

Have You Seen The Dead Walking? A Zombie Fund Story

Winter 2026





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Overview

"The dark joke circling around the industry is that many private equity firms have already raised their last fund but don't know it yet"¹

Over the past 20 years, the private equity ("PE") industry has grown over 7x to \$4.7 trillion.² With this growth, the industry faces certain challenges. These include constraints to new fundraising, as evidenced by the explosion of continuation vehicles ("CVs") over the past five years, which has coincided with a significantly reduced number of portfolio company exits (IPOs, M&A) versus historic trends. As a result, some are pointing to a new crisis for private equity – a surge of so-called zombie funds.

While the word "zombie" makes for great headlines, we took a quantitative look at this issue to better define the conditions that create such funds and provide insight to evaluate the related risks.

So, what really is a zombie fund? And if, in fact, you find a zombie or two somewhere in your portfolio, what should you do about it?

Our zombie hunt focuses on US buyout funds from 1998 to 2024 where there is a deep data set.³ Further, we have updated and added analysis previously shared in our last report, [No Country for Old Funds](#). Specifically, we have provided more context to our Distributions to Paid-in-Capital ("DPI") and Total Value to Paid-in-Capital ("TVPI") data curves which allows for unique insights into the formation of zombie funds.

This white paper starts with a timetable for fund return of capital, segmented by quartile rankings. Further, we identify the intersection of maximum TVPI ("TVPI Max") and DPI ("DPI Max"), which we call the TVPI-DPI Convergence Point. Utilizing these metrics across a 15-year period, one can see how the "walking dead" are created and become zombies over time. Hint - it has a lot to do with performance and the decline in the overall stability and future prospects of the General Partner ("GP").

Ultimately, it's all about zombie GPs which manage funds, not only about zombie funds per se.

From there, we define the potential "zombie-verse" with a bottom-up approach, as most of the other reports we've seen are based on macro or top-down analysis. Through our research, we conclude that most, if not all, institutional investors have zombies in their universe (i.e. portfolios). Afterwards, we provide practical advice about how to identify zombies before they become the walking dead and what to do to resolve their issues. There is no doubt that taking early action is an important step to mitigate the negative performance impact of zombie funds to Limited Partners ("LPs").

So, let's take you to Zombieland

¹ New York Times – "Once Wall Street's High Flyers, Private Equity Loses Its Luster" – November 2025

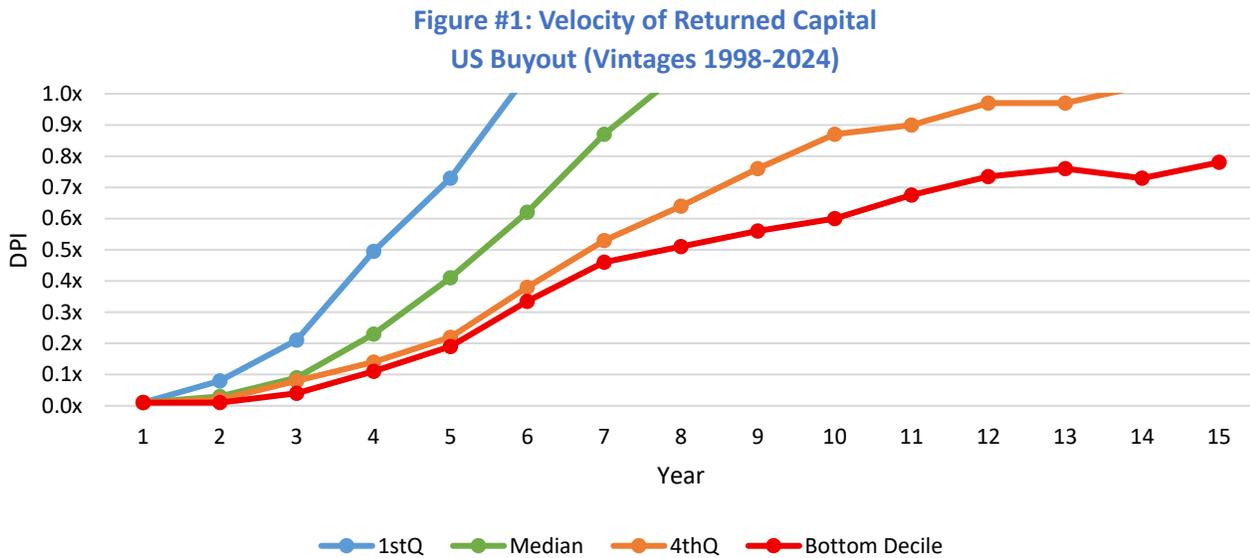
² Bain & Company, Global Private Equity 2025

