

EXECUTIVE SUMMARY

- → The use of "alternatives" to categorize private assets has become an anachronism. As the investment opportunity set has shifted decisively towards private markets, so too must investors' portfolio allocations.
- → As more companies choose to remain private, a larger share of the value created over their lifetime accrues to private rather than public markets investors. With yesterday's "growth stocks" now largely in private portfolios, the remaining pool of public stocks is larger, older, and more correlated. The same signs of adverse selection are evident in credit markets.
- → For a time, the risks of a more correlated and concentrated stock market had been offset by a negative correlation in the returns of stocks and bonds. But, as vividly illustrated over the past few months, bonds no longer "hedge" risk assets. Broader recognition of this regime shift in stock-bond correlations could accelerate the growth in private market allocations.
- → The "liquidity" of traded securities can prove illusory. Order flow can drive market prices far from levels consistent with fundamentals and drawdowns during market-wide shocks tend to be concentrated in the most liquid assets i.e., those that are easiest to sell.
- → A portfolio with a 20% allocation to private assets dramatically outperforms counterparts restricted to publicly-traded stocks and bonds and that outperformance spans the range of investors' risk tolerance.

The use of "alternatives" to categorize private assets has become an anachronism. Implicit to the label is the sense that private assets are but a niche, high-return complement to traditional portfolios. Over the past two decades, private markets have moved from the periphery to the center of financial intermediation. Today, more than twice as many U.S. companies are backed by private capital than listed on public exchanges (Figure I, Page 4) and private credit has become the lender of choice for these businesses and many others choosing to remain outside of public markets. As the investment opportunity set has shifted decisively towards private assets, so too must investors' portfolio allocations.

THE RISE OF PRIVATE MARKETS

Twenty years ago, private markets resembled a "barbell," with assets concentrated in early-stage venture capital and late-stage public-to-private delistings. In such a world, the "alternatives" label made some sense, as a relatively small share of investable capital could realistically be channeled to promising startups, or stodgy corporations in need of retooling, and virtually all credit was intermediated by banks or public securities (bonds and publicly-traded asset-backed securities). But as more companies went or stayed private. the advantages of the ownership model became more apparent to founders, entrepreneurs, and management teams. Traditional IPO candidates increasingly opted instead for private ownership (Figure 2) and those owners increasingly preferred bilaterally negotiating private loans to more standardized public securities.

Relative to public listings or syndicated lending, private capital offers price certainty, faster execution, and more upfront liquidity. But private capital's more enduring benefits to businesses stem from (I) active ownership, (2) confidentiality, and (3) its longer-term orientation:

- 1. Unlike public listings, which generally leave businesses to fend for themselves. private funds support management with value creation platforms, CEO networks, and industry contacts that facilitate expansion into new markets. Instead of diffuse and fickle shareholders, private companies have committed owners with aligned incentives.
- 2. To justify the highest possible offer price, IPO candidates often have to reveal sensitive information about proprietary technology or strategy. Rather than disclose such information to the world and compromise their competitive position, businesses with valuable intangible assets often prefer to convey these sensitive details to a select group of private investors through non-disclosure agreements (NDAs) until they reach the requisite scale.2
- 3. Rather than orient the business around quarterly earnings targets to win the favor of a constantly churning shareholder base, private companies can focus on longerterm, value-accretive strategies expected to ripen over time. Most private company management teams have a tenure that corresponds roughly to the investment horizon of their shareholders, cementing an alignment that doesn't exist in the public sphere.

For these reasons, fears that the market could not absorb the rapid growth in private capital assets under management (AUM) over the past two decades have proven unfounded. The I5% annualized increase in the supply of private capital has barely kept pace with entrepreneurs', management teams', and financial sponsors' demand for it.3

I. Evidence of widespread conflicts of interest inside investment banks led to the Global Analyst Research Settlement. Sarbanes-Oxley Act, and Regulation Fair Disclosure (Rea FD), Spending on stock market research has fallen by more than 50% since the early 2000s, as banks cut back on staff and compensation in the face of these new restrictions and declining brokerage commission revenues. The decline in research spending has reduced the flow of information that once supported individual stock prices, which has contributed to lessening the appeal of public listings. C.f. Bradshaw, M, et al. (2017), "Financial Analysts and Their Contributions to Well-Functioning Capital Markets," Working Paper.

