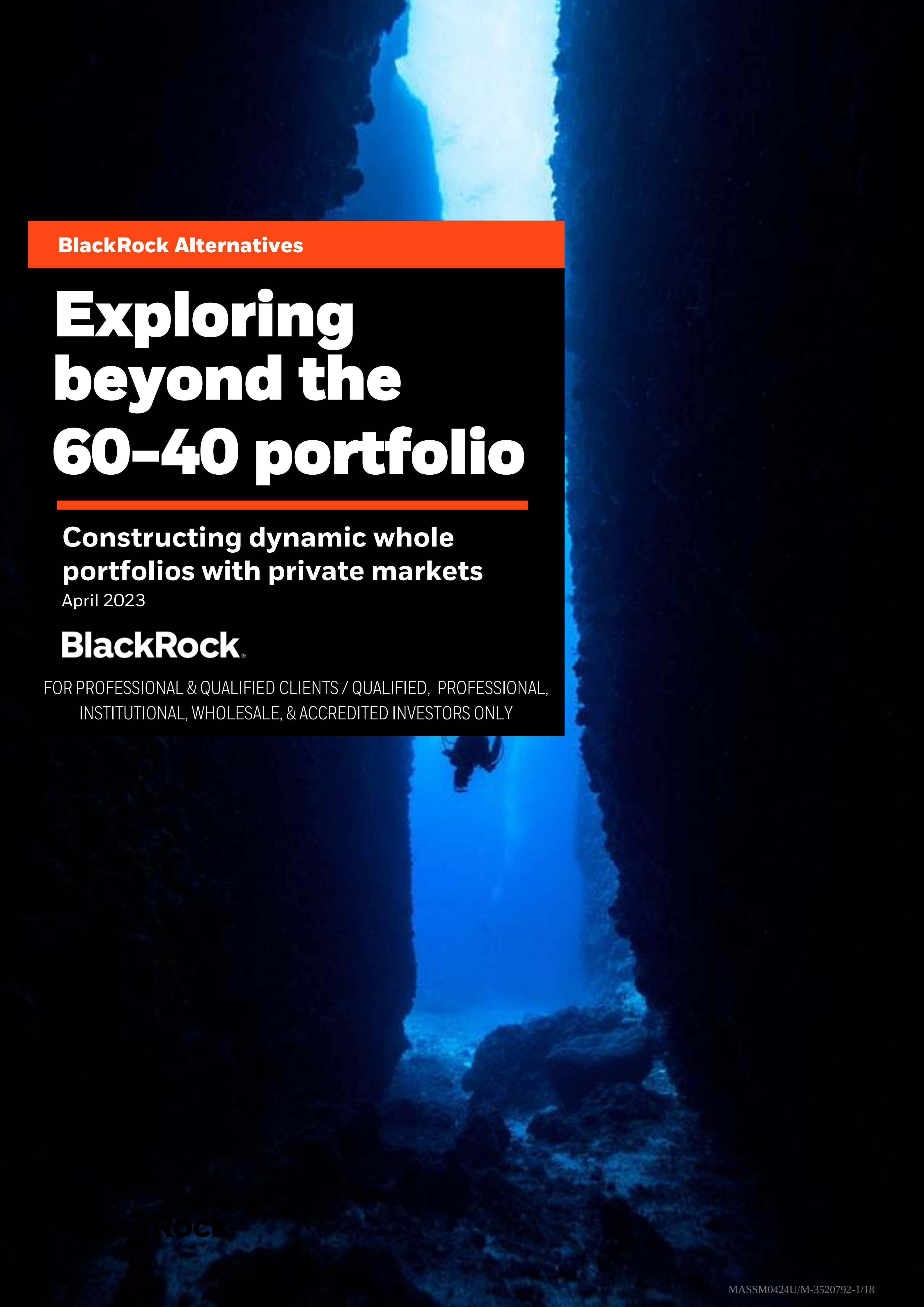

BlackRock Alternatives

Exploring beyond the 60–40 portfolio

Constructing dynamic whole portfolios with private markets

April 2023

BlackRock

FOR PROFESSIONAL & QUALIFIED CLIENTS / QUALIFIED, PROFESSIONAL, INSTITUTIONAL, WHOLESALE, & ACCREDITED INVESTORS ONLY

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Authors

Vidy Vairavamurthy
Managing Director
Multi-Alternative Solutions

Vivek Paul
Managing Director
Head of Portfolio Research, BlackRock Investment Institute