³ All data in this report is from PitchBook

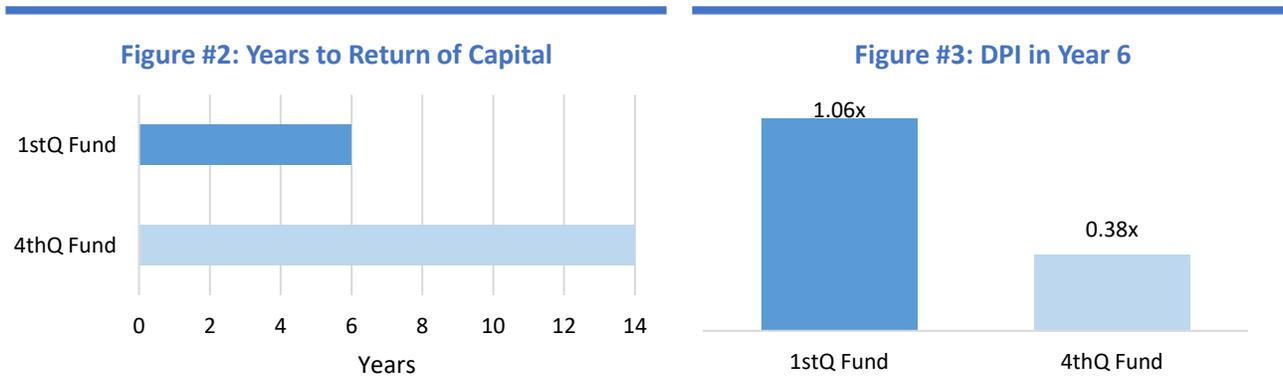
Velocity Of Returned Capital (“VRC”)

“We’re wasting time” - The Walking Dead

The PE industry has generally determined that TVPI is a key driver, if not **the** key driver, to portfolio returns. What has been less of a focus is the Velocity (i.e. time) of Returned Capital (“VRC”) as measured by DPI and specifically how quickly DPI reaches 1.0x (i.e. return of invested capital). Shorter VRC allows an investor to redeploy capital into new PE investments, achieving a compounding effect which can drive outperformance over time. As shown in Figure #1, the first quartile (“1stQ”) VRC is six years, median VRC is eight years, and fourth quartile (“4thQ”) VRC is 14 years.⁴



As a result, the higher rate of 1stQ VRC allows for a 2.33x higher rate of capital redeployment vs. 4thQ funds (see Figure #2). Similarly, the median quartile VRC of eight years allows for a 1.75x redeployment of capital vs 4thQ funds. Within the first six years, 1stQ funds achieve over 2.5x higher DPI vs. 4thQ funds (see Figure #3).



⁴ For all TVPI and DPI figures, data collected from PitchBook in October 2025: US buyout funds, vintage years 1998-2024, fund size greater than \$100 million, with quartile rankings

But how does this help us find zombies? If one looks at the bottom decile VRC, you see a clear divergence from the 4thQ starting in Year 7 as the VRC for bottom decile exceeds 15 years.

This is where we will begin to “dig in” to look for zombies!

Dissecting the Fourth Quartile: Looking for the walking dead

“They’re tearing him apart” – Dawn of the Dead

Our analysis shows that a slower pace of realized value leads to a wider gap between TVPI Max and DPI Max, which we call the “Realization Ratio” (DPI Max/TVPI Max). This Ratio clearly demonstrates the opportunity cost of holding underperforming, zombie-like investments.

It is also important to consider the TVPI/DPI Convergence Point (expressed in the numbers of years). An extended Convergence Time represents a higher opportunity cost of holding zombie-like investments.

Let’s dissect these factors (pun intended) relative to the 4thQ and bottom decile (Table #1):⁵

- Both 4thQ and bottom decile funds typically take 17 years before a full realization of the value occurs (i.e. DPI Max), but not all tail-end funds are definitively zombies
- In addition, the Realization Ratio for the 4thQ is 87.8% (i.e. 12.2% of reported value is never realized) versus 95.3% for median funds
- Bottom decile funds realize only 0.8x DPI as investment capital is never fully recovered
- The bottom decile TVPI/DPI Convergence Point occurs 12 years after TVPI Max is reached (i.e. Convergence Time), more than double the Convergence Time of median funds
- **Maybe most strikingly, the Realization Ratio for bottom decile funds is only 73.4%, which means that 26.6% of TVPI Max (or potential value) is never realized**

Table #1 provides a complete summary of these metrics (Realization Ratio, Convergence Time). We observe that 1stQ and median funds have a realization ratio of over 95% and Convergence Time within six years.

Table #1: TVPI Max, DPI, and Realization Ratio by Fund Quartile

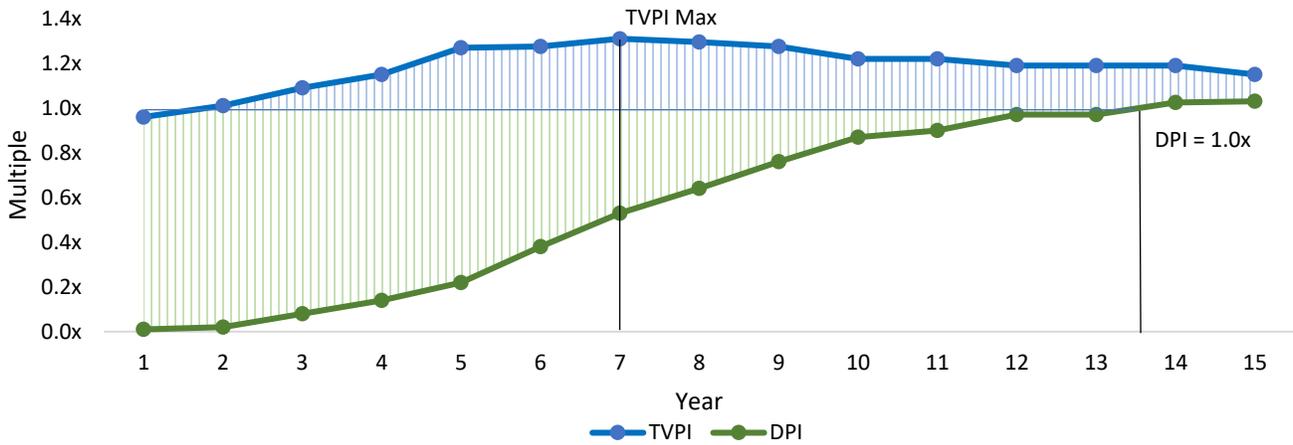
Quartile	TVPI Max	DPI Max	Realization Ratio	Years to TVPI Max	Years to DPI Max	Convergence Time
1stQ	2.34x	2.23x	95.3%	9	14	5
Median	1.72x	1.64x	95.3%	10	16	6
4thQ	1.31x	1.15x	87.8%	7	17	10
Bottom Decile	1.09x	0.80x	73.4%	5	17	12