^{2. &}quot;Reflections on the Revolution in Finance," Carlyle 2021.

^{3.} Carlyle analysis of Preqin data, May 2025

Figure 1.
Private Capital Moves from Periphery to Center of Corporate Finance

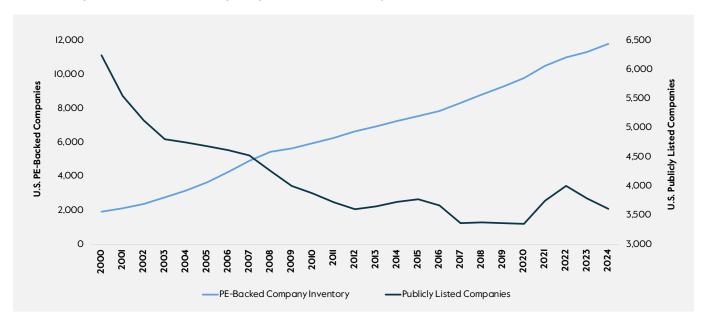
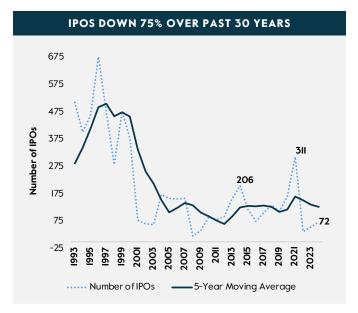
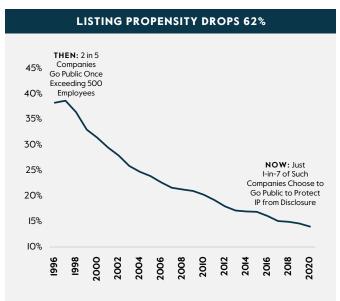


Figure 2.

Companies Prefer Private Capital Instead of Listings





A MORE CORRELATED & CONCENTRATED STOCK MARKET

As more IPO candidates have opted to remain private, the composition of the stock market has shifted radically. The typical public company is now nearly 3x larger (in real terms) and more than 50% older than was the case twenty years ago. In effect, yesterday's top-performing "growth stocks" have become today's core private portfolio holdings. As a consequence, a larger share of the value in the first ten years of a company's life accrues to private rather than public markets (Figure 3, Page 6).

With fewer young, disruptive midcap companies in the pool of public stocks, the share of total returns attributable to company-specific factors dropped by more than 44% between 2000 and the onset of the pandemic. Fluctuations in the broader market now explain nearly three-quarters (73.7%) of the monthly returns of a typical stock.⁴ This "excess comovement"- i.e. stock prices moving together more than can be explained by shared fundamentals - has reduced the diversification available from public portfolios and depressed returns to active management, which typically involves "long-short" books that profit from disparities in performance across stocks (Figure 4, Page 6).

As diversifying "growth stocks" disappeared from public markets, investors naturally chose to cut their "active," or stock-specific, risk exposures in favor of passive allocations, like ETFs, and quantitative or algorithmic strategies.

Since passive funds buy securities on a pro rata basis, ignoring price or fundamentals, their growth intensifies the correlation of returns across public securities.⁵ And as ETFs crowd-out liquidity from research-based investing, individual stock selection becomes overwhelmed by marketwide buy or sell orders, depressing the contribution of asset-specific fundamentals to total returns.6

Passive inflows have also been shown to increase the market capitalization of the largest stocks, particularly those overvalued relative to fundamentals. 7 While the inflows themselves are neutral - i.e., buy orders are allocated across stocks relative to their share of the index their price impact is not. When passive flows dominate, the cost, volatility, and risk of holding offsetting short positions becomes proportional to the stock's market capitalization. During quarters when index funds receive high inflows, the largest firms outperform the broader index, which causes their portfolio weights to increase, amplifying the impact of passive flows in subsequent quarters.8

