INVESTMENTS & WEALTH MONITOR

A reprinted article from September/October 2021

Private-Market Investing: Implications for Portfolio Construction

By Tom Bratkovich and Sarah Woo

INVESTMENTS & WEALTH INSTITUTE®

Private-Market Investing

IMPLICATIONS FOR PORTFOLIO CONSTRUCTION

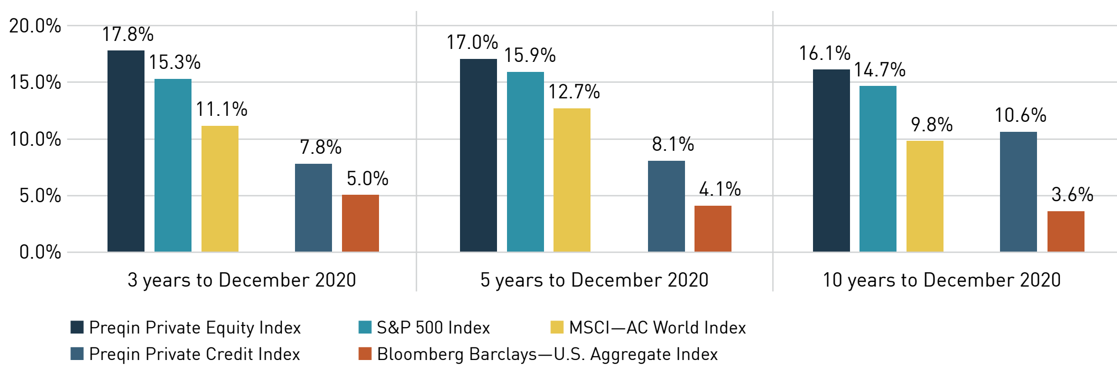
By Tom Bratkovich and Sarah Woo

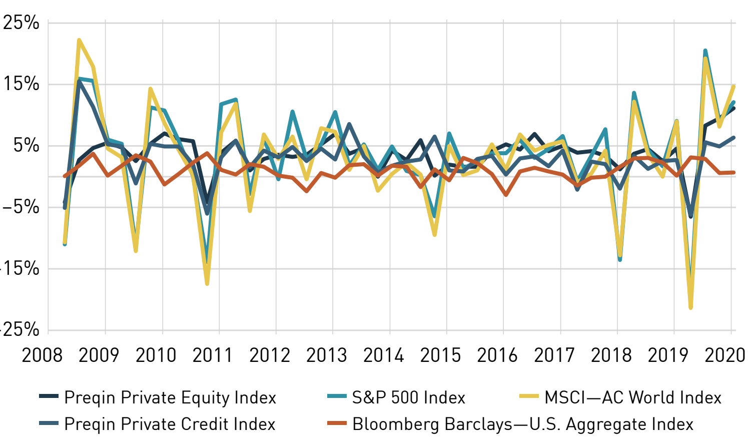
The private markets have grown to become an established part of many institutional investor portfolios. Today, the asset class is a major, fast-growing sector of the economy with private companies far exceeding the number of publicly listed companies. The potential return enhancement, reduced volatility, and broad range of diversification options are compelling reasons why investors construct their portfolios to include these strategies. However, realizing private markets' return potential requires disciplined portfolio construction, strong relationships, and access.

In this article, we explore the impact of private markets on a portfolio, reasons for private-market outperformance, and challenges to consider before building,

Figure 1

PRIVATE-MARKET VS. PUBLIC-MARKET PERFORMANCE COMPARISON





Annualized Volatility	
Preqin Private Equity Index	6.2%
S&P 500 Index	15.9%
MSCI—AC World Index	17.1%
Preqin Private Credit Index	7.4%
Bloomberg Barclays—U.S. Aggregate Index	3.1%

Past performance is not indicative of future results. Indexes are provided for illustrative purposes only and do not represent actual investment performance as a portfolio may not have exposure to many investments comprising the indexes. No assurance can be given that an investment will be successful or that investors will not lose some or all of their investment.

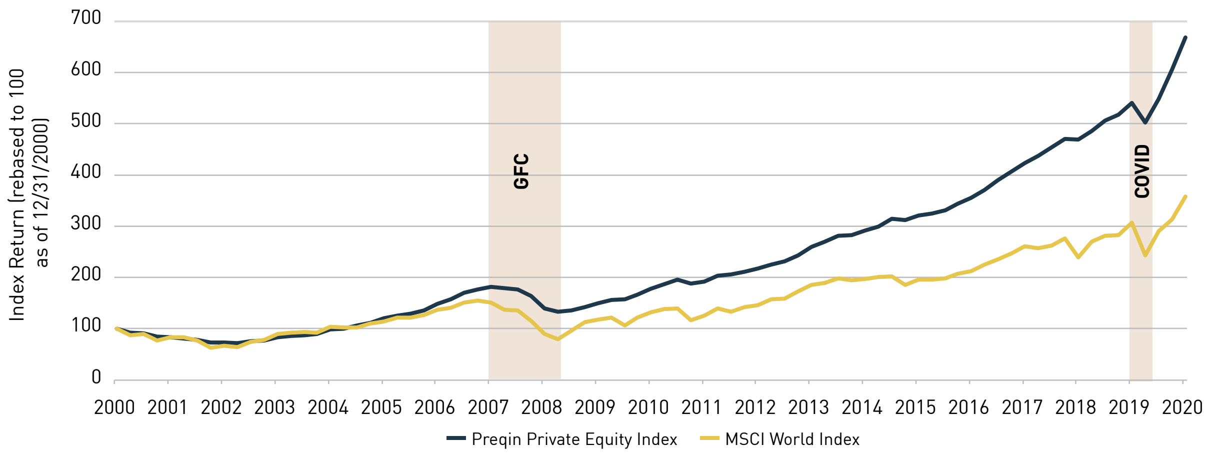
Investors should be aware of limitations of the comparison which provides only one approach to comparing returns and volatility; prospective investors should consider comparisons to other indexes and benchmarks. The Preqin indexes are created from quarterly data of underlying funds as supplied by managers that may be unaudited. The indexes are not transparent and cannot be independently verified and may be recalculated by Preqin each time a new fund is added, the historical performance of the index is not fixed, cannot be replicated, and will differ over time from the data presented in this communication. The funds included in the data report their performance voluntarily and therefore the data may reflect a bias toward funds with track records of success. Another important aspect of private-market investing is a difference in the volatility of the returns.

