PAVILION

CHARACTERIZING CAPITAL CALLS

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Executive Summary

This paper describes considerations that Private Equity General Partners (GPs) weigh in determining when to call capital from investors. Generally, there are myriad controlling factors that limit the likelihood that Private Equity GPs will call significant amounts of capital unexpectedly. Some of those factors include investors' expectations that were set during the fund raising process, the limited resources of GPs, and the very time consuming nature of investing in private companies.

A large dataset of global Private Equity funds that covers over thirty years of historical data is used to establish characteristic capital call behavior in general, as well as during severe economic conditions. Quantitative analysis of that dataset shows that the majority of capital is called in the early years of a fund's life and that the level and dispersion of capital calls decreases consistently and statistically significantly over a fund's life. The highest median capital call level of 23.9% (relative to fund size) occurs in the first year of fund life. One means of developing a reasonable expectation of a high capital call scenario would be to consider the 75th percentile of capital calls. The highest 75th percentile of capital calls in the dataset is 36.2% and, similar to the median result, also occurs in the first year of fund life. GPs often have a backlog of transactions when a fund is closed and that the 75th percentile result is not higher is a noteworthy result.

In the event of severe market conditions, GPs may face additional considerations when deciding how much capital to call. Those considerations include the substantial time it takes for private equity valuations to reflect a decrease in public equity markets as well as the importance of maintaining good relationships with investors. The qualitative discussion of those issues is supported by data showing that Private Equity GPs significantly decreased their capital calls during the Global Financial Crisis (GFC). Relative to funds of similar age that invested prior to the GFC, GPs during the GFC decreased their capital calls by approximately 40%. Notably, funds that were early in their investing period and therefore expected to have been the most active actually decreased their capital calls by the greatest percentage. This evidence is supportive of the supposition that during chaotic economic periods, Private Equity GPs would consciously refrain from deploying additional capital at a time that might be detrimental to their investors.

Background

One of the distinguishing characteristics of Private Equity is the manner in which investment capital is raised and deployed. General Partners raise distinct investment vehicles ("funds") that have a specified investment period and a limited life, typically eight to ten years. Limited Partners (LPs) make a commitment to a fund, and the total of the LP commitments is referred to as the fund's "size." While the size of the fund is specifically determined at the final closing of the fund, the full LP commitment is not drawn at that time. Rather, GPs draw funds in the form of "capital calls" over the fund's life. The amount and timing of capitals calls vary significantly by strategy, GP, and market conditions. However, most capital is called during the fund's investment period, which is usually the first four to six years of a fund's life.[1] Once LPs have made a commitment to the fund, they have almost no control over how quickly or slowly capital is called and invested.[2] This uncertainty over when capital will be called and deployed increases the complexity of managing Private Equity investments.

The current volatility in public markets has generated some concern that Private Equity GPs could accelerate capital calls during a severe downturn in public markets to take advantage of lower valuations.[3] The timing and level of capital calls in such circumstances could, in turn, place LPs in a difficult position in which they might be forced to liquidate public market positions at a particularly inopportune time. The purpose of this paper is to examine this issue in-depth, and information is presented in four parts: 1) a discussion of the inherent limitations to how much capital a Private Equity GP will call, 2) a characterization of capital calls using historical data so that Private Equity investors have better information on the nature of capital calls in general, 3) a discussion of additional limitations on GPs calling capital in severe economic environments, and 4) a presentation of historical evidence of the behavior of GPs during the Global Financial Crisis as a means of gaining insight into the possible response of Private Equity GPs to future public market distress.

The Dynamics of Capital Calls

GPs call capital from LPs for two primary reasons: 1) to collect management fees, and 2) to fund investments in portfolio companies. Management fees vary but are usually in the range of an annual fee between 1-2.5% of committed capital during the fund's investment period.[3] These fees are typically collected quarterly. As the level of management fees is small relative to fund size, the majority of the capital called is for investment in portfolio companies. Portfolio companies are usually held for at least three years but the holding period can be much longer. Managers have substantial discretion over when investments are made and, thereby, when the corresponding capital is called from LPs. Some GPs may use credit lines or other financing options to smooth capital calls, which can help LPs better manage their cash flows. However once a capital call has been issued, LPs generally have ten days to meet their obligation. Of note is that defaulting on a capital call can generate severe consequences for the LP. If the default is not rectified quickly, LPs may be subject to forfeiting their entire interest in the fund including all capital previously called.

