

DEFINED CONTRIBUTION

Private Markets Developments for Retirement Plans

Executive Summary

The persistent search for enhanced returns and diversification has led to growing interest in evaluating private market investments for DC plans within multi-asset portfolios such as target-date funds and/or managed accounts. Private markets for this purpose encompass asset classes not traded on public exchanges, including private equity, private credit, real estate, and infrastructure.

In this report, we discuss the below aspects of private market strategy offerings for DC plans:

- Considerations for private market investments
- Investment structures
- Liquidity and valuation considerations
- Fee structures

Potential Opportunity Set Offered by Private Market Investing

Potential for Higher Return Characteristics

Private market investments may offer higher returns compared to publicly traded assets. Operational advantages to private equity, such as the ability of private equity managers, who are active owners, to potentially boost growth trajectories, enhance operating efficiency and influence their portfolios, have shown proven revenue metrics that outperform their public counterparts.

Operating Metrics Comparison: Public vs. Private Equity

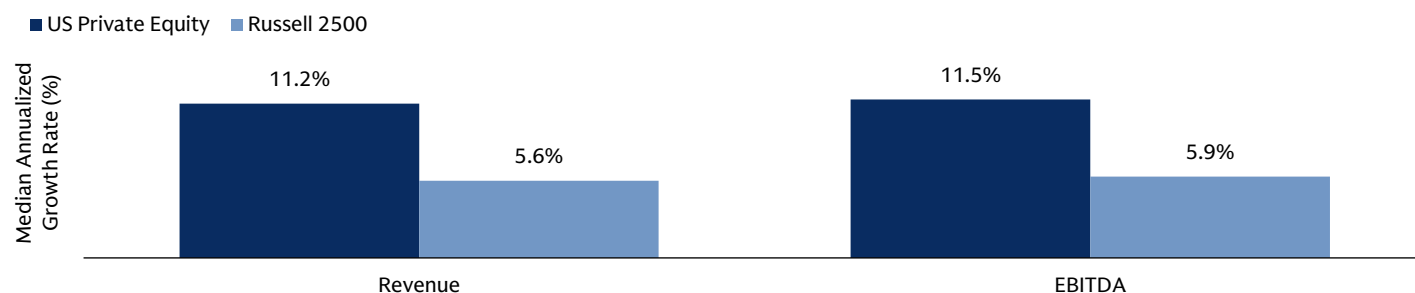


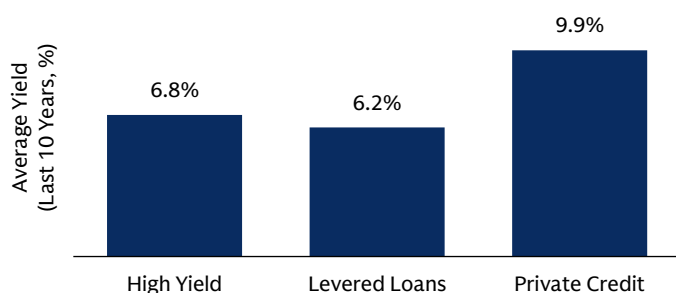
Chart Source: Cambridge Associates; US Private Equity Looking Back, Looking Forward: Ten Years of CA Operating Metrics. Median operating metrics for the period 2000–2020, returns for the period 2000–Q1 2022. For illustrative purposes only.

Yield Characteristics

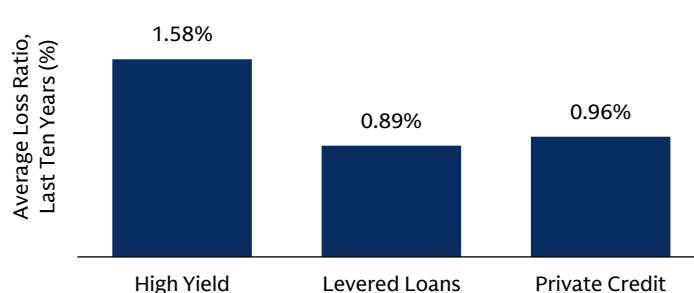
Private credit has historically generated higher yield than broadly syndicated loans and high yield of a similar credit rating. We believe its ability to command a higher cost of capital has been due to its ability to provide greater sophistication, flexibility, customization, speed and certainty of execution, and ability to evaluate complexity that may impede borrower access to traditional capital.

At the same time, loss ratios have been lower or similar to public sources. Deep access to company records received by private lenders enables stronger due diligence and documentation than may be the case in public markets. The ability to select investments without the need to manage to a benchmark can be a potential downside mitigant. Furthermore, private credit typically features a single entity or a small group lending to a borrower. This enables the use of customized structural protections that can mitigate losses and can make for quicker and more efficient workouts — and potentially greater recovery — in case of default, compared to publicly syndicated debt instruments that are more standardized and feature multiple lenders with competing priorities.

Yield Comparison: Public vs. Private Credit



Loss Ratio Comparison: Public vs. Private Credit

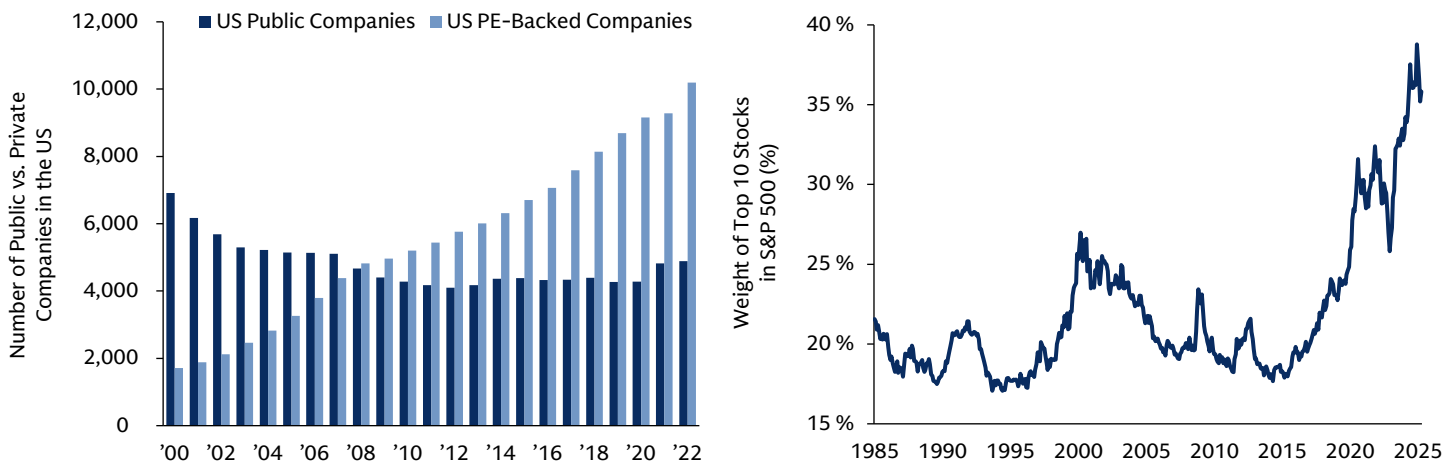


Source: Cliffwater. Private credit yield proxied by the Cliffwater direct lending index. Quarterly data as of December 31, 2023. For illustrative purposes only.