Christian Olinger
Director
Portfolio Strategist, BlackRock Investment Institute

Meng Wang
Vice President
Multi-Alternative Solutions

Contributors

Stephen Boyd, Ph.D.
Senior advisor for the BlackRock AI Labs / Professor and Chair of the Electrical Engineering Department at Stanford University

Mykel Kochenderfer, Ph.D.
Senior advisor for the BlackRock AI Labs / Professor of Aeronautics and Astronautics at Stanford University

Pascal Nguyen
Director
Multi-Alternative Solutions

Jonathan Callan
Director
Multi-Alternative Solutions

Summary

Last year underscored why we are in a new regime of greater macro and market volatility, as we stated in our 2023 Global Outlook. Investors are faced with a riskier and more uncertain environment – and portfolio construction processes must change, in our view.

We think the static 60% stocks 40% bonds portfolio that worked in the past is unlikely to work in this new market regime. We believe private markets should be part of the mix, but the optimal portfolio may not simply be replaced with another rigid mix that includes static private market commitments. Instead, we believe what is required is a dynamic approach to constructing whole portfolios with public and private markets together.

We use our research in whole portfolio construction to outline key arguments for investors to explore beyond 60-40 portfolio and create dynamic public-private market allocations.

Key points from the paper

- Static asset allocations can create wide dispersion of portfolio outcomes
- Traditional portfolios like 60-40 performed well during the Great Moderation, the four-decade period of largely stable activity and inflation. That environment fostered a sustained bull market for equities and fixed income. We don't see these conditions returning in the new regime
- The increasing correlation of public equities and fixed income has made it difficult to find reliable diversification, pushing some investors to consider private markets
- Replacing the 60-40 with a 50-30-20 (stocks-bonds-private markets) portfolio does help improve total risk-return outcomes, we find – but the static nature of the asset allocations still show wide dispersion of outcomes across time
- We find portfolios with private markets are rarely at their static asset allocation targets, especially when ramping up. That's why we think an adaptive and dynamic commitment approach across time is needed
- Within our new approach to constructing private markets portfolios, we start by estimating return and risk for each asset class. We then move on to simulating the cash flows based on economic scenarios before finally building whole portfolios
- The denominator effect and illiquidity risks are commonly cited challenges when allocating to private markets. We acknowledge these concerns are valid in uncertain market conditions, but we do not believe these are limiting factors to including private markets to improve portfolio resiliency.
- We provide a case study with dynamic and diversified multi-private market commitments that lead to ~20% allocation to total private markets in the portfolio across time.
- The results show how the dynamism in both private market commitment planning, as well as whole portfolio construction with flexible public market allocations, can create more favorable portfolio outcomes than a static, traditional portfolio mix like the 60-40

New market regime, same old 60-40 portfolio?