While there is reasonable concern that GPs could call an unexpectedly large amount of capital in a short period of time, there are several reasons that this is a rare event:

- **Expectations of LPs** – LPs discuss the expected investment pacing plans of the GPs in detail during the due diligence process on the GPs, and while there can be unexpected deviation from those plans, there is a cost associated with GPs doing so. If the GP did not communicate plans to call capital quickly and did so, LPs would be concerned about both the GP's veracity as well as their decision making process. This would likely raise the performance threshold LPs would apply to that GP and increase the chance that LPs would not participate in the next fund. LPs not participating in the next fund due to the unexpected behavior of the GP may be viewed by other LPs as a strong negative signal which could make it much more difficult for the GP to raise subsequent funds.

- **Time to source and close Private Equity deals** – Most Private Equity deals require significant time, in many cases years, to source, negotiate, and close a transaction. It is highly unlikely that GPs would have enough deals all develop at the same pace to invest a majority of the fund in a short period. LPs would also be highly critical of the quality of the deals if a GP invested the majority of the fund quickly and unexpectedly.

- **Time diversification** – GPs usually plan on investing across several years, in part to create diversification in the portfolio and take advantage of changing market conditions. If they were to invest all their capital in a short period of time and market valuations subsequently decreased, returns might suffer in two ways relative to funds of the same vintage. First, they may have been able to buy the same companies for a lower cost. Secondly, they would be selling potentially all of their companies at lower market valuations. Time diversification also helps to balance the demands on team members (more on this below).

- **Limited Resources of most GPs** – Most GPs have relatively small teams. In some funds, individual partners may specialize in one area such as sourcing, operating, or exiting deals, while in other funds partners may participate at all stages. In either case, it would be difficult for GPs to have enough resources to execute all their deals in a short period of time. This is especially true in that funds are increasingly focused on operational improvements, and investing all at once could then create a simultaneous high demand for the fund's operational resources.

- **Evidence of Performance** – A secondary effect tied to the time diversification argument is that LPs are usually asked to commit to the next fund prior to the previous fund being fully realized. In a fund with a normal capital deployment schedule (usually four to six years), there may only be a small number of exits, usually from the early investments in the fund, when the GPs begin raising their successor fund. While there may only be a few exits, at least LPs have some definitive (although incomplete) evidence that the GPs have the capability to generate attractive returns. If a GP were to fully deploy their fund in the first two to three years of their investment period and planned on holding their portfolio companies for the typical three to five years, the fund would be just entering the exit window at the end of the third year of the fund. As the GPs have fully invested the fund, they might attempt to raise a successor fund at that point. In that case, LPs would likely have even less evidence than normal of the GPs' ability to create value. LPs would then be faced with the difficult decision of being asked to commit to another long-lived investment vehicle on the basis of minimal, if any, realized returns.

- **GPs do not want to be "out of market"** - An important aspect that GPs actively manage and promote as a strategic differentiation is establishing and maintaining an active and "proprietary" deal flow pipeline. To maintain such a pipeline requires the ability to make new investments so that the GP remains credible in the market. If a GP were to call all their capital, especially in the early years of the fund, they might not be able to close new deals for several years, which could cause reputational damage.[4] GPs will often use this "out of market" argument when they are trying to raise their next fund as a means to encourage LPs to set a date for the first closing of their fund. Also, a GP that deployed their capital at an unexpectedly fast pace could face substantial resistance from LPs on raising their next fund as many institutional LPs plan their fund investments several years in advance and may not be able to accommodate a manager on short notice, especially if performance (as discussed above) is not definitive.