Diversification Characteristics

Public equity markets have become more concentrated over the past several decades as more companies finance through the private markets and then stay private for longer. Consequently, the top 10 companies within the S&P 500 make up a larger and larger percent of its aggregate market cap. As of June 2025, the Magnificent 7 makes up ~38% of the S&P 500 on a market cap basis.

Private Markets for Plan Sponsors



Sources: Private equity companies over time: PitchBook, as of December 31, 2022. Public companies over time: World Bank, McKinsey, FactSet, Compustat, Goldman Sachs Global Investment Research. **Past performance does not predict future returns and does not guarantee future results, which may vary.**

A key consideration to incorporate private markets into DC plans is private markets' ability to (1) broaden out the investment universe reflecting the expanding dynamics of the market and (2) incorporate asset classes with lower correlation to public market assets.

Integration of Private Market Strategies in Professionally Managed, Multi-Asset Portfolios

Private markets strategies may be available through several avenues, including:

- White-labeled multi-asset portfolios, which offer a diversified mix of public and private assets under a single investment vehicle;
- Target date funds (TDFs) and custom target date funds, which gradually adjust asset allocations over time to align with an individual's expected retirement date, incorporating private market exposure as part of the overall strategy;
- Investments used by managed accounts, providing personalized investment solutions tailored to individual risk profiles and financial goals, with the ability to allocate to private market assets; and
- Balanced funds or total allocation portfolios, which offer a pre-determined mix of asset classes, including private markets, designed to meet specific investment objectives.

Illustrative Implementation Methods of Private Market Strategies in Retirement Portfolios

| White-Labeled Multi-Asset Portfolio | Target Date Funds | Total Allocation Portfolio | Investment Used by Managed Account |
|--|---|---|---|
| <ul style="list-style-type: none"> Professionally managed white-labeled funds that invest in blend of public and private market securities E.g. All Market Equity (Public and Private Equity) E.g. Real Estate (Public and Private Real Estate) | <ul style="list-style-type: none"> Allocation to private market investments held within target date series Glidepath managed by professional asset managers Investment options managed by professional asset manager | <ul style="list-style-type: none"> Allocation to private market investments held within a balanced asset allocation strategy Investment options managed by professional asset manager | <ul style="list-style-type: none"> Professionally managed accounts create personalized portfolios for plan participants Allocation to private investments which are generally not available on the core line-up |

The portfolio risk management process includes an effort to monitor and manage risk, but does not imply low risk. No assurance can be given that the client's investment objective may be achieved. Diversification does not protect an investor from market risk and does not ensure a profit

Target Date Funds (TDFs)

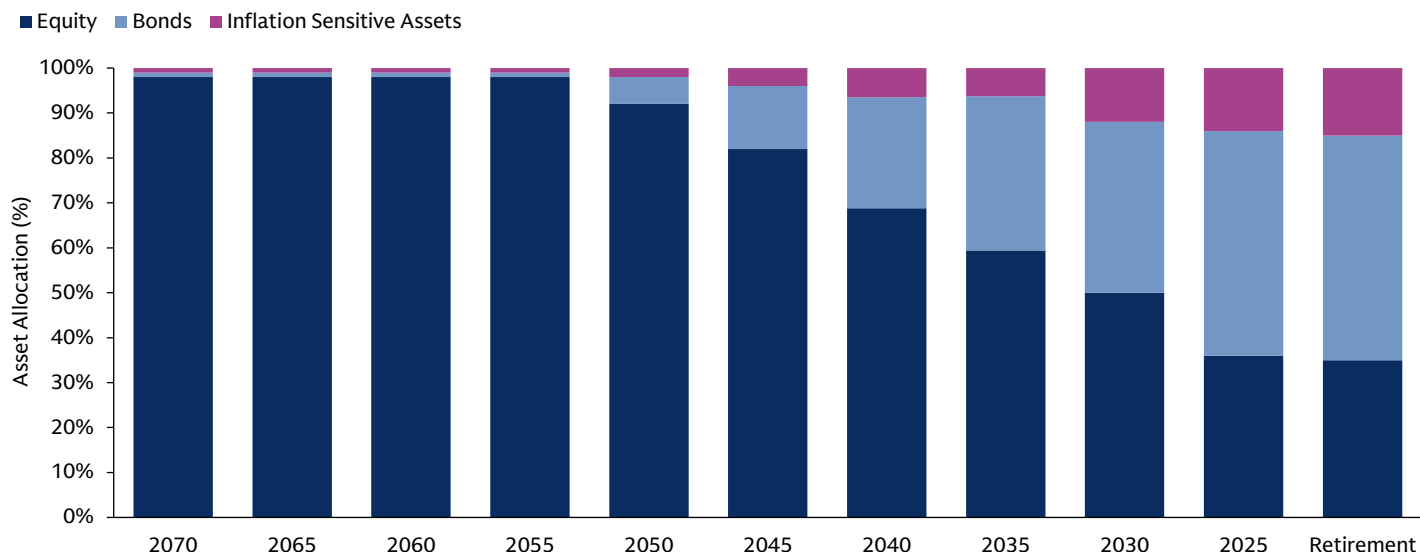
Today some asset managers are beginning to incorporate private equity and private credit investments into TDFs, providing participants with diversified exposure to these asset classes within a familiar investment vehicle. The TDF manager determines an appropriate allocation to private assets based on the fund's target date (the year of expected retirement for the participants) and overall investment strategy, aligning the allocation with the TDF's glidepath. There are different approaches emerging as to how to integrate private strategies into a glidepath and we believe this will be an evolving aspect of both glidepath construction and product development.

An objective for offering private markets in a TDF is to seek to enhance the fund's overall return potential and diversification, potentially leading to improved retirement outcomes for participants.