Figure 2

PRIVATE-MARKET VS. PUBLIC-MARKET PERFORMANCE OVER MARKET CYCLES

Indexes shown are based on quarterly time-weighted returns beginning December 31, 2000 and ending December 31, 2020

Annualized Period Returns	Pre-GFC (4Q 2000–4Q 2007)	GFC (4Q 2007–1Q 2009)	Post-GFC (1Q 2009–4Q 2020)	COVID (4Q 2019–1Q 2020)
Preqin Private Equity	8.7%	–17.0%	14.7%	–5.9%
MSCI World	6.6%	–35.8%	13.7%	–26.2%



See important disclosures at the end of this article.

implementing, and managing a private-market allocation.

DEFINING PRIVATE-MARKET STRATEGIES

Private-market investing has methodically grown over the past several decades as the industry first innovated and has now begun to mature. Private markets comprise three main asset classes: private equity (PE), private credit (PC), and private real assets (PRA). A common misconception among those unfamiliar with these asset classes is that they are monolithic in composition. However, just like the public markets, the number of sub-asset classes, strategies, and distinct approaches with PE, PC, and PRA has proliferated.

The industry now generally recognizes more than 30 different sub-strategies, each with its own risk and return profile, and each with its own utility within broader portfolios. This spans investments that target an extensive range of goals—including high-octane (and high-risk) venture capital, leveraged buyouts, corporate distressed and turnarounds, value-add real estate, natural resources investments, various forms of infrastructure equity, and more-conservative debt project finance. The industry continues innovating. Every few years, a new sub-strategy is conceptualized, developed, and added to the lexicon. More capital flows into the sub-strategy, and a set of investment managers grows to meet demand for capital unlocked through this innovation.

DO PRIVATE MARKETS OUTPERFORM PUBLIC MARKETS?

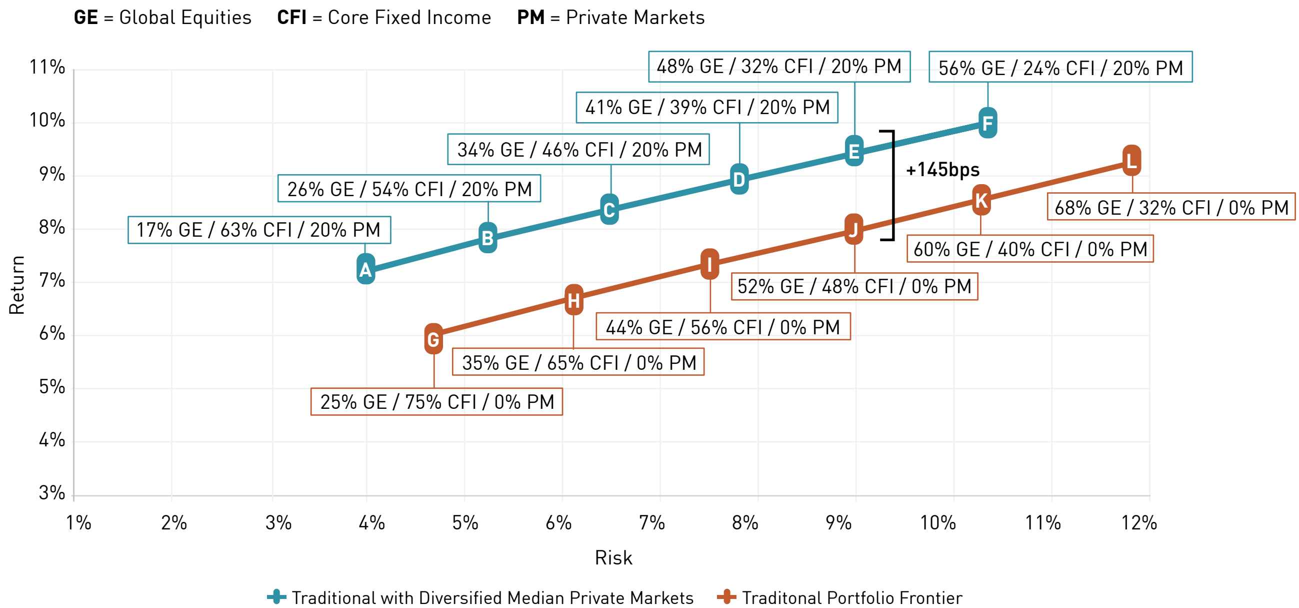
Twenty or 30 years ago, there was a lack of clarity about the relative risk and return of private-market strategies relative to the public markets. Anecdotally, many investors had heard of significant returns generated by venture capital or leveraged buyouts, but they also noted that these investments seemed risky, e.g., the burst of the tech-bubble in 2000 and the impact of the Great Financial Crisis in 2007. As the industry matured, and institutions and their advisors began to use data-driven decision-making in their private-market investing strategies, decades of performance data have now been collected and analyzed. Several groups have produced and now maintain industry-accepted performance benchmarks and indexes.[1] Figure 1 shows this performance data for PE, PC, and PRA relative to public-market indexes over the same time periods. Even if a portion of this outperformance were to continue (past performance is no guarantee of future results), that disparity can add up significantly over multi-year time periods. The data indicate that private markets historically have outperformed the public markets over time.