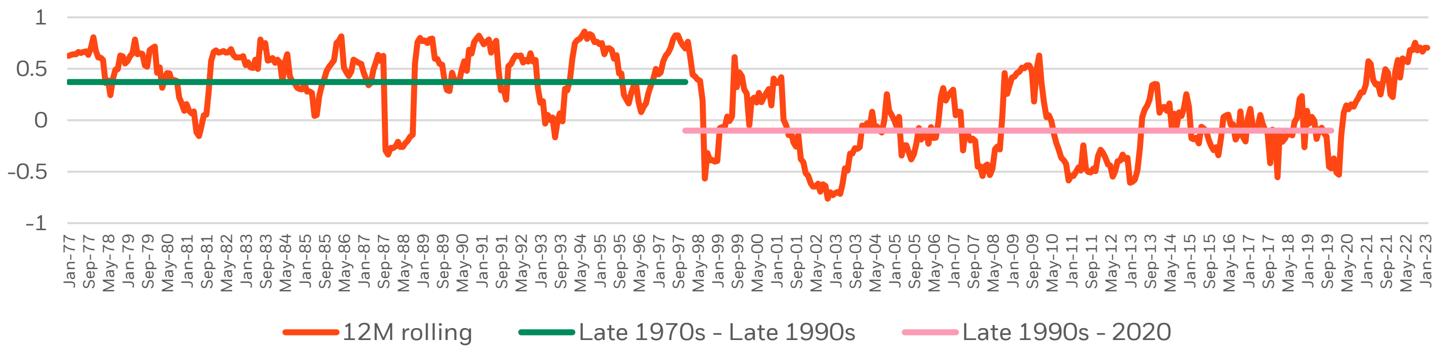
The foundational 60-40 portfolio, where 60% is invested in public equities and 40% in public bonds, is the initial starting point for many portfolios. The Great Moderation was characterized by consistently positive returns for both stocks and bonds. The 60-40 portfolio and traditional portfolio construction approaches performed well during this period. Stable activity and inflation fostered a sustained bull market for equities and fixed income, allowing portfolios to benefit from the cushion long government bonds could provide against risk asset sell-offs. We think investors are unlikely to keep benefiting from a static traditional portfolio like 60-40 in this new market regime.

We think persistent inflation will mean less protection from nominal bonds. If interest rates do stay higher for longer, we don't think nominal long-term bonds will be the refuge they have been in the past – especially if investors are demanding more compensation, or term premium, for the risk of holding them.

We believe investors need to rethink the asset class building blocks within their portfolios. Our approach to build an equivalent 60-40 portfolio today would broadly add up to something similar at the headline bond/equity level – yet it would notably differ in composition, dynamism and span both public and private markets.

Increasing correlation in the new regime have challenged the ability of public equities and fixed income to give reliable diversification to each other

Correlation between public equities and fixed income[1]



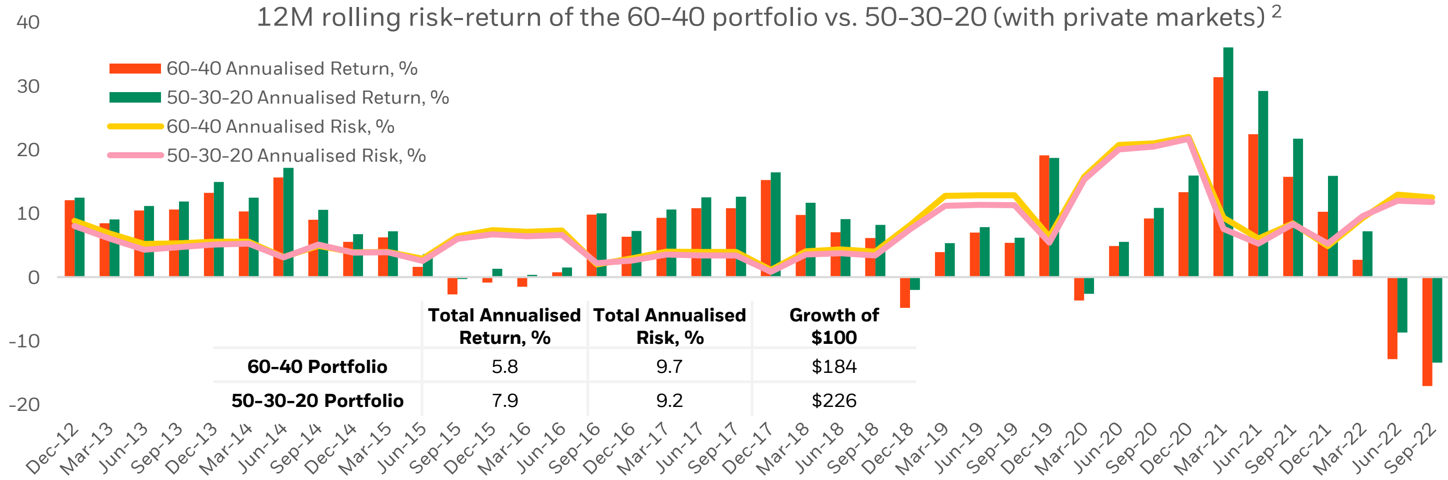
Private markets can be a natural next step in evolving the 60-40

Private market returns have inherent relationships with public markets. Similar macro factors drive returns in both markets. We describe these as "traditional beta" returns: the equity market for private equity or rates and spreads for private credit. Yet private markets also have the ability to provide returns in excess of the traditional risk premia. These returns could come from a mix of taking on illiquidity risk, unique characteristics such as pricing frictions in illiquid and incomplete markets, information asymmetries or more idiosyncratic factors such as the amount of wind that blows where a wind farm is based.