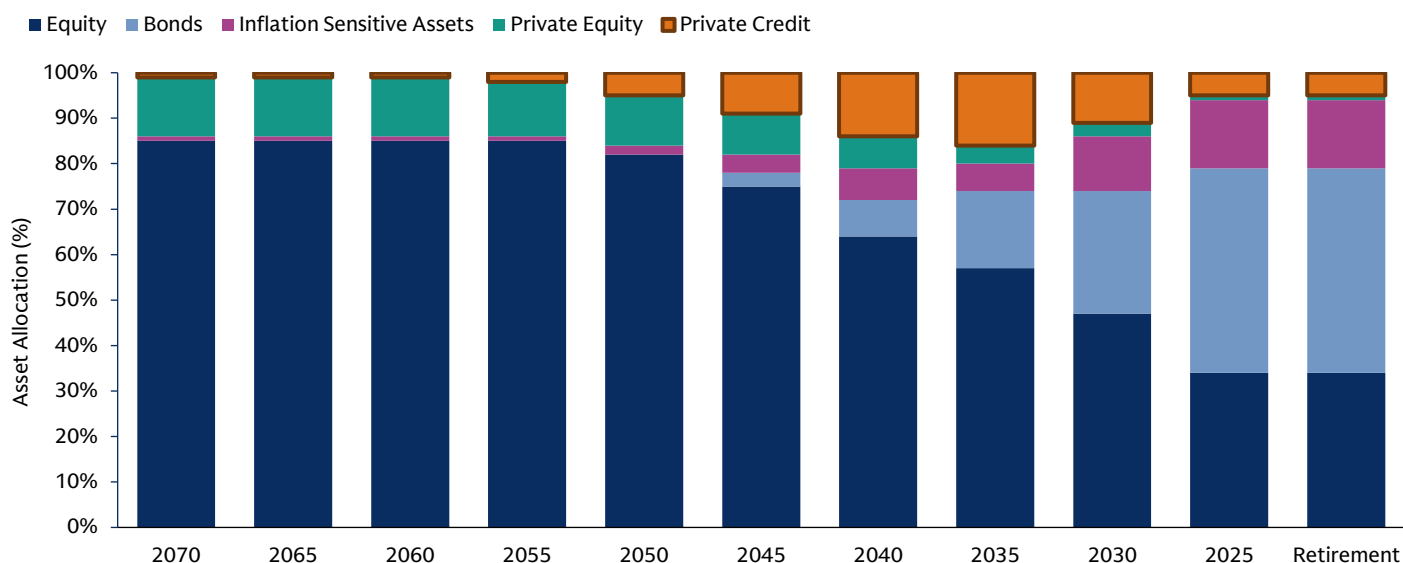
Note: No assurance can be given that the client's investment objective may be achieved.

Managed Accounts

Offering private investments in managed accounts is another potential avenue to incorporate private market strategies in DC plans. A DC plan sponsor, for example, might select a managed account provider that can effectively model and develop an asset allocation to private market investments. The managed account provider develops an asset allocation for managed account participants including an allocation to private investments, which may be available only to participants utilizing the managed account service. Therefore, plan participants can have a personalized asset allocation created for them that might include private market strategies based on their goals and other factors. Managed account providers may also offer education and advice digitally or through a team that can provide education and support to plan participants, including education on the role of private assets in their investment portfolios.

Illustrative Glidepath – Without Private Markets Allocation

Source: Goldman Sachs Asset Management, 2025. For illustrative purposes only and offered solely as a reference. This does not refer to any actual investments. This material is not intended to be used as a general guide to investing, or as a source of any specific investment recommendations, and makes no implied or express recommendations concerning the manner in which any client's account should or would be handled.

Illustrative Glidepath – With Private Markets Allocation

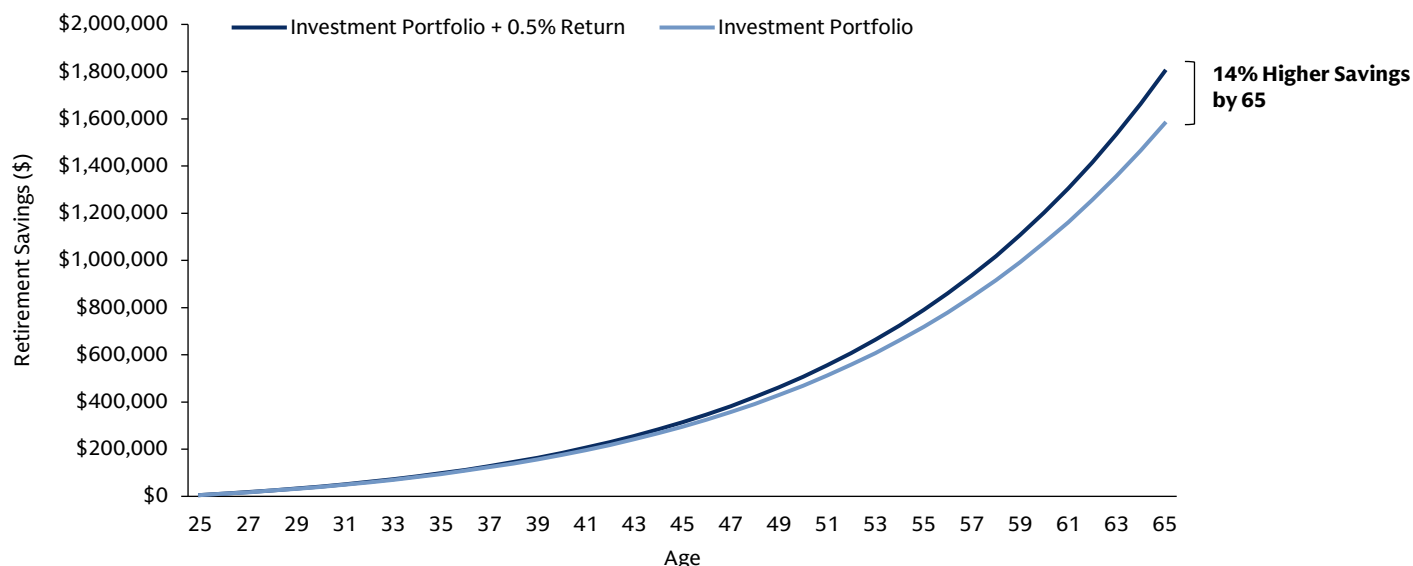
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Illustrative Forward-Looking Expected Portfolio Statistics