⁵ The number of funds in the analysis decrease with every year as funds either liquidate or stop reporting. These changes can cause anomalous trends year-to-year. Due to limited fund count in Years 16+, TVPI / DPI Convergence figures end at Year 15. As shown in Table #1, DPI continued to increase after Year 15 for median, bottom quartile, and bottom decile funds

Exploring the land of the walking dead!

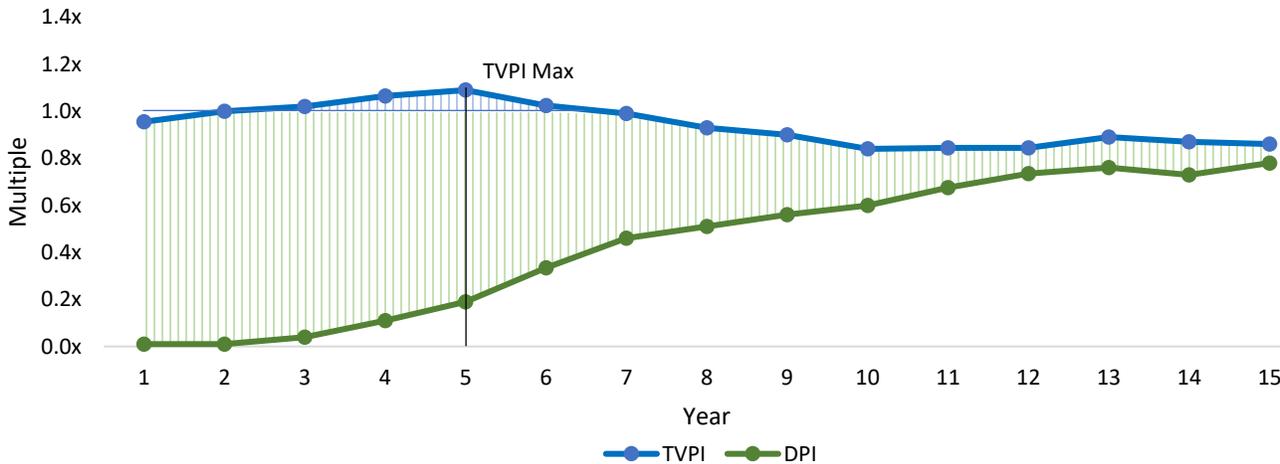
Figures #4 and #5 show the value of the realizations shaded in two colors, with green representing return of capital and blue representing investment gains.⁶ Reviewing the 4thQ, we observe that on average by the third-year funds begin to recognize gains, with TVPI Max occurring in the seventh year. Eventually, as capital is returned, the shaded green shrinks until DPI reaches 1.0x in the fourteenth year.

Figure #4: TVPI / DPI Convergence in 4thQ US Buyout Funds (Vintages 1998-2024)



While the picture painted for 4thQ funds isn't pretty, these do not explicitly represent zombie funds. In dissecting the 4thQ, it becomes abundantly clear that the bottom decile is where true zombie funds sleep as DPI never reaches 1.0x.

Figure #5: TVPI / DPI Convergence in Bottom Decile US Buyout Funds (Vintages 1998-2024)



Based on this analysis, we believe an LP can determine between Years 5 and 7 whether a fund is on track to becoming a bottom decile performer – and likely a zombie candidate.