- **Legal limitations** - Some, but not all, funds have limitations as to the maximum amount of capital they may call in any given year. Typically, the limitation is in the range of 30-35%. This limitation may be stated in the Limited Partner Agreement (LPA) or as part of the "side letters" with individual LPs.[5] As capital is called on a pro-rata basis for Private Equity funds, a limitation in a side letter with a single LP would be binding across the partnership. Some LPA limitations may allow for exceptions to the maximum limitation, but exceptions usually require the approval of the LP Advisory Board.

Historical Evidence of Capital Calls

To examine the historical levels and timing of capital calls, data was collected from PrivateIQ. The data collected was the annual capital called relative to fund size by the year in the life of the fund.[6] The "year" of fund life is measured as a calendar year and not based on the anniversary of the fund closing. For example, Year 2 for all 2008 vintage funds would be 2009 whether the fund closed on January 1, 2008 or December 31, 2008. To present as broad a picture as possible, capital calls for buyout funds from all geographies were included in the analysis. Buyout funds were the focus of this work as they are the predominate form of Private Equity investment and represent the majority of exposure to the asset class for most institutional investors. In order to maximize the dataset, all fund sizes were included in the analysis. Vintages of the funds in the sample covered the time period from 1980 to 2014, although more recent vintages had a considerably higher representation in the sample. Results are presented in Figure 1 and 2 below.

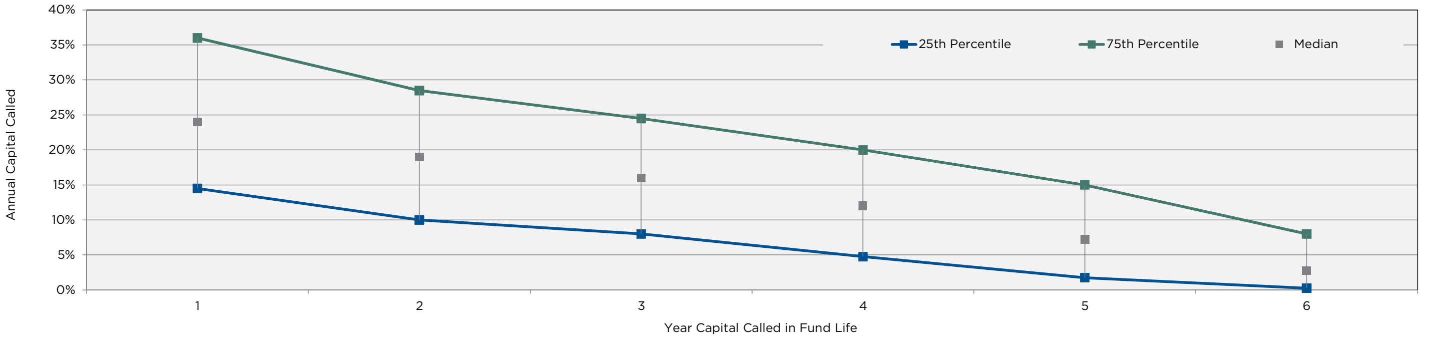
The data below leads to several interesting observations. In general, more capital is called in the early years of a fund's life, and capital calls steadily decline throughout a fund's life. Capital calls tend to be higher in the first year; the first year called median is 23.9%, and even at the 75th percentile only 36.2% of capital is called. Statistical tests show that each subsequent year is statistically different from the previous ones. That is, the level of capital called in Year 1 is statistically higher than that called in Year 2 and so forth. An additional observation is that the dispersion between the 75th and 25th percentile decreases substantially over the life of a fund. Distributions are calculated on an annual basis, so it is very possible that a given fund is in different parts of the distributions in different years.

