

*Fiduciary Duties in Selecting Designated Investment
Alternatives: Opportunities and Considerations*

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I. Introduction and Executive Summary

1. Millions of Americans rely on 401(k) and other defined contribution (“DC”) plans as their primary retirement savings vehicle. At present, these plans usually do not offer participants the option to diversify into private capital investments. As part of its “Fiduciary Duties in Selecting Designated Investment Alternatives” proposal (the “Proposed Rule”), the Department of Labor (“DOL”) aims to expand access to private capital investments by clarifying fiduciary requirements under the Employee Retirement Income Security Act of 1974 (“ERISA”).¹ In this comment letter, I evaluate the potential benefits to DC plan participants from receiving access to private capital investments, focusing primarily on private equity and private credit.²

2. I first provide historical background on the development of private capital markets. Since the 1980s, private capital markets have experienced exceptional growth. A growing share of companies are forgoing public equity and debt markets in favor of being financed in the private markets. During this period, institutional investors, including pension plans, have been the primary investors in private capital. At the same time, the predominant retirement savings vehicle for U.S. workers has shifted from pension plans to DC plans. Taken together, these trends mean a growing number of retirement savers have become locked out of this expanding asset class while other investors have been increasing their allocation to capture its benefits.

3. Next, I draw on academic literature to provide an overview of private capital’s historical performance relative to public markets. I explain that academic studies analyzing private markets have found private equity and private credit funds have historically outperformed public markets on a net-of-fee basis. I further explain the outperformance of private capital persists in the literature even after controlling for differences in risk between public and private assets. I also discuss the drivers of value creation for private capital identified by academic literature, focusing on operational and governance optimizations. As explained by the literature, the unique ownership model in private capital investments helps explain their superior performance.

¹ Proposed Rule Summary, § 1 (“ERISA gives fiduciaries...the discretion and flexibility to determine when designated investment alternatives, including those that contain alternative investments, offer the opportunity for participants to maximize risk-adjusted returns on their retirement assets net of fees.”).

² I focus my commentary on private equity and private credit as these assets are the primary focus of my academic research. My omission of other types of private capital assets, such as private real estate, is not meant as a negative commentary on their suitability for retirement investors.

4. I then present my own empirical analysis examining the performance of private markets. Consistent with the literature on private capital, I find that private assets produce attractive returns, outperforming public markets net of fees on both an absolute and risk-adjusted basis. My analysis finds that this outperformance persists through time, as private equity funds have outperformed public markets net of fees in 26 of 31 vintage years between 1990 and 2020. Indeed, after controlling for the impact of certain stocks that have become disproportionate drivers of public index performance, I find private equity funds outperformed public markets net of fees in 29 of 31 vintage years.

5. The sustained historical outperformance of private capital means that a portfolio containing a mix of private-public assets can experience meaningful excess savings relative to a public-only portfolio over a long-term investment horizon, such as that of an investor saving for retirement. I illustrate the excess savings retirement savers might expect to receive from investing in retirement vehicles that incorporate private capital through a series of portfolio simulation analyses. As an illustrative example, I show that allocating just 15% of portfolio funds to private capital would generate significant long-term savings benefits for DC plan participants relative to investing exclusively in public markets. In particular, my simulation finds a 26% median increase in total retirement savings for target date fund investors from allocating 15% of funds to private capital and a 25% median increase in retirement savings for allocation fund investors.

6. Finally, I also show that DC plans can meet their liquidity needs while still permitting retirement investors to benefit from private capital's superior performance. Using historical plan filings, I establish that plan liquidity needs typically represent a small fraction of plan assets. I further show that DC plans should be able to meet extraordinary levels of withdrawals without running out of liquid assets.

7. In sum, as shown by my empirical analysis, and confirmed by findings from academic literature, private capital investments have historically produced attractive risk-adjusted returns for investors, outperforming public markets net of fees. Thus, for retirement savers who have historically been restricted from investing in private markets through DC plans, gaining access to these markets can thus help these investors earn higher risk-adjusted returns while potentially improving the diversification of their investment portfolios.

II. Background on Private Asset Markets

A. The History of Professional Private Capital in the U.S.

8. In this section, I trace the emergence of private capital as an asset class. Professionally managed private capital traces its origins to the late 1940s. Following changes in the regulatory environment during the 1970s, private capital in its modern form grew rapidly in the ensuing decades. Since the turn of the century, macroeconomic conditions and regulatory developments have led to further growth in this asset class.

1. Origins of the Modern Private Capital Firm

9. The origins of professionally managed private capital can be traced to the post-World War II era. Academic literature documents that this period was marked by “intense concern” about the “rate of new business formation and the unavailability of long-term financing for new ventures.”³ In 1946, the American Research and Development Corporation (“ARD”), an early private investment vehicle, was created as “a private-sector solution to the lack of financing for new enterprises and small businesses.”⁴ ARD pursued three innovative strategies relative to existing capital providers: first, it focused on raising capital from institutional investors rather than wealthy individuals; second, it sought to provide managerial expertise, in addition to capital, to new businesses; and third, it hired its own staff of professional managers for identifying new venture investments.⁵ Despite these innovations, ARD failed to attract significant interest from institutional investors, raising only \$7.4 million (in nominal dollars) of funding in its first thirteen years.⁶

10. The structure of the modern private capital firm, namely the limited partnership fund, emerged in the 1960s. Under the traditional limited partnership fund ownership structure,

³ George W. Fenn et al., “The Private Equity Market: An Overview,” *Financial Markets, Institutions & Instruments* 6, no. 4, 1997 (“Fenn et al. (1997)”), p. 10. See also David H. Hsu, and Kenney, Martin, “Organizing Venture Capital: The Rise and Demise of American Research & Development Corporation, 1946–1973,” *Industrial and Corporate Change* 14, no. 4, 2005, pp. 579–616 (“Hsu and Kenney (2005)”) at 580 (“ARD’s promoters believed that two developments had combined to cut off the supply of risk capital to new firms. The first development was the implementation of New Deal financial system reforms, which dramatically increased income taxes and reorganized the financial system in a way that dampened private investment in high-risk ventures. The second development was the rise of investment trusts (progenitors of mutual funds) that provided safe, conservative investments that may have crowded out higher risk investments.”).

⁴ Fenn et al. (1997), p. 10 (emphasis removed). See also Hsu and Kenney (2005), p. 580.

⁵ Fenn et al. (1997), p. 10.

⁶ Fenn et al. (1997), p. 12.

investors in a private capital fund are either General Partners (“GPs”) or Limited Partners (“LPs”).⁷ **Figure 1** below illustrates this traditional limited partnership fund structure. LPs provide funding that the GPs (*i.e.*, the private capital firm) use to make investments in private companies or public companies taken private. Historically, LPs in private capital partnerships typically are large, sophisticated institutional investors (*e.g.*, pension funds, sovereign wealth funds, insurance companies, or university endowments) or accredited investors.⁸ GPs also invest their own capital, in addition to the capital from LPs, in the fund. In addition to selecting the fund’s investments, GPs monitor and manage investments after acquisition.⁹ In return for managing the fund’s investments, GPs receive compensation from LPs. The traditional fund GP compensation structure involves a management fee based on a percentage of capital committed from LPs to the fund and carried interest based on a percentage of the fund’s investment returns.¹⁰

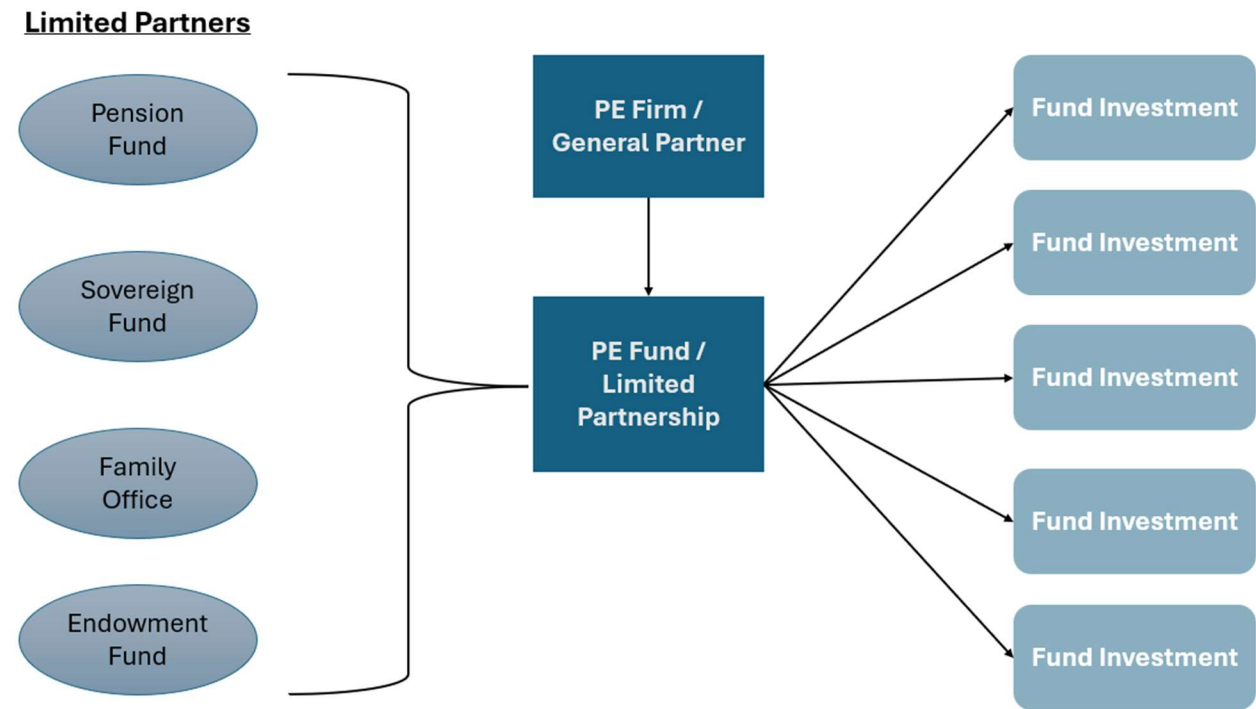
⁷ David P. Stowell, *Investment Banks, Hedge Funds, and Private Equity*, Third Edition, 2018 (“Stowell (2018)”), p. 419 (“A private equity fund is usually structured as a limited partnership that is owned jointly by a private equity firm (General Partner (GP)) and other investors such as pension funds, insurance companies, high net-worth individuals, family offices, endowments, foundations, fund of funds, and sovereign wealth funds (all of which are Limited Partners (LPs)). The GP manages and controls the private equity fund.”).

⁸ For a breakdown of limited partners by type, see Stowell (2018), p. 348.

⁹ Stowell (2018), pp. 413 (“Governance engineering refers to initiatives by private equity firms to create value in portfolio companies by improving incentives and creating monitoring processes that focus on improvements in cash flow through cost reductions and increases in revenues.”), 416 (“Private equity owners are fully enfranchised in all key management decisions because they appoint their partners as nonexecutive directors to the company’s board and sometimes bring in their own managers to run the company. ... [I]nvestors expect private equity managers to take an active role in corporate governance to create incremental value.”).

¹⁰ Management fees provide a base level of compensation to general partners for management of the partnership. A common management fee is 2% of committed or unreturned capital. Carried interest share limited partner investment profits with general partners, incentivizing general partners to maximize fund returns. A common carried interest fee paid to general partners is 20% of the profits above returned capital. See David T. Robinson, and Sensoy, Berk A., “Do Private Equity Fund Managers Earn Their Fees? Compensation, Ownership, and Cash Flow Performance,” *The Review of Financial Studies* 26, no. 11, 2013, pp. 2760–2797 at 2761 (“The typical fund follows a ‘2/20/1’ rule: a management fee of 2% per year, carried interest (carry) of 20%, and GP ownership of 1% of the total fund size.”); Andrew Metrick, and Yasuda, Ayako, “The Economics of Private Equity Funds,” *The Review of Financial Studies* 23, no. 6, 2010, pp. 2303–2341 at 2310–2311 (“The most common initial [management] fee level is 2%... The overwhelming majority of funds—including all 144 BO funds—use 20% as their carry level.”).

FIGURE 1
Traditional Limited Partnership Structure



11. The institutional arrangements of traditional closed-end, drawdown funds present unusual liquidity considerations for ordinary investors. The lifecycle of such a fund typically spans at least ten years,¹¹ with contracted provisions that often extend the partnership several years further,¹² and is driven by the longer timeline needed (relative to public markets) to make private investments. Typically, LPs commit capital at the inception of the fund, but do not provide capital until GPs have identified specific investment opportunities. Once commitments are secured, a GP may draw down committed capital during the first few years of a fund’s life as it makes investments in portfolio companies.¹³ These drawdowns do not necessarily occur at a pre-specified time, which means that traditional LPs need to be able to provide cash at unexpected times. The GP then holds investments in the fund for a period (often spanning several years)

¹¹ Private credit funds are typically shorter in duration, usually five to seven years. See “Primer: What Is Private Credit & Direct Lending?” *Managed Funds Association*, accessed May 27, 2026, accessible at <https://www.mfaalts.org/industry-research/primer-what-is-private-credit-direct-lending/>.

¹² Fenn et al. (1997), p. 46 (“Each partnership has a contractually fixed lifetime, generally ten years, with provisions to extend the partnership, usually in one- or two-year increments up to a maximum of four years.”).

¹³ Fenn et al. (1997), p. 46 (“During the first three to five years the partnership’s capital is invested.”).

before selling its positions and ultimately liquidating the fund.¹⁴ Because the fund’s exit from its investments is partially driven by market conditions, LPs traditionally face uncertainty on the timeline for receiving distributions and the return of invested capital. Liquidity arrangements like this may not be well suited for typical retail investors. However, through my discussions with industry practitioners actively designing products for retail investment, I understand that retail investment products will not generally operate with the same liquidity features.¹⁵ Rather, I understand private capital funds open to retail investment will typically be structured as evergreen funds.

12. “Evergreen” funds emerged in recent decades as an alternate vehicle for investing in private capital, attracting significant amounts of investor interest since the mid-2010s.¹⁶ Examples of such investment vehicles include certain Business Development Companies (“BDC”),¹⁷ real estate investment trusts (“REITs”), interval funds,¹⁸ and tender offer funds.¹⁹ Unlike traditional private capital funds, evergreen funds do not return capital to investors at the end of a fixed term. Instead, evergreen funds periodically raise capital from investors, selling shares at the net asset value of the fund and in turn invest capital on a continuous, permanent basis.²⁰

¹⁴ I note GPs sometimes distribute intermediate cash flows to LPs before the fund’s liquidation as the fund sells investments or receives dividends from investments. See Stowell (2018), p. 343 (“Investors sign investment contracts that lock up their money for as long as 10–12 years. Typically, however, distributions are made to investors as soon as investments are turned into cash through completion of an exit strategy such as an IPO or sale of the company.”).

¹⁵ I describe my understanding of the private capital products being designed for retirement investors in Section IV.B.

¹⁶ Morningstar reports that evergreen funds had \$530 billion assets under management in 2025, and projects that evergreen vehicles will manage \$1.1 trillion in assets by 2029. See Juan Mier, “The Rise of Evergreen Funds: A New Way to Access Private Markets,” *Morningstar*, April 10, 2026, accessible at <https://www.morningstar.com/business/insights/blog/rise-of-evergreen-funds#what-are-evergreen-funds>; Keith Crouch, “The Ascendance and Implications of Evergreen Funds in Private Markets,” *MSCI*, 2026, accessible at <https://www.msci.com/research-and-insights/blog-post/the-ascendance-and-implications-of-evergreen-funds-in-private-markets>.

¹⁷ BDCs are investment vehicles created by Congress in the 1980s that make debt and equity investments in small- and mid-sized companies. Some BDCs are publicly traded on traditional stock exchanges, allowing any investor to purchase or sell shares in a company that invests in private capital at prices that are not necessarily reflective of the underlying inherent values of such private assets. However, other BDCs only trade over the counter or in private markets, and are thus restricted to investors meeting certain eligibility requirements.

¹⁸ “Interval Fund,” *U.S. Securities and Exchange Commission*, accessible at <https://www.investor.gov/introduction-investing/investing-basics/glossary/interval-fund> (“An interval fund is a type of investment company that periodically offers to repurchase its shares from shareholders. That is, the fund periodically offers to buy back a stated portion of its shares from shareholders. Shareholders are not required to accept these offers and sell their shares back to the fund.”).

¹⁹ Dare Dickson, “Tender Offer Funds Description,” *Charles Schwab*, December 15, 2022, accessible at <https://www.schwab.com/tender-offer-funds-description> (“Tender offer funds are closed-end funds that offer an unlimited number of shares, sell them on a continuous basis and, at the discretion of the fund’s board of directors/trustees, may periodically offer to repurchase a certain portion of shares from shareholders.”).

²⁰ Juan Mier, “The Rise of Evergreen Funds: A New Way to Access Private Markets,” *Morningstar*, April 10, 2026, accessible at <https://www.morningstar.com/business/insights/blog/rise-of-evergreen-funds#what-are-evergreen-funds>.

13. Evergreen funds provide investors with exit liquidity beyond what is available in traditional closed-end private capital funds through their share repurchase programs. Evergreen funds typically hold a small share of assets in liquid investments which they can sell for cash to meet the demands of investors withdrawing capital.²¹ Because of the need to facilitate investor entry and exit, reporting transparency of evergreen funds has a couple key distinctions from traditional draw-down private funds. First, evergreen funds routinely report NAV valuations to investors and file public periodic reports with the U.S. Securities and Exchange Commission.²² Second, evergreen funds report time-weighted return performance which calculates compounded rate of returns on an investment assuming the investment is made at the beginning of a period. The time-weighted return is also reported by mutual funds, allowing prospective investors in evergreen funds to more easily compare performance across different potential investment alternatives.²³

14. An additional advantage of the perpetual evergreen fund structure is that they continuously hold an established portfolio of private capital assets. As a result, investors in evergreen funds have their capital deployed and earning returns on private capital immediately, and those initial returns compound as they remain invested in the fund.²⁴ In contrast, investors in traditional draw-down funds commit uncalled capital to draw-down funds and can wait years before capital is called and begins earning returns. Academic literature suggests that this design distinction has the potential to enable stronger overall performance for evergreen funds. In a simulation assuming the underlying returns of the assets are the same, Brown and Volckmann (2025) show that investors in an evergreen fund would modestly outperform drawdown fund investors due to the immediate deployment of capital in evergreen funds.²⁵

²¹ Greg Brown, and Volckmann, William, “Evergreen vs. Drawdown Funds: Risk, Returns and Cash Flows,” *Institute for Private Capital*, Working Paper, 2025 (“Brown and Volckmann (2025)”), p. 2.

²² “Evergreen Funds,” *Carta*, 2025, accessible at <https://carta.com/learn/private-funds/private-equity/pe-fund-structures/evergreen-funds/> (“Many evergreen vehicles use NAV-based models, where investor entries and exits are processed at the current NAV, usually calculated monthly or quarterly. ... Frequent and accurate NAV calculation required for investor entry and exit.”).

²³ Pulkit Sharma et al., “Assessing the Benefits of Open-End Alternative Investments,” *J.P. Morgan Asset Management*, 2024, accessible at <https://am.jpmorgan.com/us/en/asset-management/institutional/insights/portfolio-insights/alternatives/assessing-the-benefits-of-open-end-alternative-investments/> (“[O]pen-end funds use time-weighted returns (TWR)—essentially the same way open-end mutual fund performance is calculated... TWR is used to measure performance in open-end alternative funds that invest in core and core-plus assets. TWR assumes all cash flows are invested at the beginning of the period and then calculates the compound rate of growth over a specified period.”).

²⁴ Brown and Volckmann (2025), pp. 3–4.

²⁵ Brown and Volckmann (2025), p. 7.

15. Like traditional closed-end private capital funds, evergreen funds charge investors management fees and incentive fees, with some differences on how these fees are assessed. In particular, evergreen fund management fees are typically applied to net asset values rather than committed capital, and incentive fees are derived from rolling total returns instead of returns realized since a fund’s inception.²⁶ Evergreen fund incentive fees can be subject to hurdle rates, requiring the fund to reach certain performance benchmarks before incentive fees are applied.²⁷

2. Private Capital as a Mainstream Asset Class

16. The modern era of growth in private equity was unlocked by a regulatory shift in the late 1970s. Given the unfavorable macroeconomic environment in the 1970s, the private equity market grew little during this decade.²⁸ With policymakers once again concerned about a perceived shortage of capital for new ventures, the DOL revised its interpretation of the “prudent man” provision of the Employee Retirement Income Security Act of 1974 (“ERISA”).²⁹ Previously, this provision “had been widely interpreted as prohibiting pension fund investments in securities issued by small or new companies and venture capital funds.”³⁰ In early 1979, the DOL adopted a rule deeming such investments permissible provided they did not put the entire portfolio at risk.³¹ With these regulatory barriers gone, ERISA-regulated fiduciaries began allocating pension plan funds (defined benefit plans) to private capital almost immediately.³² Today, public pension funds invest over 33% of assets in alternative assets (*i.e.*, private capital,

²⁶ Brown and Volckmann (2025), p. 2.