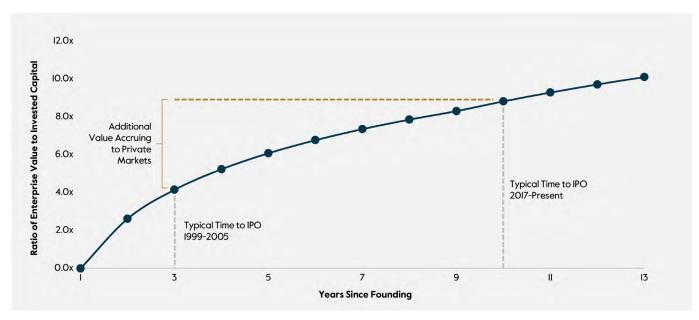
This effect can be seen in the shift in the relative performance of the largest decile of stocks as the share of passive AUM has grown (Figure 5, Page 7). Rather than underperform the broader market, as had been the case between 1985 and 2013, the largest stocks now routinely outperform the market by substantial margins. This mechanism could also partly explain why the top seven stocks' share of the S&P 500 has risen from 18% to 32% since 2019 (Figure 6, Page 7).

^{4.} Bartram, Brown, and Stulz, (2018), "Why has Idiosyncratic Risk been Historically Low in Recent Years?" Dice Center for Research in Financial Economics. 5. Da, Z. and S. Shive. (2017), "Exchange Traded Funds and Asset Return Correlations," European Financial Management.

^{6.} Grégoire, V. (2024), "The rise of passive investing and index-linked comovement," The North American Journal of Economics and Finance.

^{7.} Jiang, H. et al. (2020), "Passive Investing and the Rise of Mega-Firms," NBER Working Paper 28253.
8. Per Jiang, et al.: During quarters when index funds receive high inflows, the largest firms in the index outperform the index. During the same quarters, index concentration, as measured by, e.g., the combined portfolio weight of the ten largest firms, increases. Following the same quarters, the idiosyncratic stock return volatility increases for large firms, and does so twice as much as for smaller firms. Finally, large firms experience higher stock returns than smaller firms when they are added to the index.

Figure 3. Private Markets Capture 50% More of the Value in the First IO Years of Promising Companies' Life-Cycle



 $\label{lem:Figure 4.} Figure \ 4. \\ \textit{Remaining Stocks Larger, Older \& More Correlated}$

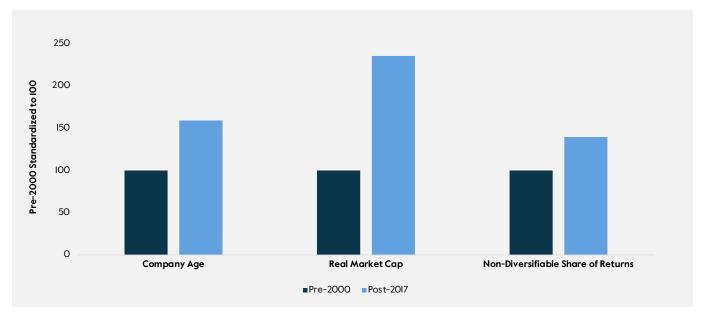


Figure 3. Source: Carlyle Analysis; Brown, Keith C., Wiles, Kenneth W., "The Growing Blessing of Unicorns: The Changing Nature of the Market for Privately Funded Companies," Journal of Applied Corporate Finance, 2020. There is no guarantee any trends will continue. Figure 4. Source: Bartram, Brown, and Stulz, (2018), "Why has Idiosyncratic Risk been Historically Low in Recent Years?" Dice Center for Research in Financial Economics. There is no guarantee these trends will continue.

