, it will also have a limited shelf life and will need to be revisited periodically to account for developments throughout the portfolio.

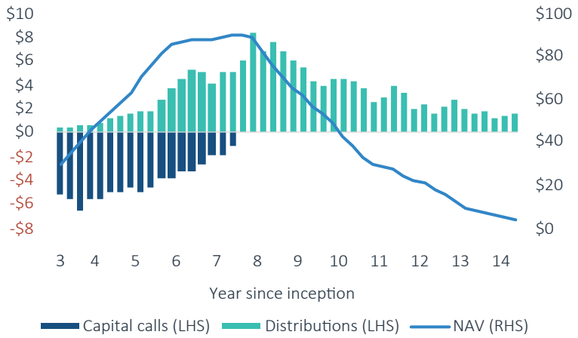
Implementing (cash flow/contribution planning)

As soon as the initial commitments are made, cash flow management begins to come into play. Cash flow management is relatively straightforward in the first years of a private market program because there are few fund relationships and most vehicles are simply drawing down capital, with little coming back via distributions. Cash management grows exponentially more difficult as a program develops, however, and poses an ongoing challenge for LPs. A mature, diversified private market portfolio often has dozens of funds at disparate points in their lifecycles. As such, to ascertain the liquidity profile of the entire portfolio, an investor must first evaluate each underlying fund position to establish estimated capital calls and distributions over the coming quarters.

All charts are for illustrative purposes.

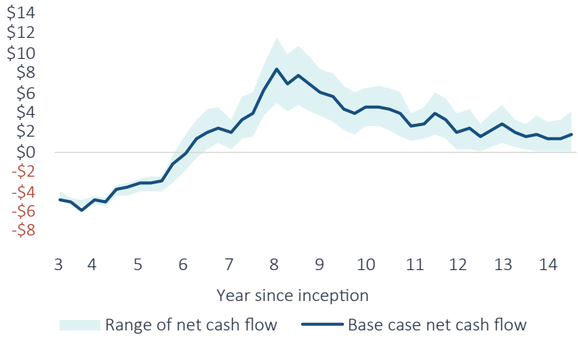
Figure 8. Buyout fund at 2.5 years

Figure 8.1



Source: PitchBook. Data as of December 31, 2019.

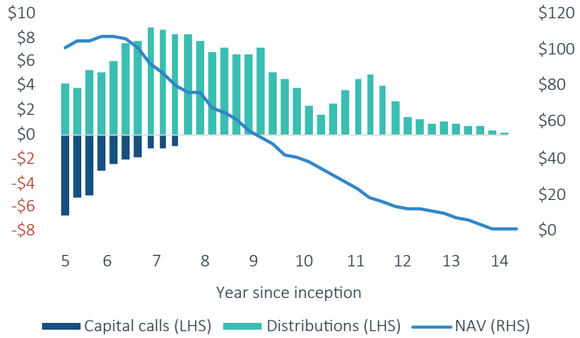
Figure 8.2



Source: PitchBook. Data as of December 31, 2019.

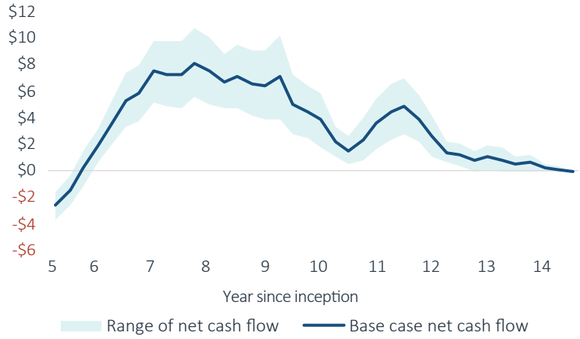
Figure 9. Buyout fund at four years

Figure 9.1



Source: PitchBook. Data as of December 31, 2019.

Figure 9.2

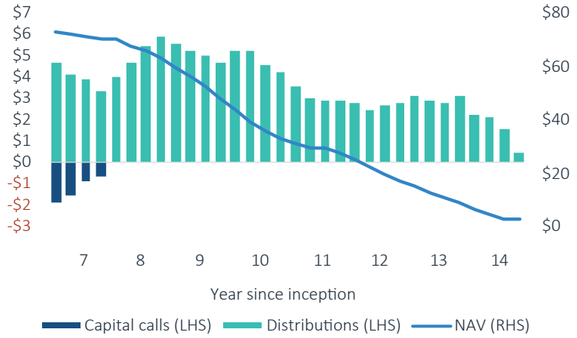


Source: PitchBook. Data as of December 31, 2019.