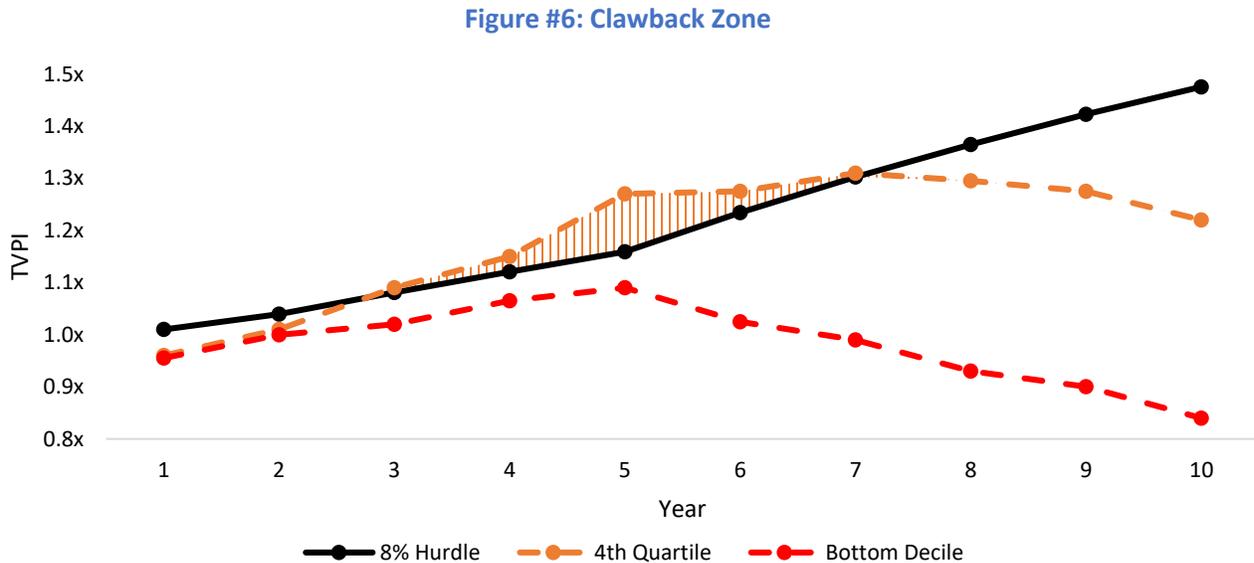
⁶ See Appendix for 1stQ and Median TVPI – DPI Convergence Figures

Chasing the Hurdle: Or even zombies have to eat

“Every day you wait, things get worse.” - The Walking Dead

Often, early realizations and improved valuations position a fund’s performance above the preferred return (i.e. “hurdle rate”). However, returns can erode such that a fund’s performance can drop below the hurdle rate.

Figure #6 below illustrates this scenario:⁷



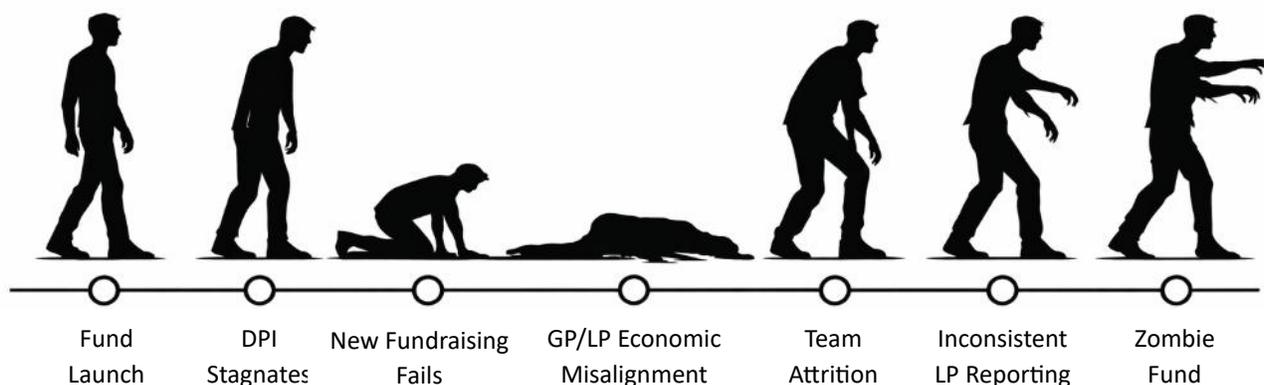
A couple of key results and observations to consider:

- 4thQ funds remain above the hurdle until Year 7, then performance drops below the hurdle. If a GP distributed carried interest prior to Year 7, the manager would likely enter the Clawback Zone, a precursor to zombiehood. Please see our white paper ([Revenge of the Clawback](#))
- The Clawback Zone is where economic misalignment can occur between LPs and GPs, resulting in extended holding periods and potential erosion of value

⁷Assumptions for 8% Hurdle: \$1.0 billion size fund, 20% funded per year for five years, 8% growth rate of residual value, distribution pacing equal to the DPI of 4thQ funds from this paper’s data set

Zombie Land: So how bad is it?

“We’re all infected” - The Walking Dead



The zombie funds share a common set of traits that include asset underperformance and manager instability:

- Slower pace of capital deployment and/or investor distributions compared to industry averages
- Internal Rate of Returns (“IRRs”) that fail to meet the fund’s hurdle rate
- Flat or declining TVPI related to asset underperformance
- Faltering fundraising reflecting concerns regarding IRR, TVPI, and DPI
- Likelihood of economic misalignment, frequently related to GP clawback
- Departure of key investment and operational personnel, with the firm unable to attract new talent
- Extension of Convergence Time relative to median funds
- Reduced transparency (i.e., financial reporting) and diminished communications with LPs

“Excuse me. Kind sir, can you show us the way to the main road? -Uhh! Uhh! -Zoinks! A zombie! -Zombie? Yikes!” - Scooby-Doo, Where Are You!