Figure 1 shows how private markets have outperformed the broad public markets. Private equity has lower volatility than public equity, and private credit has higher volatility than public debt.[2] This also has implications for correlation of returns relative to the public markets. Differential correlations and lower volatility can reduce the overall risk in a portfolio.

Another key ingredient in private-market investing is its resiliency in the face of changing macroeconomic market conditions. Figure 2 shows the performance of private markets over time

Figure 3

HYPOTHETICAL PORTFOLIO EXAMPLES



Past performance is not indicative of future results. Investors should be aware of limitations of the comparison which provides only one approach to comparing returns and volatility; prospective investors should consider comparisons to other indexes and benchmarks.

- *The "Traditional Portfolio Frontier" represents allocations to global equity (MSCI ACWI) and core fixed income (Bloomberg Barclays US Aggregate Index).*
- *The "Traditional with Diversified Median Private Markets" portfolio represents allocations to global equity (MSCI ACWI), core fixed income (BB US Aggregate), and 20% to private markets (consisting of median risk and returns from Preqin's Quarterly Index—10% private equity, 5% private credit, and 5% private real assets).*
- *Risk and return data is based on quarterly time-weighted returns beginning December 31, 2008 and ending December 31, 2020.*

See important disclosures at the end of this article.

relative to a diversified public-market equivalent portfolio invested at the same time through various market cycles. Private markets have outperformed before, during, and after recessionary periods.

HISTORICAL IMPACT OF PRIVATE MARKETS ON A PORTFOLIO

By retrospectively blending a private-market allocation into traditional stock-and-bond portfolios, we can build hypothetical portfolios to examine their historical risk and return. Figure 3 shows the effects of adding a 20-percent private-market allocation to a portfolio during 2008–2020. We construct 12 hypothetical portfolios, six with 20 percent in private markets and six without private-market allocations. We start with the orange line (portfolios G–L), which shows the impact of varying the allocation to public equities versus public fixed income in a portfolio that has no private-market allocation. Portfolio K has an allocation of 60-percent public equities and 40-percent public fixed income and would have produced a hypothetical return of approximately 8.5 percent with 9-percent volatility.

Next, we layer in a private-market allocation of 20 percent, shown by the blue line (portfolios A–F), and again vary the allocation to public equities versus public fixed income.

For example, portfolio E has a 20-percent allocation in the private markets and reduces public equities and fixed income pro-rata from 60 percent/40 percent to 48 percent/32 percent, respectively. Compare that to portfolio J, which has the same risk profile as portfolio E (at 9 percent) but no exposure to the private markets. This hypothetical portfolio has a drop in return of more than 145 basis points (bps).

An additional point of comparison is visible by comparing point E to point K. Portfolio K has an allocation of 60-percent public equities and 40-percent public fixed income (and 0-percent allocation to private markets) and would have produced a hypothetical return of approximately 8.5 percent with 9-percent volatility. Note that portfolio E, with a pro-rata split of public equity/fixed income and 20-percent private markets, has higher projected returns and lower risk than portfolio K. The historical improvement in the Sharpe ratio[3] with private markets added to these hypothetical portfolios is easily visible.

The private markets' capacity to provide better portfolio returns and decreased risk is quantitatively possible. Below, we describe how this is qualitatively produced through increased specialization and diversification, operational and strategic improvements, and better manager alignment to create a distinct source of value-creation unavailable in the public markets.

REASONS FOR PERSISTENT PRIVATE-MARKET PERFORMANCE

Although past performance is never an indicator of future results, we find there are multiple reasons to think that private-market investment is well-positioned to continue generating wealth for investors over long periods.

SPECIALIZATION AND DIVERSIFICATION

There are many more private companies than public companies. The number of companies listed on the broad-based FT Wilshire 5000 index—often viewed as a representation of the available U.S. stock market—has fallen to 3,558 companies,[4] a 50-percent drop since its peak in the mid-1990s and a number that has been shrinking over time. In contrast, the number of private companies has been growing and now is approaching 10 times the number of public companies. Data from Pitchbook shows the number of U.S. companies held by private-equity partnerships rose to 15,000 in 2020, from approximately 2,500 a decade earlier.[5] Private markets provide a wealth of investment opportunities and are far too broad to be covered effectively only by generalist managers. A large set of specialist managers has therefore grown within the private markets, each with its own knowledge, relationships, and capabilities in either a certain sector, geography, or strategy. Specialist managers tend to produce outsized returns, and private markets provide an excellent investment landscape for this type of manager.