As we have shown throughout this series, fund cash flows are correlated to certain fund characteristics (such as dry powder, performance marks, fund age, etc.) and broader economic factors. Leveraging this research and the PitchBook database, we have constructed a model that both generates theoretical cash flows based purely on hypothetical inputs and can be used to model future cash flows for existing funds from any stage of their lifecycle. Additionally, since GPs provide LPs with regular updates about expectations for specific funds, users can feed these predictions from active funds into the model to generate a customized cash flow projection, with Figure 8 showing the inputs available for customization. To illustrate the impact of these variables on the modeled cash flows, we have modeled a buyout fund from different points of its lifecycle to depict how users can set the model to any point throughout the fund life. Our model produces a baseline scenario for future cash flows, as well as upper and lower bounds based on a 90% confidence threshold.

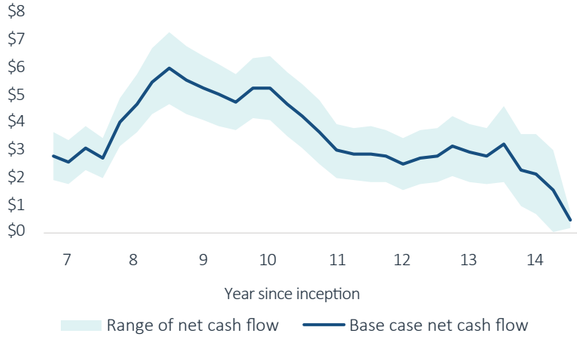
Figure 10. Buyout fund at six years

Figure 10.1



Source: PitchBook. Data as of December 31, 2019.

Figure 10.2



Source: PitchBook. Data as of December 31, 2019.
All charts are for illustrative purposes.

Figure 11. Qualitative inputs for customization in cash flow model

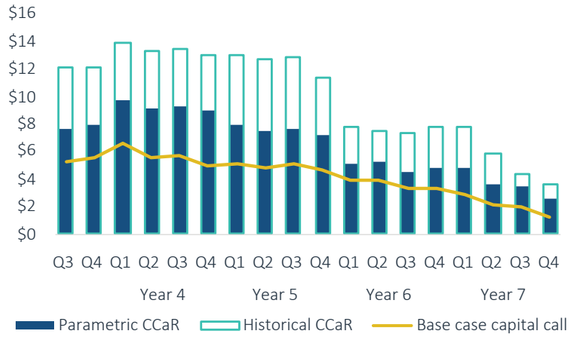
		Variable changed	
		Contribution pace	Distribution timing
Inputs	Anticipated reserve capital	X	
	Near-term exits		X
	Expected fund life		X

Cash flow management is important because LPs do not want to hold all future commitments in cash or other highly liquid, low-returning assets. While letting uncalled capital sit idly in a cash account is suboptimal, LPs can also encounter issues when they do not have enough capital available to meet capital calls. These situations force the LP to sell off a position in another portion of the portfolio or, in the worst-case scenario, fail to meet a capital call, which has serious repercussions.

Our model helps LPs to plan for these tail-end scenarios via a value-at-risk (VaR) model called PB Capital Call at Risk (PB CCaR). The calculations behind PB CCaR are the same as traditional VaR, but PB CCaR measures the risk associated with large capital calls rather than the portfolio value at risk in a drawdown. Like traditional VaR, our metric allows an LP to set a certain threshold (typically 90%, 95%, or 99%) to answer the question, "What is the most capital the fund/portfolio will call down 90%/95%/99% of the time?" For example, a PB CCaR of $10.0 million at 90% implies that there is a 10% probability that the fund will call $10.0 million or more in a given period. We produce a version of PB CCaR based on observed data (i.e. Historical), as well as a version calculated using the statistical mean and standard deviation (i.e. Parametric). PB CCaR will naturally decrease during the investment period as capital is called, as illustrated using the outputs from the previous buyout fund example.