Figure 1: Annual Capital Called as a Percentage of Fund Size (All Buyout Funds, All Vintages)

Statistic	Year of Fund Life					
	1	2	3	4	5	6
Number of Funds	1,680	1,565	1,473	1,376	1,306	1,259
75th Percentile	36.2%	28.5%	24.7%	20.0%	15.1%	8.2%
Median	23.9%	18.5%	15.6%	11.6%	7.3%	2.7%
25th Percentile	14.5%	10.2%	8.1%	4.9%	1.8%	0.4%
Interquartile Range	21.7%	18.3%	16.6%	15.2%	13.4%	7.7%

Source: PrivateIQ

Figure 2: Annual Capital Called by Year of Fund Life



Source: PrivateIQ

There at least two reasons for the higher level of calls in the first year of a fund's life. As part of the legal agreement between LPs and GPs, fund managers are permitted to recoup expenses from raising the fund and those expenses are reimbursed when the fund holds its closings in its first year of existence. While a fund may have several closes, the first closing is usually substantial.[7] A second cause of higher first year capital calls relates to how GPs manage their deal flow. GPs that do not have an active fund will often "warehouse" deals, whereby the GP makes a commitment to a portfolio company but does not make the investment until after the first closing of the fund.[8] In their fund raising process, GPs will often discuss the deals they have warehoused in detail with potential LPs, so LPs are aware of the expected capital demands. Warehousing could partly explain the higher level of capital calls in the first year of a fund's life, but not the subsequent annual differences.

There is another aspect of the first year investment pacing that warrants noting – the first year of a fund's life does not usually represent a full calendar year of investment activity. Fund managers generally try to avoid holding a first closing during or just after the holiday season due to the intense negotiations that usually precede the first closing. Depending on the complexity of the fund structure and if any of the terms are "out of market," negotiations between the GP and LPs may take weeks or months. While most funds do not close at the beginning of a year, funds are classified into a vintage year based on the date of their first close. Similar to how the age of horses is calculated, funds that close in February and October are both considered to be one-year old on January 1st of the following year. As the previous results show, capital calls are higher for the "first" year even though in most cases that year is only a partial calendar year. Thus, the annualized rate of investment in the first year would be substantially higher than subsequent years.

The internal rate of return (IRR) is a commonly reported measure of performance in Private Equity, and GPs are benchmarked against other managers that raised funds in the same year ("vintage") on a quartile rank basis. All else equal, one way to increase the reported IRRs is to compress the timeframe over which capital is called. Thus, Private Equity managers have incentives to lump cash flows into a single starting point (warehousing) as well as to call capital as early as possible in a fund's life for investment purposes to offset the drag that management fees have on IRR calculations.[9] As Private Equity investments typically have long gestation periods (usually at least three years), there is also an incentive for GPs to front-load investments into the early fund years (subject to the resource limitations discussed previously) in order to provide more options as to the growth opportunities and eventual exit paths that may develop for the portfolio companies. Given these phenomena, the observed capital call patterns are not unexpected, although the strength of the statistical differences between subsequent years was not something commonly understood.

Capital Calls During Market Downturns

As previously noted, LPs' lack of control over when capital is called by Private Equity GPs increases the complexity of managing portfolios. Significant capital calls by Private Equity funds at a time when public markets are underperforming could put LPs in a difficult situation if they have to liquidate public market positions to satisfy capital calls. While there is more uncertainty in Private Equity capital deployment, there are relevant factors that likely limit the level of capital calls in a market downturn:

- **Lag between public and private market valuations** – Public markets have the distinct advantage of broadly disseminating current valuations contemporaneously. Investors may not agree with those valuations, but they can readily observe the market price. Price discovery for Private Equity markets, on the other hand, is a much more complex process that involves the direct negotiation between the owner of a company and the GP of the fund. For an individual private company, transactions usually occur years apart, if ever. Additionally, price is only one component of the negotiation, which makes pricing signals much noisier in private equity markets. GPs report that, following a severe downturn, it can take several years for owners of a private company to reset their pricing expectations to the new market reality. During the transition period the gap between the offering price from the fund and the price the owner finds acceptable may be so great that fewer transactions close.

- **Increased uncertainty, small portfolios, and long holding periods** – Private Equity GPs have a limited number of portfolio companies (usually 10-20 companies) and hold those companies for three to five years so that they can institute significant change in the company before exiting. Due to the small number of investments and long holding periods, GPs may be more sensitive to broad market uncertainty. Again, this results in fewer deals being completed during an economic crisis.