Additionally, greater diversification within an overall portfolio can be achieved when combining private-market investments with public-market investments. An increasing portion of the global economy is located within the private markets, leaving portfolios that ignore this asset class potentially underexposed to a fully diversified mix of economic investment opportunities. Private-market investment managers also can provide an additional layer of diversification through portfolio construction, i.e., 8–20 investments per private-market fund.

INFORMATION ADVANTAGE

Private-market investments, because they are private, typically produce much greater information for their investors, in particular the general partner (GP) sponsors of the deals, including greater access to the management team, full books and records, and in-depth knowledge about the company's strategy, customer and supplier relationships, and competitive posture. The information may be asymmetrical—the large investors, e.g., the private-equity deal leads, tend to receive much more information because they demand it as a condition of their investment and ongoing involvement on the company's board of directors. Such asymmetrical information is typically not possible for public-company investments, and thus the private-market investment managers often have an information advantage.

VALUE-ADD

Private-market investors are able to set the purchase price and structure the securities for their deals, which allows them to provide a high degree of creative pricing and structuring at the point the investment is made. Post-investment, the GP sponsors typically are able to add value to the operations and growth of the company. In fact, most private-market investors have specific staff, known as operating partners or venture partners, whose sole function is to work within the companies they have invested in and provide strategic and operational advice, relationships, and growth initiatives. These industry experts also can determine the right time to exit an investment and help to prepare the company and management team for such an event, which can help to maximize returns for the investors.

LONG-TERM NATURE

Private investments tend to have long holding periods, 3–7 years, and thus the focus of the investors, board of directors, and management team typically is on long-term value creation. This means that short-term market fluctuations generally are ignored, and the investors are more focused on company performance, growth, and execution than external and non-relevant macroeconomic forces.

EFFICIENT USE OF LEVERAGE

As a corollary to value-add and long-term nature, private-market investors may be able to produce incremental returns through knowledge of their portfolio companies and their capital structures. Their ability to focus on building longer-term intrinsic value allows careful analysis of the potential effects of leverage and development of long-term relationships with numerous leverage providers that often compete to provide beneficial debt terms. This can lead to more efficient use of leverage, which is relevant particularly to strategies such as private-equity buyouts and distressed situations, real estate acquisition, and infrastructure development.

ALIGNMENT

Private-market investment managers have their own personal wealth (as the GP) invested alongside third-party investors (the limited partners, or LPs). Especially at the lower end of the market, the amount of personal wealth invested can be a substantial amount of the overall net worth of the investment manager, making the investment manager laser-focused on the outcome of the portfolio. Finally, private-market managers are paid compensation in the form of both management fees (based on annual fund commitments or net invested capital) and carried interest (based on profits generated by the portfolio). The carried interest tends to be more significant for the investment managers, especially at the lower end of the market, which also tends to increase the alignment and incentives between the private-market managers and the investors.

INSTITUTIONAL INVESTORS CONTINUE TO AGGRESSIVELY PURSUE PRIVATE MARKETS

Sophisticated institutional investors, commonly referred to as institutional LPs, discovered the benefits of private-market investing several decades ago and began to incorporate PE, PC, and PRA into their portfolios for the reasons highlighted above. Today, the average institutional investor has approximately 20 percent of its portfolio allocated to private markets.[6]

Private-market allocations are continuing to grow in pockets of the institutional investor community that either have yet to reach this allocation level, e.g., offshore and international LPs and smaller U.S. LPs, or have a view that private markets should have a larger position in their portfolios to help them meet ongoing and future obligations and payments to their constituents, e.g., university endowments and U.S. public pensions. For example, the Yale University endowment's 2020 allocation to private markets was 50.9 percent.[7] The University of California system recently increased its PE allocation target from 22.5 percent to 24 percent and added a new PC allocation at 4 percent, mostly at the expense of absolute return, which was decreased from a 25-percent allocation to a 10-percent allocation (Kozlowski 2020).

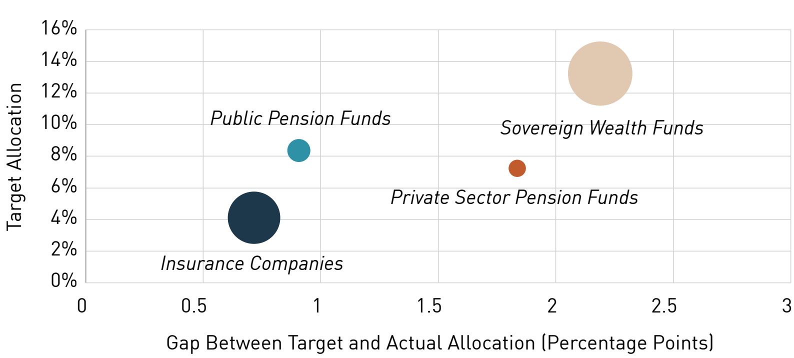
For U.S. public pensions, a recent study by *Pensions & Investments* and BlackRock found that those that made or exceeded their target return of 7.25 percent had a much larger allocation to alternatives and private markets than those that missed their targets (Yu et al. 2020). As a result, we see more sophisticated U.S. pensions increasing their private-market allocations. Several anecdotes may help to illustrate the trend:

- The California Public Employee Retirement System (CalPERS) is the largest U.S. pension plan at more than $465 billion in assets, and it is in the midst of a comprehensive allocation study that may result in even further increases across private markets.[8] CalPERS' current leadership says there will be more private equity, private credit, and private real assets in the new asset allocation due to their better risk–return profile (White 2021a, b).
- ATP, Denmark's largest pension plan and one of the five largest in Europe, recently was given the ability by the Danish government to further diversify into higher-performance alternative assets to offset the persistently low interest rates in its fixed income portfolio (Messchendorp 2021). This may include reallocating roughly 20 percent of its overall portfolio with fixed income exposure to bolster its existing investments to private equity, infrastructure, hedge funds, and real estate.
- The Los Angeles County Employees Retirement Association (LACERA), with more than $65 billion in assets, recently increased its target allocation to private equity from 10 percent to 17 percent, bringing its overall target to private markets to 32 percent (Mitchell 2021). This allocation is being taken from global public equities and public investment-grade bonds.
- The Public School and Education Employee Retirement Systems of Missouri (PSRS/PEERS), a $53-billion plan, increased its private-market allocation from 25 percent to 35 percent. PE increased from 12 percent to 16 percent, PRA increased from 9 percent to 11 percent, and PC increased from 4 percent to 8 percent—mostly at the expense of U.S. public equity, public fixed income, and Treasury Inflation-Protected Securities.[9]
- The Iowa Public Employees Retirement System (IPERS), a $42-billion plan, recently increased its target allocation for private equity from 11 percent to 13 percent and its allocation to private credit from 3 percent to 8 percent, both coming from its public core fixed income portfolio, which was adjusted from 28 percent to 20 percent (Comtois 2020).

Figure 4

UNDERALLOCATION OF INSTITUTIONAL INVESTORS TO PRIVATE EQUITY IN 2020

All major LP types are underallocated to PE



Source: Preqin, as of May 2021. Bubble size indicates average assets under management of LP type.

CHALLENGES

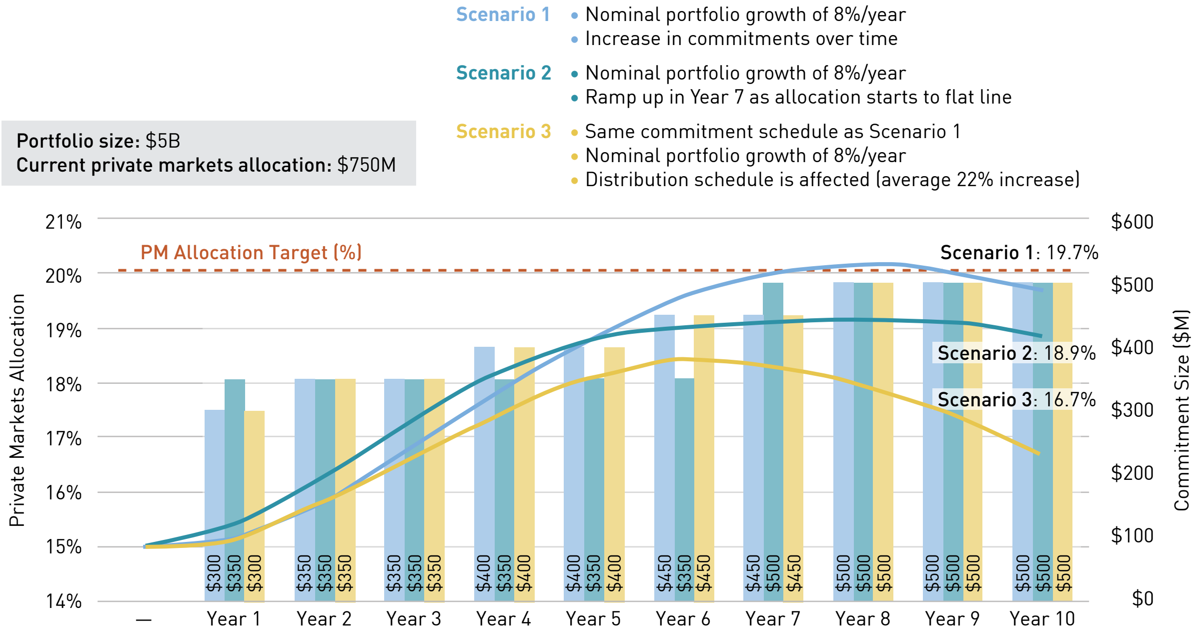
We have discussed the benefits of private-market investing. Below, we describe some of the challenges and the ways that sophisticated investors overcome or mitigate these challenges in order to build well-diversified, high-performing portfolios that include private-market allocations.

PACING AND ACHIEVING ALLOCATION TARGETS

Private-market allocations for a portfolio are easily defined. It's easy to say, "Our targets are 10-percent PE, 5-percent PC, and 5-percent PRA." But it's more difficult to meet and hold these types of allocations in practice. This is because,

Figure 5

THE CHALLENGE OF PRIVATE-MARKET PACING MODELING AND HITTING/MAINTAINING ALLOCATION TARGETS



historically, private markets have been accessible only through drawdown primary fund commitment funds that present some uncertainty in the actual net asset value (NAV) that is "dollars at work" at any given time. This is illustrated in figure 4, which shows the results of a Preqin survey of sophisticated institutional investors about their current allocations to PE and how much they are underallocated. The results are significant: Public pensions are nearly 100-bps underallocated in aggregate from their target of 8.5 percent, and sovereign wealth funds are underallocated by more than 200 bps from their target of approximately 13 percent to PE. Preqin estimates that in 2020, institutional investors were more than $500-billion underallocated to PE alone. Institutions have been investing in the private markets for decades, yet this issue persists.