We believe adding private markets to traditional portfolios can help broaden the opportunity set, increase return potential, enhance portfolio diversification – and in some cases add a healthy dose of inflation protections. Whole portfolios with private markets can also add stability in **an uncertain market regime. There have also been historic shifts that give rise to private markets being a core asset class in portfolios**, such as long-term decline in public company ownership, banks retreating from credit markets and the transition to a lower-carbon world increasing infrastructure spending.

Replacing the 60-40 with 50-30-20 including private markets can help improve total risk-return. But the wide dispersion of outcomes across time still remain similar to a 60-40 portfolio

12M rolling risk-return of the 60-40 portfolio vs. 50-30-20 (with private markets)[2]



	Total Annualised Return, %	Total Annualised Risk, %	Growth of $100
60-40 Portfolio	5.8	9.7	$184
50-30-20 Portfolio	7.9	9.2	$226

We compared the 60-40 portfolio with a revised portfolio where public equity and fixed income are reduced by 10% each and reallocated to private equity (see the chart above). We find that the total historical, annualized risk and return across a 10-year time period does improve (see the table), but the wide dispersion of outcomes of a static portfolio remains – especially the high dispersion of risk. We think this highlights the importance of creating dynamic asset allocations and assessing relative value opportunities within a wider set of sub-asset classes across public and private markets.

The figures relate to past performance. Past performance is not a reliable indicator of current or future results and should not be the sole factor of consideration when selecting a product or strategy. Source[1]: MSCI, Bloomberg. Indices used: MSCI USA Index, Bloomberg Barclays U.S. Aggregate Index. Time Period: February 1976 – January 2023 using monthly frequency. Source[2]: MSCI, Bloomberg, Preqin. Indices used: MSCI All Country World Index, Bloomberg Barclays Global Aggregate USD hedged, Preqin Private Equity. Time period: January 2012 to September 2022, using quarterly frequency and rebalanced every quarter. $= USD.

Addressing your concerns

The denominator effect and illiquidity risks are commonly cited challenges when allocating to private markets. We acknowledge these concerns are valid in uncertain market conditions. Potential for higher macro volatilities persisting in this new regime could cause these headwinds to emerge more frequently going forward, so we think it's important to address these two key concerns.

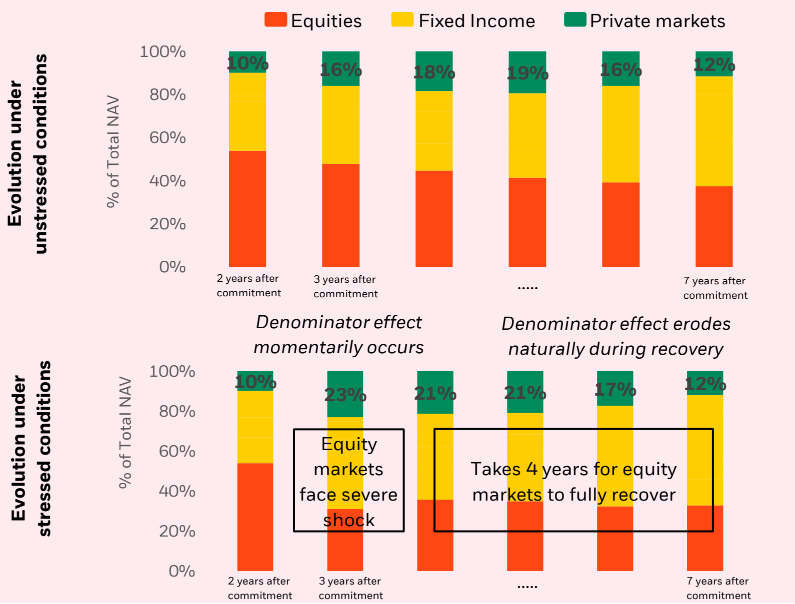
Decoding the denominator effect

2022 saw large declines in public market net asset values (NAV). Existing private market assets were mostly not marked down, leading to them representing a larger portion in whole portfolios. This is referred to as the "denominator effect" and has created unintended active bets compared with the intended portfolio. Investors may be contemplating whether they make changes to the pacing of commitments or even a forced sale on the secondary markets to realign portfolios.