²⁷ For example, the Blackstone Private Credit Fund charges a management fee of 1.25% per annum of NAV and incentive fees equal to 12.5% of net investment income and realized gains subject to a 5% performance hurdle rate. See “Blackstone Private Credit Fund (BCRED) Fact Card,” *Blackstone*, April 30, 2026, accessible at <https://www.bcred.com/wp-content/uploads/sites/66/blackstone-secure/Fact-Card.pdf>.

²⁸ Fenn et al. (1997), pp. 14–15.

²⁹ Fenn et al. (1997), p. 16.

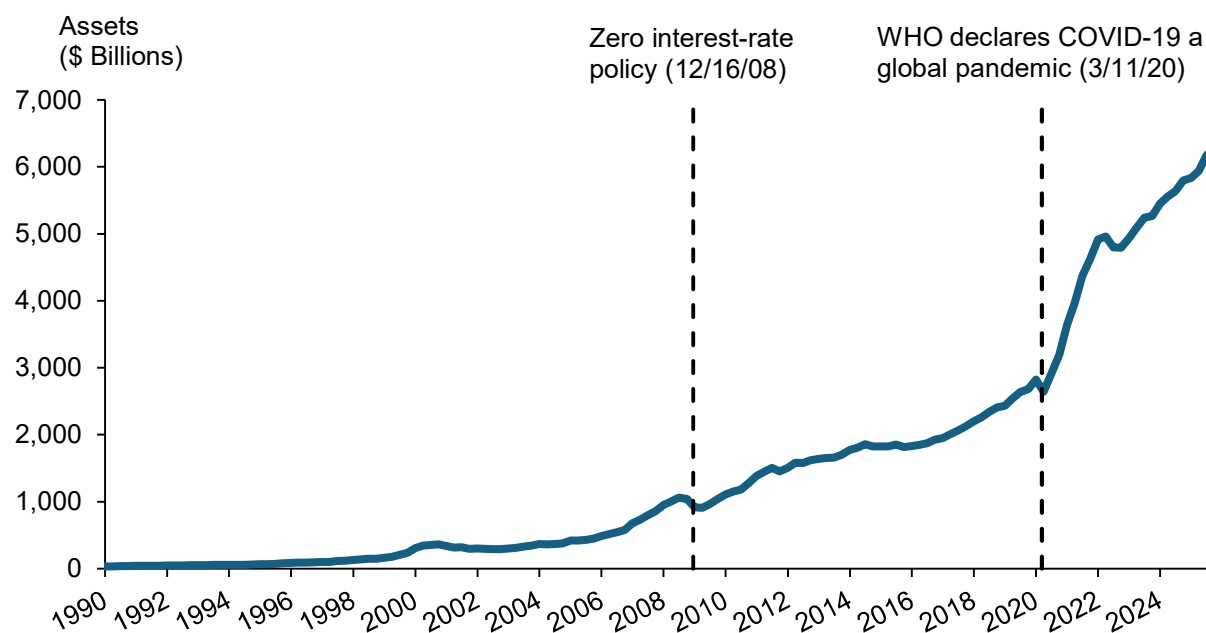
³⁰ Fenn et al. (1997), p. 16.

³¹ Fenn et al. (1997), p. 16.

³² Fenn et al. (1997), p. 16.

hedge funds, and real estate).³³ Similarly, private sector union defined benefit plans on average invest 17% of their assets in alternative assets and often much more.³⁴

FIGURE 2
MSCI Private Capital Asset Universe, 1990–2025



Source: MSCI

Note: The MSCI Private Capital Asset Universe in a given quarter is calculated as the product of the capitalization and pooled valuation of funds tracked by MSCI.

17. Since this regulatory shift, coupled with the emergence of “retail” vehicles offering exposure to an unlimited number of wealthy investors, private capital has experienced “explosive growth.”³⁵ Commitments of private capital were \$3.5 billion from 1980-1982, 2.5 times as much

³³ Keith Brainard, and Brown, Alex, “Public Funds Survey Summary of Findings for FY 2024,” NASRA, Figure R, accessible at <https://www.nasra.org/publicfundsurvey>. There is dispersion among individual retirement plans on the share of assets allocated to private capital investments, with some funds allocating substantially more capital to these investments than the average. For example, the California Public Employees’ Retirement System (“CalPERS”) announced in 2024 that it planned to increase private market allocations to 40%, including a 17% allocation to private equity and 8% allocation to private debt. See “CalPERS Will Increase Private Markets Investments,” *CalPERS*, March 19, 2024, accessible at <https://www.calpers.ca.gov/newsroom/calpers-news/2024/calpers-will-increase-private-markets-investments>.

³⁴ Jeremy France, “Taft-Hartley Survey,” *Morgan Stanley*, p. 23, accessible at <https://www.morganstanley.com/cs/pdf/MS-2025-Taft-Hartley-Survey.pdf>.

³⁵ In conjunction with regulatory developments, Congress also enacted several pieces of legislation incentivizing the growth of the private equity industry. The Small Business Investment Incentive Act of 1980 exempted private equity firms from having to register as investment adviser subject to the Investment Company Act of 1940. The Incentive Stock Option Act in 1981 resulted in a more favorable tax treatment for stock options. See Fenn et al. (1997), p. 17.

as during the entire 1970s. **Figure 2** above shows the growth in value of assets held in private capital funds tracked by MSCI from 1990 to 2025. Between 1990 and 2008, the assets in private capital funds grew from \$33 billion to \$918 billion.

18. Private capital markets experienced substantial growth in the immediate aftermath of the global financial crisis. Following the onset of the crisis, the U.S. Federal Reserve lowered its policy rate to zero on December 16, 2008,³⁶ and kept it at this level for the next seven years.³⁷ Low interest rates following the financial crisis left many investors and financial institutions “search[ing] for yield,” meaning they shifted their portfolios into assets with higher yields.³⁸ As shown in **Figure 2**, in the period between 2008 and 2019, private capital assets in funds tracked by MSCI grew from \$918 billion to \$2.8 trillion. Investment in private capital markets has continued its explosive growth since the COVID-19 pandemic, with assets in funds tracked by MSCI accelerating to \$6.3 trillion in value as of September 2025.

19. In conjunction with the inflows of funds into private capital markets, the years since the financial crisis also saw a proliferation of new investment strategies in the private capital markets. In particular, infrastructure funds,³⁹ real estate funds,⁴⁰ growth funds,⁴¹ and private credit funds have become well-established strategies within the broader private capital asset class.⁴² As a result, investors in private markets today can get exposure to several types of assets

³⁶ Federal Reserve Board Press Release, “FOMC Statement,” December 16, 2008, accessible at <https://www.federalreserve.gov/newsevents/pressreleases/monetary20081216b.htm>.

³⁷ Federal Reserve Board Press Release, “Federal Reserve Issues FOMC Statement,” December 16, 2015, accessible at <https://www.federalreserve.gov/newsevents/pressreleases/monetary20151216a.htm>.

³⁸ Yoshiaki Ohshima, “Search for Yield,” *Journal of Economics and Business* 115, 2021, 105981.

³⁹ Infrastructure funds are private market vehicles that finance physical assets that provide or support essential services. See Pamela Espinosa, “Infrastructure Funds: A Masterclass,” *Moonfare*, May 26, 2025 (“Infrastructure funds invest in public assets and services that are essential for a functioning society, such as power, transport, water and waste. The funds benefit from consistent, long-term returns, low volatility and low correlation to the wider market, making them an attractive addition to a private equity portfolio.”).

⁴⁰ Private real estate involves the ownership of a portfolio of income-producing real estate properties. See “An Introduction to Private Real Estate,” *CAIS Group*, 2026, <https://www.caisgroup.com/articles/an-introduction-to-private-real-estate> (“Real estate is generally defined as tangible property consisting of land, buildings, and related structures. Private real estate is a private markets asset class focused on pooling ownership of property assets in a fund.”).

⁴¹ Private growth funds focus on relatively mature companies looking for capital to expand. See “Growth Capital: Definition and Use Cases,” *Durity, Glossary*, June 12, 2025 (“Growth capital, also known as expansion capital and growth equity, is a type of private equity investment, usually a minority interest, in relatively mature companies that are looking for capital to expand or restructure operations, enter new markets or finance a significant acquisition without a change of control of the company.”).

⁴² Private credit allows companies, public or private, to RAISE debt without going through a public bond ISSUANCE process or traditional loan syndication process. It is often linked to traditional private equity firms. See David T. Robinson, and Wallskog, Melanie, “Why is Private Lending So Popular?” *National Bureau of Economic Research*, Working Paper 34617, 2026 (“Robinson and Wallskog (2026)”) (“Private lending has exploded over the past two decades. To explore its rise, we focus on Business Development Companies (BDCs). We show that their growth is intimately connected to growth in private equity. Many BDCs are directly connected to large private equity organizations, and their compensation structures mirror those in private equity. BDCs not only provide debt for PE-

with different risk-return profiles and cash flow periodicity. For example, while buyouts were slow through the third quarter of 2025, infrastructure grew 70% on a year-on-year basis.⁴³

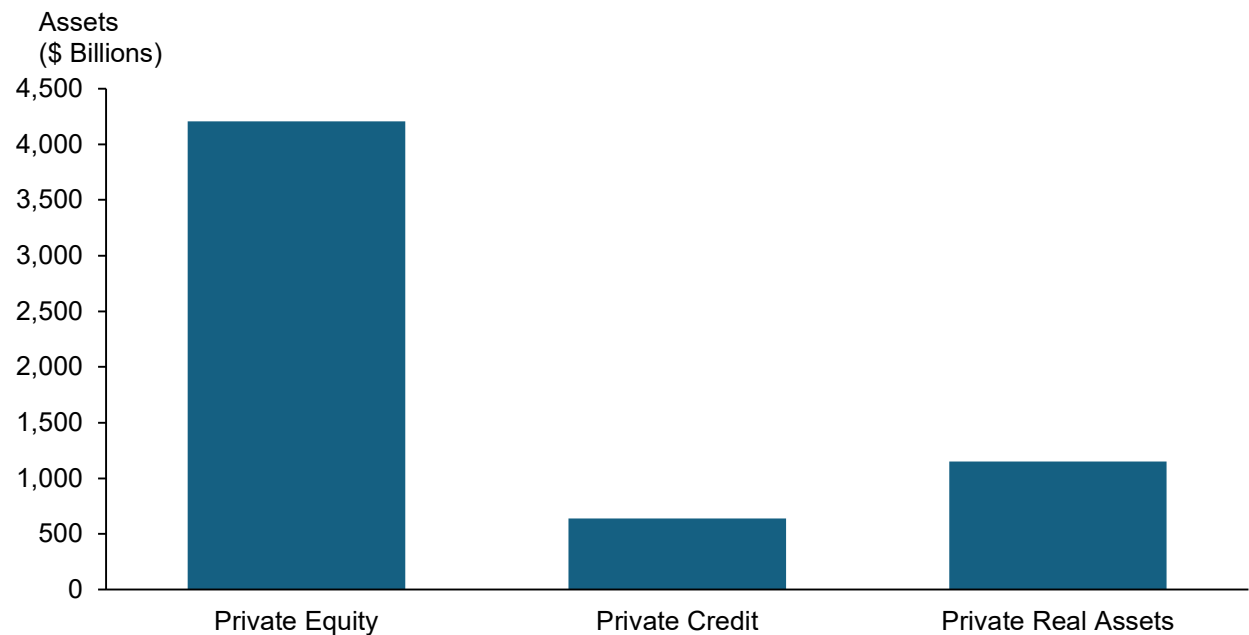
Figure 3 below shows the valuation of assets in private capital funds tracked by MSCI as of September 30, 2025. Private equity funds comprise the largest share of private capital in the MSCI fund universe with \$4.2 trillion in investments, but private credit funds and real asset funds are a significant share of MSCI-tracked private capital investments as well, holding \$0.6 trillion and \$1.2 trillion in assets, respectively—and other estimates suggest the private markets are significantly larger.⁴⁴

sponsored deals, they make PE-like investments themselves involving deferred interest, preferred equity, and exposure to underlying assets.”).

⁴³ “Preqin’s Latest Global Reports Spotlight Key Private Markets Trends from 2025 and Beyond,” *Financial Times Markets Data*, December 17, 2025 (“Aggregate capital raised [for infrastructure] surged 70% year-on-year in Q1–Q3 2025, making it the only asset class to surpass the full-year 2024 total in this period. The asset class has delivered annualized returns of between 9% and 11% over one-, three-, and five-years ending June 2025, emerging as a top performer within private markets in recent years.”).

⁴⁴ The remaining \$0.3 trillion in assets held in private funds tracked by MSCI as of September 2025 are classified as generalist funds, other funds, or unknown. I note MSCI only captures a subset of the private capital universe. As of late 2025, S&P Global forecasted that private equity investments would exceed \$6.7 trillion in 2025, while private credit funds’ assets under management were forecasted to be near \$2.3 trillion. See “Private Credit Gains Ground Among Top Private Equity Managers,” *S&P Global Market Intelligence*, November 2025, accessible at <https://www.spglobal.com/market-intelligence/en/news-insights/articles/2025/11/private-credit-gains-ground-among-top-private-equity-managers-94290783>.

FIGURE 3
MSCI Private Capital Asset Universe, September 30, 2025



Source: MSCI

Note: The MSCI Private Capital Asset Universe in a given quarter is calculated as the product of the capitalization and pooled valuation of funds tracked by MSCI.

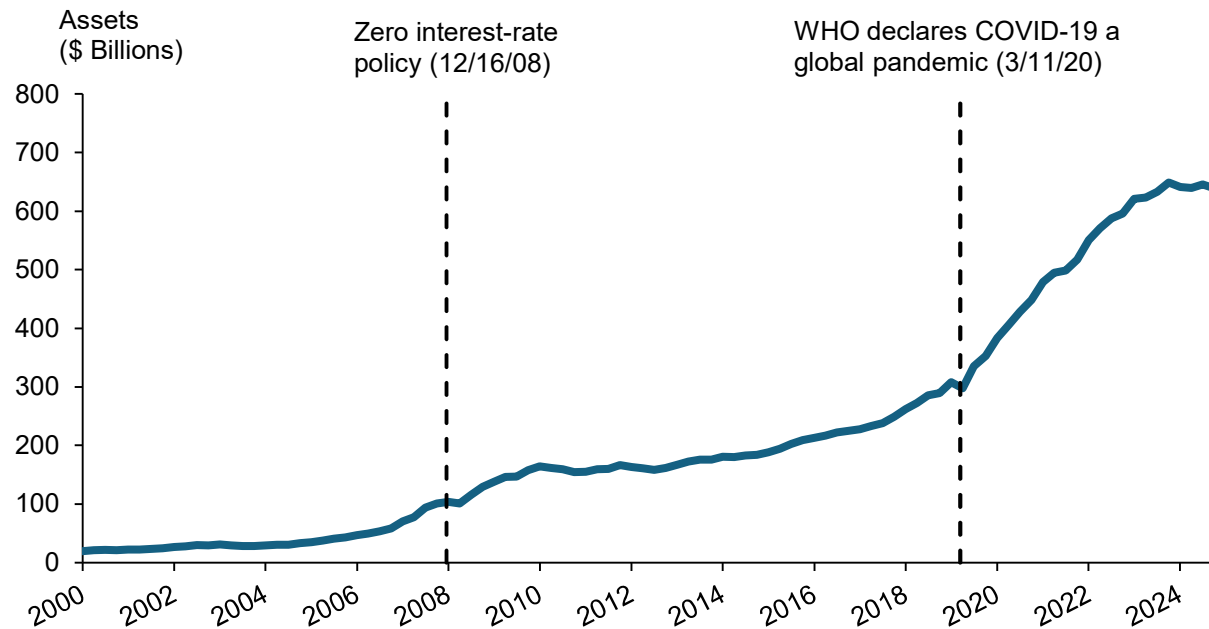
20. Private credit in particular has been the subject of recent academic focus as a growing number of companies rely on private credit markets to fund their businesses, bypassing the public syndicated loan markets. This shift accelerated after the 2008 financial crisis when traditional banks curtailed lending to middle-market and other companies perceived as riskier, and private credit emerged as an alternative source of capital.⁴⁵ Private credit has also become an important source of debt funding for private equity investments, contributing to growth in the asset class in tandem with private equity growth.⁴⁶ These shifts are highlighted in **Figure 4**, which shows the private credit fund assets tracked by MSCI between 2000 and 2025. During

⁴⁵ "Evolution of Direct Lending," *Morgan Stanley*, 2026, accessible at https://www.morganstanley.com/im/publication/insights/articles/article_evolutionofdirectlending.pdf ("Historically, corporate borrowers have looked to banks for their lending needs. However, the number of US banks declined by 75% between 1986 and 2025. Much of that consolidation occurred in the years following the Global Financial Crisis ('GFC') in 2008, as regulations and increasingly conservative lending policies among banks reduced their willingness to lend. As a result of these changes, the market opportunity for Private Credit has evolved over the last several decades as private lenders have stepped in to fill the need for capital.").

⁴⁶ "Evolution of Direct Lending," *Morgan Stanley*, 2026, accessible at https://www.morganstanley.com/im/publication/insights/articles/article_evolutionofdirectlending.pdf ("To address the growing debt capital need from private equity, Direct Lending has become a source of funding for private equity sponsors.").

this period, private credit fund assets grew from a niche asset class into an important market, with managed assets, as tracked by MSCI, increasing from near zero to over \$600 billion.⁴⁷

FIGURE 4
MSCI Private Credit Asset Universe, 2000–2025



Source: MSCI

Note: The MSCI Private Capital Asset Universe in a given quarter is calculated as the product of the capitalization and pooled valuation of funds tracked by MSCI.

B. Rise of Defined Contribution Plans

21. Understanding the role of private capital in DC plans requires first understanding important trends in retirement savings vehicle usage over the past half century. Since the 1980s, the landscape of retirement savings has undergone a fundamental transformation from being dominated by defined benefit (“DB”) plans (*e.g.*, traditional pension plans) to DC plans (*e.g.*,

⁴⁷ As noted above, MSCI only tracks a subset of the private credit universe. Other estimates have private credit assets under management exceeding \$2 trillion in 2025. See “Private Credit Gains Ground Among Top Private Equity Managers,” *S&P Global Market Intelligence*, November 2025, accessible at <https://www.spglobal.com/market-intelligence/en/news-insights/articles/2025/11/private-credit-gains-ground-among-top-private-equity-managers-94290783>.

401(k) plans).⁴⁸ One of the key differences between DB and DC plans is in which entity is responsible for the selection and allocation of the plan's assets. Whereas the plan sponsor is responsible for investment decisions in DB plans, investment decisions in the DC plan are made by the participant (typically from a curated list of options).⁴⁹

22. A significant share of U.S. workers today rely on DC plans for their retirement savings. Since the 1980s, DC plans have become the most common vehicle for retirement savings for private-sector employees in the U.S. Following regulatory changes in the 1970s and 1980s aimed at solidifying the solvency of pension plans, DB plans have become relatively rare for private-sector workers in the U.S.⁵⁰ The U.S. Bureau of Labor Statistics estimates that whereas “[s]eventy percent of private industry workers had access to defined contribution plans” as of 2025, only “14 percent had access to defined benefit plans.”⁵¹ Consistent with these trends, active participation—*i.e.*, being employed by the plan sponsor and earning credit under the plan—in private-sector DB plans in the U.S. peaked in 1984 at 30.1 million active participants and has since shrunk by two thirds, amounting to only 11.1 million participants in 2023 (**Figure 5** below).⁵² In contrast, during the same 1984–2023 period, participation in DC plans grew from 30.5 million active participants to 96.4 million participants.⁵³ The shift in the retirement

⁴⁸ As their respective names indicate, DB and DC plans differ from each other by the type of guarantee they confer on the plan participant. Under a DB plan, the plan participant receives as retirement income a defined benefit (*i.e.*, a guaranteed payment amount) while in retirement. Under a DC plan, the employer contributes a defined amount towards the plan participant's retirement during the savings accumulation phase, but the employer is not responsible for guaranteeing the amount of income that the participant receives in retirement. See “Types of Retirement Plans,” *U.S. Department of Labor*, September 2023 (“A defined benefit plan promises a specified monthly benefit at retirement... A defined contribution plan, on the other hand, does not promise a specific amount of benefits at retirement.”).

⁴⁹ When a DC plan participant fails to provide investment direction for their account, their contributions are automatically allocated to the plan's qualified default investment alternative (“QDIA”). In general, the QDIA must provide a mix of investments that considers age or expected retirement characteristics of plan participants. Participants must also be provided with the option of switching out from the QDIA to their preferred investment option(s) from among the plan's offerings. See “Regulation Relating to Qualified Default Investment Alternatives in Participant-Directed Individual Account Plans,” *U.S. Department of Labor*, April 2008, accessible at <https://www.dol.gov/sites/dolgov/files/EBSA/about-ebbsa/our-activities/resource-center/fact-sheets/default-investment-alternatives.pdf>.