The question is, why can't institutional investors hit their allocation targets? The reason is the difficulty in predicting the pacing of cash flows and valuation changes in private markets, as well as the inability to easily and quickly rebalance any deviations from targets. For example, capital calls and investments increase the NAV, as does unrealized growth in the underlying portfolio holding value, and distributions received back from the portfolio investments decrease the NAV. Throw in macro fluctuations that affect the overall portfolio size or changes to an investment program's deployment schedule, and target allocations are hard to achieve and maintain. Several scenarios that show this difficulty are presented in figure 5. Scenario 1 shows an investor that has done well in achieving a 20-percent private-market allocation. Compare this with scenario 2, where the investor has a slightly lower commitment/deployment ramp, and scenario 3, where the investor receives more distributions sooner than expected. In both scenarios 2 and 3, the investor significantly underachieves the private-market allocation target. The bottom line is that real-world small deviations from assumed inputs can produce large changes to resulting outputs, i.e., the actual achieved allocations.

The good news is that new private-market products are now available that are much more liquid due to innovations in fund structure (e.g., tender offer funds with the Nasdaq exit feature, interval funds, etc.), making rebalancing much easier that it has been historically. Although a full discussion of these structures is beyond the scope of this article, several references that address these structures are available for the interested reader.[10] Additionally, skilled advisors and allocators are available that have decades of experience with proven models and capabilities that allow investors to achieve and maintain private-market allocations.

THE ONE-TO-MANY PROBLEM

Another issue to consider when investing in private markets is what is known as the "one-to-many" problem. Simply put, it is very difficult for a single individual investor, or even sophisticated institutional investors with dedicated staff, to know, get access to, and perform due diligence on the tens of thousands of private-market fund managers[11] and the order-of-magnitude larger set of underlying company investment opportunities. Which ones are the best? How can an investor get access? Even if you can determine the best managers, what if you do not have a large enough capital base to meet the minimum investment amounts in these best funds?

The industry has evolved a set of solutions to this problem, mainly through the development of an intermediate layer of skilled advisors and allocators that operate between the investors—be they individuals or institutions—and fund managers. These allocators have the job of sorting through the fund managers and their deals, assessing their quality and historical performance, rank-stacking them versus their peers, performing due diligence, and making investments into a select group.

A final point on the one-to-many problem: A variety of fund structures are now available to individual and small institutional investors that have lower minimums and pool capital to allow access to high-performing private-market investments. This includes (but is not limited to) funds-of-funds, interval funds, tender offer funds, feeder funds, listed LPs, and other similar structures.

PORTFOLIO DIVERSIFICATION

The public markets are diverse, and although the number of public-market companies has been decreasing, there are still a variety of strategies (growth, value, etc.) covering all sectors and geographies in the economy. The private markets are even more diverse, with a multitude of strategies, sectors, sizes, and geographies.[12] There is an additional dimension for private markets—vintage year, which has no clear analog in public markets. Vintage year is the year that an investment fund is launched or, in the case of a co-investment, the year that the deal in the underlying portfolio company is first created. A given private-market fund manager may have multiple active funds with vintage years separated by 2–4 years each. Vintage years tend to correlate with broader market movements and macroeconomic trends, albeit with some lag. Sophisticated private-market investors tend to diversify their portfolios by vintage year.

The main point around diversification is that there are many ways to invest in the private markets, which again highlights the need for a strong advisor or allocator for first-time investors in the asset class. We often hear of new investors to private markets that have an exposure to a single venture capital fund or deal or have some private real estate in their portfolios. Unless they have considered the full range of private-market strategies, sectors, geographies, and vintages, their portfolios are unlikely to be well-diversified and unlikely to enjoy the strong risk-adjusted return profile that a comprehensive portfolio can offer.

LONG-TERM INVESTMENT HORIZON AND LIQUIDITY

Private-market investments generally have a long-term realization horizon. Typical deals take 3–7 years to be fully realized after they were first made, and thus most private-market funds have an 8–12-year life that includes a 4–5-year investment period and a 3–7-year harvest period. Notably, traditional private-market funds structured as LPs usually have no means for investor liquidity, i.e., no redemptions, no formal investor buybacks, etc. Thus, the space tends to be illiquid by nature and actually by design—fund managers are able to focus on patient, long-term growth of their investments without fear of their investors pressuring them to redeem their positions with early exits.

That said, numerous innovations over the past decade have greatly improved investor liquidity. This includes the emergence of a fairly robust and liquid secondary market for private-market funds and direct-deal positions. The secondary market usually provides investors liquidity for their positions within 3–12 months of launching a search for a buyer; however, typically only sophisticated sellers with reasonable scale in their positions, e.g., greater than $10-million NAV, are able to effectively tap the secondary market at a reasonable cost.