We outline three considerations for investors pressured to make whole portfolio allocation decisions, based *solely* on such denominator effects.

1. Unless impacted with urgent liquidity needs, we believe investors could manage short-term governance issues by acknowledging that an overallocation to private markets could simply be the result of investments not being marked to market. A solution to address the governance problem could be to allow momentary increases in target allocations to avoid extreme responses that may be needed to realign whole portfolios back to its target
2. These are illiquid investments that cannot be as easily rebalanced. Most private market investments need time to "ramp up" investments after the point of making capital commitments. Decisions to pause today could lead to a reversal of the denominator effect in the future, especially if public markets rebound. It is simply too difficult to time the market
3. Hitting the brakes on private markets when the opportunity set is most attractive – valuations falling from peak levels and high market dislocations – may also limit investors from benefiting from potentially superior long-term returns within key vintage years. Research shows that vintages of stressed market conditions have performed stronger. If true, it may be too difficult to backfill such vintage year funds in the secondary market in the future

Making the case. The analysis below highlights an extreme case of the denominator effect. We model the same stress scenario to equity markets and a four-year "L shaped" recovery period as experienced in the financial crisis of 2008. We assume that portfolios are unable to be rebalanced (more info can be found in the Appendix). The results show that even after these severe assumptions, the momentary denominator effect is normalized during and after recovery period.



Rethinking illiquidity risk

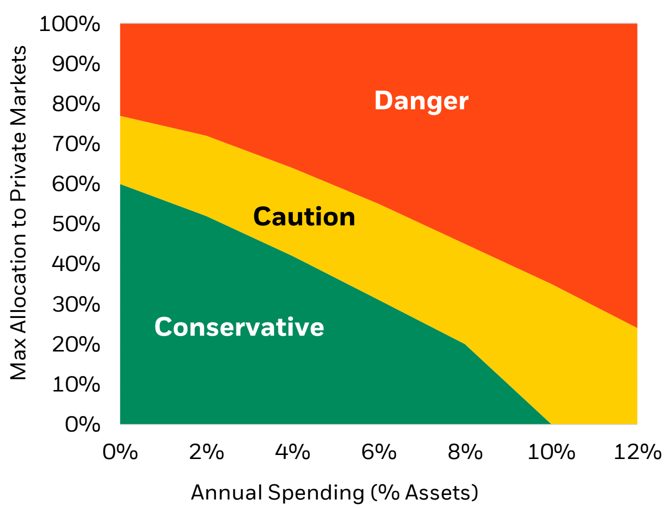
We define liquidity risk as the likelihood of failing to meet a fund capital call or other obligation because of cash shortages. We believe this risk should be taken into account as a key parameter when running portfolio construction processes.

An investor's risk appetite and liability profile are key when assessing the sizing of private market allocations in whole portfolios. But illiquidity ultimately only matters if capital is needed to service current liabilities. This tolerance for illiquidity can certainly vary over time and across market conditions.

One example: a pension fund becoming more cash-flow negative as it matures, with outflows exceeding inflows. Its need for liquidity will rise. This could mean shrinking the allocation to private markets in favor of more liquid, public markets. But it could also mean shifting allocations within private markets – from longer duration investments like private equity and infrastructure to shorter duration investments that generate income, like private credit.

Making the case. We addressed illiquidity risk in previous research where we quantified this risk by performing a simulation based on a historical period of market stress – the financial crisis of 2008. The analysis assessed how much one can allocate to private markets before running into problems with meeting spending requirements.