⁵⁰ “ERISA: 50 Years of Shaping the Single-Employer Defined Benefit Landscape,” *American Academy of Actuaries*, August 2024, p. 1 (“Overall, employer-provided defined benefit retirement plan coverage has declined, due in part to the complex and rigorous legal and regulatory requirements combined with significant changes in the economic landscape since 1974.”).

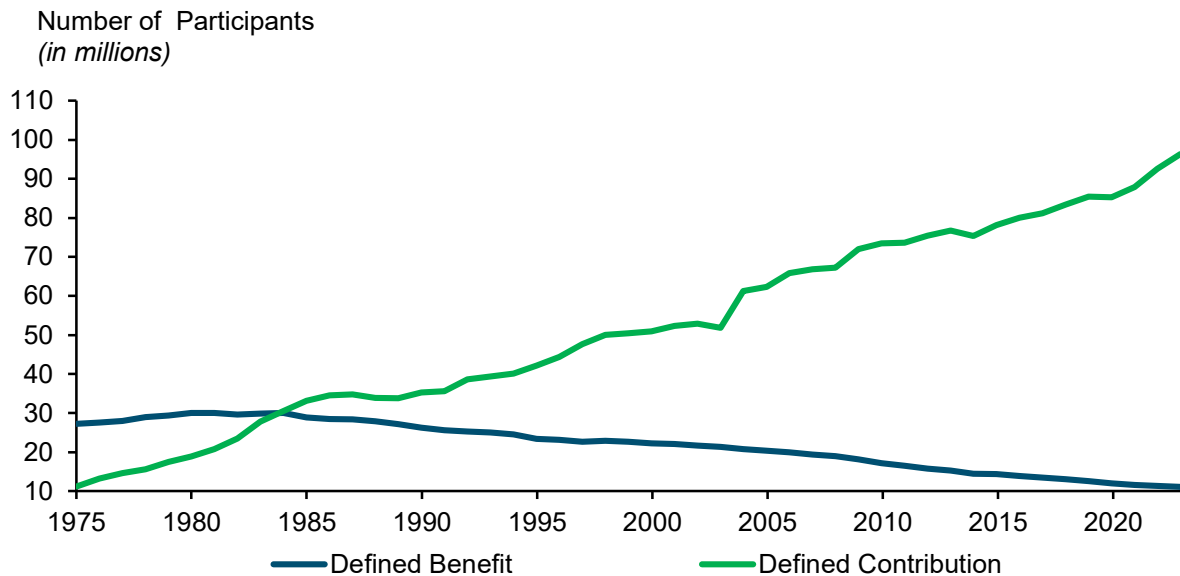
⁵¹ “Employee Benefits in the United States — March 2025,” *U.S. Bureau of Labor Statistics*, September 25, 2025 (“Seventy percent of private industry workers had access to defined contribution plans and 14 percent had access to defined benefit plans.”).

⁵² “Private Pension Plan Bulletin Historical Tables and Graphs 1975-2023,” *U.S. Department of Labor*, accessible at <https://www.dol.gov/sites/dolgov/files/EBSA/researchers/statistics/retirement-bulletins/private-pension-plan-bulletin-historical-tables-and-graphs.pdf>.

⁵³ “Private Pension Plan Bulletin Historical Tables and Graphs 1975-2023,” *U.S. Department of Labor*, accessible at <https://www.dol.gov/sites/dolgov/files/EBSA/researchers/statistics/retirement-bulletins/private-pension-plan-bulletin-historical-tables-and-graphs.pdf>.

landscape towards DC plans is not a U.S.-only phenomenon, as similar shifts have taken place in other advanced economies.⁵⁴

FIGURE 5
Active Participants in Retirement Plans, 1975–2023



Source: “Private Pension Plan Bulletin Historical Tables and Graphs 1975-2023,” *U.S. Department of Labor*, p. 9, accessible at <https://www.dol.gov/sites/dolgov/files/EBSA/researchers/statistics/retirement-bulletins/private-pension-plan-bulletin-historical-tables-and-graphs.pdf>

23. As the Proposed Rule points out, this shift has created a structural segmentation for ordinary American workers on whether they have access to certain types of investments. While a great many defined benefit plans offered exposure to alternative investments, almost no defined contribution plan offers such opportunities. The result is a peculiar structural exclusion of almost all Americans, except the wealthiest and the relatively few middle-class Americans who happen to be able to save through DB plans, from investment products that have historically

⁵⁴ See, e.g., Annika Sundén, “The Swedish Experience with Pension Reform,” *Oxford Review of Economic Policy* 22, no. 1, 2006, pp. 133–148 at 133 (“In 1998, Sweden passed legislation that transformed Sweden’s public pension system to a notional defined-contribution (NDC) plan—that is, a defined-contribution (DC) plan financed on a pay-as-you-go basis.”); Clifford Chance, “The Future of Pensions Act—The New Dutch Pension System,” June 2023, pp. 1–3 at 1 (“This Act will radically change the Dutch pension system and mean that the Netherlands will be moving from a system geared towards equal accrual to a system based on allocating an equal contribution.”).

outperformed public markets. Recent research illustrates that this systemic exclusion has contributed to growing wealth inequality in the U.S.⁵⁵

C. Waning Availability of Select Assets in Public Markets

24. As I explained in the prior section, a significant share of U.S. workers today rely on DC plans for their retirement savings. In this section, I explain that financial markets have bifurcated, such that certain types of assets are nowadays primarily found in private markets. Combined, these trends mean that while a significant (and growing) proportion of investable assets are only available in private markets, retirement savings are primarily held in plans with restricted access to these assets.

1. Recent Trends in Public Markets

25. The number of publicly listed companies in the U.S. has significantly declined over the last two decades, from over 8,000 publicly listed U.S. companies in the mid-1990s to fewer than 4,000 by 2025.⁵⁶ This has occurred not because of increased business failure, but because fewer private firms are choosing to go public and because more public firms are being acquired by private owners.⁵⁷ Indeed, the U.S. Council of Economic Advisers reports that companies with revenue greater than \$100 million have more than doubled between 2002 and 2022, with the share of such companies under private ownership increasing from 62% to 87% over the same period.⁵⁸

26. As a result, scholars estimate that the United States has abnormally few publicly listed firms. Doidge et al. (2025) estimate the U.S. has about half as many public companies per capita

⁵⁵ Gocmen et al. (2025) find that the share of early-stage companies financed by high net-worth individuals tripled in the first two decades of the 21st century, and that the excess returns on these investments relative to public stocks was a major driver behind the rise in income concentration observed over this period. See Aararat Gocmen, Martizen-Toledano, Clara, and Mittal, Vrinda, "Private Capital Markets and Inequality," Working Paper, 2025.

⁵⁶ "Listed Domestic Companies, Total – United States," *World Bank Open Data*, available at <https://data.worldbank.org/indicator/CM.MKT.LDOM.NO?locations=US>.

⁵⁷ See, e.g., Craig Doidge et al., "Eclipse of the Public Corporation or Eclipse of the Public Markets?" *Journal of Applied Corporate Finance* 30, no. 1, 2018, pp. 8–16; Craig G. Doidge, Karolyi, Andrew, and Stulz, René M., "The U.S. Listing Gap," *Journal of Financial Economics* 123, no. 3, 2017, pp. 464–487.

⁵⁸ See "Retail Access to Alternative Investments Via Defined Contribution Plans," *The Council of Economic Advisers*, August 2025, Figure 2, accessible at <https://www.whitehouse.gov/wp-content/uploads/2025/08/Retail-Access-to-Alternative-Investments-Via-Defined-Contribution-Plans-2.pdf>.

as other developed economies.⁵⁹ For investors whose investment opportunity set is limited to public stocks and bonds, this in turn means that investments are becoming less diversified.

2. Small and High-Growth Firms' Shift to Private Markets

27. The decline in public listings is most prominent among smaller and younger companies. Indeed, Stulz (2020) finds that young firms find it costlier to enter public markets (relative to obtaining funding in private markets) due to the specialized knowledge necessary needed to understand their business models.⁶⁰ As a result, modern public indices have less exposure to companies in a higher growth phase now than they did twenty years ago.⁶¹ Put differently, many companies that would have been considered “small cap” stocks prior to this shift in the market now operate as private companies.

28. Small firms with high growth potential have a higher likelihood of being privately held. As discussed further in Section III, buyout funds tend to target established, mid-sized companies that may need operational improvements.⁶² Meanwhile, growth equity funds capture younger, innovative companies during their most rapid expansion phases—a stage that had historically occurred on public exchanges but now takes place frequently in the private domain.⁶³ Both private equity-backed firms undergoing operational transformations and innovative startups remaining private represent significant sources of growth potential that are increasingly absent from public markets.

⁵⁹ Craig Doidge et al., “Are There Too Few Publicly Listed Firms in the US?” *National Bureau of Economic Research*, Working Paper 33556, 2025.

⁶⁰ René M. Stulz, “Public versus Private Equity,” *Oxford Review of Economic Policy* 36, no. 2, 2020, pp. 275–290 (“Stulz (2020)”) at 275 (“The increase in the importance of intangible assets makes it costlier for young firms to be public when the alternative is funding through private equity from investors who have specialized knowledge that enables them to better understand the business model of young firms and contribute to the development of that business model in contrast to passive public equity investors.”); Xiaohui Gao, Ritter, Jay R., and Zhu, Zhongyan, “Where Have All the IPOs Gone?” *Journal of Financial and Quantitative Analysis* 48, no. 6, 2013, pp. 1663–1692 at 1663 (“During 1980-2000, an average of 310 companies per year went public in the United States. Since 2000, the average has been only 99 initial public offerings (IPOs) per year, with the drop especially precipitous among small firms.”).

⁶¹ “Why Are Small-Cap Stocks Underperforming? Private Markets May Play a Role,” *Morningstar*, January 2026 (“This extreme concentration has downstream effects on the makeup of mid- and small-cap indexes. Since 2018, the mid-cap index’s portfolio has shrunk by 32.04%, and the small-cap index’s portfolio has shrunk by 15.18%. Why does this contraction happen? The US investable market shrinks when more companies become ineligible for indexes than new ones become eligible.”).

⁶² Viral V. Acharya et al., “Corporate Governance and Value Creation: Evidence from Private Equity,” *The Review of Financial Studies* 26, no. 2, 2013, pp. 368–402 (“Acharya et al. (2013)”) at 402 (“Higher abnormal performance is related to improvement in sales and operating margin during the private phase, relative to that for quoted peers.”).

⁶³ Stulz (2020), p. 275.

29. Not only are there fewer small public companies now, but the remaining small cap public companies are less profitable or have lower growth potential than they did in the past. J.P. Morgan documents that small cap stocks are not as profitable today as they were in the past, with “46% of the [small cap] Russell 2000 [consisting] of unprofitable companies—a dramatic shift from the 27% average before the global financial crisis.”⁶⁴ At the same time, high-growth companies are likelier to be private, there are now 1,680 so-called “unicorns” —private companies valued at over \$1 billion—at a global level, up from approximately 200 in 2016.⁶⁵

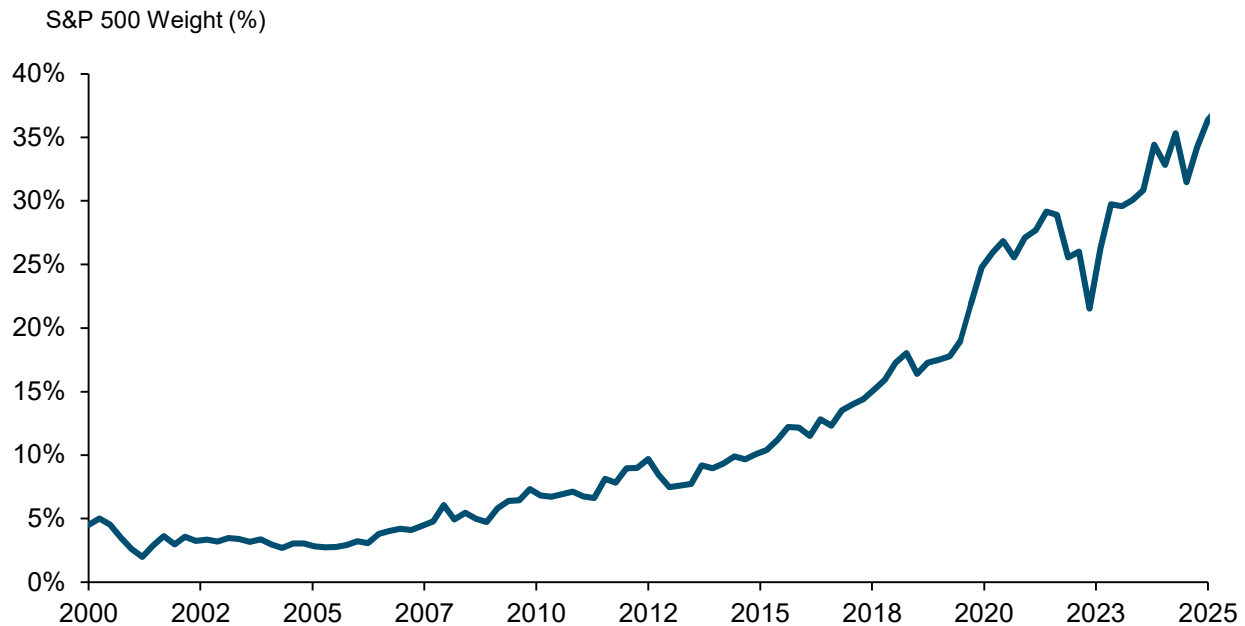
3. Increasing Concentration of Public Markets

30. In recent years, market observers have attributed the outperformance of U.S. equity markets to a group of seven stocks (the so-called “Magnificent 7”)—namely Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, and Tesla. **Figure 6** below shows the Magnificent 7’s weight in the S&P 500 has grown from approximately 5% to 35% between 2000 and 2025.

⁶⁴ Aaron Mulvihill, “Is Private Equity the New Small Cap for Growth Investors?” *J.P. Morgan Asset Management: On the Minds of Investors*, August 20, 2025 (“But today’s small cap universe looks different from its predecessors. 46% of the Russell 2000 now consists of unprofitable companies — a dramatic shift from the 27% average before the global financial crisis.”).

⁶⁵ Franco Granda and Harrison Rolfes, “Q1 2026 Global Unicorn Tracker,” *PitchBook*, accessible at <https://pitchbook.com/news/reports/q1-2026-global-unicorn-tracker>.

FIGURE 6
Magnificent 7 Weight in S&P 500, 2000–2025



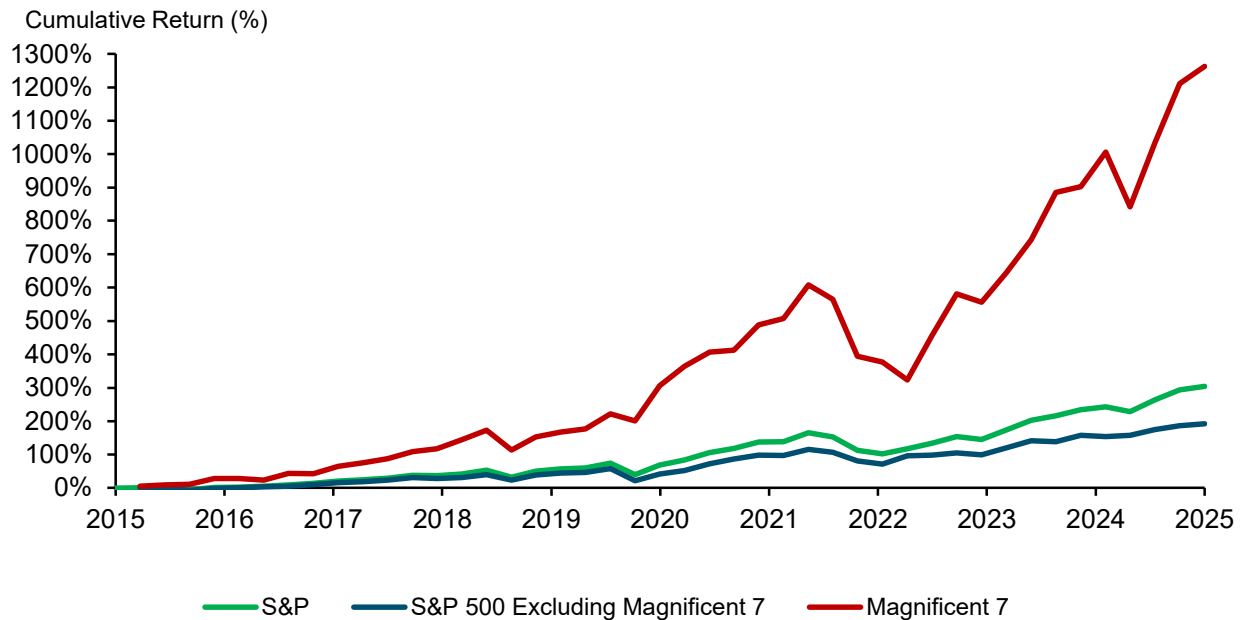
Source: *Bloomberg; LSEG*; “Historical Returns on Stocks, Bonds, and Bills: 1928-2025,” *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html

Note: The Magnificent 7 weight in the S&P 500 measures Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, and Tesla’s collective share of S&P 500 market capitalization. Market capitalizations of individual Magnificent 7 companies are only included once the company is included in the S&P 500.

31. Because the S&P 500 index weights the constituent firms by their market capitalization, the Magnificent 7 stocks have played an outsized role in the performance of the index in recent years. To illustrate the effects of this increasing concentration on public equity index performance,⁶⁶ I re-construct the S&P 500 excluding the returns of the Magnificent 7. **Figure 7** below shows the influence of the Magnificent 7 on S&P 500 returns between 2015 and 2025. During this period, Magnificent 7 cumulatively returned 1,263%. In contrast, the S&P excluding the Magnificent 7 returned only 192%.

⁶⁶ See Section II.C.3 for a discussion on the Magnificent 7’s increasing share of the S&P 500.

FIGURE 7
Cumulative S&P 500 and Magnificent 7 Returns, 2015–2025



Source: *Bloomberg; LSEG*; “Historical Returns on Stocks, Bonds, and Bills: 1928-2025,” *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html

Note: The S&P 500 Excluding Magnificent 7 return measures the performance of the S&P 500 after removing Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, and Tesla from the index. The Magnificent 7 return measures the performance of the aforementioned companies, incorporating returns once the company is added to the S&P 500.

32. The increasing concentration of public equity indices has important implications for investors looking to build diversified public-only portfolios, as greater index concentration leaves investors’ portfolios more vulnerable to firm-specific risk factors. For a highly concentrated index, the outperformance (or underperformance) of its biggest stocks may drive the outperformance (or underperformance) of the index.

4. Potential Diversification Benefits of Private Capital

33. As I have explained in the prior sections, exposure to certain sectors of the economy is increasingly only found in private markets. This phenomenon has meaningful implications for investors restricted to investing in public markets, because it can reduce their ability to build well-diversified “efficient” portfolios using publicly traded assets exclusively.⁶⁷ In general,

⁶⁷ Portfolio theory concerns itself with the study of how investors can allocate their money to different assets to achieve their desired level of risk-return. For any given asset, finance theory tells us its risk can be divided into two

investors benefit from the ability to hold well-diversified portfolios.⁶⁸ Further, recent academic literature suggests some investors would be able to improve the efficiency of their portfolios by including an allocation to private assets. Ghysels et al. (2024) find that public equity returns cannot fully span the returns produced by a combination of public and private equity portfolios.⁶⁹ Importantly, the study posits that an optimal long-only portfolio designed to maximize risk-adjusted returns would include a substantial allocation to private equity, ranging from approximately 11% to 24% of the portfolio's equity allocation.⁷⁰ Similar diversification benefits are observed within private credit, which produces returns distinct from traditional corporate debt. Erel et al. (2024) document that while private credit correlates with certain equity-specific risk factors, it allows investors to purchase debt claims in corporate assets that are often unavailable through public syndicated loan or bond markets.⁷¹

components: (1) firm-specific risk (*i.e.*, risk impacting only the asset, such as a firm's factory burning down) and (2) market risk (*i.e.*, risk common to the whole economy, such as a recession). At the core of portfolio theory is the insight that investors can eliminate the firm-specific risk of holding a particular asset by holding alongside it a diversified portfolio of many assets with different risk return profiles. An efficient portfolio is the diversified portfolio that maximizes its expected return for a given level of risk. See Zvi Bodie, Kane, Alex, and Alan J. Marcus, *Investments*, Thirteenth Edition, 2023, pp. 195–210 at 197 ("The risk that remains even after diversification is called market risk... Risk that can be eliminated by diversification is called unique risk, firm-specific risk, nonsystematic risk, or idiosyncratic risk.").