Figure 5.
Passive Investment Channels Capital to Largest Stocks

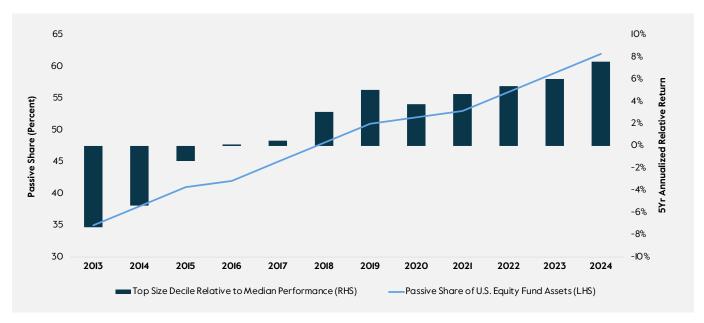


Figure 6.
Seven Stocks Account for Nearly 15% of Global Market Capitalization



BONDS NO LONGER HEDGE EQUITY RISK

Over the same period that the stock market became more correlated and concentrated, returns on stocks and bonds became negatively correlated. For a traditional 60/40 (stock/bond) portfolio, this meant that while the risks embedded in the equity portion had increased, the variance of the overall portfolio declined as the market value of bonds rose predictably when stocks sold off.

In the past, the Fed had to be as concerned with upside risks to inflation as with downside risks to growth. Inflation risk was also an acute concern of bond investors focused on preserving the real value of their principal. As a result, bond prices often rose when the Fed raised interest rates during bull markets in stocks because tightening reduced the risk of higher future inflation. Likewise, rate cuts in bear markets could depress bond prices by increasing the risk that inflation would rebound, or the rate cuts could prove ineffectual at reviving economic activity even as inflation remained elevated (the "stagflation" scenario). For these reasons, stock and bonds returns were positively correlated for the 1970s, 80s, and 90s (Figure 7, Page 9).

Things changed after the stock market collapsed in 2000. The Fed became concerned that deflation might take hold in the U.S. as it did in Japan after its bubble burst in the early 1990s. Deflation fears intensified following the Global Financial Crisis (GFC), when the economy remained in a slump even as base rates were pinned at zero. During that era, central banks responded to any weakness in economic activity or pullback in stocks with successive rounds of quantitative easing (QE) – large-scale purchases of bonds with the expressed intent of driving down their yields (i.e., increasing their price).

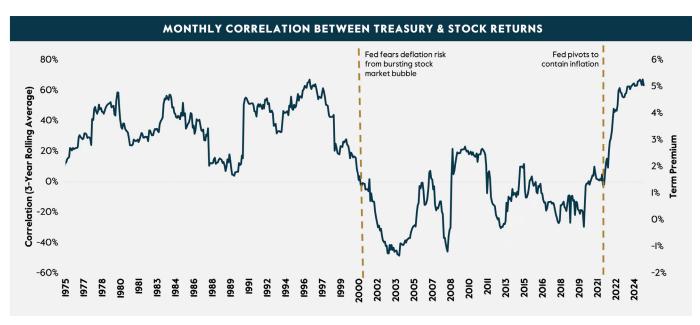
QE made bonds the perfect hedge for stock market risk: rising in value (i.e. yields falling) when stocks slumped and falling in value (i.e. yields rising) when stocks rose. Investors took notice, loading into bonds not for their paltry yields, but because of the extent to which they reliably offset declines in stocks.¹⁰

In the past, investors priced bonds to deliver a return premium to cash that averaged IOO to I5Obps per year to account for their volatility. (A money market fund is always priced at par, \$IOO in a bond fund could have a fair value of \$95 a week later). But the combination of central bank purchases and hedging demand caused that "term premium" to turn negative. In effect, bonds had become a "negative beta" asset, with investors willing to accept 2% yields on IO-year Treasuries even when forward rates implied they should yield at least 2.5% because their total return would be closer to 7% in the event that stock prices fell (Figure 8, Page 9).

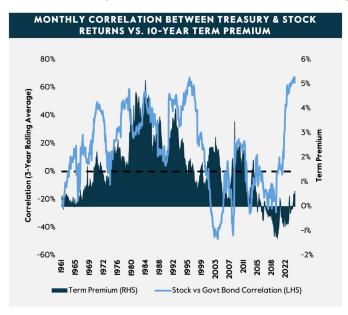
Unfortunately, a negative stock-bond return correlation is not an immutable feature of financial markets, but a phenomenon tied to the decline in the level and volatility of inflation. Since the Fed pivoted from Pandemic-era easing to aggressive tightening to combat inflation, stock and bond returns have once again been positively correlated. While the current situation is not without precedent, it is a problem.