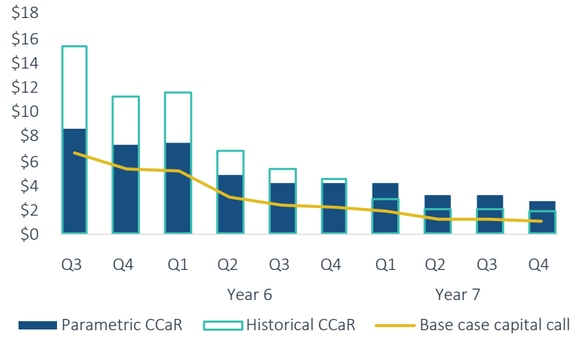
This cash flow model and the accompanying metrics can be calculated for any number of funds in a portfolio. Using our hypothetical LP as an example, we begin with portfolio from Year 8 in the prior example to establish underlying fund positions for each strategy. We then incorporate additional fund positions based on the commitment pacing schedule detailed in the "Maintaining" section. By aggregating the model outputs for each fund, we can produce estimates of both the size and timing of contributions, distributions, and subsequently net cash flows across the entire portfolio, as shown on the following page.

Figure 12. Buyout fund at 2.5 years



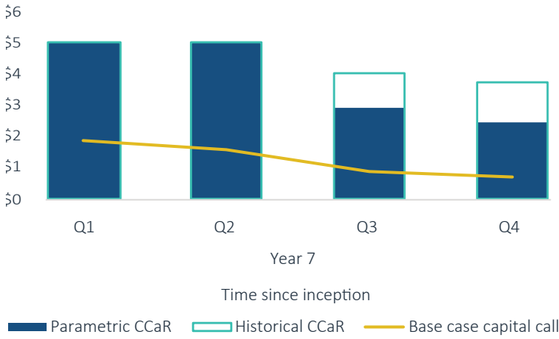
Source: PitchBook. Data as of December 31, 2019.
Note: Capital Call at Risk in line with VaR methodologies. Confidence threshold set at 90%.

Figure 13. Buyout fund at four years



Source: PitchBook. Data as of December 31, 2019.
Note: Capital Call at Risk in line with VaR methodologies. Confidence threshold set at 90%.

Figure 14. Buyout fund at six years

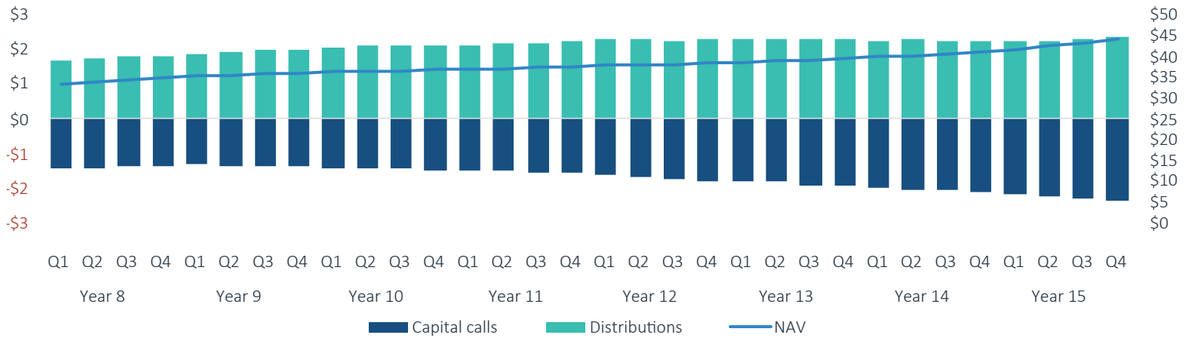


Source: PitchBook. Data as of December 31, 2019.
Note: Capital Call at Risk in line with VaR methodologies. Confidence threshold set at 90%.

All charts are for illustrative purposes.