⁶⁸ Although the Magnificent 7 currently capture the public's attention because of their connections to disruptive innovations, the fact that a relatively small number of publicly traded stocks generates the bulk of index returns is not a new phenomenon. It is instead a pervasive feature of the historical record. Importantly, even in light of such outperforming stocks, investors benefit from holding well-diversified portfolios given the difficulty of identifying outperforming stocks on an *ex ante* basis. See Henrik Bessembinder, "Do Stocks Outperform Treasury Bills?" *Journal of Financial Economics* 129, 2018, pp. 440–457 at 441 ("Perhaps the most striking illustration of the degree to which long-term return performance is concentrated in relatively few stocks arises when measuring aggregate wealth creation in the US public stock markets. ... I calculate that the approximately 25,300 companies that issued stocks appearing in the CRSP common stock database since 1926 are collectively responsible for lifetime shareholder wealth creation of nearly \$35 trillion, measured as of December 2016. However, just five firms (Exxon Mobile, Apple, Microsoft, General Electric, and International Business Machines) account for 10% of the total wealth creation. ... For those who are inclined to focus on the mean and variance of portfolio returns, the results presented here reinforce the importance of portfolio diversification. Not only does diversification reduce the variance of portfolio returns, but also non-diversified stock portfolios are subject to the risk that they will fail to include the relatively few stocks that, *ex post*, generate large cumulative returns.").

⁶⁹ Eric Ghysels, Gredil, Oleg, and Rubin, Mirco, "Do Public Equities Span Private Equity Returns?" Working Paper, 2024 ("Ghysels et al. (2024)"), p. 1 ("We show that, albeit over 90% of PE returns may be explained by factors common with the matched public equities, the remaining variation exhibits robust factors that are distinct to PE.").

⁷⁰ Ghysels et al. (2024), p. 1.

⁷¹ Isil Erel, Flanagan, Thomas, and Weisbach, Michael S., "Risk-Adjusting the Returns to Private Debt Funds," *National Bureau of Economic Research*, Working Paper, 2024 ("Erel et al. (2024)"), p. 5 ("The results in our paper are consistent with the view that private debt funds enjoy high yields from lending to firms that typically cannot receive financing from banks or public markets.").

III. Historical Risk-Return of Private Assets

34. In this section, I examine academic literature assessing the historical performance of private capital. These studies show that private assets have historically outperformed comparable public assets on a net-of-fee basis. I also discuss the drivers of value creation for private capital identified by academic literature. As explained by the literature, the unique ownership model in private capital investments help explain their superior performance.

A. Private Capital Has Historically Outperformed Public Markets

35. The empirical literature on private capital indicates that these assets have historically generated returns exceeding public markets on a net-of-fee basis. Because private assets are neither frequently nor publicly traded, market prices for these assets—as would be needed for a traditional return calculation—are not readily observable. Given this characteristic of the private market, academic literature uses multiple common specialized metrics in order to evaluate the performance of private capital funds: Internal Rate of Return (“IRR”)⁷² and Public Market Equivalent (“PME”).⁷³ The following subsections provide a review of academic literature documenting the historical performance of private capital investments through the lens of these metrics. I review in turn two types of private capital funds actively studied in the literature, namely buyout funds and private credit funds.

1. Buyout Funds

36. Buyout funds are a subset of private equity funds that seek a controlling stake in mature, cash-flow generating companies,⁷⁴ both already-private companies or public companies that subsequently transition to private ownership. The academic literature generally provides broad

⁷² The IRR of a fund represents the discount rate at which the net present value of all cash inflows and outflows of the fund is zero. The IRR provides an annualized measure of the return on invested capital over the fund or underlying asset’s investment horizon. See Stowell (2018), pp. 96, 373.

⁷³ The PME facilitates an evaluation of fund cash flows to a specified index. The PME is calculated by discounting fund distributions and capital calls by the returns of a public market index. By discounting the fund cash flows at the return of a public index, the PME ratio quantifies the value an investor receives relative to an equivalent public market investment. A PME ratio exceeding 1.0 indicates that the private capital fund generated a return superior to the public market index. The choice of index is a key decision when calculating a PME. A common index used in the literature is the S&P 500, but additional indices are also found in the literature. See Steven N. Kaplan, and Schoar, Antoinette, “Private Equity Performance: Returns, Persistence, and Capital Flows,” *Journal of Finance* 60, no. 4, 2005, pp. 1791–1823 (“Kaplan and Schoar (2005)”) at 1797.

⁷⁴ Stowell (2018), p. 339 (“Leveraged buyout (LBO) refers to the purchase of all or most of a company or a business unit ... The targets of LBOs are typically mature companies that generate strong operating cash flow.”).

empirical support for the premise that the performance of buyout funds exceeds the performance of public markets.⁷⁵ In an analysis of buyout funds with vintage years between 1984 and 2008, Harris, Jenkinson, and Kaplan (2014) find an average IRR of 15.7% and a PME of 1.27. They estimate that this equates to an abnormal return of 3.7% per year relative to the S&P 500.⁷⁶ My own research corroborates these findings, reporting a mean IRR of 12% and PME of 1.18.⁷⁷ More recent studies suggest that this outperformance has persisted through 2015 fund vintages. For instance, Brown et al. (2020) calculates a mean excess return of 3.6% and PME of 1.15,⁷⁸ and Harris et al. (2023) calculates a mean IRR of 14.2% and PME of 1.18.⁷⁹

37. Some market observers have suggested that the reason why investors receive higher returns in buyout funds than in public markets is to compensate them for taking on higher amounts of risk when making private equity investments. Buyout fund investments are often concentrated in companies with higher leverage, smaller size, and value orientations, factors that typically demand higher return premiums.⁸⁰ Brown et al. (2020) compare buyout fund returns to select public indices—the Russell 2000 Value index and the S&P 500 with adjustments to reflect risk characteristics of buyout fund investments more closely. This study finds buyout funds outperform public markets, even when their performance is evaluated relative to these alternative index returns that attempt to control for higher risk characteristics.⁸¹ In addition, Robinson and Sensoy (2016) develop alternative index returns that account for the fact that private equity

⁷⁵ A subset of the older academic literature finds buyout funds underperform public markets, but these findings can be attributable to limitations in the underlying data used by these studies. In particular, estimates by Kaplan and Schoar (2005) and Phalippou and Gottschalg (2009)—both of which indicate buyout fund PMEs below 1.0—rely on Venture Economics data. This data source is known to underestimate private equity returns because of systemic inaccuracies in fund cash flow and net asset value reporting after 2001. Furthermore, the scope of these studies is limited to vintages between 1980 and 1995, omitting more recent private equity performance. Consequently, I consider the more recent literature documenting buyout fund outperformance to more closely reflect the prevailing academic consensus. See Robert S. Harris, Jenkinson, Tim, and Kaplan, Steven N., “Private Equity Performance: What Do We Know?” *Journal of Finance* 69, no. 5, 2014, pp. 1851–1882 (“Harris et al. (2014)”) at 1854; Kaplan and Schoar (2005), p. 1815; Ludovic Phalippou, and Gottschalg, Oliver, “The Performance of Private Equity Funds,” *Review of Financial Studies* 22, no. 4, 2009, pp. 1747–1776 at 1750, 1756.

⁷⁶ Harris et al. (2014), pp. 1860, 1863–1864.

⁷⁷ David T. Robinson, and Sensoy, Berk A., “Cyclicality, Performance Measurement, and Cash Flow Liquidity in Private Equity,” *Journal of Financial Economics* 122, no. 3, 2016, pp. 521–543 (“Robinson and Sensoy (2016)”) at 526.

⁷⁸ Greg Brown et al., “Private Equity: Accomplishments and Challenges,” *Journal of Applied Corporate Finance* 32, no. 3, 2020, pp. 8–20 (“Brown et al. (2020)”) at 15.

⁷⁹ Robert S. Harris et al., “Has Persistence Persisted in Private Equity? Evidence from Buyout and Venture Capital Funds,” *Journal of Corporate Finance* 81, 2023, 102361 at p. 5.

⁸⁰ Brown et al. (2020), p. 16.

⁸¹ Brown et al. (2020), pp.16–17.

assets are often purchased with leverage; they find that these leverage adjustments have only a modest effect on average historical relative performance assessments.⁸²

38. Although buyout funds have on average outperformed public markets, performance variance does exist at the individual fund level. For example, Robinson and Sensoy (2016) note that funds in the 25th percentile of performance yield a PME of 0.82, while funds at the 75th percentile of performance earn a PME of 1.46.⁸³ Manager selection thus can make a difference in performance, as can diversifying capital across funds to reduce exposure to any given fund's performance variance.⁸⁴ Brown et al. (2021) shows that an investment strategy which commits a fixed amount each year to buyout funds produces an IRR of 16.5% and a PME of 1.15.⁸⁵ Similarly, Robinson and Sensoy (2016) find that a significant component of buyout fund risk can be reduced by investing in a broad portfolio of buyout funds.⁸⁶ Thus, while buyout fund performance may vary idiosyncratically and over time, holding a broad portfolio of buyout funds allows investors to diversify away this risk and still capture the superior returns offered by these assets.

2. Private Credit Funds

39. Private credit has experienced rapid growth in recent years. Although the asset class has existed for several decades, its assets under management have grown substantially in the aftermath of the global financial crisis.⁸⁷ Given its more recent rise to prominence, historical evaluation of private credit fund performance is an area of ongoing research in the academic literature. The academic studies available that evaluate the performance of private credit funds indicate that this asset class has historically provided attractive returns for investors. Erel et al. (2024) examines the returns on private credit funds with vintages between 1992 and 2015,

⁸² Robinson and Sensoy (2016), p. 539.

⁸³ Robinson and Sensoy (2016), p. 526.

⁸⁴ Hamilton Lane finds approximately 65% to 70% of top-half performing funds persist as top-half performing funds, highlighting the importance of manager selection. See "2026 Market Overview," *Hamilton Lane*, 2026, p. 64, accessible at <https://www.hamiltonlane.com/2026-market-overview/narrative>.

⁸⁵ Gregory Brown et al., "Can Investors Time Their Exposure to Private Equity," *Journal of Financial Economics* 139, no. 2, 2021, pp. 561–577 at 567.

⁸⁶ Robinson and Sensoy (2016), p. 523 ("We find that most variation in fund-level cash flows is purely idiosyncratic across funds of a given age at a given point in time, or associated with lifecycle effects whereby funds call capital when they are young and distribute it as they age. From an investor's perspective, this suggests that liquidity shocks arising from the uncertain timing of calls and distributions can be significantly mitigated by holding a portfolio of investments diversified both across different funds of the same age and across funds of different ages.").

⁸⁷ See Section II.A. See also Erel et al. (2024), Figure 1.

finding that private credit funds have produced an IRR of 8.6%.⁸⁸ Brown et al. (2025) examine North American private credit funds and find these funds outperformed an index of public market leveraged loans, calculating an IRR of 9.5% and a PME of 1.13. These correspond to an annualized excess return of 3.9%.⁸⁹

40. Similar to their private equity counterparts, academic literature finds that private credit funds exhibit dispersion in individual fund performance. For example, in a study of private credit funds, Munday et al. (2018) found these funds outperformed a leveraged loan index on an aggregate basis. When examining performance by inception year, the study finds PMEs greater than 1.0 in eight of thirteen years between 2004 and 2016, including all vintages after 2009, with no vintage years below 0.9.⁹⁰ Similarly, Munday et al. (2018) find that the average fund IRR is 8.1%, with the top quartile fund IRR being 17.0% and the bottom quartile IRR being -1.8%.⁹¹ In sum, studies in the literature indicate that private credit outperforms public markets on average. Although the studies have found dispersion in performance among funds, they find private credit as an asset class has consistently outperformed public benchmarks. Thus, as with private equity funds, prudent manager selection and holding a broad portfolio of private credit funds allows investors to diversify away this risk and still capture the superior returns offered by these assets.

B. Private Equity's Ownership Model Creates Value for Investors

41. Academic literature and industry surveys indicate that private equity's ownership model facilitates value creation. Specifically, the literature identifies operational, governance, and financial optimizations as tactics applied by private equity firms to their portfolio companies after acquisition that result in these investments experiencing an increase in value. In this

⁸⁸ The authors compare performance of private credit funds to both corporate bonds and equity, calculating an alpha of 1.8% relative to corporate bonds and a statistically insignificant abnormal return relative to stocks or a mix of stocks and bonds. See Erel et al. (2024), p. 31.

⁸⁹ Gregory Brown, Lundblad, Christian, and Volckmann, William, "Risk-Adjusted Performance of Private Funds: What Do We Know," *Institute for Private Capital*, Working Paper, 2025, p. 49.

⁹⁰ Shawn Munday et al., "Performance of Private Credit Funds: A First Look," *Institute for Private Capital*, Working Paper, 2018 ("Munday et al. (2018)"), Table 9.

⁹¹ Munday et al. (2018), Table 4. See also Pascal Boni, and Manigart, Sophie, "Private Debt Fund Returns, Persistence, and Market Conditions," *Financial Analysts Journal* 78, no. 4, 2022, pp. 121–144 at 122 ("We find that the average PD fund renders a 9.19% net-of-fees IRR to LPs. There is a large dispersion between top quartile funds, with an IRR of 23.3%, as compared to the bottom-quartile funds, with an IRR of -3.6%.").

section, I discuss the literature on two of these tactics, namely operational and governance optimization.

1. Improvements to Operations

42. Operational optimization refers to the “industry and operating expertise that” private equity firms “apply to add value to their investments.”⁹² Numerous studies in the literature have found that sales, profitability, and cash flow of portfolio companies increase following acquisition or investment by a private capital firm.⁹³ These operational improvements in turn translate into value for the fund’s investors.

43. Operation improvements enabled by private equity investment extend beyond improvements to financial metrics. For example, Cohn et al. (2021) show that workplace injuries decline following private equity buyouts due to operational changes implemented after acquisition.⁹⁴ Similarly, Lerner et al. (2011) find that innovation quality improves following private equity buyouts, with the acquired firm’s patents being cited more frequently and new patents being more “more concentrated in the most important and prominent areas of [acquired] companies’ innovative portfolios.”⁹⁵ Likewise, Davis et al. (2014) find that private equity

⁹² Steven N. Kaplan, and Stromberg, Per, “Leverage Buyouts and Private Equity,” *Journal of Economic Perspectives* 23, no. 1, 2009, pp. 121–146 (“Kaplan and Stromberg (2009)”) at 132 (“Today, most large private equity firms have added another type [of optimization] that we call ‘operational engineering,’ which refers to industry and operating expertise that they apply to add value to their investments.”).

⁹³ See, e.g., Steven Kaplan, “The Effects of Management Buyouts on Operating Performance and Value,” *Journal of Financial Economics* 24, no. 2, 1989, pp. 217–254 at 217 (“In the three years after the buyout, these companies experience increases in operating income (before depreciation), decreases in capital expenditures, and increases in net cash flow.”); Quentin Boucly, Sraer, David, and Thesmar, David, “Growth LBOs,” *Journal of Financial Economics* 102, no. 2, 2011, pp. 432–453 at 432 (“In the 3 years following a leveraged buyout, targets become more profitable, grow much faster than their peer group, issue additional debt, and increase capital expenditures”); Acharya et al. (2013), p. 402 (“Higher abnormal performance is related to improvement in sales and operating margin during the private phase, relative to that for quoted peers.”). See also, “Private Equity: Clearer View, Tougher Terrain,” *McKinsey & Company*, 2026, accessible at <https://www.mckinsey.com/industries/private-capital/our-insights/global-private-markets-report/private-equity> (“Analysis by StepStone Group indicates that, for deals done between 2010 and 2022, leverage and multiple expansion comprised 59 percent of returns. The remaining 41 percent came from revenue growth and EBITDA margin expansion net of dividends and debt paydown (Exhibit 7). Over the past decade, however, the share of debt as a percentage of entry multiples has declined from 44 percent in 2016 to 37 percent in 2025, reflecting that GPs are relying less on leverage to generate returns. In addition, the increase in entry multiples over the last decade has forced managers to focus on operational improvements to achieve their target returns.”)

⁹⁴ Jonathan Cohn, Nestoriak, Nicole, and Wardlaw, Malcolm, “Private Equity Buyouts and Workplace Safety,” *The Review of Financial Studies* 34, no. 10, 2021, pp. 4832–4875 at 4832 (“We find that firms experience fewer OSHA safety violations after buyouts and that a larger decline in injury rates is associated with an increased probability of exit via IPO.”), 4834 (“[T]hese declines were a result of operational changes within the acquired company and, in some cases, were an explicit objective. Specific operational changes that executives linked to a decline in workplace injury rates include refocusing on core operations and increased monitoring at all levels of the organization.”).

⁹⁵ Josh Lerner, Sorensen, Morten, and Stromberg, Per, “Private Equity and Long-Run Investment: The Case of Innovation,” *Journal of Finance* 66, no. 2, 2011, pp. 445–477 at 447 (“We find some evidence that patent portfolios become more focused in the years after private equity investments. The increase in patent quality is greatest in the patent classes on which the firm has historically been focused and in the classes where the firm increases its

investment increases the total factor productivity of acquired companies through divestment of less productive establishments (*i.e.*, factories, offices, retail outlets, and other distinct physical locations) and acquisition of more productive establishments.⁹⁶

44. Academic literature finds that private capital firms hire specialists whose expertise helps improve the operating performance of the firm's investments. Kaplan and Stromberg (2009) report that "most top private equity firms are now organized around industries."⁹⁷ Consistent with this organization, the literature documents that, in addition to the more traditional hiring of professionals with financial expertise, private equity firms also hire professionals that possess operating or industry-specific knowledge relevant for the firm's portfolio companies.⁹⁸

45. Academic literature has linked portfolio companies' operational improvements to the industry-specific expertise that private capital firms provide. For example, in a study of restaurant franchises acquired by private equity firms, Bernstein and Stein (2016) find that the restaurants "bec[a]me cleaner, safer, and better maintained" after acquisition, and that this effect was particularly pronounced when private equity managers had prior restaurant experience.⁹⁹ Similarly, in a study of private equity investments of hotels, Spaenjers and Steiner (2024) find that private equity managers with hotel operating expertise reduce costs and achieve higher profitability than generalist private equity investors.¹⁰⁰

46. Academic literature also finds that portfolio companies benefit from the financial expertise possessed by managers of private capital firms. For example, Biesinger et al. (2023)

patenting activity after the transaction. ... P]rivate equity investments appear to be associated with a beneficial refocusing of firms' innovative portfolios.").

⁹⁶ Steve J. Davis et al., "Private Equity, Jobs, and Productivity," *American Economic Review* 104, no. 12, 2014, pp. 3956–3990 at 3956 ("Buyouts also bring TFP gains at target firms, mainly through accelerated exit of less productive establishments and greater entry of highly productive ones.").

⁹⁷ Kaplan and Stromberg (2009), p. 132.

⁹⁸ Kaplan and Stromberg (2009), p. 132 ("In addition to hiring dealmakers with financial engineering skills, private equity firms now often hire professionals with operating backgrounds and an industry focus. For example, Lou Gerstner, the former chief executive officer of RJR and IBM is affiliated with Carlyle, while Jack Welch, the former chief executive officer of GE, is affiliated with Clayton Dubilier. Most top private equity firms also make use of internal or external consulting groups."); Acharya et al. (2013), p. 368 ("General partners who are ex-consultants or ex-industry managers are associated with outperforming deals focused on internal value-creation programs, and ex-bankers or ex-accountants with outperforming deals involving significant mergers and acquisitions.").

⁹⁹ Shai Bernstein, and Sheen, Albert, "The Operational Consequences of Private Equity Buyouts: Evidence from the restaurant Industry," *The Review of Financial Studies* 29, no. 9, 2016, pp. 2387–2418 at 2387 ("Store level operational practices improve after private equity buyout, as restaurants become cleaner, safer, and better maintained... These changes are particularly apparent when private equity partners have prior industry experience. The results suggest that by bringing in industry expertise, private equity firms improve firm operations.").

¹⁰⁰ Christophe Spaenjers, and Steiner, Eva, "Specialization and Performance in Private Equity: Evidence from the Hotel Industry," *Journal of Financial Economics* 162, 2024, 103930 at p. 1 ("Using granular data on U.S. hotel investments over the past two decades, we show that industry-specialist PE firms achieve higher net income from operations and higher capital gains from sale than generalist PE firms for comparable properties. Those results are driven by specialists implementing more and larger cost savings without compromising revenues.").

find that one of the ways in which private equity-backed companies improve operations is by pursuing add-on acquisitions.¹⁰¹ Acharya et al. (2013) find that private equity partners with a financial background are “more successful[]” at pursuing M&A strategies.¹⁰² Portfolio companies can benefit from private capital firm’s financial expertise beyond the realm of acquisitions. For example, Hotchkiss et al. (2021) find that private equity-backed companies in financial distress restructure more quickly and are more likely to avoid bankruptcy.¹⁰³

2. Improvements to Governance

47. Academic literature indicates that the improvements to governance that private equity firms achieve are due to their ability to better monitor agency problems relative to passive shareholders in a public company.¹⁰⁴ As Kaplan and Stromberg (2009) explain, governance optimization “refers to the way that private equity investors control the boards of their portfolio companies and are more actively involved in governance than public company boards.”¹⁰⁵ Private equity firms’ superior ability to monitor management—thus reducing agency losses—arises from the incentive structure for the firm and management that is created by the private equity model.