| | 2070 | 2065 | 2060 | 2055 | 2050 | 2045 | 2040 | 2035 | 2030 | 2025 | Retirement |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------|
| Allocation with Private Markets | | | | | | | | | | | |
| Expected Return (net) | 8.1% | 8.1% | 8.1% | 8.1% | 8.1% | 8.0% | 7.8% | 7.5% | 6.9% | 6.1% | 6.1% |
| Expected Vol | 14.7% | 14.8% | 14.8% | 14.7% | 14.5% | 13.8% | 12.4% | 11.1% | 9.2% | 6.8% | 6.8% |
| Expected Sharpe | 31.2% | 31.3% | 31.3% | 31.3% | 31.8% | 32.7% | 34.7% | 36.0% | 37.0% | 37.9% | 37.9% |
| Allocation without Private Markets | | | | | | | | | | | |
| Expected Return (net) | 7.7% | 7.6% | 7.6% | 7.6% | 7.5% | 7.4% | 7.1% | 6.8% | 6.4% | 5.9% | 5.9% |
| Expected Vol | 14.5% | 14.4% | 14.4% | 14.4% | 13.8% | 12.8% | 11.5% | 10.1% | 8.5% | 6.7% | 6.5% |
| Expected Sharpe | 28.7% | 28.7% | 28.7% | 28.7% | 29.2% | 30.2% | 31.3% | 32.5% | 34.1% | 36.0% | 36.3% |
| Difference | | | | | | | | | | | |
| Expected Return (bps) | + 44 | + 51 | + 51 | + 47 | + 55 | + 65 | + 71 | + 70 | + 50 | + 17 | + 20 |
| Expected Vol (bps) | + 28 | + 40 | + 40 | + 28 | + 62 | + 97 | + 94 | + 99 | + 69 | + 13 | + 24 |
| Expected Sharpe | + .025 | + .026 | + .026 | + .026 | + .026 | + .025 | + .034 | + .035 | + .029 | + .019 | + .016 |

Source: Goldman Sachs Asset Management as of July 2025. All numbers reflect Multi-Asset Solutions' strategic assumptions as of March 31, 2025. Strategic long-term assumptions are subject to high levels of uncertainty regarding future economic and market factors that may affect future performance. They are hypothetical indications of a broad range of possible returns. Please see additional disclosures. Numbers may not sum due to rounding. Expected returns are estimates of hypothetical average returns of economic asset classes derived from statistical models. There can be no assurance that these returns can be achieved. Actual returns are likely to vary. Please see additional disclosures. Diversification does not protect an investor from market risk and does not ensure a profit. For illustrative purposes only.

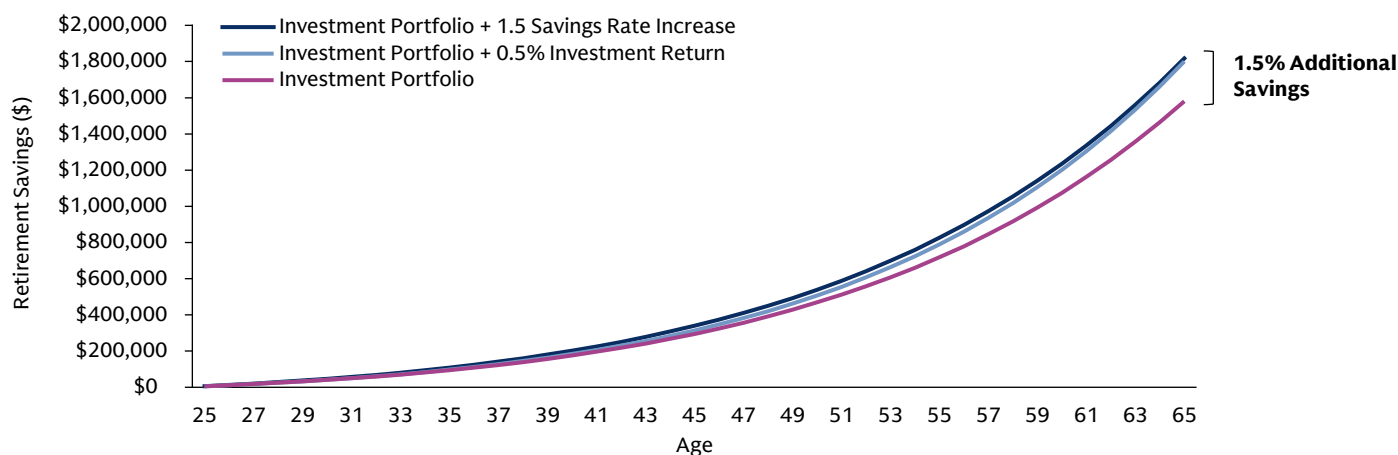
An additional 50bps of annual investment return (note the average expected net of fee return illustrated above is 0.49%) can increase total retirement savings by 14% at retirement. This type of improvement, if realized, can help individuals potentially meet their retirement income needs well into their retirement.

Impact of 0.5% of Annual Investment Return

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An additional 0.5% of annual return can have a similar impact on final retirement savings as 1.5% of additional saving over the same time period.

Impact of Additional 1.5% of Savings Matches 0.5% of Investment Return



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New Investment Structures Can Help Address Operational Needs

Private markets investments that traditionally have been invested in by institutional investors were made through what are known as drawdown funds. With drawdown funds, investors typically commit to invest a defined amount of capital in the fund over a certain period of time (up to a few years), and the investment manager will periodically request (or make a capital call) a portion of the commitment. Once each individual investment opportunity “matures,” the asset manager sells the investment and returns that money back to the investors with any gain. This type of investment product has historically not been prevalent in defined contribution plans.

On the other hand, semi-liquid private market investments are a new class of investments that expand the range of investors who can access private market securities. Semi-liquid private investments offer an opportunity to access potentially higher returning investments compared to traditional liquid assets, while still providing some degree of liquidity, although not as readily available as publicly traded securities. These investments typically involve strategies such as private credit, real estate debt, or direct lending, where capital is deployed into less liquid markets, often generating income streams or capital appreciation. While not immediately convertible to cash like stocks or bonds, semi-liquid structures may offer periodic redemption opportunities or secondary market transactions, allowing investors an opportunity to access their capital over a defined timeframe.

Roll Forward Valuation Techniques

Daily valuation in defined contribution plans is an important feature that facilitates activities such as plan contributions, withdrawals and transfers. Historically, private market strategies might be valued only periodically, and may be provided to investors retroactively. Some of the new investment vehicles, however, within the semi-liquid class of private markets are providing more frequent valuations. Interval funds, for example, provide daily valuation; however, they generally limit liquidity to quarterly.