Zombie funds have frequently been defined as vehicles more than ten years old that continue to hold substantial unrealized NAV. Under this definition, the 2024 estimated global zombie market size was \$829 billion. A separate manager-level estimate identifies “zombie GPs” as firms unable to raise a successor fund for more than seven years, which projects approximately 400 zombie managers globally in 2025.^{8,9}

We take a different view; that a bottom-up approach provides a more nuanced prospective in identifying zombie funds and managers. For this work, we have applied the following criteria in Table #2:

⁸ PEI – “Side Letter: The walking dead?” - November 2025 - TREO Asset Management

⁹ Preqin, Actos Analysis – “Zombies on the Rise” – August 2025

Table #2: Zombie Criteria

Criteria 1	Criteria 2	Criteria 3
GP's last raised fund is 4thQ in a vintage before 2021	4thQ fund whose sponsor raised successor fund within the same fund family at less than 50% of its predecessor's size	Subsequent 4thQ funds raised from the same manager, regardless of fund family, followed by the manager's inability to raise another fund

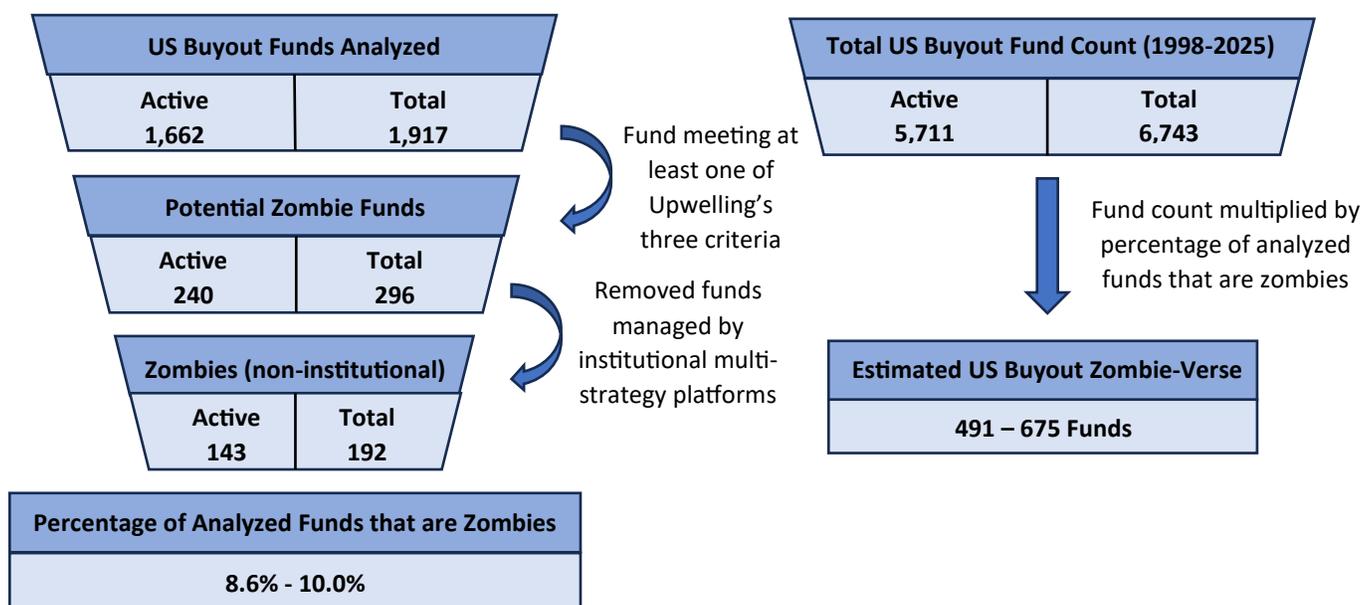
Also, we believe that institutional multi-strategy managers have the ability to resolve underperforming funds given their broad resources. In contrast, smaller platforms typically do not have such resources. Therefore, we did not consider underperforming funds as zombies if they are managed within a multi-strategy platform.

Larger Universe (Provable vs. Probable)

The analysis below continues our focus on a subset of the US buyout funds captured in PitchBook, which lists over 6,700 US buyout funds with vintages from 1998-2025. 5,711 remain active (i.e., not liquidated). However, only 1,917 of these funds had sufficient and accessible performance data and quartile rankings were included in our analysis.

Applying the observed “Percentage of Analyzed Funds that are Zombies” from this sample to the broader US buyout universe **implies that approximately 490-675 current funds are, or will become, zombie funds prior to liquidation.**

Figure #7: The Zombie-Verse



Source: PitchBook – November 2025: US buyout funds, vintage years 1998-2025, with quartile rankings, fund size >\$0



It is important to note that this research understates the true size of the zombie-verse. The above analysis focuses solely on US buyout funds provided by PitchBook.¹⁰ Additionally, performance underreporting is more probable than overreporting. Further, this analysis excludes other asset classes such as venture capital, private credit and real assets, as well as any non-US PE funds, all of which would certainly increase the zombie count.

Take Action: Not an antidote but will let the zombies rest

“Good doesn’t survive on its own. You have to protect it.” - The Walking Dead

As this report has shown, a key risk associated with a zombie GP and related zombie funds, is the potential for prolonged fund lives driven by economic misalignment between the LPs and the GP. This includes limited prospects for future fundraising, potential clawback obligations, and/or slower asset realizations.