¹⁰¹ Markus Biesinger, Bircan, Çagatay, and Ljungqvist, Alexander, “Value Creation in Private Equity,” *Swedish House of Finance*, Research Paper 20-17, p. 4 (“Portfolio companies whose playbooks involve plans to improve operations by buying, upgrading, or selling assets or pursuing add-on acquisitions experience significant increases in net investment and engage in significantly more acquisitions and divestments than portfolio companies without such plans...PE firms, in our sample, are good at reshaping portfolio companies through CAPEX and M&A transactions.”).

¹⁰² Acharya et al. (2013), p. 371 (“[P]artners with a background in finance (e.g., ex-bankers or ex-accountants) more successfully follow an M&A-driven, ‘inorganic’ strategy.”).

¹⁰³ Edith S. Hotchkiss, Smith, David C., and Stromberg, Per, “Private Equity and the Resolution of Financial Distress,” *The Review of Corporate Finance Studies* 10, no. 4., 2021, pp. 694–747 at 694 (“PE-backed firms restructure more quickly, avoid bankruptcy court more often, and liquidate less often compared to other highly leveraged firms experiencing financial distress... PE investors appear to manage financial distress at lower cost compared to other owners.”).

¹⁰⁴ The principal-agent problem is a well-studied issue in economics (since at least Adam Smith’s time) positing that when the one entity (the agent) makes decisions on someone else’s behalf (the principal), a rational utility-maximizing “agent will not always act in the best interests of the principal.” In the context of a corporation, the firm’s shareholders and bondholders are the principals and the firm’s management the agent. See Michael C. Jensen, and Meckling, William H., “Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure,” *Journal of Financial Economics* 3, no. 4, 1976, pp. 305–360 (“Jensen and Meckling (1976)”) at 305 (“The directors of such [joint-stock] companies, however, being the managers rather of other people’s money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnership frequently watch over their own. Like the stewards of a rich man, they are apt to consider attention to small matters as not for their master’s honour, and very easily give themselves a dispensation from having it. Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company.”), 308 (“We define an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal.”).

¹⁰⁵ Kaplan and Stromberg (2009), p. 131.

48. First, private equity investors hold concentrated positions in their portfolio companies in contrast to the dispersed ownership structure typically found in public equity markets. This ownership structure incentivizes the private equity firm to exert greater effort at managing or monitoring companies in order to maximize profits.¹⁰⁶ Consistent with this incentive, academic literature finds that private equity firms frequently report being “actively involved” in the management of their portfolio companies. Indeed, Gompers et al. (2016) find that the median private equity investor claims to actively advise the portfolio company on strategic choices “in all of his or her deals.”¹⁰⁷ Academic literature also finds that portfolio companies of private equity firms have smaller boards “than comparable public company boards and meet more frequently.”¹⁰⁸ Some studies suggest smaller boards lead to better firm governance.¹⁰⁹

49. Second, private equity firms pay close attention to aligning portfolio company management’s incentives with their own. Academic literature finds that management’s ownership stake in a public company acquired by a private equity firm typically increases “by a factor of four” after the buyout.¹¹⁰ Indeed, Kaplan and Stromberg (2009) document that private equity firms typically require management to make a “meaningful investment” in the portfolio company, helping align both their upside and downside incentives.¹¹¹ Also, academic literature finds private equity firms are active in the selection of portfolio firm management, frequently replacing incumbent managers upon acquisition.¹¹²

¹⁰⁶ Andrei Shleifer, and Vishny, Robert W., “Large Shareholders and Corporate Control,” *Journal of Political Economy* 94, no. 3, 1986, pp. 461–488 at 461 (“In a corporation with many small owners, it may not pay any one of them to monitor the performance of the management. We explore a model in which the presence of a large minority shareholder provides a partial solution to this free-rider problem.”); Jensen and Meckling (1976), p. 313 (“[A]s the manager’s ownership claim falls, his incentive to devote significant effort to creative activities such as searching out new profitable ventures falls.”).

¹⁰⁷ Paul Gompers et al., “What Do Private Equity Firms Say They Do?” *Journal of Financial Economics* 121, no. 3, 2016, pp. 449–476 (“Gompers et al. (2016)”) at 462 (“[T]able [16] reports the fraction of deals in which the sample PE investors become involved in the management of portfolio companies, i.e., actively advising the company on strategic choices. ... Table 16 indicates that PE investors are actively involved in advising their companies in the great majority of their deals. In fact, the median PE investor claims to be actively involved in all of his or her deals.”). See also Kaplan and Stromberg (2009), pp. 131–132.

¹⁰⁸ Kaplan and Stromberg (2009), p. 131.

¹⁰⁹ See, e.g., David Yermack, “Higher Market Valuation of Companies with a Small Board of Directors,” *Journal of Financial Economics* 40, 1996, pp. 185–211 at 185 (“I find an inverse association between board size and firm value[.]”); Theodore Eisenberg, Sundgren, Stefan, and Wells, Martin T., “Larger Board Size and Decreasing Firm Value in Small Firms,” *Journal of Financial Economics* 48, no. 1, 1998, pp. 35–54 at 35 (“We find a significant negative correlation between board size and profitability[.]”).

¹¹⁰ Kaplan and Stromberg (2009), p. 132.

¹¹¹ Kaplan and Stromberg (2009), p. 132.

¹¹² Gompers et al. (2016), p. 463 (“After the investment, roughly 50% of the PE investors end up recruiting their own senior management team. This is consistent with some of the PE investors becoming more actively involved in the governance of their companies after the investment. When we combine the PE investors who recruit their own teams before, or after, or both before and after investing, we find that almost 58% of the PE investors recruit their own senior teams.”); Kaplan and Stromberg (2009), p. 132 (“Acharya and Kehoe (2008) report that one-third of chief executive

50. Finally, academic literature indicates that private equity ownership incentivizes managers to focus on longer-term value-maximizing investments as opposed to short-term profit generation.¹¹³ Private equity ownership can reduce short-term pressure associated with quarterly earnings reports. In contrast to publicly traded companies, privately held companies are not required to report quarterly financial statements to the SEC. Academic literature has recognized that public reporting requirements may create pressure to generate quarterly profits at the potential expense of long-term investments to meet earnings expectations and satisfy public financial markets.¹¹⁴

IV. Retail Investors Would Benefit from Access to Private Capital Investment Options

51. In the prior section, I surveyed academic literature highlighting that private capital has historically outperformed public markets. I also documented some of the drivers of value creation in private markets that help explain that outperformance. In this section, I illustrate empirically why access to private assets benefits retail investors. As these analyses show, a portfolio that includes both public and private components is expected to experience higher risk-adjusted returns than a public-only portfolio.

A. Empirical Evidence Confirms Outperformance of Private Capital

52. Consistent with the findings in the literature, data on private capital performance indicates private assets have performed well relative to public markets. **Figure 8** below compares the annualized return of private capital against public markets.¹¹⁵ As the figure shows, private equity and private credit have historically outperformed their respective public market index.

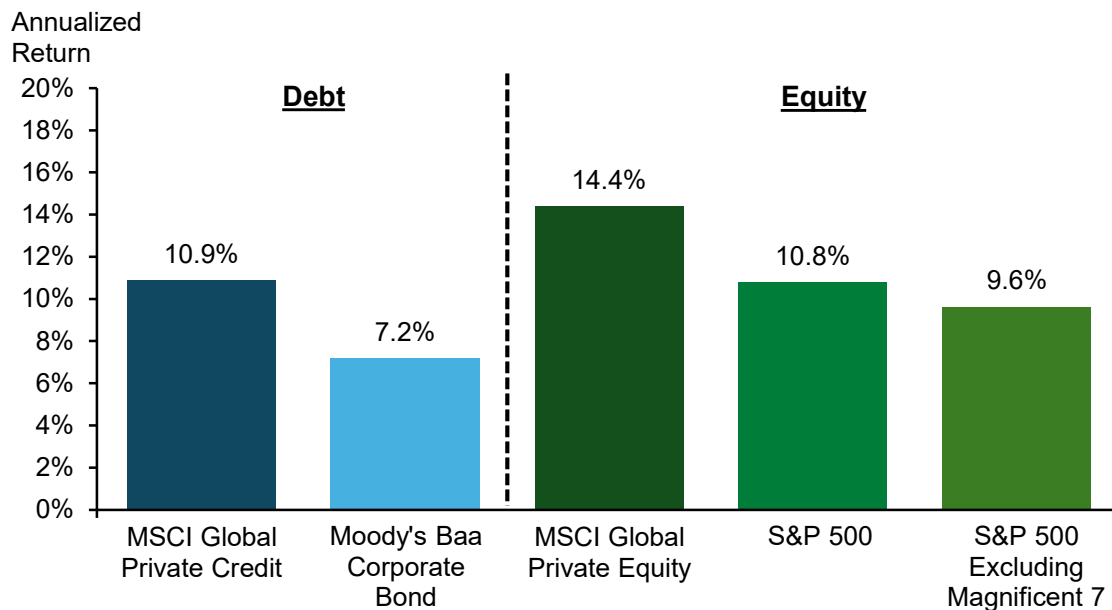
officers of these firms are replaced in the first 100 days while two-thirds are replaced at some point over a four-year period.”).

¹¹³ Kaplan and Stromberg (2009), p. 131 (“Moreover, because the companies are private, management’s equity is illiquid—that is, management cannot sell its equity or exercise its options until the value is proved by an exit transaction. This illiquidity reduces management’s incentive to manipulate short-term performance.”).

¹¹⁴ Jeremy C. Stein, “Efficient Capital Markets, Inefficient Firms: A Model of Myopic Corporate Behavior,” *The Quarterly Journal of Economics* 104, no. 4, 1989, pp. 655–669 at 655 (“In an effort to mislead the market about their firms’ worth, managers forsake good investments so as to boost current earnings.”).

¹¹⁵ I measure private capital returns using historical returns from MSCI Private Capital indices. These indices measure quarterly performance to private capital, accounting for fund-level contributions, distributions, and net asset values within the index asset class.

FIGURE 8
Annualized Return of MSCI Private Capital Indices vs. Public Market Indices, 1990–2025



Source: *Bloomberg*; *LSEG*; *FRED*; "Historical Returns on Stocks, Bonds, and Bills: 1928-2025," *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html

Note: The S&P 500 Excluding Magnificent 7 annualized return measures the performance of the S&P 500 after removing Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, and Tesla from the index.

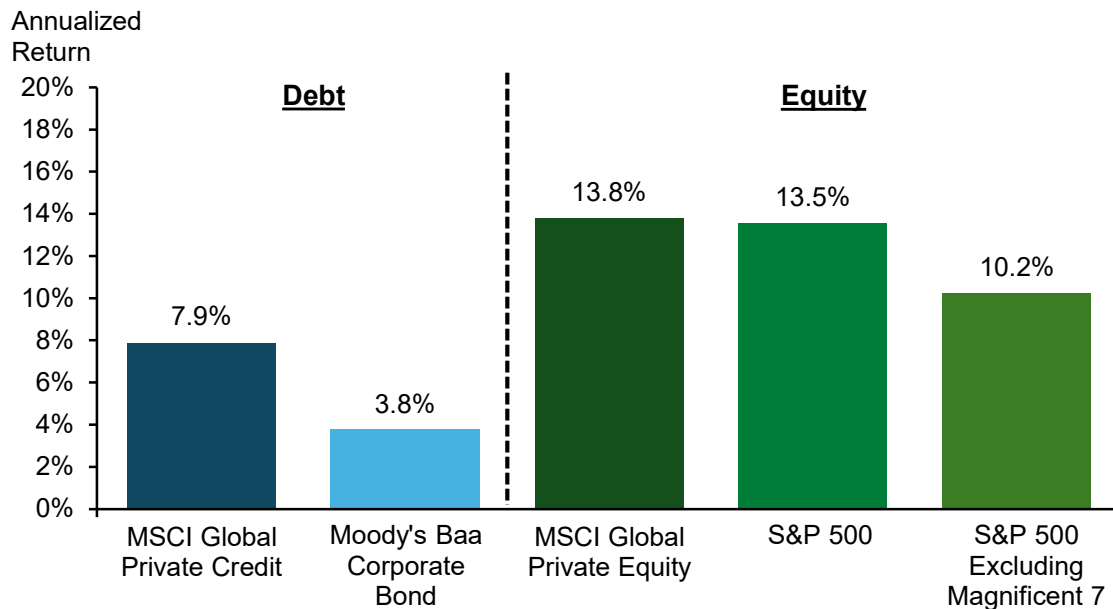
53. In equity markets, the MSCI Global Private Equity index returned 14.4%. Over the same period, the S&P 500 has returned on average 10.8% per year between 1990 and 2025. In credit markets, the MSCI Global Private Credit index has returned on average 10.9% per year between 1990 and 2025. Over the same period, the Moody's Baa Corporate Bond index has returned on average 7.2% per year. As discussed in Section II.C.3, the Mag 7 have become important drivers of performance for public equity indices in the U.S. **Figure 8** also shows that without these seven companies, public equity markets returned only 9.6% annualized between 1990 and 2025 (versus 14.4% for the MSCI Global Private Equity index).

54. The time period for the construction of **Figure 8** begins in 1990, long before some of the Magnificent 7 even existed. This fact minimizes the difference between the historically observed S&P 500 return and that which is obtained from removing them. **Figure 9** below repeats this exercise but focuses on more recent years, beginning in 2015.¹¹⁶ The MSCI Global Private

¹¹⁶ Analysis of historical returns should incorporate evaluation of returns, net of fees, over long investment horizons. Sustained performance over many years is more likely to reflect genuine, rather than anomalous returns. Returns

Equity index returned 13.8% annualized between 2015 and 2025. In comparison, the S&P 500 returned 13.5% annualized over the same period. After excluding the Magnificent 7, the S&P 500 significantly underperformed private equity markets, returning only 10.2% between 2015 and 2025.

FIGURE 9
Annualized Return of MSCI Private Capital Indices vs. Public Market Indices, 2015–2025



Source: *Bloomberg*; *LSEG*; *FRED*; "Historical Returns on Stocks, Bonds, and Bills: 1928-2025," *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html

Note: The S&P 500 Excluding Magnificent 7 annualized return measures the performance of the S&P 500 after removing Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, and Tesla from the index.

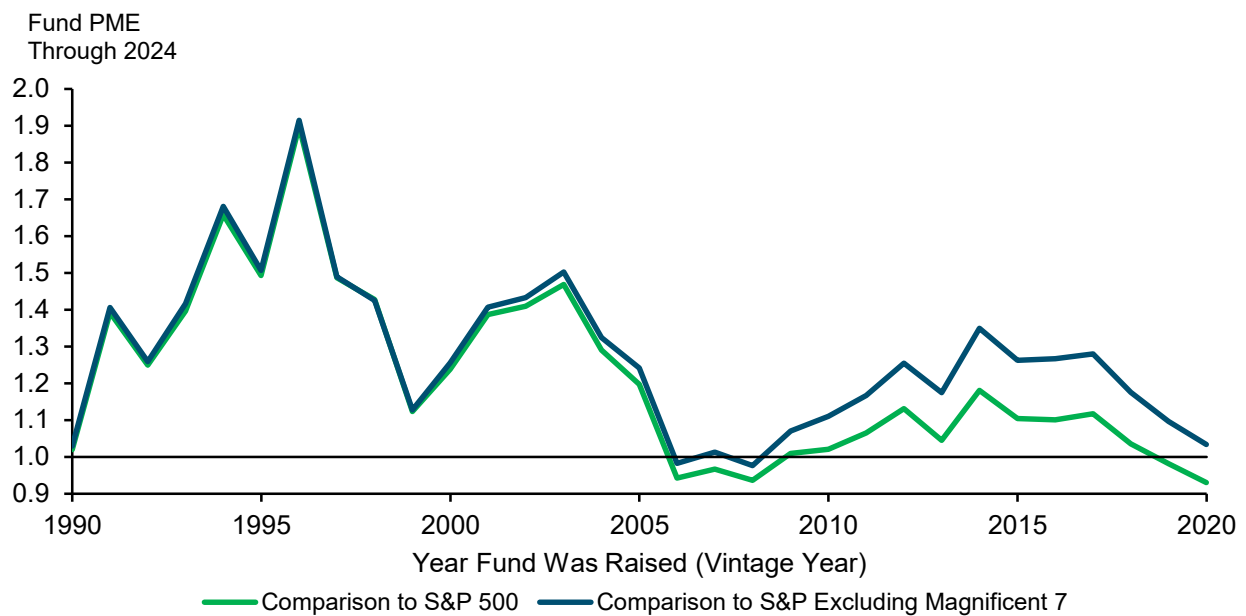
55. Private equity funds have also consistently outperformed the S&P 500 across fund vintages.¹¹⁷ **Figure 10** below shows private equity funds' pooled PME through the end of 2024

over a short investment window, such as three-years, may be misleading and unlikely to persist. In my perspective, ten years is a sufficiently long period to draw comparisons between assets. In the case of private equity, one article finds that "past periods of underperformance were followed by strong multi-year rebounds." See "2026 Market Overview," *Hamilton Lane*, accessible at <https://www.hamiltonlane.com/2026-market-overview/performance#long-term>.

¹¹⁷ MSCI defines a fund vintage as the year of a fund's first capital flow. A vintage represents the beginning of a fund's investment cycle. Vintage years are a concept that primarily pertains to traditional closed-end drawdown funds rather than evergreen vehicles, which are permanent investment facilities. Although I understand retail investors are expected to access private capital via evergreen funds rather than drawdown funds (see Section IV.B, analyzing performance of drawdown funds across vintage years is a useful indicator of the persistence of private capital outperformance relative to public markets.

using the S&P 500 as a comparison index.¹¹⁸ I present my analysis by the year that the funds were raised, with each point on the graph representing the PME associated with all funds raised in a particular year. Further, I restrict my analysis to funds raised between 1990 and 2020 because funds raised in more recent years are still early in their investment cycle and likely have not yet realized returns on a significant portion of their investments.

FIGURE 10
PME Through 2024 by Vintage Year of Private Equity Fund, Funds Raised Between 1990–2020



Source: *Bloomberg; MSCI; LSEG*; "Historical Returns on Stocks, Bonds, and Bills: 1928-2025," *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html

Note: PME is calculated by vintage year as the sum of all fund distributions through 2024 and the remaining value of funds at the end of 2024 divided by the sum of all paid-in capital to funds through 2024. Analysis is performed only through 2024 as cashflow data for full-year 2025 was not available from MSCI in time to incorporate before publication. The degree to which PMEs would change from adding incremental years depends on the value of assets remaining in funds relative to historical distributions. For funds in vintage years prior to 2017, the remaining value of fund assets is lower than historical distributions and thus the impact on PMEs of adding incremental data is likely low. Cash flows are discounted using the returns of the S&P 500 or S&P 500 Excluding Magnificent 7. The S&P 500 Excluding Magnificent 7 return measures the performance of the S&P 500 after removing Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, and Tesla from the index.

56. My analysis finds that private equity funds raised in 26 of 31 vintage years between 1990 and 2020 outperformed the S&P 500 (*i.e.*, their PME was above 1.0) through the end of 2024. For example, through the end of 2024, the PME for vintage year 2000 funds is 1.24. A simple

¹¹⁸ See Section III.A for a description of PME. PME values greater than 1.0 indicate that the private equity funds in the respective vintage year on average outperformed the S&P 500 net of fees.

way of interpreting this statistic is that, by the end of 2024, vintage year 2000 funds had returned \$1.24 to their investors for every \$1 that these investors would have received by buying instead the S&P 500. More generally, the average vintage year PME is 1.22, indicating investors in private equity funds received 22% more than they would have if they invested the same capital in the S&P 500.

57. The blue line represents the PME for funds raised in each vintage year when compared against the revised S&P 500 excluding the Magnificent 7 instead.¹¹⁹ As expected, the performance of private equity funds through 2024 is even stronger relative to this index. After excluding the Magnificent 7, private equity funds outperformed the S&P 500 net of fees in 29 of 31 vintage years and produced an average vintage year PME of 1.28. The tech sector has experienced sharp growth since the 2008 financial crisis, making the impact of the Magnificent 7 most relevant in the post-crisis period. For funds raised between 2010 to 2020, the average vintage year PME relative to the S&P 500 was 1.06, but the average vintage year PME relative to the S&P 500 excluding the Magnificent 7 was 1.20 over the same period.