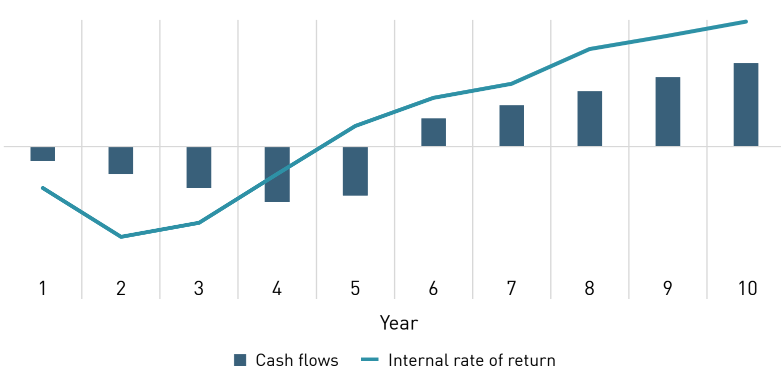
The other main liquidity innovation is the emergence of registered private-market funds in public markets, on private exchanges, or with inherent redemption or liquidity structures for investors. These include private real estate investment trusts, interval funds, tender offer funds, business development corporations, listed limited partnerships, and other similar structures. Nonetheless, private-market investments should not be counted on for investors' short-term liquidity needs.

EARLY LOW PERFORMANCE (J-CURVE)

The investment cycle of a private equity investment is long, and performance typically exhibits a pattern referred to as the "J-curve." Figure 6 shows an example of this—the internal rate of return is often negative during the first few years of a private-market investment. The main reason for this is management fees

Figure 6

J-CURVE SHAPE OF HYPOTHETICAL PRIVATE EQUITY FUND INVESTMENT INTERNAL RATE OF RETURN AND CASH FLOWS



that are charged during early years either (1) before capital is drawn and invested or (2) a lack of gains early in the life of the investment commensurate with the investment fees and expenses. The good news is that the negative returns are more than outpaced by positive returns later in the life of private-market investments. Additionally, strategies to mitigate the J-curve have emerged and often are used by portfolio managers, including the use of secondary investments, co-investments, and aged primary fund investments, to name a few. Properly constructing a portfolio of private-market investments that mitigates the impact of the J-curve is an important consideration in lowering risk and improving returns.

LOW TRANSPARENCY

Although there is enormous transparency for the fund managers as it relates to their underlying portfolio companies, that information may or may not be available for the investors in funds. Some GPs are notorious for providing scant information to their investors, and others provide some basic information on their investments. Audited financial statements now exist for nearly every private-market fund, but they may not be viewable to all investors depending on their access points. Again, having an allocator or advisor with a larger relationship with a given fund manager helps in this regard, because those advisors typically are able to get all the relevant information they need to perform due diligence and then monitor an investment.

DIFFICULT VALUATION ASSESSMENT

Private-market holdings may be difficult to value because they are not typically quoted or traded on a public exchange. This makes it hard to assess a fund manager's ultimate impact on an investment until the investment is sold. Valuation has come a long way in the past 20 years in private markets, from a set of ad hoc practices that were widely disparate to today's standard quarterly valuation frameworks, formal incorporation into GAAP through FASB ASC 820,[13] and sign off by auditors of fund financial statements. Valuation in private markets is a topic that deserves more exploration by interested investors. A full treatment is not possible in this article, so we provide several references that will be useful in understanding how private-market valuation works.[14]

PULLING IT ALL TOGETHER

Investing in PE, PC, and PRA can provide important portfolio diversification advantages and improve overall performance prospects at an improved Sharpe ratio. Private markets have several advantages relative to public markets that provide a foundation for this outperformance, including increased specialization, an information advantage, ability for the managers to add value post-investment, the long-term hold nature of the assets, and strong alignment with managers. Institutions have spent several decades honing their use of and approach to this part of the market, and in many cases, they are increasing their allocations to ensure that they can meet their own target portfolio returns with reduced risk.

Private-market investing, however, generally takes a different skill set than public-market investing. There are some nuances and complexities in how these strategies work in practice. We outlined a few of those complexities in this article, including but not limited to meeting and holding allocation targets, the one-to-many problem, portfolio construction and diversification, illiquidity, the J-curve effect, transparency issues, and valuation.

The private-market industry has matured in the past few decades. Skilled allocators, advisors, and portfolio managers have now spent entire careers operating in this space—and they are available to assist new investors in understanding and excelling in building robust portfolios of private-market investments.

Tom Bratkovich is a senior vice president at Wilshire, where he focuses on new product launch, capital formation, and business development. He earned an MBA with distinction from Harvard Business School, and aerospace engineering degrees from MIT and UCLA. Contact him at tbratkovich@wilshire.com.

Sarah Woo is a senior associate at Wilshire. where she focuses on global marketing and fundraising efforts of the firm's private-market initiatives. She earned an MBA from the University of Pittsburgh. Contact her at swoo@wilshire.com.