We assessed an investor's liquidity needs across a range of key variables that impact their outcomes: the allocation to private markets, the annual spending requirements of the overall portfolio, the bond-equity mix among public market investments (assuming they are easy to sell), the diversification within their private markets portfolio and the age of the program. We find that spending needs greatly influence allocations – and many investors remain conservative in their private market allocation (see green shaded area in chart below). Many investors could make relatively large allocations to private markets before liquidity constraints start to bite, in our view.



Source: BlackRock, as at 28th February 2023. For illustrative purposes only.

Private markets portfolio construction, reimagined

The next natural step in this whole portfolio journey is to build out "optimal" public and private market portfolios that best complement each other to deliver investment outcomes. Each asset class within private markets can deliver vastly different outcomes, but the growing universe of strategies and accessibility mean we have a fertile ground to carry out thoughtful portfolio construction within private markets.

So how does one go about doing this?

Most investors follow an approach that might be described as collecting alternative investments. They budget their capital based on static, generic return and risk assumptions and then allocate by asset class. The investments sit in silos, with no real unifying framework or effective means to adjust the mix of strategies as markets shift. Applying traditional portfolio construction methods to private markets can be difficult too, because many of the assumptions that underpin the processes designed for public assets do not hold for private market asset classes.

The key point

In traditional portfolio construction processes, the output is typically a "set and forget," static strategic asset allocation. Portfolios with private markets are rarely at their static asset allocation targets, we find, especially when ramping up. That's why we think an adaptive and dynamic commitment approach across time is needed. We also calibrate our portfolio construction process to take into account existing private market commitments and performance to date, then simulate possible future scenarios to arrive at the optimal commitment schedule as well as public asset allocation. By combining our knowledge of historical market moves and our best estimate of future economic paths, we manage all parts of the portfolio to maximize the probability of success for client outcomes while limiting intra-period portfolio volatility.

Our approach to private markets portfolio optimization involves three steps:
(1) Risk, return and cashflow model for each asset class,
(2) Simulation of cashflows based on economic scenarios, and
(3) Whole portfolio optimization

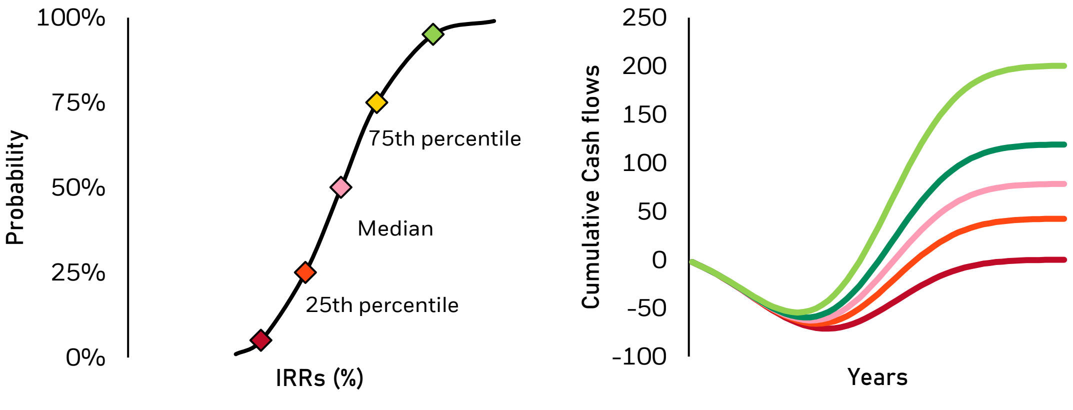
Risk, return, cashflow model for each asset class

Compared to static cashflow models, one important difference in our approach is its integration of macroeconomic risk factors. Those influence not only the rate of growth for each asset but also how quickly capital is called or returned. This allows us to understand how cashflow behaviors change under different market conditions.

Simulation of cashflows based on economic scenarios

Although the future is uncertain, we use economic simulation to frame possible paths that may develop on a go-forward basis. Range of scenarios are developed to form the universe of potential futures centered around our base case views. We then use these inputs to simulate private market cashflows.

Illustrative Private Market Asset Class Return & Cashflow Dynamics



Source: BlackRock, as at 28th February 2023. For illustrative purposes only.