In other instances, private market investments are held within collective investment trusts (CITs) made available to defined contribution plans. While the private market funds are officially valued on a monthly or quarterly-basis, the managers may use additional valuation techniques to generate a daily valuation for the fund. For example, a manager might identify a comparable publicly traded index that may serve as a proxy for the private investment style or strategy being employed, and/or may take other steps such as adjusting valuation for cash flows into or out of the investment. Third parties may also be utilized (such as independent valuation firms) to assist in market valuations. Valuation techniques may differ across products, so it is important for plan fiduciaries to understand how a particular manager addresses valuation in the context of plan investments.

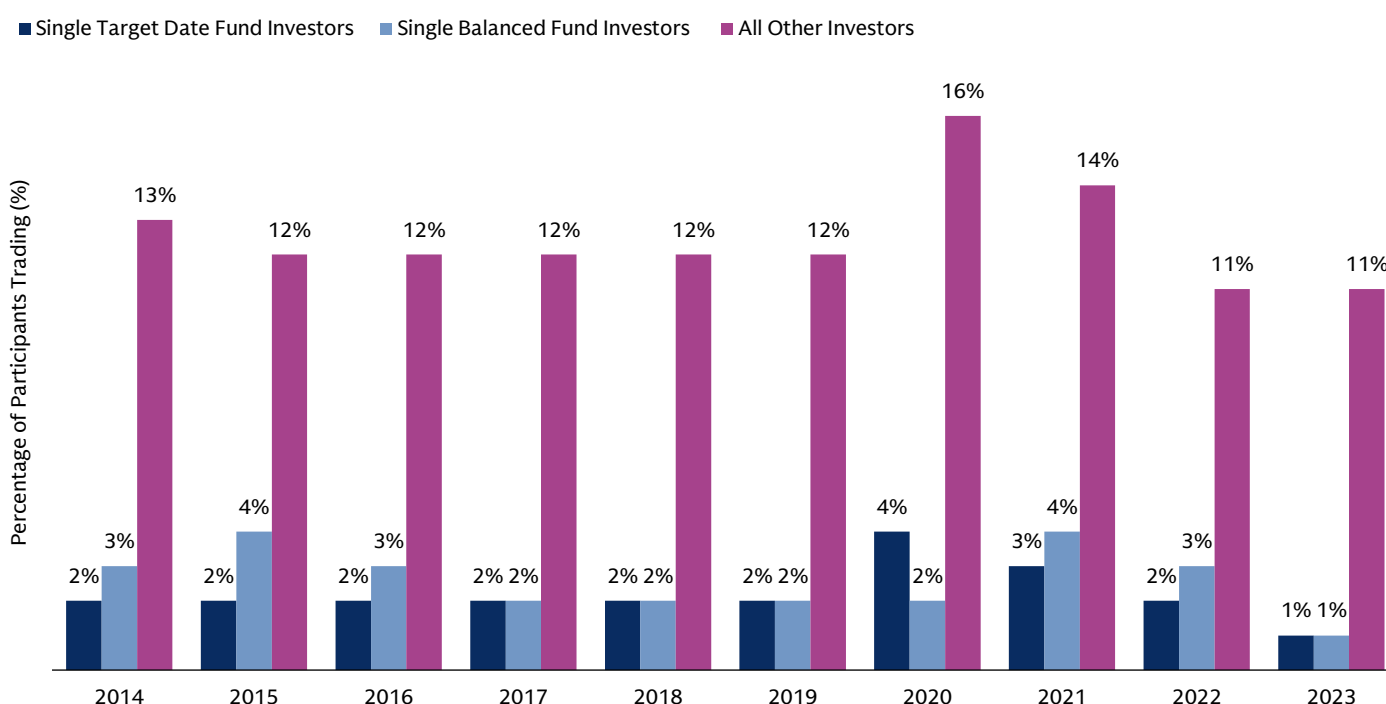
As described in DCALTA's white paper, “Daily Valuation of Alternative Assets in DC Plans A Framework for Plan Sponsors and Industry Stakeholders” one daily valuation procedure that might be contemplated for private investments currently is the Account Roll Forward

method (also known as “now-casting”). This method takes the prior official valuation of the private investment, then adjusts for both the cash flows into and out of the investment as well as movement of the market for a proxy for a daily valuation.

Liquidity Considerations

In addition to daily valuation, most defined contribution plan investment options also provide participants with the opportunity for daily liquidity, meaning that participants can move into or out of an investment option on a daily basis. Understanding participant liquidity needs is critical when evaluating investment opportunities in private markets. Based on recordkeeping data, defined contribution investors, particularly those in professionally managed investment options, do not trade very often. Over the past decade, analysis shows that among target date fund and balanced fund investors, as detailed in the chart below, more than 96% of investors did not trade their account each year during the past decade illustrating the long-term nature and low trading activity of these investments.