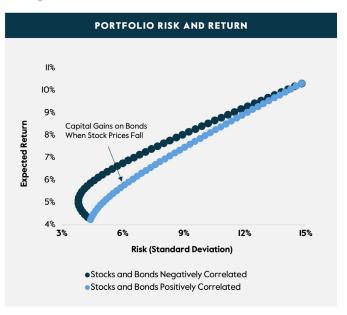
If Treasury yields *do not decline* when stocks sell off, bond yields need to rise, relative to cash, to compensate investors for interest rate and inflation risks. And that's exactly what's happened over the past six months, as the term premium returned to positive territory and may rise further as investors become sensitized to the price risks inherent to the volume of Treasuries likely to be issued in the coming years to fund fiscal deficits. For investors' portfolios, bonds have shifted from a stabilizing force – offsetting fluctuations in stocks – to a potential source of destabilization.

Figure 7.
Stock & Bond Return Correlation Conditional on Inflation Risk



Figure~8. Investors Accept Lower Yields on Bonds When they "Hedge" Stock Market Risk





THE PRIVATE MARKETS SOLUTION

The fragility of the traditional 60/40 portfolio became evident in April 2025. Rather than decline in proportion to the impact of tariffs or their second-order macroeconomic effects, stock losses were indiscriminate and driven largely by liquidity. And instead of offsetting those losses, bonds intensified them, with yields spiking (prices falling) at the same time stocks sold off. Though the market panic was arrested when the "reciprocal" tariffs were suspended and fund flows turned positive, the experience provides a warning about the inadequacies of traditional methods of diversification.

For decades, the case for private allocations has been straightforward: a IOObps to 500bps annualized return premium (net of all fees) relative to public market equivalents for the same market or macroeconomic risk (Figure 9). For private equity, that has meant returns that exceed those on

stocks, over time, without any incremental "beta" or market risk." For private credit, that has meant returns net of default losses above those earned on comparable credit quality bonds or syndicated loans. And for private real estate and infrastructure, it's meant returns to development projects or stabilized assets in excess of comparable cash flow streams available in public markets.

While the origin of the private return premium differs across asset classes, ¹² it does not come free of charge. Because private assets are not regularly traded and generally cannot be sold at short notice, they are far less liquid than stocks and bonds. Funds that hold them must restrict redemptions. While the appropriate compensation for liquidity risk differs across investors based on the ratio of portfolio balances to near-term cash needs, the rapid growth of private markets suggests that many investors found they had been sacrificing return potential for liquidity that proved ephemeral or unnecessary.



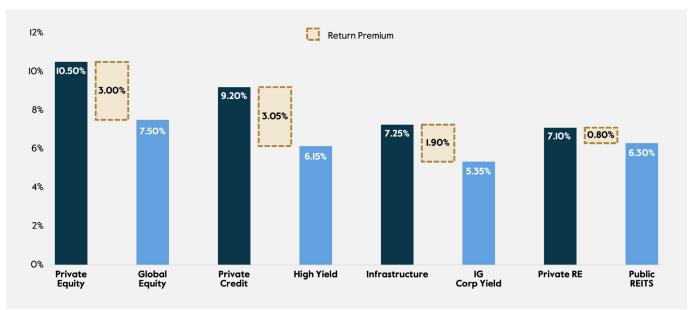


Figure 9. Source: Carlyle Analysis; Cliffwater 2025 Long Term Capital Markets Assumptions as of January 2025. These represent annualized expected returns over the next 10 years. There is no guarantee any trends will continue.

II. Brown, G., et al. (2025), "Risk-adjusted performance of private funds: What do we know? Institute for Private Capital." https://uncipc.org/index.php/publication/risk-adjusted-white-paper/. Pledging company assets for term finance, as done in buyout transactions, is quite different from leveraging stocks through margin finance. There is no "leveraged beta" relationship because there's no mark-to-market maintenance requirements or margin calls of a sort that often force stock investors out of leveraged positions during periods of market volatility.