58. These comparisons between public and private asset returns do not account for the possibility that these assets have different risk profiles. In other words, a potential explanation for private capital's outperformance relative to public markets is that these assets are simply riskier, thus requiring greater returns to compensate investors for this risk.¹²⁰ However, I find that the data do not support this hypothesis. **Figure 11** below shows the Sharpe ratios of each of these indices over the period between 1990 and 2025. The Sharpe ratio is a measure of the attractiveness of a portfolio accounting for the volatility of the returns, and a higher Sharpe ratio means investors obtained better risk-adjusted returns.¹²¹ On the equity side, the MSCI Global Private Equity index has a Sharpe ratio of 0.69 whereas the S&P 500 and the S&P 500 excluding Magnificent 7 have Sharpe ratios of 0.55, and 0.51, respectively. On the credit side, the MSCI Global Private Credit index has a Sharpe ratio of 0.89 whereas the Moody's Baa Corporate Bond

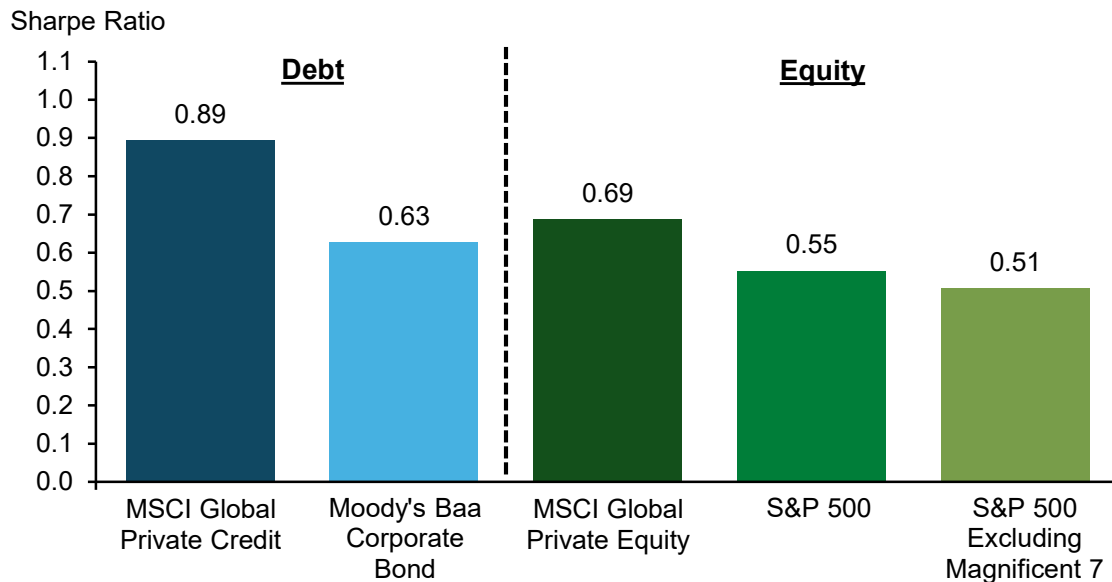
¹¹⁹ As discussed in Section II.C.3, the Magnificent 7 stocks have become an increasingly important driver of public equity index performance.

¹²⁰ Zvi Bodie, Kane, Alex, and Marcus, Alan, *Investments*, McGraw-Hill Education, 2018 ("Bodie et al. (2018)"), p. 10 ("[T]here should be a risk-return trade-off in the securities markets, with higher risk assets priced to offer higher expected returns than lower-risk assets.").

¹²¹ The Sharpe ratio of a portfolio is calculated as the portfolios expected excess return over risk free rate divided by the standard deviation of the return. The Sharpe ratio is used to measure risk-adjusted performance. See Bodie et al. (2018), p. 133 ("The importance of the trade-off between reward (the risk premium) and risk (as measured by standard deviation or SD) suggests that we measure the attraction of a portfolio by the ratio of its risk premium to the SD of its excess returns. This reward-to-volatility measure was first used extensively by William Sharpe and hence is commonly known as the *Sharpe ratio*. It is widely used to evaluate the performance of investment managers.").

index has a Sharpe ratio of 0.63. In sum, even adjusting for the risk of these assets, the performance of private capital exceeds public market indices.

FIGURE 11
Sharpe Ratios of MSCI Private Capital Indices vs. Public Market Indices, 1990–2025



Source: *Bloomberg*; *LSEG*; *FRED*; "Historical Returns on Stocks, Bonds, and Bills: 1928-2025," *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html

Note: The Sharpe ratio is calculated as the average of the difference between the annual index return and the risk free rate, divided by the standard deviation of the difference between the annual return and the risk free rate. The risk free rate is the 3-Month Treasury bill secondary market rate. The S&P 500 Excluding Magnificent 7 annualized return measures the performance of the S&P 500 after removing Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, and Tesla from the index.

B. Investing in Private Capital Would Benefit Retirement Savers

59. The sustained historical outperformance of private capital means that a portfolio containing a mix of private-public assets can experience meaningful excess savings relative to a public-only portfolio over a long-term investment horizon, such as that of an investor saving for retirement. In this section, I illustrate the excess savings retirement savers might expect to receive from investing in retirement vehicles that incorporate private capital.

1. Target Date Fund Investors

60. A Target Date Fund (“TDF”) is a fund that invests in a diversified portfolio of assets.¹²² TDFs are so named because the asset allocation of the fund is designed for the needs of an investor who expects to retire on the “target date” of the fund.¹²³ Specifically, the asset allocation of a TDF follows a risk “glide path” as its target date approaches, shifting from a riskier allocation (*i.e.*, higher allocation to public equities) focused on capital appreciation when the investor is young to a more conservative allocation focused on capital preservation when the investor is in retirement.¹²⁴ TDFs are commonly offered to DC plan participants.¹²⁵ Academic literature indicates investing in TDFs benefits retirement investors who are unable to construct an efficient portfolio on their own.¹²⁶

61. Based on interviews I have conducted with industry practitioners, I understand that one of the ways in which retirement savers are expected to access private capital is by holding TDFs that allocate a portion of assets to such investments.¹²⁷ **Figure 12** below shows how this investment structure might work. Among the assets held by the TDF would be a stake in a private capital investment vehicle. This vehicle would typically be structured as a Collective Investment Trust (“CIT”) or a similar custodial arrangement.¹²⁸ This CIT would contain a

¹²² Bodie et al. (2018), p. 955 (“A target-date retirement fund (TDRF) is a fund composed of other funds, diversified across stocks, bonds, and money market accounts, in which the asset allocation becomes progressively more conservative as the investor approaches his or her retirement date.”).

¹²³ Bodie et al. (2018), p. 955 (“TDRFs are marketed as enabling investors to put their investment plans on autopilot. Once you choose a fund with a target year matching your investment horizon, the life cycle manager gradually moves some of your money out of stocks and into bonds as your retirement date nears.”).

¹²⁴ As an illustrative example, consider the glide path used by Vanguard TDFs. Early in the investor’s career (*i.e.*, when the investor is at least 25 years from retirement), Vanguard allocates 90% of assets to equity and 10% to assets to bonds. After the investor turns 40, the TDF begins sliding down the glide path such that the asset allocation gradually switches from emphasizing equities to emphasizing bonds. By the time the investor turns 72, the allocation has switched to 30% equity and 70% bonds. See “Target-date Fund Glide Path,” *Vanguard*, accessible at <https://workplace.vanguard.com/investment/strategies/tdf-glide-path.html>.

¹²⁵ According to the Investment Company Institute, approximately 85% of 401(k) plans offered TDFs in 2022. See “Quick Facts on Target Date Fund Use in Retirement Plans,” *ICI*, 2025, accessible at <https://www.ici.org/system/files/2025-12/25-ici-quick-facts-target-date-funds-retirement.pdf>.

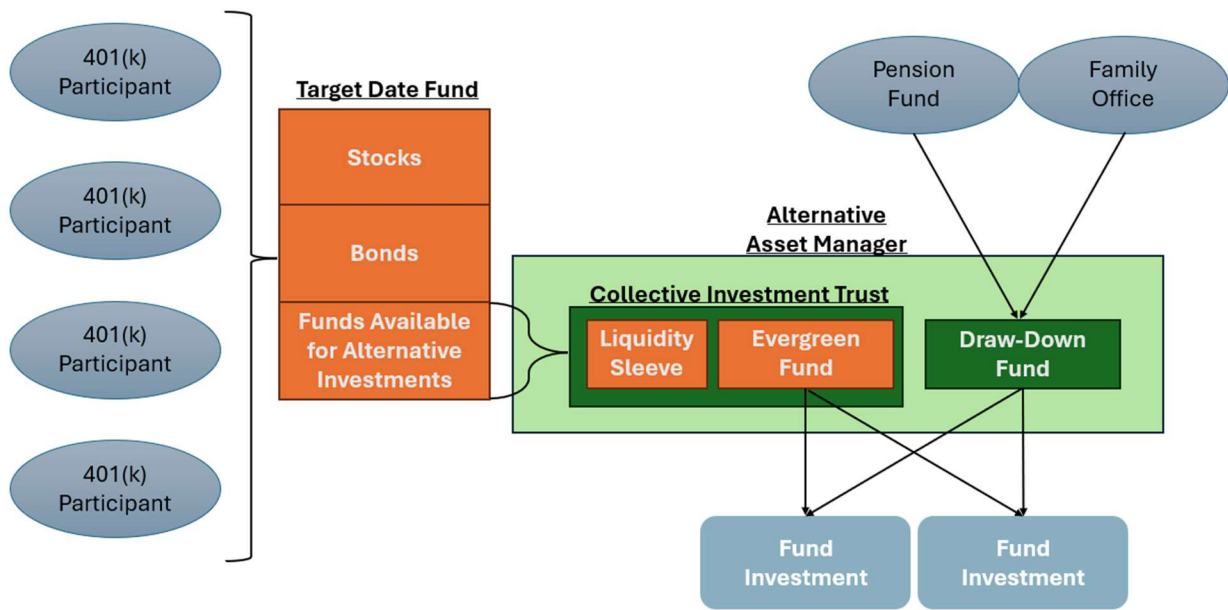
¹²⁶ Olivia S. Mitchell, and Utkus, Stephen P., “Target-Date Funds and Portfolio Choice in 401(K) Plans,” *Journal of Pension Economics and Finance* 21, 2022, pp 519–536 at 533 (“[T]arget-date investors take greater risks across the lifecycle, follow a lifecycle-based age gradient, and enhance their exposure to factors embedded in the funds designed by the portfolio manager. These changes could be welfare-enhancing under the joint assumptions that the target-date design represents an efficient portfolio frontier (selected by the sponsor and fund manager), and that workers without TDFs would fail to construct efficient portfolios, or would choose suboptimal points on that frontier, due to either investment literacy problems or behavioral biases.”).

¹²⁷ The retirement saver would allocate a portion of their retirement savings towards a TDF that offered private capital exposure either by making an affirmative election or defaulting into it through a QDIA.

¹²⁸ “Collective Investment Trust (CIT),” *U.S. Securities and Exchange Commission*, accessible at <https://www.investor.gov/introduction-investing/investing-basics/glossary/collective-investment-trust-cit> (“A collective investment trust (CIT), also called a collective trust fund, is a pooled investment vehicle that combines the money of multiple investors into a single portfolio with a specific investment strategy.”).

“liquidity sleeve,” that is a proportion of the fund’s assets and would be held in highly liquid investments earning market returns. The remainder of the CIT’s assets would be invested in an evergreen fund or an underlying vehicle, such as another CIT, that invests directly into an evergreen fund (see Section II.A), which would provide periodic liquidity opportunities. The evergreen fund would be managed by an alternative asset manager that also manages traditional draw-down funds for institutional investors. The evergreen fund and the drawdown fund could coinvest in the same companies.

FIGURE 12
Example of Target Date Fund Private Market Investment Vehicle



62. As the figure illustrates, the liquidity available to retirement investors would differ significantly from that available to investors in traditional draw-down funds. The liquidity sleeve that exists at the CIT level would allow for a good deal of idiosyncratic liquidity demand without requiring the evergreen fund to sell any of its investments. At the same time, the

evergreen fund would have its own liquidity buffer, so that it could meet excess demand for liquidity without interrupting its own natural investment opportunities.¹²⁹

63. To illustrate the impact of providing retirement investors with access to private capital, I perform a simulation comparing the performance of two retirement portfolios over forty years—one a TDF that invests in both public markets and private capital and the other a public-only TDF. I construct these hypothetical TDFs using the average equity-debt split for all TDFs tracked by Morningstar to construct their glide path.¹³⁰ However, for the TDF incorporating private capital, I allocate 15% of its assets to private markets, using the equity-debt glide path split to make a pro rata allocation to private equity and private credit. For example, suppose that for a given year on the glide path, the public-only target date fund allocates 90% of assets to equity and 10% debt. For the TDF with a private capital allocation, I would assign a 13.5% allocation to private equity (76.5% allocation to public equity) and 1.5% allocation to private credit (8.5% allocation to public bonds). **Figure 13** below illustrates the glide paths of each TDF through the period of my simulation, namely 40 years leading up to retirement.

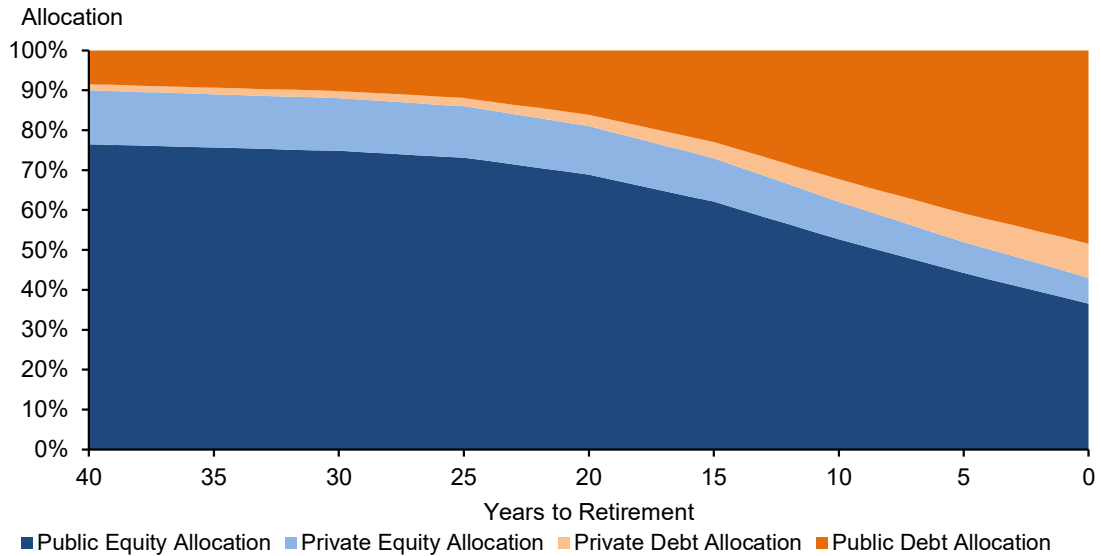
¹²⁹ As noted in Section II.A above, evergreen funds provide periodic liquidity opportunities. The CIT's liquidity sleeve would permit it to meet excess demand for liquidity without interrupting the evergreen fund's own natural investment opportunities.

¹³⁰ Specifically, I use Morningstar's average TDF equity glide path from forty years before retirement to retirement to construct a glidepath for my public-only and public-private TDFs. See "American Funds Target Date Retirement Series," *Morningstar*, Target-Date Fund Series Report, December 31, 2025, p. 1.

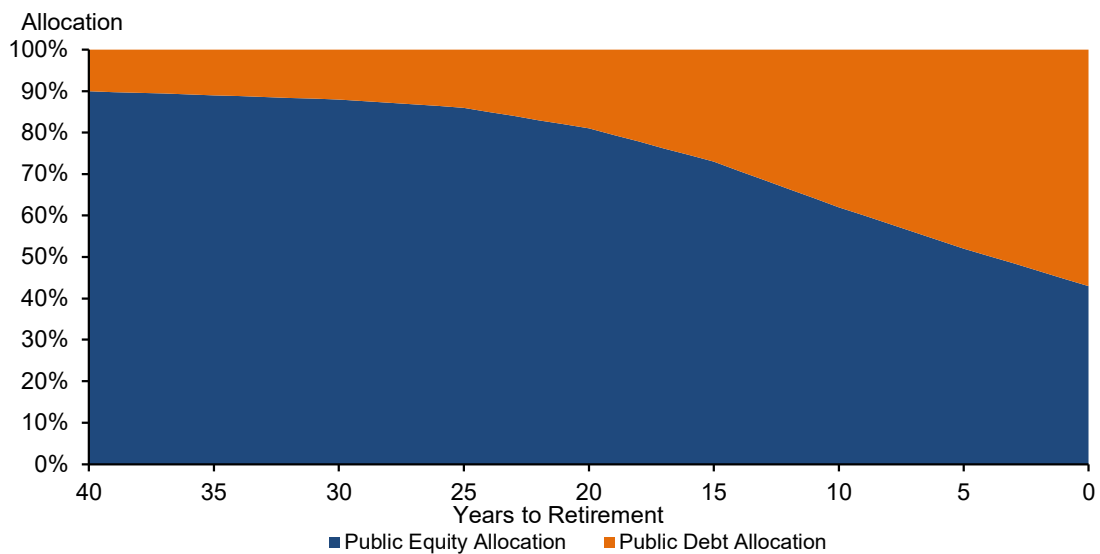
FIGURE 13

Glide path of hypothetical public-private TDF vs. public-only TDF

Panel A: Glidepath Allocations in Public-Private Target Date Fund Simulation (15%)



Panel B: Glidepath Allocations in Public-Only Target Date Fund Simulation

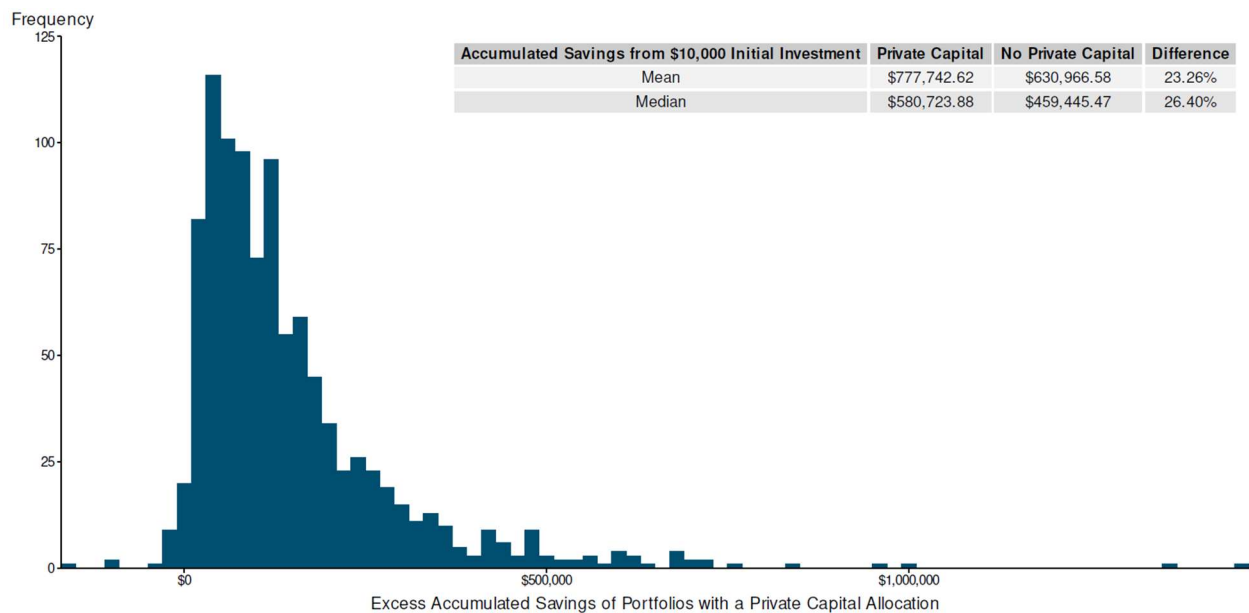


Source: Morningstar

Note: The chart shows the difference in allocation of assets to public and private assets between two target date funds simulated over a 40-year time horizon. As the fund nears the target date, assets are allocated away from equity and shifted towards debt to minimize risk in the approach to retirement. The glidepath data with equity targets benchmarked every five years is interpolated across the 40-year time horizon to calculate yearly asset allocations.

64. My simulation analysis demonstrates that retirement investors benefit on average from access to private capital. **Figure 14** shows the result of my simulation by plotting the distribution of the excess savings experienced from an initial \$10,000 investment in the private-public TDF relative to the public-only TDF after 40 years.¹³¹ In 982 of 1,000 simulations (98.2%), the TDF integrating private capital accumulates more savings. The average difference in savings is \$147 thousand, an increase of 23% over the public-only TDF.