- **GPs are aware of LPs liquidity issues** – Many GPs are aware of the situation LPs face. As public pension funds are a large component of Private Equity markets and GPs are aware of their liquidity needs, GPs may not call capital as a means of maintaining the relationships with their LPs. It was common during the GFC for LPs and GPs to have regular discussions as to whether a significant capital call would be problematic for LPs.

- **Timing of the next fund raise** – Raising a Private Equity fund can be a very time consuming endeavour for GPs and may take several years in extreme cases. In general, GPs are reticent to raise funds in bad market conditions as this usually lengthens the time to raise as well as increases the likelihood that the GP may not reach the stated target fund size. Failing to reach the target fund size can create reputational issues and impair future fund raising. As a result of these issues, GPs may seek to delay fund raising by not calling all of the remaining capital and, in some cases, may pursue extensions of their investment period. Consistent with this, evidence presented below shows a pronounced drop in funds raised during the peak GFC years of 2008 and 2009.

- **Smaller companies are more sensitive to economic conditions** – There is some evidence that smaller companies are more sensitive to economic conditions. This may be due to concentrated customer bases, limited number of product lines, or less financial resources, among other reasons. It may take several years for the economic sensitivity to propagate through the company and be discernible in the company's financial statements. In the event of a severe economic downturn, GPs may have less confidence that the financial statements accurately reflect the state of the company, and this uncertainty may slow their investment pace.

Evidence of General Partner Behavior from the Global Financial Crisis

The Global Financial Crisis presents a unique environment for examining GP behavior during severe economic events. The dataset used in the prior analysis included funds that were calling capital prior, during, and after the GFC. To establish a baseline independent of GFC affects, a dataset was created with funds that had minor if any capital call exposure to the peak crisis years of 2008 and 2009. Using the evidence from the previous analysis, funds that were past their sixth year of life were excluded (essentially, vintages after 2003) from the dataset, and the results for this "pre-GFC" subsample are presented in the table below (Figure 3). Interestingly, statistical tests between the pre-GFC subsample and the full dataset presented previously indicate that there is not any statistical difference between the two. Also, the pre-GFC subsample exhibits similar patterns as the full dataset, in which capital calls are higher and have higher dispersion in the early years in the sample.

To compare the capital call behavior in the GFC-exposed funds, capital call data was gathered on a vintage year basis, and that data is presented in the table below (Figure 4). One interesting observation, unrelated to the level of capital calls, is the substantial increase in the number of funds raised in the years leading up to the GFC as well as the precipitous decline in funds raised after 2008 when the full impact of the GFC was being felt. In 2007, there were 169 funds in the sample whereas just two years later in 2009 the number of funds dropped to 45.

Gathering the data on a vintage year basis presents the opportunity for a more direct comparison of the changes

Figure 3: Annual Capital Called as a Percentage of Fund Size (All Buyout Funds, Vintages 2003 and Earlier)

Statistic	Year of Fund Life					
	1	2	3	4	5	6
Number of Funds	604	604	604	604	603	603
75th Percentile	37.3%	30.0%	25.7%	20.1%	15.0%	6.3%
Median	24.0%	20.0%	17.9%	11.0%	6.3%	1.7%
25th Percentile	14.5%	10.4%	9.2%	4.3%	0.9%	0.0%
Interquartile Range	14.5%	10.4%	9.2%	4.3%	0.9%	0.0%

Source: PrivateIQ

Figure 4: Median Annual Capital Called by Vintage Year (All Buyout Funds)

Vintage Year	Number of Funds	2006	2007	2008	2009	2010	2011
2004	82	20.0%	11.3%	4.0%	2.1%	1.2%	0.5%
2005	112	23.5%	19.7%	7.5%	4.7%	2.9%	1.2%
2006	146	29.2%	23.5%	11.1%	7.5%	7.3%	3.0%
2007	169		28.4%	12.1%	9.7%	13.5%	10.0%
2008	125			17.4%	12.7%	17.0%	16.7%
2009	45				12.2%	16.1%	17.0%
2010	59					26.0%	19.4%

Source: PrivateIQ

in GP behavior. This was accomplished by calculating the differential between the median capital called in the pre-GFC subsample with the respective year of the fund's life. For example, a 2005 vintage fund is in its third year of life in 2007. The difference between the median of the 2005 vintage fund in year 2007 was calculated relative to the pre-GFC subsample year three median and is presented in the table and graph below as a percentage deviation from the pre-GFC subsample. As percent deviations are susceptible to inflated values when the respective base is small, the calculation was not performed for fund lives greater than five years.