Participant Trading by Investor Type



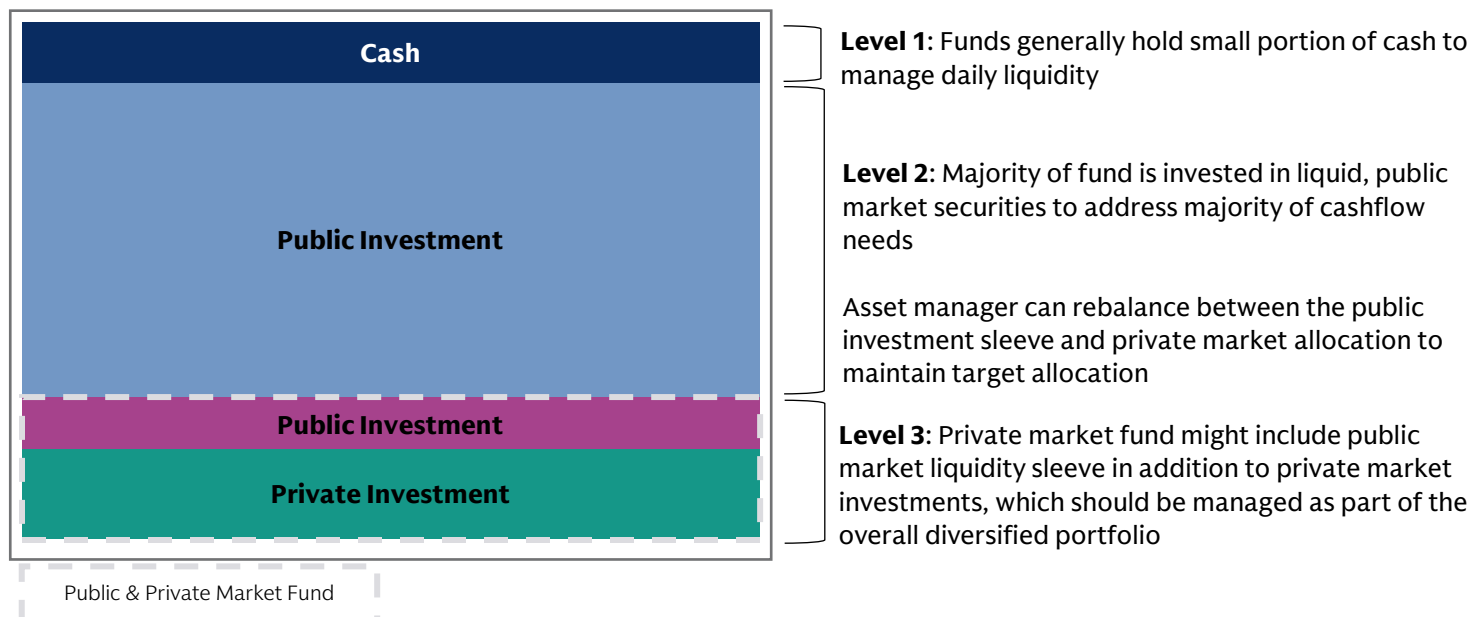
Source: Goldman Sachs Asset Management. As of October 2024; 1. Source Vanguard 2024. For illustrative purposes only. **Past performance does not predict future returns and does not guarantee future results, which may vary.**

As discussed in the section on incorporating private market investments in plan design, the predominant structure for private market investments in this area is through the use of professionally managed, multi-asset funds with both public and private market components. The public market investment held in the fund offers the primary source of liquidity including for participant level liquidity and daily cash flows.

The underlying private market funds within the portfolio are typically semi-liquid options and, for example, might offer fund-level liquidity on a less frequent basis (e.g., quarterly).

Illustrative Multi-Asset Investment Option – A Liquidity Solution for Plan Sponsors

Below illustrates the components of an investment option that invests in public and private market asset classes



Source: Goldman Sachs Asset Management, 2025. For illustrative purposes only. The portfolio risk management process includes an effort to monitor and manage risk, but does not imply low risk. No assurance can be given that the client's investment objective may be achieved. Diversification does not protect an investor from market risk and does not ensure a profit.

Diversifying the types of both private and public investments in a DC plan is therefore important to building an appropriate liquidity profile. Diversification among public and private investments can take into consideration both timing and liquidity profiles of investment types. Balancing private investments with publicly traded asset classes can provide a liquidity "buffer" intended to absorb a measure of distributions and withdrawals.

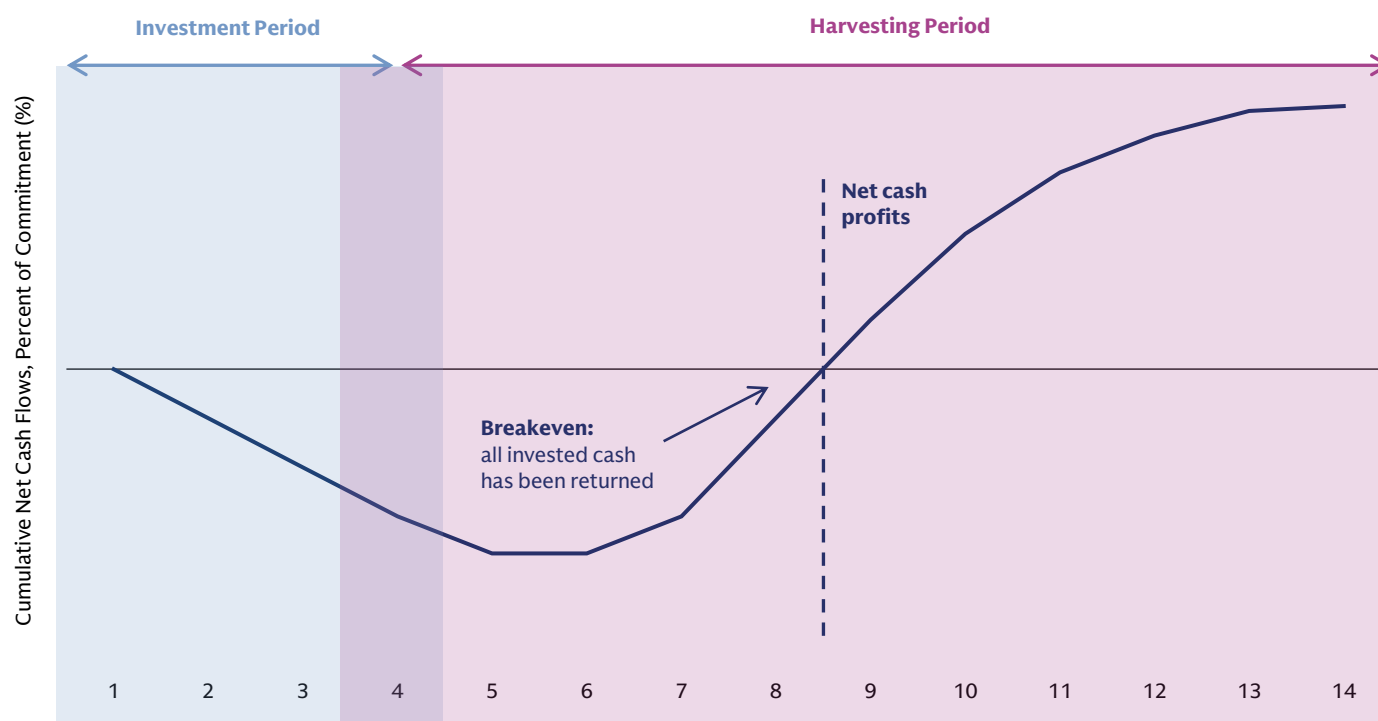
For example, a multi-asset portfolio with private assets might be offered in a DC plan as part of a white-label fund, or within a TDF suite. The advantage of this placement is that once participants elect to invest their money in a white label fund or TDF, or they are defaulted into the TDF, they generally maintain their investment. Additionally, if combined with automatic enrollment with default into the TDF, there may be a more stable inflow of assets that can counteract the impact of withdrawals made by individual participants.