12. For private equity, it comes largely from the "control premium" associated with active management and the associated reduction in agency costs. For private credit, it is a selection effect tied to the non-economic advantages of speed of execution, price certainty, and the flexibility of financing packages, including delayed drawdowns.

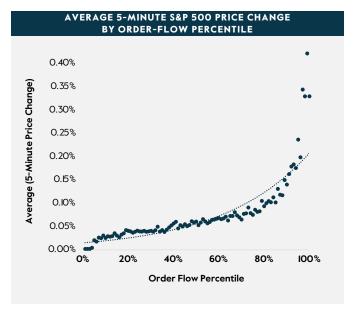
LOOKING PAST THE ILLUSION OF LIQUIDITY

Asset price volatility is partly a function of the markets in which those assets transact. In listed markets, order flow dominates short-term price dynamics, with the price response rising nonlinearly relative to the size of the sell order, even for the most liquid listed assets or contracts. The resulting price decline can beget even more volatility when it forces other investors to liquidate their holdings in response to fund outflows, margin calls, or skittish counterparties. These sales, in turn, increase the pressure on still other investors that happen to hold the same assets in common. Such "liquidity spirals" or "fire sales" have made a major contribution to the "excess volatility" of listed asset prices documented by Nobel Laureate Robert Shiller and other researchers, where market values depart meaningfully from fundamentals (Figure IO).

Investors tend to respond to liquidity shocks of this sort by selling assets that are the easiest to liquidate. That may seem commonsensical, but it gives rise to what some have dubbed the "paradox of liquidity": The most liquid assets (measured by the tightest bid-ask spreads or the highest daily turnover) tend to experience the greatest price declines in response to broad selling pressure (Figure II, Page I2).

This phenomenon was evident during the April 2025 stock market drawdown, when the market value of the most liquid quartile of stocks declined by over 400bps more than the least liquid quartile (Figure I2, Page I2). Statistical tests suggest that it was liquidity (ease of sale) that explains these price declines rather than the individual stocks' exposure to tariffs or related macroeconomic risk. The same dynamic is routinely observed in credit markets, where managers that need to raise cash naturally choose to sell the largest, most liquid loans, depressing their price relative to less liquid counterparts.

Figure 10.
Listed Market Prices Determined by Order Flow Rather than Fundamentals



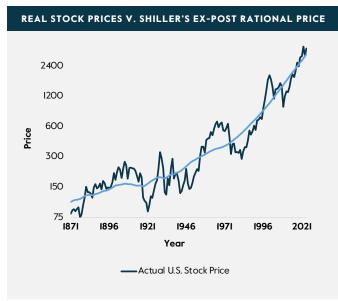


Figure 10. Source: Carlyle Analysis; Robert Shiller, Department of Yale Economics Data, May 2025. Shiller, Robert J. "Do Stock Prices Move Too Much to Be Justified by Subsequent Changes in Dividends?" The American Economic Review, vol. 71, no. 3, 1981, pp. 421–36., Bloomberg, May 2025. There is no guarantee any trends will continue.

13. C.f. Brunnermeier, M. and L. Pedersen. (2007), "Market Liquidity and Funding Liquidity," NBER Working Paper (2939; Coval, J. and E. Stafford. (2007), "Asset Fire Sales (and Purchases) in Equity Markets," NBER Working Paper (1357; Bian, J. et al. (2018), "Leverage-Induced Fire Sales and Stock Market Crashes" NBER Working Paper 25040.