The table and chart provide evidence that there was a dramatic shift in how GPs called capital during the GFC. In 2006 and 2007, prior to the GFC, funds across all vintages were calling capital at a higher rate than funds of the same age had historically. Similarly, funds of all vintages significantly decreased their capital calls in both 2008 and 2009. As most funds operate on a five-year investment cycle, having two consecutive years of significantly below-normal capital calls would be a serious impairment to their investment programs, and would likely only occur by active decision of the GPs.

On a percentage basis, funds early in their investment programs actually decreased their capital calls at a higher rate than those later in their investment periods. This should be especially reassuring to LPs concerned about a liquidity squeeze, as the prior results in this paper showed that the early years were by far the most active period of capital calls in normal circumstances. Therefore, the higher percentage decline in capital calls in the challenging years is being applied at the time when a fund's capital calls would normally be at their highest.

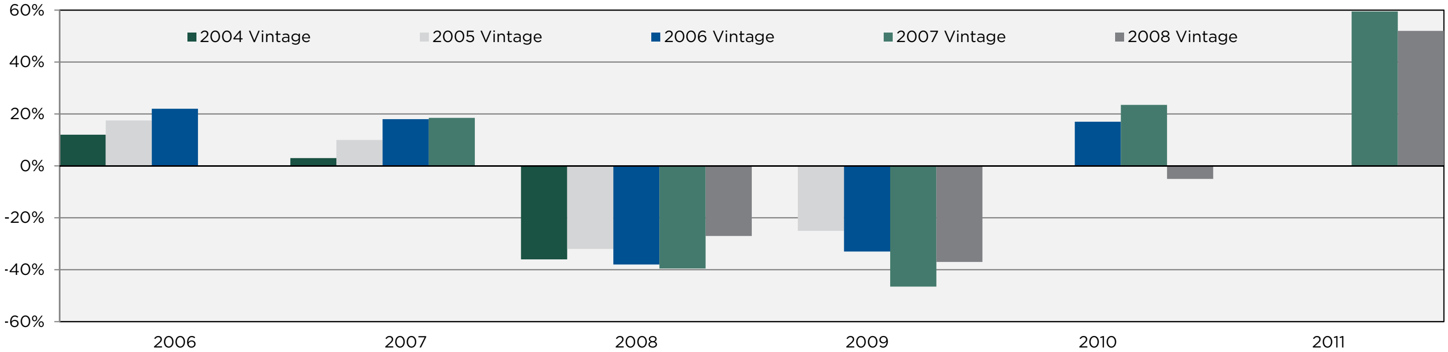
By benchmarking the fund vintage capital calls to historical patterns, it becomes more apparent that it was not until 2010 when capital calls returned to what could be considered more normal levels. Interestingly, there is some evidence that 2007 vintage funds did catch up on capital calls in 2010 and 2011 as they increased their capital calls over the historical median by 23.1% and 59.5% respectively (although the 2011 historical base number is relatively low and subject to the aforementioned inflation issue). Fund vintages of 2007 with a five-year investment period would have been hit by the poor economy before deploying substantial capital and would have been reaching the end of their investment period in 2011, so those funds would likely have been most

Figure 5: Deviation as a Percentage of Pre-GFC Median Capital Called in Relative Fund Life Year (All Buyout Funds)

Vintage Year	Number of Funds	2006	2007	2008	2009	2010	2011
2004	82	11.5%	3.0%	-35.8%			
2005	112	17.4%	9.8%	-32.1%	-25.2%		
2006	146	21.6%	17.6%	-38.1%	-32.0%	16.7%	
2007	169		18.0%	-39.4%	-46.0%	23.1%	59.5%
2008	125			-27.7%	-36.5%	-5.2%	52.1%
2009	45				-49.4%	-19.5%	-5.1%
2010	59					8.1%	-3.1%
Average Deviation from Historical Median							
Fund Life ≤ 5 years				-34.6%	-37.8%	4.6%	36.0%
Fund Life ≤ 3 Years		16.8%	15.1%	-35.1%	-44.0%	-5.5%	14.6%