FEES ARE GENERALLY BILLED AND PAYABLE AT THE END OF EACH QUARTER AND ARE BASED ON AVERAGE MONTH-END MARKET VALUES DURING THE QUARTER. ADDITIONAL INFORMATION IS PROVIDED IN OUR FORM ADV PART 2.

Addressing the J-Curve

The J-curve refers to the investment lifecycle in traditional private equity funds. The J-curve typically involves negative returns in the early years of a fund's life as investments are being made but returns have not started to accumulate. This period may be followed by a period of positive returns as investments mature, gains are realized, and money is returned to the investor.

J-Curve Illustration



Source: Goldman Sachs Asset Management, 2025. For illustrative purposes only. The portfolio risk management process includes an effort to monitor and manage risk, but does not imply low risk. No assurance can be given that the client's investment objective may be achieved.

The introduction of evergreen private market investment options can offer a different investment profile. Evergreen structures aim to mitigate the effect of the J-curve by continuously investing capital, allowing for a more consistent and potentially smoother return profile. By recycling capital from realized investments back into new opportunities, evergreen funds seek to generate ongoing income and capital appreciation, potentially reducing the initial drag on returns and providing investors with more immediate and predictable cash flows compared to traditional private investment funds.

DIVERSIFICATION DOES NOT PROTECT AN INVESTOR FROM MARKET RISK AND DOES NOT ENSURE A PROFIT. THE PORTFOLIO RISK MANAGEMENT PROCESS INCLUDES AN EFFORT TO MONITOR AND MANAGE RISK, BUT DOES NOT IMPLY LOW RISK. NO ASSURANCE CAN BE GIVEN THAT THE CLIENT'S INVESTMENT OBJECTIVE MAY BE ACHIEVED.

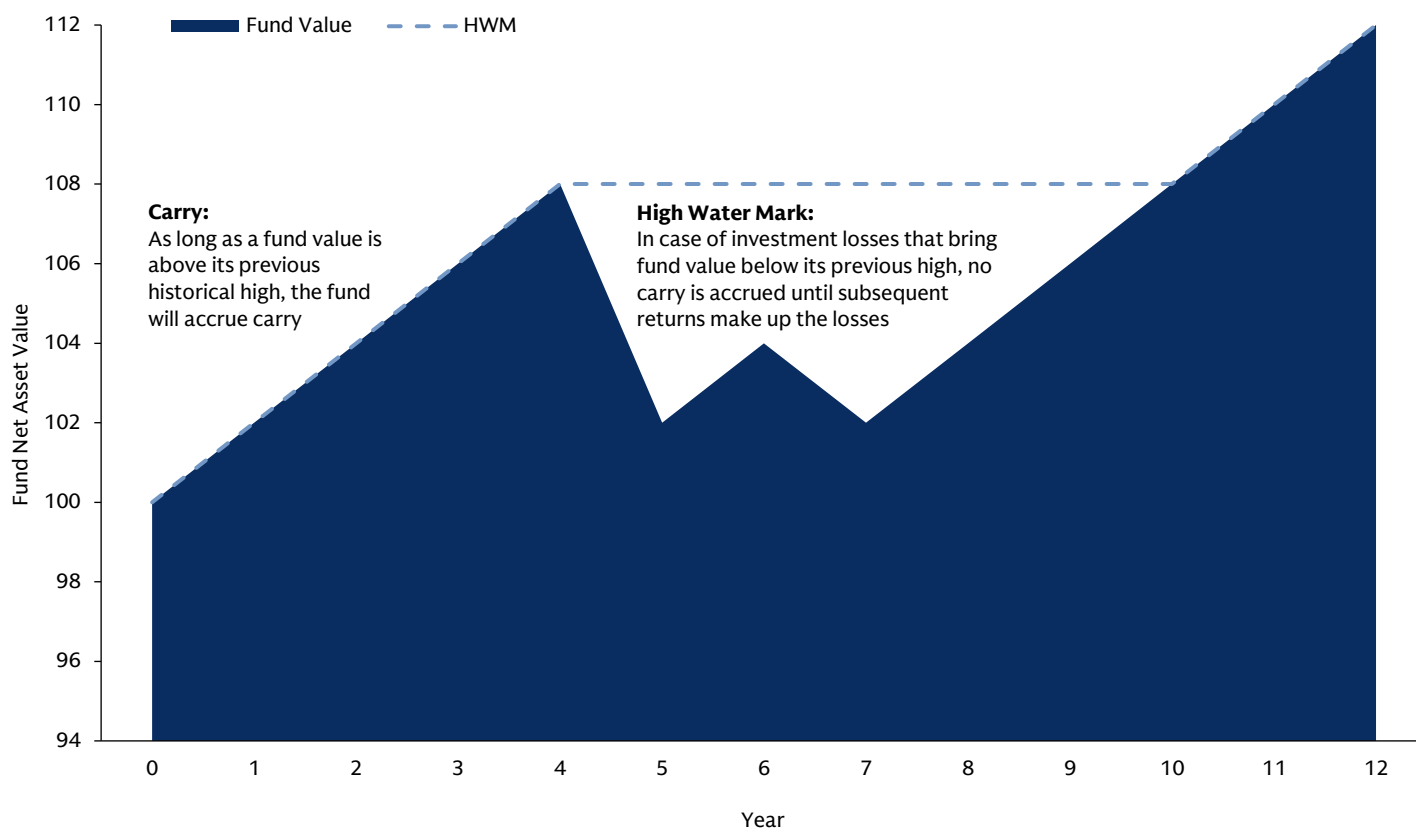
Fees

Given the impact of investment fees, it is important that plan fiduciaries evaluate the potential benefits and costs associated with private market investing.

An investment fund that invests in private markets may incur various fees and expenses including:

- **Management fee:** The investment management fee is the fee paid to the investment manager for selecting and managing investments within the fund.
- **Performance fee (or carried interest)** (see illustration below): Performance fee is generally a percentage of the investment return that is paid to the investment manager. Some funds also track what is known as a high-water-mark (HWM), which is the highest performance level achieved. If performance falls below the HWM, the performance fee is not paid again until the HWM is exceeded.
- **Acquired fund fees and expenses:** Acquired fund fees are generally paid in a fund-of-funds investment structure (i.e., where the primary fund invests in other funds to provide certain investment exposure to the primary fund). Given these underlying funds also charge fees, acquired fund fees is generally the term used to describe the fees and expenses paid on the underlying funds.
- **Operating fees and expenses.** These fees and expenses include transaction expenses, regulatory compliance, operational needs, audits, etc.