Figure 11.
Investors Sell What's Easy to Sell

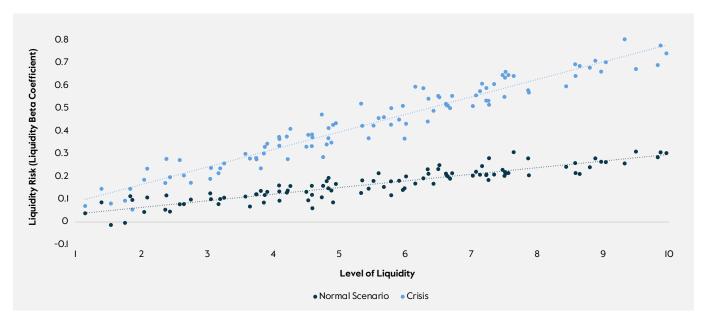
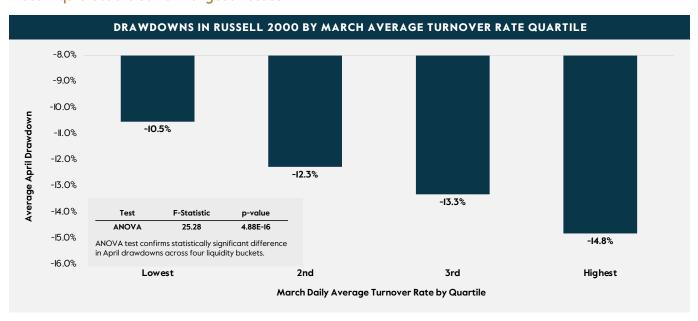


Figure 12.
Most Liquid Stocks Suffer Largest Losses



PRIVATE ALLOCATIONS BOOST RISK-ADJUSTED RETURNS ACROSS THE RISK SPECTRUM

Since private assets tend only to transact through negotiated, bilateral agreements, they are not buffeted by these "technical" factors, nor is their market value a function of the price at which unrelated third parties are forced to transact. With closed-end capital and termed-out liabilities, private portfolios not only withstand periods of heightened volatility but also scale up exposures at precisely the moments when risk-adjusted returns look most attractive. During liquidity shocks, difficulty selling assets is not a bug but a feature.

Private portfolios do have an inertial quality; exposures cannot be sold down but must instead be managed. But this is known going in, which is why investment committees place such a premium on understanding how a given asset is likely to respond across a wide range of potential scenarios

based on its past sensitivity to macroeconomic fluctuations, its operating margins, pricing power, and susceptibility to technological disintermediation. It is also why established private managers have invested so heavily in "portfolio solutions" groups and restructuring experts with the demonstrated capacity to maximize the value of portfolio companies and credits that encounter difficulties.

As a result of the private return premium and the volatility-dampening features of private markets, portfolios with a 20% allocation to private assets dramatically outperform counterparts restricted to publicly-traded stocks and bonds (Figure I3). And the outperformance is steady across the range of risk tolerance, with investment grade private credit (such as asset-backed finance) boosting the risk-adjusted return of relatively conservative portfolios and allocations to private equity augmenting the performance of those that are more adventurous.

Figure 13.
Allocations to Private Assets Improve Portfolio Performance

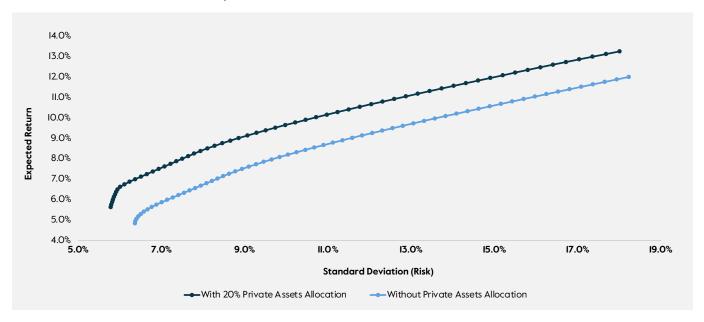


Figure I3. Source: Carlyle Analysis; MSCI-Burgiss; Bloomberg, May 2025. There is no guarantee any trends will continue.

CONCLUSION

As private capital finances more businesses, the residual pool of traded assets has become more concentrated and correlated. Passive stock funds have both grown in response to these developments and exacerbated them. A portfolio restricted to listed securities can no longer deliver the same degree of diversification it once did. While these effects had been masked by the negative stock-bond correlation that obtained during the era of disinflation, bonds no longer "hedge" risk assets as observed vividly during the April 2025 market selloff. The investment opportunity set has moved decisively towards private markets. So too must investors' portfolio allocations.

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