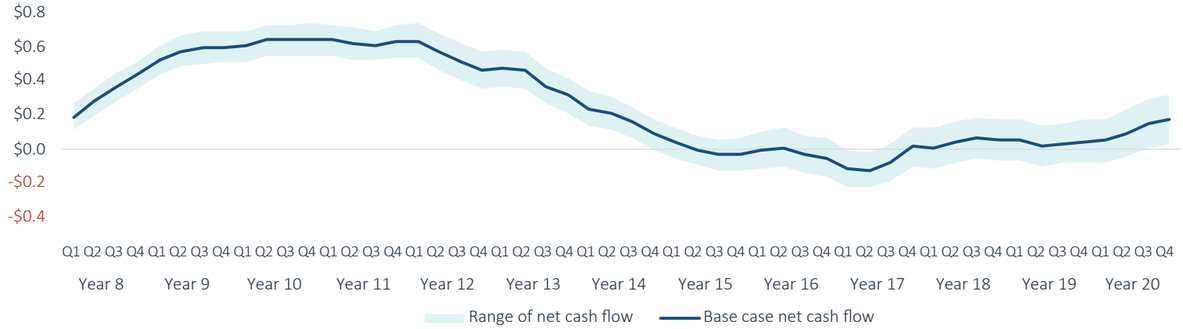
Figure 15. Modeled cash flows for hypothetical LP portfolio

Figure 15.1



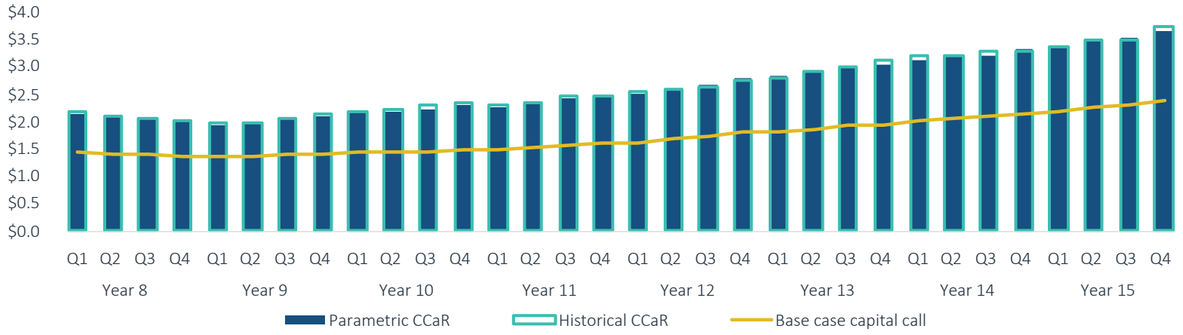
Source: PitchBook. Data as of December 31, 2019.

Figure 15.2



Source: PitchBook. Data as of December 31, 2019.

Figure 15.3



Source: PitchBook. Data as of December 31, 2019.

The period between Years 8 and 9 represents the switch from the initial commitment pacing model to the updated version, which incorporated new growth estimates for the rest of the portfolio. The initial ramp period helps to reach the target allocation (i.e. NAV) quickly and begins to produce relatively strong distributions beginning around Year 8, which leads to an expectation of strongly positive net cash flows. However, the impacts of the ramp period begin to wane as the updated commitment pacing schedule is incorporated in Year 9. As we detailed in the "Maintaining" section, the dollar value of commitments will necessarily increase over time as the portfolio grows. Accordingly, capital calls steadily increase over time as the portfolio matures and larger commitments are needed to maintain the allocation, as noted earlier.

Distributions, however, take longer to rise after the commitment pace is increased. So, while the portfolio goes through an extended period in which it is expectedly self-funded, we find periods in which additional cash will likely be required to meet capital calls, as shown in Figure 15.2. The increasing capital requirements can be seen clearly in the PB CCaR metric; note that this metric is particularly conservative, as it does not account for expected distributions back to the portfolio. This example highlights the difficulty in modeling private markets over long periods and underscores the importance of revisiting and recalibrating these models on a regular basis.

Like a rolling stone

As we have emphasized throughout this series, private market investing is a continuous, iterative process. While a long-term mindset is needed to build a well-diversified portfolio that will withstand market cycles, LPs must also be cognizant of what impact the various moving parts of their portfolio—from sell-offs in public markets to unanticipated inflows or outflows—will have on the course of the private market allocation. Much like steering an aircraft carrier, it is easier to make slight strategic moves early in the process as potential issues are visible on the horizon because the need to adjust on short timeframes can be costly—or impossible.

We believe that our models are valuable tools for LPs and consultants considering strategies for developing a private market allocation from scratch, as well as those seeking tactics to address the ongoing challenge of balancing the allocation with the liquid portions of the portfolio. The models can also help LPs design a plan to incorporate a new private market strategy into an existing portfolio.

All charts are for illustrative purposes.

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