ENDNOTES

1. These include Preqin, Pitchbook, Burgiss, and Cambridge.
2. There are differences between private-market and public-market valuation methodologies that are beyond the scope of this article. Individual private-market and public-market valuations may or may not reflect true intrinsic or economic value at any given time, but for different reasons. Index valuations and thus volatility measurements may not reflect the true economic risk inherent within any given asset class.
3. Sharpe ratio, a measure of portfolio risk-adjusted return, is defined as $(R_p - R_f)/s_p$, where R_p is the portfolio return, R_f is the risk-free rate, and s_p is the risk of the portfolio. The Sharpe ratio may be visualized as the slope of a line from the zero-risk point ... R_f to the portfolio risk/return point (s_p , R_p) on an efficient frontier graph.
4. As of March 31, 2021.
5. Pitchbook, as of December 31, 2020.
6. Preqin Investor Survey. Respondents included more than 4,000 institutional investors comprising asset managers, endowments, family offices, foundations, governments and sovereign wealth funds, public and private pensions, and insurance companies.
7. Yale University Endowment, 2020 Annual Report. https://investments.yale.edu/s/2020-Yale-Endowment.pdf.
8. Exploring a New Private Equity Model, CalPERS, https://www.top1000funds.com/2021/08/calpers-new-asset-allocation-to-take-on-more-risk/.
9. "PSRS/PEERS Asset Allocation," Missouri PSRS/PEERS (as of June 30, 2021), https://www.psrs-peers.org/Investments/Asset-Allocation.
10. See, e.g., Bratkovich (2021), Griggs (2018), and Kreps and Antonelli (2020).
11. Preqin private markets manager universe, as of January 2021, includes more than 20,000 private equity, 9,800 private real asset, and 1,900 private credit fund managers.
12. As of December 2000, Pitchbook's database includes more than 15,000 private equity-backed U.S. companies; compare to the

Continued on page 48 →

PRIVATE-MARKET INVESTING

Continued from page 33

approximately 3,500 public companies listed on the broad-based FT Wilshire 5000 Index.

13. ASC 820 (Accounting Standards Codification 820) is part of the Financial Accounting Standards Board's (FASB) Generally Accepted Accounting Principles (GAAP) guidance.
14. Wilshire 2021 Presentation, "Private Markets Valuation: Industry Standards and Methods," www.wilshire.com.

REFERENCES

Bratkovich, Tom. 2021. Cash Drag in Liquid Private Markets Fund Structures. Wilshire (June). https://mim.fgsfulfillment.com/download.aspx?sku=BRCH-WILSHIRECD-A4.

Comtois, James. 2020. Iowa Public Employees Boosts Allocations to Private Markets. *Pensions & Investments* (September 18). https://www.pionline.com/pension-funds/iowa-public-employees-boosts-allocations-private-markets.

Griggs, Nelson. 2018. Auction Funds: A New Option for Liquid Private Investments. *Investments & Wealth Monitor* 33, no. 3 (May/June): 28–31.

Kozlowski, Rob. 2020. University of California Creates Private Credit Target Allocation. *Pensions & Investments* (August 3). https://www.pionline.com/endowments-and-foundations/university-california-creates-private-credit-target-allocation.

Kreps, Michael, and Angela Antonelli. 2020. Use of Alternative Assets in Target Date Funds: Challenges, Strategies, and Next Steps. Georgetown University McCourt School of Public Policy, Center for Retirement Initiatives. Policy Report 20-01 (February). https://cri.georgetown.edu/wp-content/uploads/2020/02/Georgetown-CRI-Policy-Report-20-01.pdf.

Messchendorp, Laura. 2021. ATP: Pension Fund Ready to Invest More into Alternatives. Preqin, LP Snapshots|Insights+ (August 24). www.preqin.com.

Mitchell, Justin. 2021. LACERA Aggressively Hikes PE targets in Hunt for Returns. *Private Equity International Equity: Buyouts* (May 21). https://www.buyoutsinsider.com/lacera-aggressively-hikes-pe-target-in-hunt-for-returns/.

White, Amanda. 2021a. Co-investment, Diversification Drive CalPERS' PE Push. Top1000Funds.com (August 24). https://www.top1000funds.com/2021/08/co-investment-diversification-drive-calpers-pe-push/.

———. 2021b. CalPERS' New Asset Allocation to Take on More Risk. Top1000Funds.com (August 24). https://www.top1000funds.com/2021/08/calpers-new-asset-allocation-to-take-on-more-risk/.

Yu, Calvin, Jonathan Cogan, and Sarah Siwinski. 2020. Public Pensions in the 2020s: Planning for a Very Different Decade Ahead. BlackRock and *Pensions & Investments* (November 15). https://www.blackrock.com/institutions/en-us/insights/investment-actions/public-pensions-in-2020s.

Disclosures

The Preqin Quarterly Index returns include both the impact of cash flows (cash contributions and distributions) and gains (change in net asset value (NAV) for each quarter and are net of management fees and carried interest charged by the general partners or sponsors of the underlying investments. Compounded return calculations for both the private capital and public markets indexes are time-weighted measures. Investors cannot invest directly in an index, and even if they had, there is no guarantee that investments could have been realized at any particular time or value to match a given index's results (including through the private secondary market).

The Preqin Quarterly Index data is not transparent and cannot be independently verified and may be recalculated by Preqin each time a new fund is added, the historical performance of the index is not fixed, cannot be replicated, and will differ over time from the data presented in this communication. The funds included report their performance voluntarily and therefore the data may reflect a bias toward funds with track records of success.

Wilshire Advisors LLC is an investment adviser registered with the SEC.

5619 DTC Parkway, Suite 500
Greenwood Village, CO 80111
Phone: +1 303-770-3377
Fax: +1 303-770-1812
www.investmentsandwealth.org