FIGURE 14
Distribution of the Simulated Difference in Savings from \$10,000 Investment in TDF with Private Capital Allocation vs. without Private Capital Allocation



Source: *Bloomberg*; "Historical Returns on Stocks, Bonds, and Bills: 1928-2025," *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html; *Morningstar*

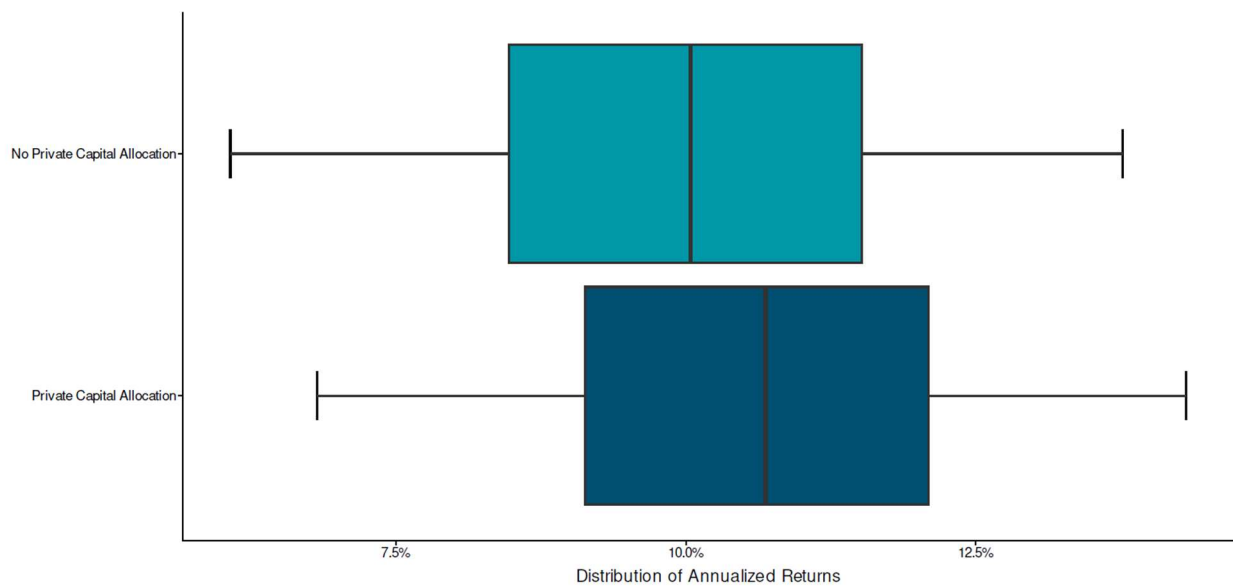
Note: The histogram shows the frequency of simulated excess accumulated savings of a \$10,000 investment TDF portfolio that includes a private capital allocation relative to a \$10,000 investment TDF portfolio that excludes private capital. I assume the entire \$10,000 is invested at the portfolio's inception and that there are no further contributions. Forty years of returns are simulated 1,000 times using expected returns and covariances of assets estimated with historical return data from 1990 to 2024. The TDF investment options include the S&P 500 index, the Moodys Baa Corporate Bond index, the MSCI Global Private Equity index, and the MSCI Global Private Credit index. The investment allocations for the portfolio adjust over the simulation based on the average TDF equity glide path reported by Morningstar as of December 31, 2025. In the portfolio with private capital, a 15% pro rata private capital allocation is assigned to the equity and debt glide path allocations. The portfolio excluding private capital invests exclusively in the S&P 500 and the Moodys Baa Corporate Bond index. Investment portfolios are rebalanced each year. This process is repeated 1,000 times to create the simulated distribution of portfolio returns.

¹³¹ Each portfolio starts with \$10,000. I simulate the savings accumulation of the two portfolio options 1,000 times.

65. Importantly, the inclusion of private assets in the TDF fund also benefits investors by improving the expected return distribution of their portfolios and reducing downside risks.

Figure 15 shows the distribution of annualized returns for each portfolio and illustrates that diversifying into private assets lowers downside risk. As shown in the figure, for the private-public TDF, an outcome at the 5th (25th) percentile earned annualized returns of 6.8% (9.1%). In contrast, in the public-only TDF, the annualized return at the 5th (25th) percentile is only 6.1% (8.5%). Additionally, including private assets also increases average returns. The median return of the private-public TDF exceeds the public-only TDF by 0.6% per year. Therefore, a TDF that incorporates a 15% allocation of assets to private capital not only enhances returns on average but also mitigates downside risk.

FIGURE 15
Distribution of the Simulated Annualized Returns from Investment Portfolio with Private Capital Allocation vs. without Private Capital Allocation



Source: *Bloomberg*; "Historical Returns on Stocks, Bonds, and Bills: 1928-2025," *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html; *Morningstar*

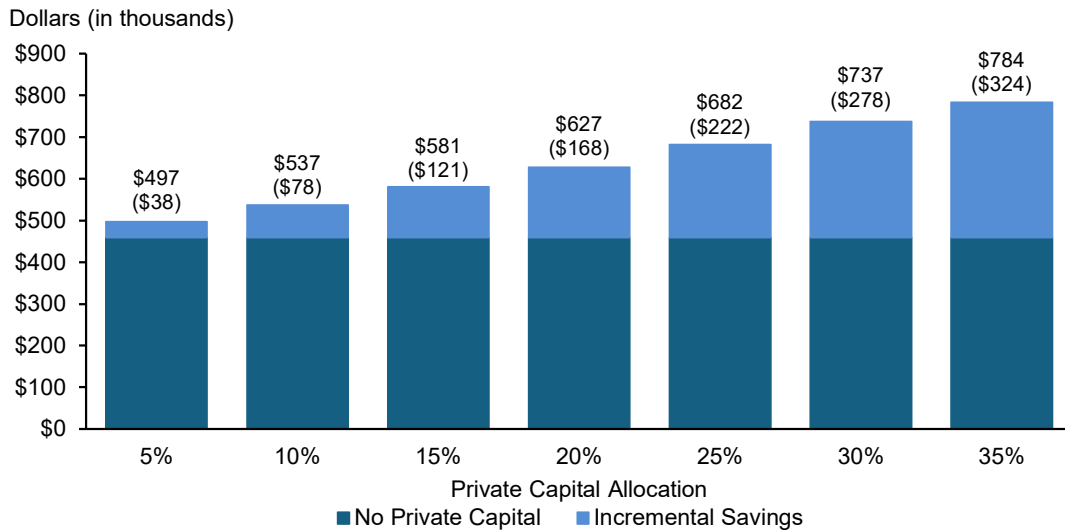
Note: The box and whisker plot shows the distribution of simulated annualized returns of a TDF investment portfolio that includes a private capital allocation and a TDF investment portfolio that excludes private capital. Forty years of returns are simulated 1,000 times using expected returns and covariances of assets estimated with historical return data from 1990 to 2024. The TDF investment options include the S&P 500 index, the Moodys Baa Corporate Bond index, the MSCI Global Private Equity index, and the MSCI Global Private Credit index. The investment allocations for the portfolio adjust over the simulation based on the average TDF equity glide path reported by Morningstar as of December 31, 2025. In the portfolio with private capital, a 15% private capital allocation is assigned on a pro rata basis to the equity and debt glide path allocations. The portfolio excluding private capital invests exclusively in the S&P 500 and the Moodys Baa Corporate Bond index. The box and whisker plot indicates returns at the 5%, 25%, 50%, 75%, and 95% of the simulated return distribution.

66. As noted in Section II.A, there is a wide dispersion in pension plans allocations to private capital, with some plans allocating considerably more than 15% of assets to these alternative assets. In **Figure 16** below, I show how the median simulated retirement savings from a \$10,000 initial investment changes under a range of alternative private capital allocations between 0% and 35%. The accumulated retirement savings after forty years monotonically increases as the TDF private capital allocation rises. For example, the median TDF portfolio with a 10% private capital allocation accumulates \$537 thousand in savings, 17% more than the TDF without private capital. Increasing the private capital allocation to 25% improves median simulated savings to \$682 thousand, 48% more than the TDF without private capital. Furthermore, TDF portfolios with private capital outperform the TDF without private capital on at least 98% of simulations, demonstrating that the TDFs incorporating private capital rarely underperform over a retirement investment horizon.

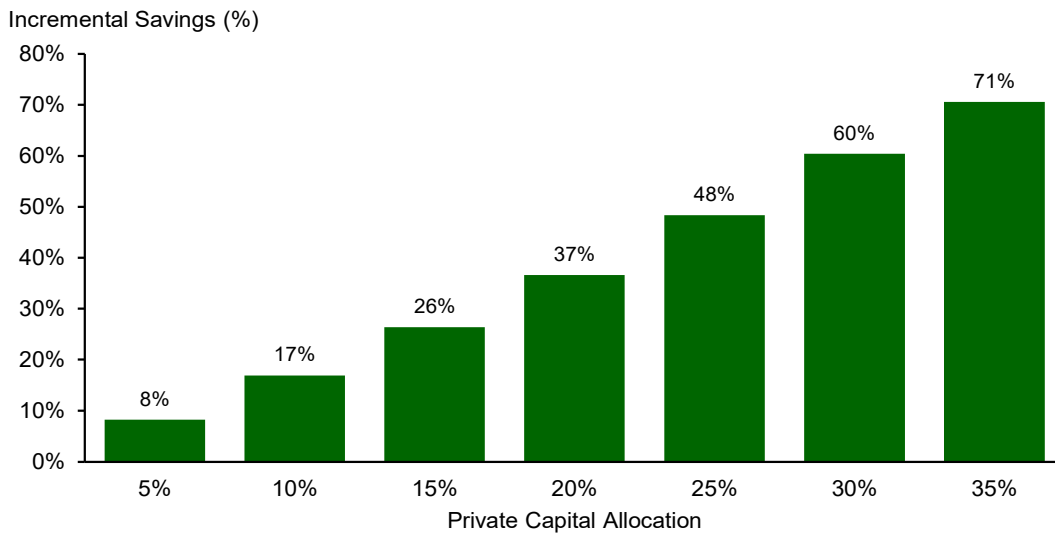
FIGURE 16

Median Incremental Simulated Savings from \$10,000 Investment in TDF by Private Capital Allocation

Panel A: Median Value of Public-Private Portfolio at Retirement (Incremental Savings)



Panel B: Incremental Savings (%) Accrued by Median Public-Private Portfolio



Source: *Bloomberg*; "Historical Returns on Stocks, Bonds, and Bills: 1928-2025," *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html; *Morningstar*

Note: The chart shows the median savings from 1,000 simulations of a \$10,000 investment in a TDF portfolio over forty years using expected returns and covariances of assets estimated with historical return data from 1990 to 2024. I assume the entire \$10,000 is invested at the portfolio's inception and that there are no further contributions. The TDF investment options include the S&P 500 index, the Moody's Baa Corporate Bond index, the MSCI Global Private Equity index, and the MSCI Global Private Credit index. The investment allocations for the portfolio adjust over the simulation based on the average TDF equity glide path reported by Morningstar as of December 31, 2025. Each bar represents a different assumed pro rata private capital allocation of the equity and debt glide path allocations. Investment portfolios are rebalanced each year.

2. Allocation Fund Investors

67. Based on my discussions with industry practitioners, I understand that retirement savers may also access private capital through allocation funds. An allocation fund (also called a balanced fund) is a fund investing in a diversified portfolio of assets.¹³² Allocation funds are similar to TDFs in that they make investments across multiple asset classes; however, unlike a TDF, allocation funds hold their asset mix constant in perpetuity (i.e., there is no glide path).¹³³ A common example of allocation funds are 60-40 funds, which invest 60% of their assets in equity and 40% in debt.¹³⁴ For investors in an allocation fund, the private capital investment chain would closely resemble **Figure 12** above, with the allocation fund (rather than the TDF) investing into the CIT. As with the TDF, the CIT would contain a “liquidity sleeve” to meet the allocation fund’s demands for deposits and withdrawals.

68. I perform similar retirement portfolio simulations mimicking retirement savings growth under an allocation fund investment structure. In particular, I compare retirement portfolio savings accumulation over forty years between a 60-40 allocation fund that only invests in public markets against another portfolio that is also 60-40 equity-debt, but invests 15% of each of these allocations in private markets.

69. As with my analysis on TDFs, I find that retirement savers in allocation funds would benefit from access to private capital. **Figure 17** below shows the result of my simulation by plotting distribution of the excess savings experienced from an initial \$10,000 investment in the private-public portfolio relative to the public portfolio after 40 years.¹³⁵ In 992 of 1,000 simulations (99.2%), the portfolio integrating private capital accumulates more savings after

¹³² “Balanced Fund,” *U.S. Securities and Exchange Commission*, accessible at <https://www.investor.gov/introduction-investing/investing-basics/glossary/balanced-fund> (“A balanced fund or an asset allocation fund is a mutual fund, exchange-traded fund (ETF), closed-end fund, or unit investment trust (UIT) that invests in stocks, bonds, and money market instruments in an attempt to reduce risk but still provide capital appreciation and income.”).

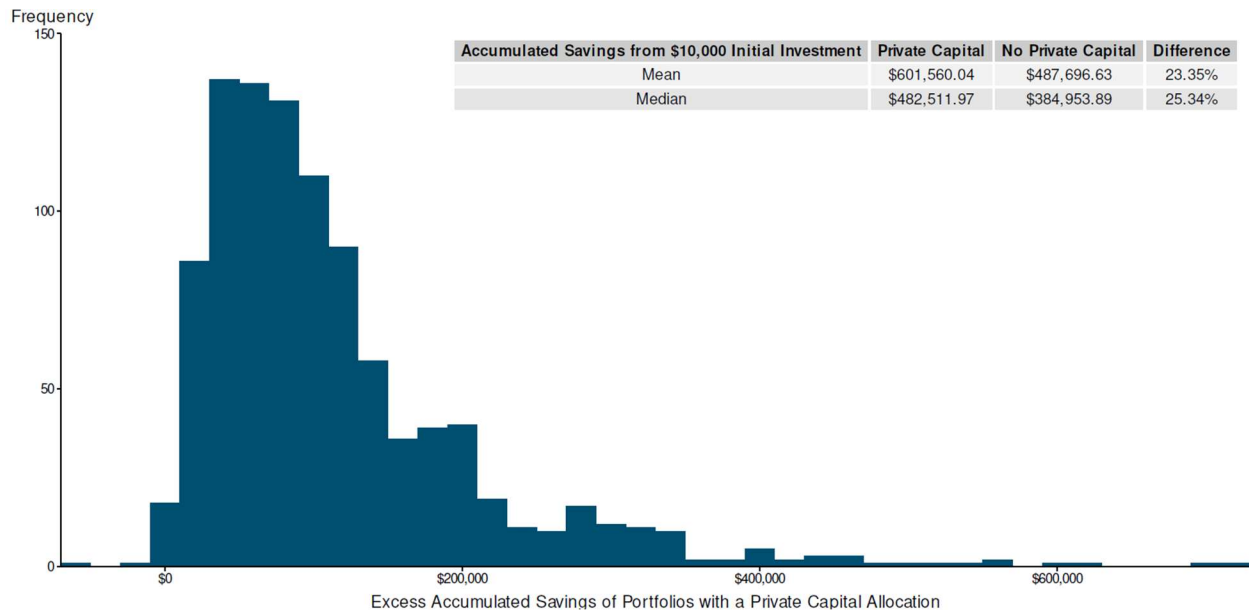
¹³³ “Balanced Fund,” *U.S. Securities and Exchange Commission*, accessible at <https://www.investor.gov/introduction-investing/investing-basics/glossary/balanced-fund>.

¹³⁴ Nga Pham, Cui, Bei, and Ruthbah, Ummul, “The Performance of the 60/40 Portfolio: A Historical Perspective,” *CFA Institute Research and Policy Center*, 2025, p. 4 (“The traditional 60/40 portfolio has 60% invested in equity and 40% invested in fixed-income securities, such as government bonds. It combines the potentially high returns of equity investments and the stability of bond income...The 60/40 portfolio earns much of its popularity from its straightforward approach to portfolio construction and implementation, making it an appealing choice for investors seeking simplicity in their investment strategy.”).

¹³⁵ Each portfolio starts with \$10,000. I simulate the savings accumulation of the two portfolio options 1,000 times.

forty years. The average difference in savings is \$114 thousand, an increase of 23% over the public-only portfolio.

FIGURE 17
Distribution of the Simulated Difference in Savings from \$10,000 Investment Portfolio with Private Capital Allocation vs. without Private Capital Allocation



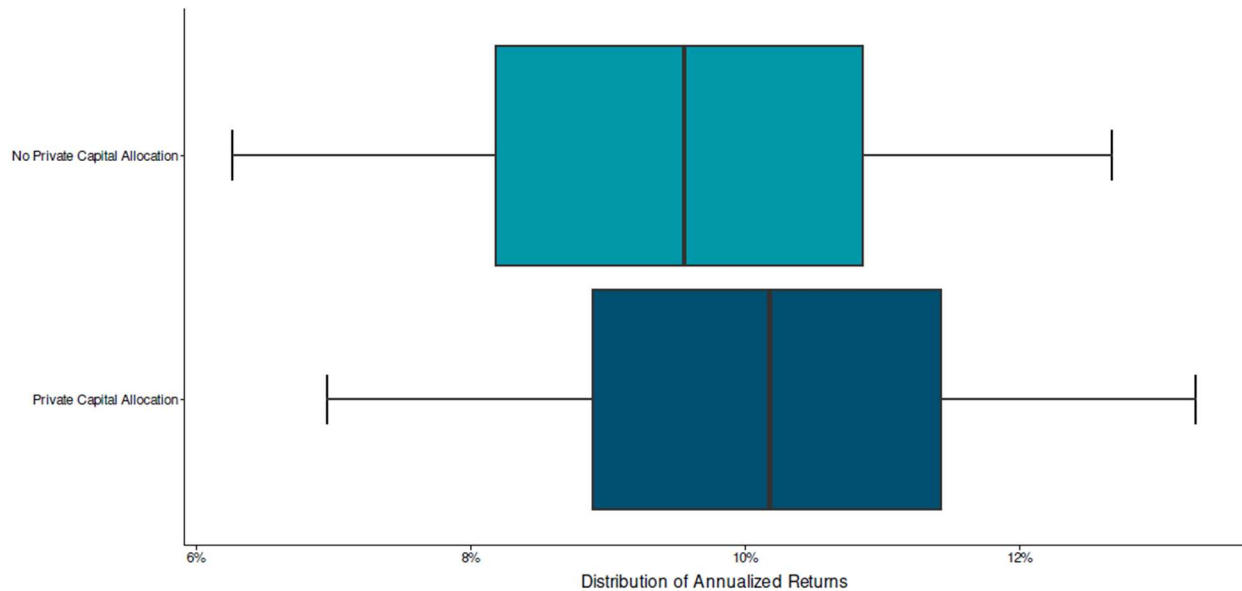
Source: *Bloomberg*; "Historical Returns on Stocks, Bonds, and Bills: 1928-2025," *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html

Note: The histogram shows the frequency of simulated excess accumulated savings of a \$10,000 investment portfolio that includes a private capital allocation relative to a \$10,000 investment portfolio that excludes private capital. I assume the entire \$10,000 is invested at the portfolio's inception and that there are no further contributions. Forty years of returns are simulated 1,000 times using expected returns and covariances of assets estimated with historical return data from 1990 to 2024. The investment allocations for the portfolio including private capital are 51% to the S&P 500 index, 34% to the Moodys Baa Corporate Bond index, 9% to the MSCI Global Private Equity index, and 6% to the MSCI Global Private Credit index. This process is repeated 1,000 times to create the simulated distribution of portfolio returns. The investment allocations for the portfolio excluding private capital are 60% to the S&P 500 index and 40% to the Moodys Baa Corporate Bond index. Investment portfolios are rebalanced each year.

70. Exposure to private capital also benefits allocation fund investors by improving the expected return distribution of their portfolios. **Figure 18** below shows the distribution of annualized returns for each allocation fund. As shown in the figure, for the private-public allocation fund, an outcome at the 5th (25th) percentile earned annualized returns of 6.9% (8.9%). In contrast, in the public-only allocation fund, the annualized return at the 5th (25th) percentile is only 6.3% (8.2%). The median return of the private-public allocation fund exceeds the public-only allocation fund by 0.6% per year. These results mirror the TDF findings, further

demonstrating that a portfolio that incorporates even a 15% allocation of assets to private capital can enhance returns on average while mitigating downside risk.