Fees: High Watermark Illustration



For illustrative purposes only. Source: Goldman Sachs Asset Management as of March 31, 2025.

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Conclusion

Rising costs present ongoing challenges for retirement savers striving to accumulate sufficient assets to meet their retirement income needs. Optimizing investment portfolios through enhanced returns and diversification can be a powerful tool in helping participants achieve their retirement goals. Evolving market dynamics are leading an increasing number of companies to pursue private market financing and remain private for extended periods. Moreover, the concentration of the "Magnificent Seven" companies, now representing a substantial portion of the S&P 500, raises questions regarding diversification and the disproportionate influence of these entities within public-only portfolios. Consequently, retirement plan fiduciaries may want to take this opportunity to re-evaluate portfolio construction strategies and consider the potential advantages of a blend of public and private market investments, mirroring the approaches employed by other institutional asset allocators such as pension plans.

As private markets continue to mature and attract mainstream investors, new approaches are emerging for plan fiduciaries interested in evaluating these opportunities for defined contribution plans. From portfolio construction to liquidity management and valuation methodologies, plan fiduciaries have access to a growing number of options when considering the potential inclusion of these assets in plan portfolios.

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RISK CONSIDERATIONS

Private equity investments are speculative, highly illiquid, involve a high degree of risk, have high fees and expenses that could reduce returns, and subject to the possibility of partial or total loss of fund capital; they are, therefore, intended for experienced and sophisticated long-term investors who can accept such risks. There can be no assurance that any objectives or targets stated in this material can be achieved; any targets provided are subject to change and do not provide any assurance as to future results. The ability of underlying funds to achieve their objectives or targets depends upon a variety of factors, not the least of which are political, public market and economic conditions. Any historical performance of individual partnerships shown is for informational purposes only and does not guarantee their future performance, which can vary considerably. The trading market for the securities of any portfolio investment of the underlying funds may not be sufficiently liquid to enable such funds to sell such securities when it believes it is most advantageous to do so, or without adversely affecting the stock price. In addition, such portfolio companies may be highly leveraged, which leverage could have significant adverse consequences to these companies and the funds offered by AIMS Private Equity. Furthermore, restrictions on transferring interests in AIMS Private Equity funds may exist so prospective investors should be prepared to retain their investments in any AIMS Private Equity fund until the fund liquidates. For a complete discussion of risks that are unique to a particular AIMS Private Equity fund, please refer to the respective fund's offering documents, which should be carefully reviewed prior to investing.

High-yield, lower-rated securities involve greater price volatility and present greater credit risks than higher-rated fixed income securities.

SUPPLEMENTAL RISK DISCLOSURE FOR ALL POTENTIAL DIRECT AND INDIRECT INVESTORS IN HEDGE FUNDS AND OTHER PRIVATE INVESTMENT FUNDS (COLLECTIVELY, "ALTERNATIVE INVESTMENTS")

Hedge funds and other private investment funds (collectively, "Alternative Investments") are subject to less regulation than other types of pooled investment vehicles such as mutual funds. Alternative Investments may impose significant fees, including incentive fees that are based upon a percentage of the realized and unrealized gains and an individual's net returns may differ significantly from actual returns. Such fees may offset all or a significant portion of such Alternative Investment's trading profits. Alternative Investments are not required to provide periodic pricing or valuation information. Investors may have limited rights with respect to their investments, including limited voting rights and participation in the management of such Alternative Investments.

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Strategic Long-Term Assumptions:

Alpha and tracking error assumptions reflect Multi-Asset Solutions' estimates for above-average active managers and are based on a historical study of the net-of-fee results of active management. Expected returns are estimates of hypothetical average returns of economic asset classes derived from statistical models. There can be no assurance that these returns can be achieved. Actual returns are likely to vary. Please see additional disclosures.

The data regarding strategic assumptions has been generated by MAS for informational purposes. As such data is estimated and based on a number of assumptions; it is subject to significant revision and may change materially with changes in the underlying assumptions. MAS has no obligation to provide updates or changes. The strategic long-term assumptions shown are largely based on proprietary models and do not provide any assurance as to future returns. They are not representative of how we will manage any portfolios or allocate funds to the asset classes.

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References to indices, benchmarks or other measures of relative market performance over a specified period of time are provided for your information only and do not imply that the portfolio will achieve similar results. The index composition may not reflect the manner in which a portfolio is constructed. While an adviser seeks to design a portfolio which reflects appropriate risk and return features, portfolio characteristics may deviate from those of the benchmark.

Economic and market forecasts presented herein reflect a series of assumptions and judgments as of the date of this presentation and are subject to change without notice. These forecasts do not take into account the specific investment objectives, restrictions, tax and financial situation or other needs of any specific client. Actual data will vary and may not be reflected here. These forecasts are subject to high levels of uncertainty that may affect actual performance. Accordingly, these forecasts should be viewed as merely representative of a broad range of possible outcomes. These forecasts are estimated, based on assumptions, and are subject to significant revision and may change materially as economic and market conditions change. Goldman Sachs has no obligation to provide updates or changes to these forecasts. Case studies and examples are for illustrative purposes only.

Past performance does not guarantee future results, which may vary. The value of investments and the income derived from investments will fluctuate and can go down as well as up. A loss of principal may occur.

The portfolio risk management process includes an effort to monitor and manage risk but does not imply low risk.

Include the following additional note in the Appendix

Expected return models apply statistical methods and a series of fixed assumptions to derive estimates of hypothetical average asset class performance. Reasonable people may disagree about the appropriate statistical model and assumptions. These models have limitations, as the assumptions may not be consensus views, or the model may not be updated to reflect current economic or market conditions. These models should not be relied upon to make predictions of actual future account performance. Goldman Sachs Asset Management has no obligation to provide updates or changes to such data.

INDEX BENCHMARKS

Indices are unmanaged. The figures for the index reflect the reinvestment of all income or dividends, as applicable, but do not reflect the deduction of any fees or expenses which would reduce returns. Investors cannot invest directly in indices.

The indices referenced herein have been selected because they are well known, easily recognized by investors, and reflect those indices that the Investment Manager believes, in part based on industry practice, provide a suitable benchmark against which to evaluate the investment or broader market described herein. The exclusion of “failed” or closed hedge funds may mean that each index overstates the performance of hedge funds generally.

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