Source: PrivateIQ

Figure 6: Capital Called - Percentage Deviation from Historical Medians



Source: PrivateIQ

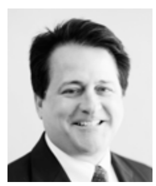
impaired in their capital deployment schedules. Fund vintages of 2008 showed a similar recovery in their capital calls but not until 2011 when they increased their drawdowns by 52.1% relative to historical results.

Conclusion

This paper has discussed several considerations GPs face when determining their investment pace, which, in turn, dictates the timing of their capital calls. Using a large dataset of buyout funds, the historical pattern of capital calls across all market conditions was documented. Evidence was also presented on the profound impact the Global Financial Crisis had on Private Equity funds and their investment programs. While such an analysis can provide valuable insights, it cannot conclusively predict the capital call decisions of individual funds, whose behavior could diverge meaningfully from the large sample results. The key findings of this research are:

- Capital calls are highest in the early years of a fund's life and the level of capital calls consistently decreases over the fund's life.
- The median capital call in a fund's first year is 23.9% of total committed capital.
- For a high capital call scenario (as represented by the 75th percentile), the highest capital call is 36.2% of the total fund size and occurs in the first year.
- Most of a fund's capital calls occur in the first three years of a fund's life on average.
- Capital calls were above historical norms in the years immediately prior to the GFC.
- Funds across all vintages significantly decreased their capital calls (over 40% for funds of the most recent vintages) during 2008 and 2009.
- It was not until 2010, that capital calls returned to historically comparable levels.
- There is evidence that 2007 and 2008 vintage funds increased their capital calls in 2010 and 2011 in order to catch up on capital not drawn during the peak GFC years.
- It does appear that Private Equity GPs consciously adjust their investment programs to market conditions and are less likely to call capital in the event of large negative public market events, even when doing so may impair their overall capital deployment.

Inquiries or comments concerning this article may be addressed to:



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Notes

1 - The time limitation of the investment period usually applies to "platform" companies which are substantial investments in the fund. It is generally considered acceptable to invest in acquisitions that will be merged into the platform companies after the termination of the investment period. Capital will be "reserved" for that possibility based on the managers' plans for the platform company. Depending on the respective strategy, acquisition investments could represent a considerable percentage of the overall invested capital.
2 - As discussed later, there may be a maximum set in the legal agreements between the GP and the LP as to how much a GP may call in any given year.
3 - Depending on the fund structure, the level of the fees may decline after the investment period and the basis on which the fee is calculated may change which can lead to a steady diminishment of fees for the remainder of the fund's life.
4 - When LPs are more receptive to Private Equity investments, GPs may be able to invest more quickly than their expected investment period without reputational damage. This is usually due to market-wide conditions and GPs could still face difficulty if they deviate sufficiently from other, similar funds.
5 - The LPA is the legal agreement between the GP and all of the LPs as a group whereas a side letter is an additional agreement between the GP and a specific LP.
6 - PrivateIQ reports the total capital called as a percentage of the fund size and does not provide a breakdown of capital called for management fees versus investment.
7 - Fund managers will solicit capital over a period of time and gather "soft-circles" until they have enough interest to warrant a close. The size of the first close is often regarded as a strong signal to the market of the viability of the fund. While some funds in high demand may only have one close, a first close below 50% of the target fund size is considered to be an indication the fund may not hit their size target.
8 - Warehousing has become more prevalent in recent years as GPs have increasingly recognized the value of maintaining a consistent deal flow and investment pace.
9 - As management fees are paid to the GP and do not have a corresponding Net Asset Value (NAV) associated with them, the higher the capital calls for fees are relative to the capital calls for investments, the lower the IRR. If investments are held at cost in the early years of a fund's life, the fees may be sufficient to generate a negative IRR. This is known as the "J-curve" in Private Equity.