We believe zombie risk is primarily driven by the instability of the manager, not necessarily underperformance of an individual fund. Such managers may lack both the incentives and the resources to manage underperforming funds. This can manifest itself in several ways, including lack of focus on monetizing the portfolio, weak governance at the portfolio company level, incomplete or delayed financial reporting, or a GP that is increasingly distracted by side projects or new initiatives. Truly the zombie nightmare.

When such managers enter the “zombie zone”, it is critical for LPs to act promptly, to seek clarity from the GP on how they intend to manage the remaining portfolio by:

- Necessitating a detailed exit plan for each portfolio company
- Closely monitor team turnover and other signs of firm instability
- Confirm which individuals are responsible for other partnership matters, such as financial reporting, regulatory and tax filings
- Active monitoring by the fund LPAC on a quarterly basis or in conjunction with any fund amendment, extension, or consent request

Given the time and resources necessary to right the ship and wind down a fund, LPs should consider engaging a third party in an advisory or fiduciary capacity as detailed below:

¹⁰ There are approximately 9,000 US buyout funds in PitchBook’s database, but only 6,743 had known fund sizes

Figure #8: Risks and Solutions

Misalignment Area	Key Risks
Commercial <ul style="list-style-type: none"> • Dry powder • Fundraising • Related party transactions 	<ul style="list-style-type: none"> • Limited GP dry powder constrains portfolio company growth • Fundraising challenges divert GP focus to new initiatives • Related-party transactions create potential conflicts • Continuation vehicles proposed for underperforming funds
Financial <ul style="list-style-type: none"> • GP clawback • Asset valuations • Exits / monetizations 	<ul style="list-style-type: none"> • Potential GP clawback obligation creates adverse incentive • Constrained GP economics reduce mid- and junior-level talent retention • GPs overestimate asset value and future upside • Limited GP focus on exits and asset sales
Governance <ul style="list-style-type: none"> • GP management • Reporting obligations 	<ul style="list-style-type: none"> • Heightened risk of management and executive discord • Numerous team exits • Weakened GP and portfolio company governance focus • Delayed GP or portfolio company reporting



Recommended Solutions:

LP Advisory

- Active third-party monitoring and management of GP
- Forensic review of GP and portfolio company financials
- Strategic review of all partnership actions, including amendments and consents

Fund Co-Management

- Partner with existing GP to manage funds
- Assist with liquidation of portfolio

GP Replacement

- Assumption of all fund management activities
- Develop portfolio exit plan and pursue asset sales

 = Advisory Solution

 = Fiduciary Solution

Conclusion:

The private equity industry seems to be stuck in a nascent state related to the portfolio management of underperforming funds, specifically zombie funds and their related managers. As this paper has shown, zombie funds and managers are most likely found in the bottom decile. This poor performance meaningfully detracts from overall PE performance, especially as the zombies linger (and do they ever linger – 17 yrs to Convergence Point). As we've shown, bottom decile funds as a group do not return initial capital. In addition, there are substantial opportunity costs of holding on to these positions, as measured by our analysis on Convergence Time. Further, the inability to redeploy capital in a timely manner has a material impact on investor performance (i.e. 1stQ funds that have a 2.3x higher VRC than bottom decile funds).

Based on the 25 years of data we have analyzed, there are clear early warning signs, as we've noted, between Years 5 and 7, that give investors an indication of forthcoming challenges in partnerships. In particular, it is critical to track the time it takes for a fund to fully return capital, measured by DPI. As we have highlighted, the investment outcomes of these funds are asymmetric to the downside - on a percentage basis, TVPI declines much more rapidly compared to other funds (see Table #1). Therefore, it is imperative that LPs engage with their GPs who appear to be at risk of succumbing to zombie land before it is too late. Clearly, LPs should have a systemic and consistent program to address the Walking Dead before they become zombies.

However, once these funds hit the zone of the unliving, an intervention by experienced third parties is an important tool for LPs to consider. This active management decision may protect them from further portfolio value erosion and help avert meaningful opportunity costs. Each situation is bespoke as to the appropriate steps needed to fend off further attrition of value. But one thing is for sure – ignoring action will lead to more ill effects of GPs descending to the zombie-verse, dragging down returns – and possibly a few portfolio managers – with them.

Definitions:

- 1stQ: First quartile or top quartile
- 4thQ: Fourth quartile or bottom quartile
- Bottom Decile: Bottom ten percent
- Convergence Time: The number of years between TVPI Max and DPI Max
- Convergence Point: When TVPI equals DPI
- CV: Continuation Vehicle
- DPI: Distributions to Paid-in-Capital
- DPI Max: The highest DPI reached during a fund's life
- GP: General Partner
- IPO: Initial Public Offering
- IRR: Internal Rate of Return
- LP: Limited Partner
- LPAC: Limited Partner Advisory Committee
- M&A: Merger and Acquisition
- Mean: Average value of a dataset
- Median: Middle value in a dataset
- NAV: Net Asset Value
- PE: Private Equity
- Realization Ratio: $\text{DPI Max} \div \text{TVPI Max}$
- TVPI: Total Value to Paid-in-Capital
- TVPI Max: The highest TVPI reached during a fund's life
- VC: Venture Capital
- VRC: Velocity of Returned Capital (i.e. DPI of 1.0x)

Methods:

Data Sourcing: All data used in this analysis was sourced from PitchBook. We examined US Buyout funds with vintage years ranging from 1998 to 2025. This range captures funds that have experienced a full market cycle, including the dotcom bubble, global financial crisis, the post-crisis expansion, and the more recent volatility tied to the COVID-19 pandemic and rising interest rate environment. A separate cross-section of sample funds may generate different results when using the same analytical methodology used in this report.