FIGURE 18
Distribution of the Simulated Annualized Returns from Investment Portfolio with Private Capital Allocation vs. without Private Capital Allocation



Source: [Bloomberg; "Historical Returns on Stocks, Bonds, and Bills: 1928-2025," *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html

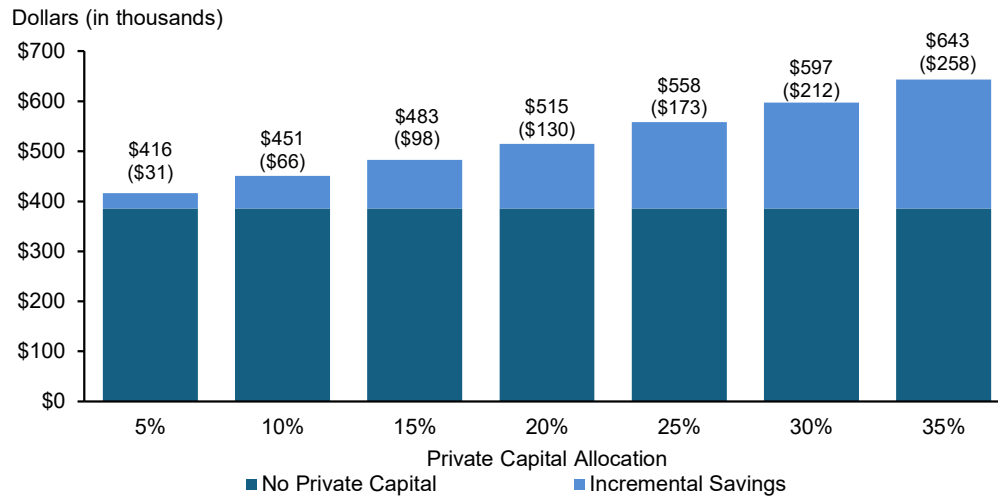
Note: The box and whisker plot shows the distribution of simulated annualized returns of an investment portfolio that includes a private capital allocation and an investment portfolio that excludes private capital. Forty years of returns are simulated 1,000 times using expected returns and covariances of assets estimated with historical return data from 1990 to 2024. The investment allocations for the portfolio including private capital are 51% to the S&P 500 index, 34% to the Moodys Baa Corporate Bond index, 9% to the MSCI Global Private Equity index, and 6% to the MSCI Global Private Credit index. The investment allocations for the portfolio excluding private capital are 60% to the S&P 500 index and 40% to the Moodys Baa Corporate Bond index. The box and whisker plot indicates returns at the 5%, 25%, 50%, 75%, and 95% of the simulated return distribution.

71. In **Figure 19** below, I show how the median simulated retirement savings from a \$10,000 initial investment changes under a range of alternative private capital allocations between 5% and 35%. The accumulated retirement savings after forty years monotonically increases as the private capital allocation rises. For example, the median portfolio with a 10% private capital allocation accumulates \$451 thousand in savings, 17% more than the fund without private capital. Increasing the private capital allocation to 25% improves median simulated savings to \$558 thousand, 45% more than the fund without private capital. Furthermore, each portfolio incorporating private capital underperforms the portfolio without private capital on less than 1% of simulations over the 40 year retirement investment horizon.

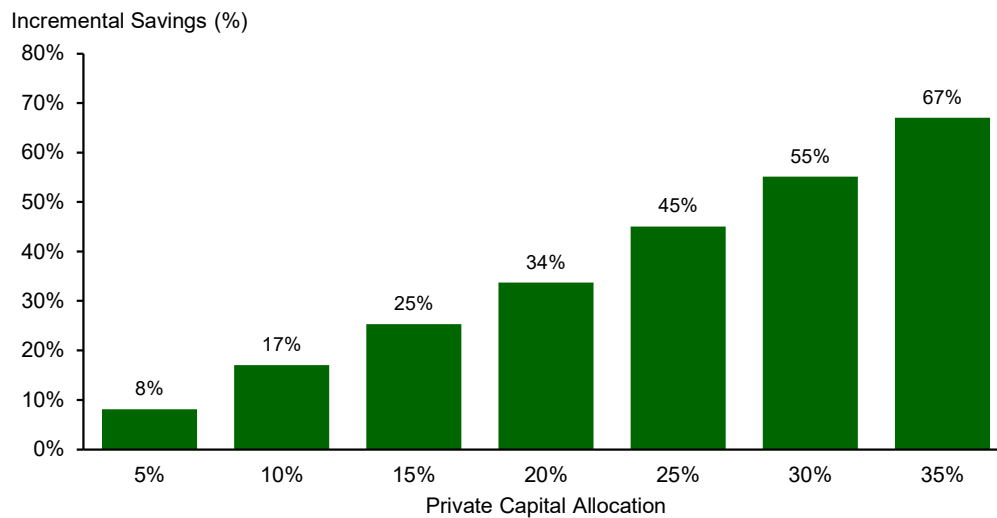
FIGURE 19

Median Incremental Simulated Savings from \$10,000 Investment in Allocation Fund by Private Capital Allocation

Panel A: Median Value of Public-Private Portfolio at Retirement (Incremental Savings)



Panel B: Incremental Savings (%) Accrued by Median Public-Private Portfolio



Source: *Bloomberg*; "Historical Returns on Stocks, Bonds, and Bills: 1928-2025," *Damodaran Online*, accessible at https://pages.stern.nyu.edu/~adamodar/New_Home_Page/histretSP.html; *Morningstar*

Note: The chart shows the median savings from 1,000 simulations of a \$10,000 investment in a portfolio over forty years using expected returns and covariances of assets estimated with historical return data from 1990 to 2024. I assume the entire \$10,000 is invested at the portfolio's inception and that there are no further contributions. The investment options include the S&P 500 index, the Moody's Baa Corporate Bond index, the MSCI Global Private Equity index, and the MSCI Global Private Credit index. The investment allocations each include 60% allocations to equity and 40% allocations to debt. Each bar shows a simulation with a different proportion of the equity and debt investment that is pro rata allocated to private capital. Investment portfolios are rebalanced each year.

72. In summary, private capital has historically outperformed public capital markets on a return and risk-adjusted basis. Private capital outperformance has persisted across a majority of private capital fund vintages. Public equity markets have increasingly concentrated in the Magnificent 7, thereby reducing diversification for S&P 500 investors. Private capital investments can help investors to diversify, and private equity outperformance is even greater when compared to a more diversified public equity index that excludes the Magnificent 7. By simulating retirement portfolios based on historical asset return data, I find portfolios that allocate a modest investment share to private capital almost always outearn portfolios invested in only public markets, accumulating meaningful incremental retirement savings. Together, these findings show that retail investors can benefit from adding private capital investments to their investment portfolios.

C. Retirement Plans Should Be Able to Meet Their Liquidity Needs Even When Holding Private Capital Assets

73. Although private capital investment alternatives may be less liquid than public assets, I show in this section that DC plans should be able to meet their liquidity needs while still permitting retirement investors to benefit from private capital's superior performance. DC plan participants' long investment horizons make their liquidity needs different from savers using cash-on-demand vehicles such as bank savings accounts. In particular, there are three general scenarios under which a fiduciary might expect a DC plan participant to need liquidity: (1) distributions, (2) hardship withdrawals, and (3) liquidation of the plan upon change of employment:

- a. **Distributions** are standard withdrawals from the DC plan by participants. Since distributions before retirement carry early-withdrawal penalties,¹³⁶ most distributions occur during retirement years and are highly predictable based on the age of plan participants and the size of their portfolio.

¹³⁶ See "Hardships, Early Withdrawals, and Loans," *Internal Revenue Service*, accessible at <https://www.irs.gov/retirement-plans/hardships-early-withdrawals-and-loans>.

- b. **Hardship withdrawals** are pre-retirement withdrawals to meet immediate financial needs for events such as medical bills.¹³⁷ Hardship events are rare so do not account for significant outflows from plan balances.¹³⁸
- c. **Plan liquidations** often occur when participants change employers.¹³⁹ Plan liquidations contribute the largest unexpected source of DC plan liquidity needs.

74. Data on DC plans distributions indicates the liquidity needs of most plans are modest.

Figure 20 below shows annual plan distributions (as a share of net assets) in the past 15 years based on Form 5500 filings submitted to the DOL.¹⁴⁰ I find that the median plan only distributes 8% of their assets to participants in a given year. After accounting for plan inflows from contributions, the median plan year has *negative* net distributions of -1% (*i.e.*, the median plan receives more contributions than distributions). Even in extreme withdrawal scenarios, I find net distributions amount to a modest amount of DC plan assets. At the 95th (99th) percentile of distribution, only 10% (20%) of plan assets are distributed on a net-of-contributions basis.

¹³⁷ "Hardships, Early Withdrawals, and Loans," *Internal Revenue Service*, accessible at <https://www.irs.gov/retirement-plans/hardships-early-withdrawals-and-loans>.

¹³⁸ According to Vanguard, 6% of participants took hardship withdrawals in 2025. The median hardship withdrawal amount was \$1,900. See Jeffrey W. Clark, "How America Withstands Financial Hardship," *Vanguard*, 2026, accessible at <https://workplace.vanguard.com/content/iig-transformation/pdf/how-america-uses-hardship-withdrawals.html>.

¹³⁹ In 2024, the median worker in the U.S. had been at their job for just under 4 years. See "Employment Tenure in 2024," *U.S. Bureau of Labor Statistics*, September 26, 2024, accessible at <https://www.bls.gov/news.release/pdf/tenure.pdf>.

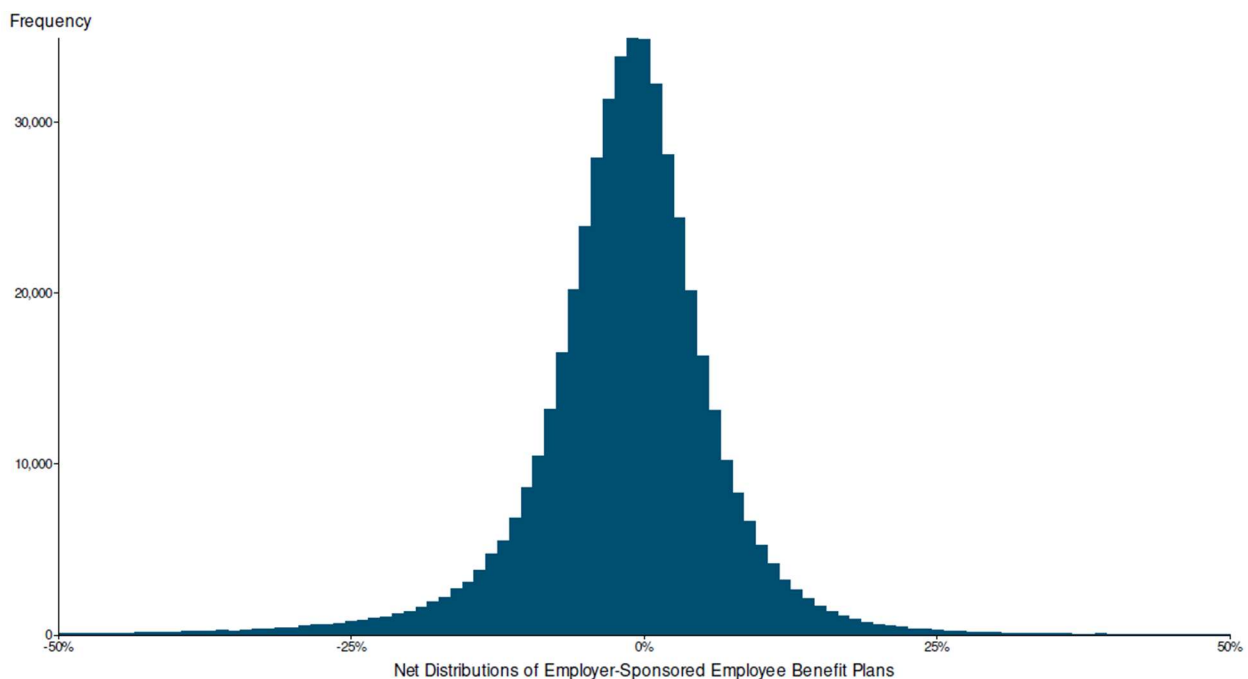
¹⁴⁰ I focus my analysis on established DC plans to avoid skewing the distributions and contributions data with plans that are either newly established or being wound down. I restrict my analysis to DC plans with at least 100 participants at the start of a plan year and \$10 million in net assets at the beginning and end of the plan year.

FIGURE 20**Statistical Distribution of DC Plan Distributions, Plan-Years 2009–2024**

Panel A: Distributions as Share of Plan Assets

	Percentile of Distributions						
	1%	5%	25%	50%	75%	95%	99%
Gross Distribution	1.15%	2.65%	5.56%	8.08%	11.32%	18.63%	28.16%
Net Distribution	-32.26%	-15.08%	-5.21%	-1.15%	2.69%	10.23%	19.93%

Panel B: Histogram of Distributions as a Share of Plan Assets



Source: DOL Form 5500 data

Note: Distributions are shown for Form 5500 filings from DC plan years between 2009 and 2024. Filings are filtered to DC plans with at least 100 participants at the start of a plan year and \$10 million in net assets at the beginning and end of the plan year. Gross Distributions are calculated as the plan year's distributions divided by the plan year's net assets at the beginning of the year. Net Distributions are calculated as the plan year's distributions minus contributions divided by the plan year's net assets at the beginning of the year.

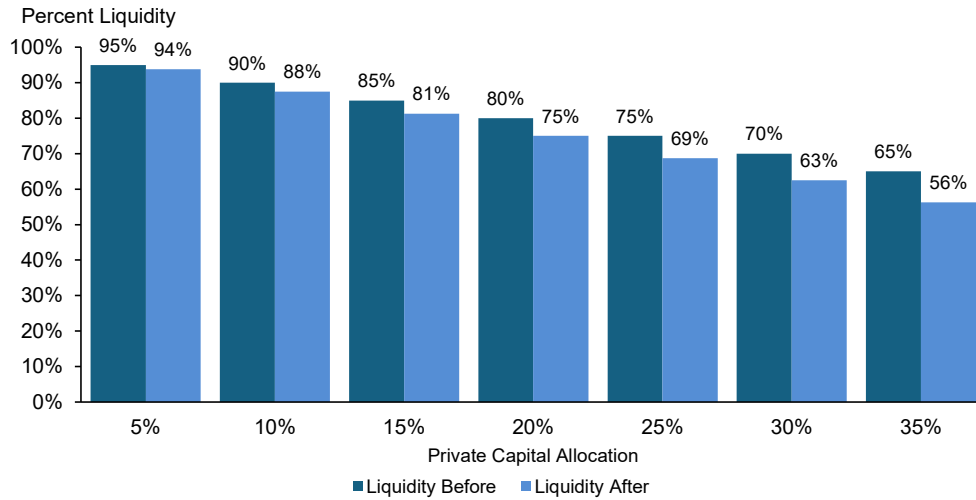
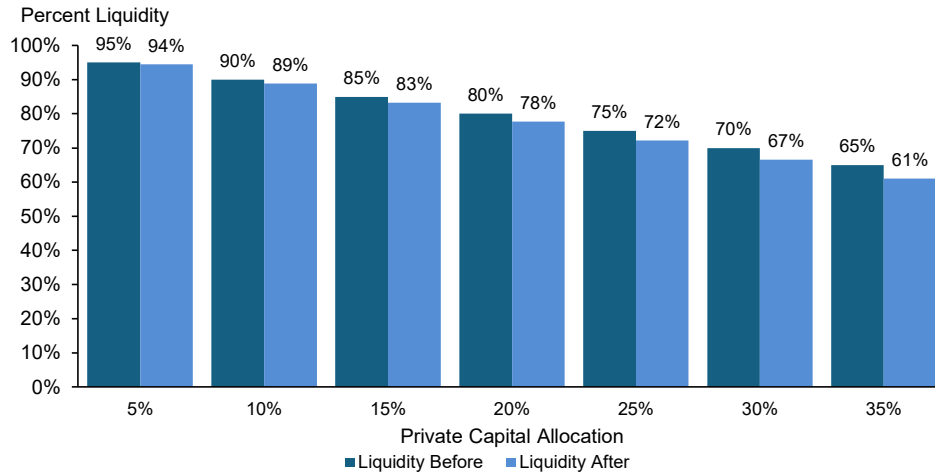
75. Although the liquidity needs of DC plans are typically modest, traditional private market investment vehicles such as closed-end, drawdown funds may still not meet all the needs of DC plan participants.¹⁴¹ However, as I explained in Section IV.B, I understand that the liquidity

¹⁴¹ As discussed in Section II.A, these traditional private market investment vehicles require commitments of at least ten years and are relatively illiquid during the lock-up period. Fenn et al. (1997), p. 46 (“Each partnership has a contractually fixed lifetime, generally ten years, with provisions to extend the partnership, usually in one- or two-year increments up to a maximum of four years.”).

arrangements associated with private capital products designed for DC plans will differ substantially from what we imagine when we think of institutional investors investing in private capital funds (**Figure 12**). In particular, my interviews with industry practitioners highlighted private capital products under design for DC plan participants will offer liquidity sleeves aimed at helping these vehicles meet idiosyncratic liquidity demands. Such liquidity solutions are not typically found in traditional funds aimed at institutional and qualified investors.

76. A target-date or allocation fund that allocates a portion of assets to private capital should still be able to meet its liquidity needs, even under extreme withdrawal scenarios. Consider a series of hypothetical funds with private capital allocations between 5% and 35%, with the remainder of fund assets in liquid public market investments. **Figure 21** below shows that even when experiencing extreme levels of liquidity needs—that is, withdrawals mirroring the 95th or 99th percentile of net distributions in DC plan years—these target-date and allocation funds would still possess sufficient liquid assets to meet the needs of plan participants.¹⁴² For example, even after experiencing liquidity demands at the 99th percentile of net distributions, a fund with a 35% allocation to private capital can meet withdrawal requests and still retain 56% of their remaining assets in liquid positions. As such, holding a portion of fund assets in illiquid investments (such as private capital investments) would not pose a significant impediment to target-date and allocation funds' ability to meet DC plans' liquidity needs.

¹⁴² As I explained in the prior section, I understand from my conversations with industry participants that private capital vehicles targeted at retirement investors will be equipped with liquidity sleeves, that is a portion of assets will be invested in public market securities, to help the fund meet *ad hoc* liquidity needs.

FIGURE 21**Fund Liquidity Stress Tests at 95th and 99th Percentile of DC Plan Net Distributions**Panel A: Withdrawals at 99th Percentile of Plan Net Distributions (20% of Assets)Panel B: Withdrawals at 95th Percentile of Plan Net Distributions (10% of Assets)

Source: DOL Form 5500 filings

Note: Bars represent the share of a hypothetical fund's assets held in liquid investments before and after experiencing withdrawal requests at the 95th or 99th percentile of DC plan year net distributions calculated using DOL Form 5500 filings. The Form 5500 filings are filtered to DC plans with at least 100 participants at the start of a plan year and \$10 million in net assets at the beginning and end of the plan year. Net Distributions are calculated as the plan year's distributions minus contributions divided by the plan year's net assets at the beginning of the year.

77. My interviews with industry practitioners also highlighted how the asset mix is an important factor for evaluating how much a particular investment alternative would need to rely on its liquidity sleeve for meeting plan needs. As this comment letter has illustrated, private market investments come in many forms, ranging from less liquid private equity investments to much more liquid private credit investments, which generate a substantial portion of their total return through the current yield on the debt that is part of the overall investment.¹⁴³ Diversifying investments across the private market liquidity spectrum will provide an important source of flexibility for retirement savings vehicles in meeting plan needs.

V. Proposed Rule’s Cost-Benefit Analysis

78. The Proposed Rule includes an analysis of potential costs and benefits associated with the proposed rulemaking (“CBA”).¹⁴⁴ From a financial economist’s perspective, the most important benefit for retirement savers identified in the CBA is the potential “to help improve risk-adjusted returns for plan participants and beneficiaries.”¹⁴⁵ Consistent with my discussion of academic literature in Section III.A, the CBA recognizes that “alternative assets may offer opportunities to enhance risk-adjusted returns” obtained by retirement savers.¹⁴⁶ As I discuss previously, academic literature finds that private capital assets typically outperform public assets on a net-of-fees basis. Unsurprisingly, and in line with the findings from the simulation analysis I present in Section IV, the CBA identifies numerous academic and policy studies establishing that including alternative assets in retirement portfolios improves outcomes for retirement savers.¹⁴⁷ Consistent with my discussion in Section II.C.4, the CBA also recognizes the potential diversification benefits that private capital assets can bring to public-only portfolios.¹⁴⁸ Thus, I find reasonable

¹⁴³ Robinson and Wallskog (2026), p. 13 (“The majority of [BDC private loan] securities...are debt securities without any deferred income.”).

¹⁴⁴ Proposed Rule, §§ 12.7–12.8.

¹⁴⁵ Proposed Rule, § 12.7.3.

¹⁴⁶ Proposed Rule, § 12.7.3.1.3.

¹⁴⁷ Proposed Rule, § 12.7.3.1.3.

¹⁴⁸ Proposed Rule, § 12.7.3.1.2.

the CBA's perspective that removing access barriers to alternative investments benefits retirement savers.¹⁴⁹

VI. Conclusion

79. As shown by my empirical analysis, and confirmed by findings from academic literature, private capital investments have historically produced attractive returns for investors, outperforming public markets net of fees. Thus, for retirement savers who have historically been restricted from investing in private markets through DC plans, gaining access to these markets can thus help these investors earn higher risk-adjusted returns while potentially improving the diversification of their investment portfolios.

¹⁴⁹ I note this comment letter has also discussed benefits to retirement investors not identified in the CBA. For example, in Section IV.A, I show that private equity funds outperform public market equivalents across nearly all vintages after accounting for the effect of the Magnificent 7 in driving public index returns. As explained earlier in this comment letter, the increasing concentration of public indices exposes investors to firm-specific risk.