Data Scrubbing: Data was scrubbed to ensure reliability and consistency in performance analysis. Funds were removed based on indicators of inactivity, data anomalies, or reporting inconsistencies. Funds that were three or more standard deviations from the quartile mean were removed from performance analysis (i.e. TVPI / DPI Convergence figures).

TVPI and DPI Figures (Data collected from PitchBook in October 2025): In our performance analysis, sample size and survivor bias could impact results. While there were over 1,444 funds used in our performance analysis, not all funds had performance information for each reporting period. For instance, of the 1,444 funds, 68% had reporting data in Year 1 and only 22% reported in Year 15. The tail-end data may skew towards lower returns if higher returning funds liquidate promptly at 10 years, leaving only lower returning funds to report, bringing down the performance for all quartiles.

Zombie Analysis (Data collected from PitchBook in November 2025): In our Zombie Analysis, there were 1,917 US Buyout Funds with quartile rankings and performance information. When calculating the number of zombie funds, we relied on funds with quartile rankings from PitchBook. The latest reporting period used for all funds was year-end 2024. 2025 vintage funds were only used in our zombie-verse estimates when determining if a manager had raised a subsequent fund or not.

Limitations:

Past performance is not predictive of future results. Since data collected is backward looking, it may not be representative of future economic conditions.

Quartile rankings disguise outlier risks and do not capture movement between quartiles of individual funds from year to year. A single fund's performance within a quartile (particularly top and bottom quartiles) may deviate significantly from the quartile mean. Upwelling attempted to limit this by removing funds that were three or more standard deviations away from the quartile mean.

Measurements of TVPI and DPI are relative to initial capital invested. This mutes changes to NAV, both up and down, in later years because the remaining assets are typically small relative to the initial capital invested.

Given the unique nature of each portfolio and underlying investments, the findings may not be universally applicable. They are intended to provide general parameters and guidance for investors to contemplate when considering how to manage their portfolio.

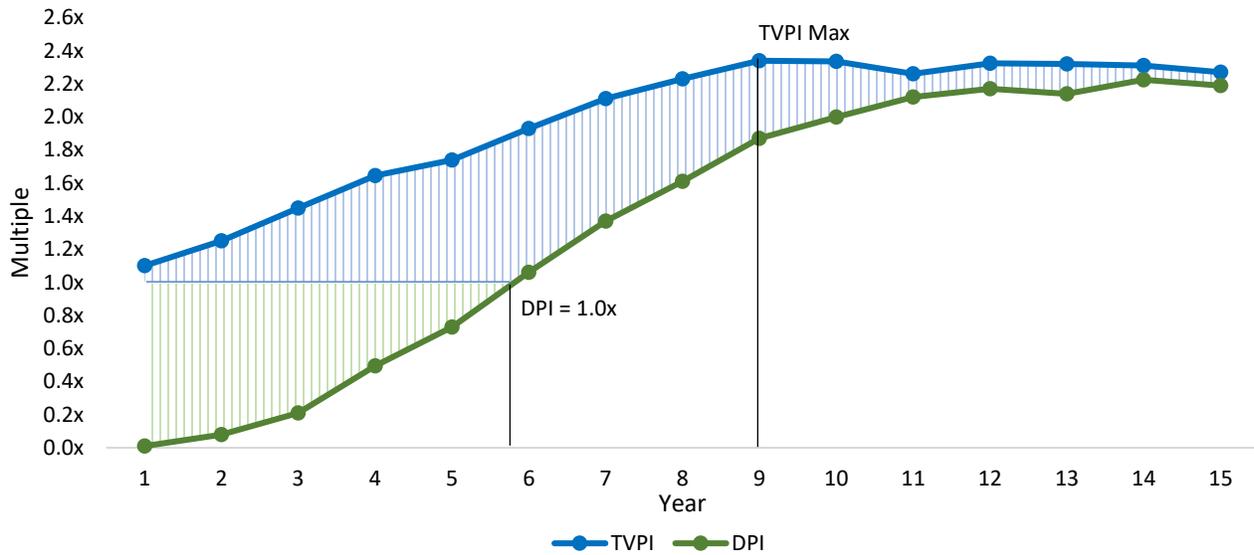


Disclosures:

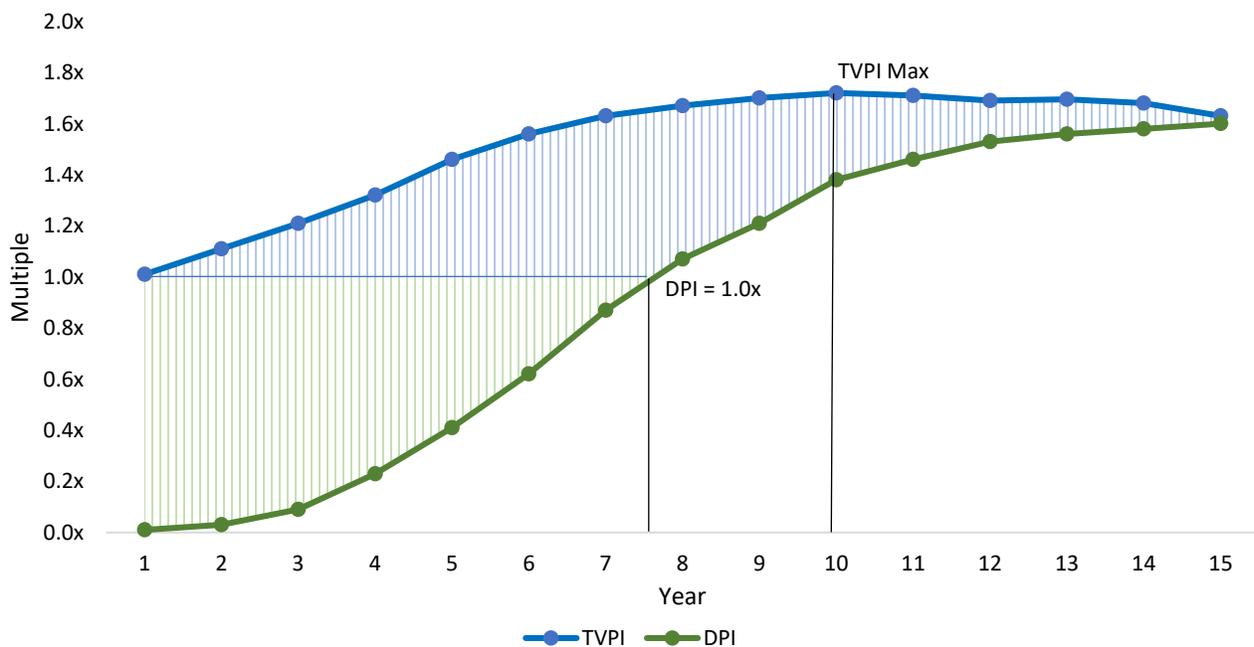
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Appendix

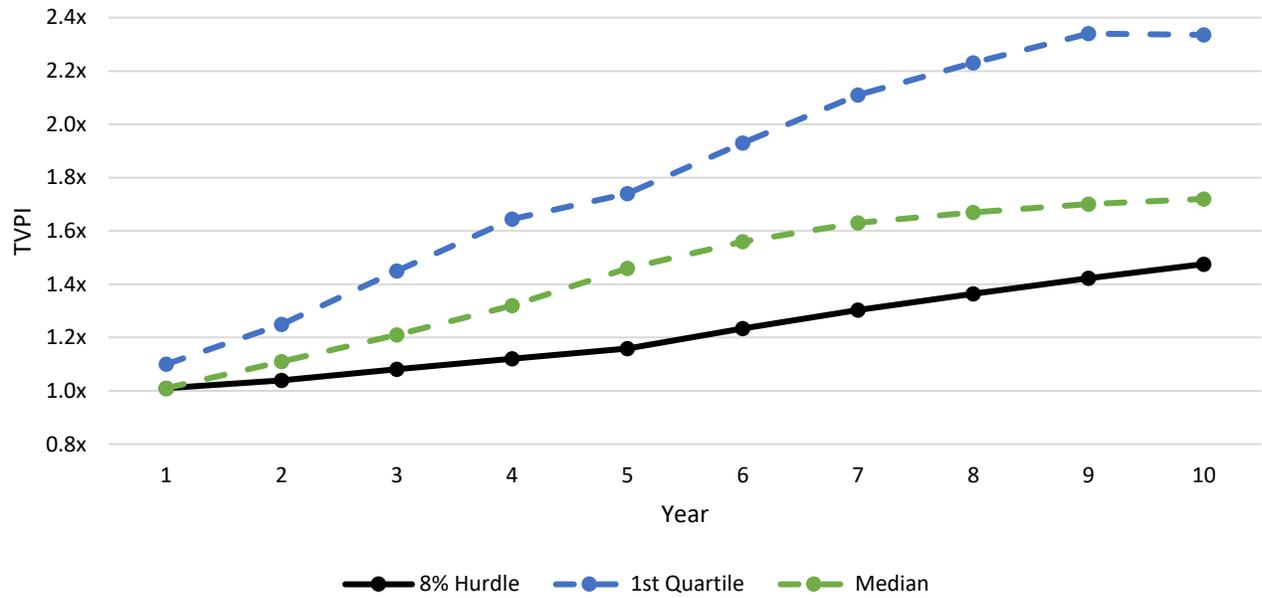
Appendix Figure #1: TVPI / DPI Convergence in 1stQ US Buyout Funds
(Vintages 1998-2024)



Appendix Figure #2: TVPI / DPI Convergence in Median US Buyout Funds
(Vintages 1998-2024)



Appendix Figure #3: Years to Return of Capital
1stQ and Median US Buyout



About Upwelling Capital Group

Founded in 2011, Upwelling Capital Group LLC is an investment manager focused on providing advisory and capital solutions to premier institutional investors and private capital managers. Throughout their careers, the Principals of Upwelling have cumulatively overseen over \$50 billion in global private equity commitments and have successfully managed over \$5 billion in legacy, tail-end commitments, transfers and workouts for leading institutional investors. Securities offered through BA Securities, LLC. Member [FINRA](#) / [SIPC](#)

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