Whole portfolio optimization

Based on our ability to simulate market scenarios at scale, we then optimize portfolios that are dynamic and customized to specific client objectives and preferences. Crucially, we are able to optimize whole portfolios with combined liquid and illiquid assets in order to improve risk-adjusted returns while minimizing the probability of insolvency, defined as the inability to meet capital calls or other cashflow needs, due to missing capital calls from lack of funds.

Example of a dynamic whole portfolio with private markets

We think a more dynamic approach is needed to improve portfolio resiliency – a static asset allocation like 60-40 has not performed well as correlations and volatility have increased. But private market commitments must be planned carefully to avoid less optimal allocations or even insolvency.

Making the case. The below case study shows an example of a dynamic whole portfolio optimization that incorporates around 20% private market exposure alongside a traditional mix of public equities and fixed income. Our dynamic private market commitment plan is also accompanied by public market allocations that take the private side into account.

Both sizing and composition of commitments are optimized to achieve target private market exposures at steady-state, and public market exposures are rebalanced to support liquidity needs for private market commitments while minimizing cash drag. This dynamic public-private portfolio has a 10% economic risk target, similar to many 60-40 portfolio investors, and has the objective to maximize total portfolio returns while minimizing insolvency risk. We show how an investor may make adaptive private market commitments across multiple strategies through time.

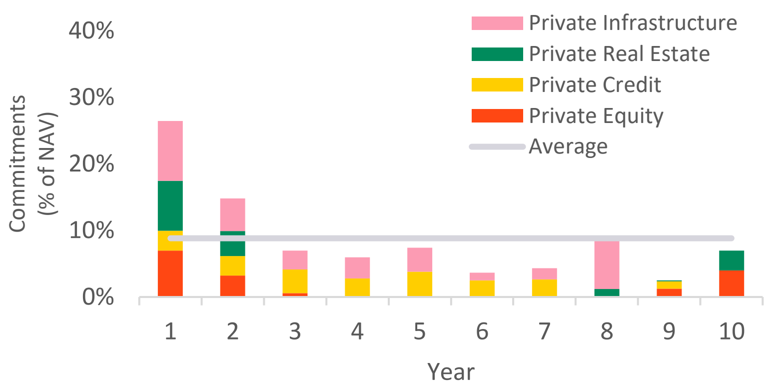
In this example, the dynamic approach suggests front-loading commitments to private markets in the earlier years to accelerate ramp-up, before calibrating commitments down to 5-10% per year for the purpose of maintaining private market exposures. This also allows the investor to benefit from vintage diversification. Our example below does not heavily invest only in private equity, a common approach by investors new to private markets. With a public market composition similar to 60-40, allocating only to private equity could overexpose the total portfolio to equity risk factors. Instead, we diversify the private market portfolio towards real assets and private credit that have differentiated sources of risk factors across diversified factors, such as inflation and spreads. Committing dynamically across multiple private market strategies over time also allows investors to benefit from exercising relative value opportunities as market conditions change.

The results below show how the dynamism in both private market commitment planning and whole portfolio construction creates potential for higher portfolio returns while maintaining the maximum 10% economic risk target throughout time. It also helps avoid insolvency risks in static public-private portfolios.

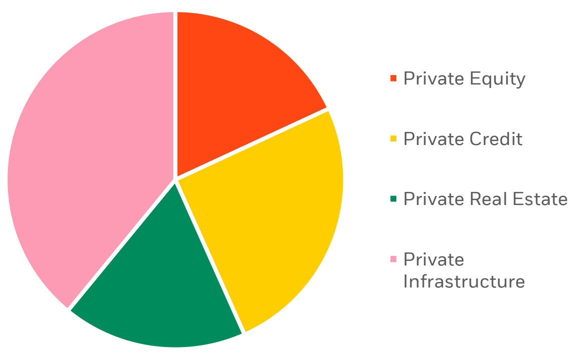
Objectives for the "Dynamic Public-Private Portfolio"

✓ Maximize total portfolio return with diversified private market exposures
✓ Target 10% economic risk across time
✓ Minimize insolvency risk across time

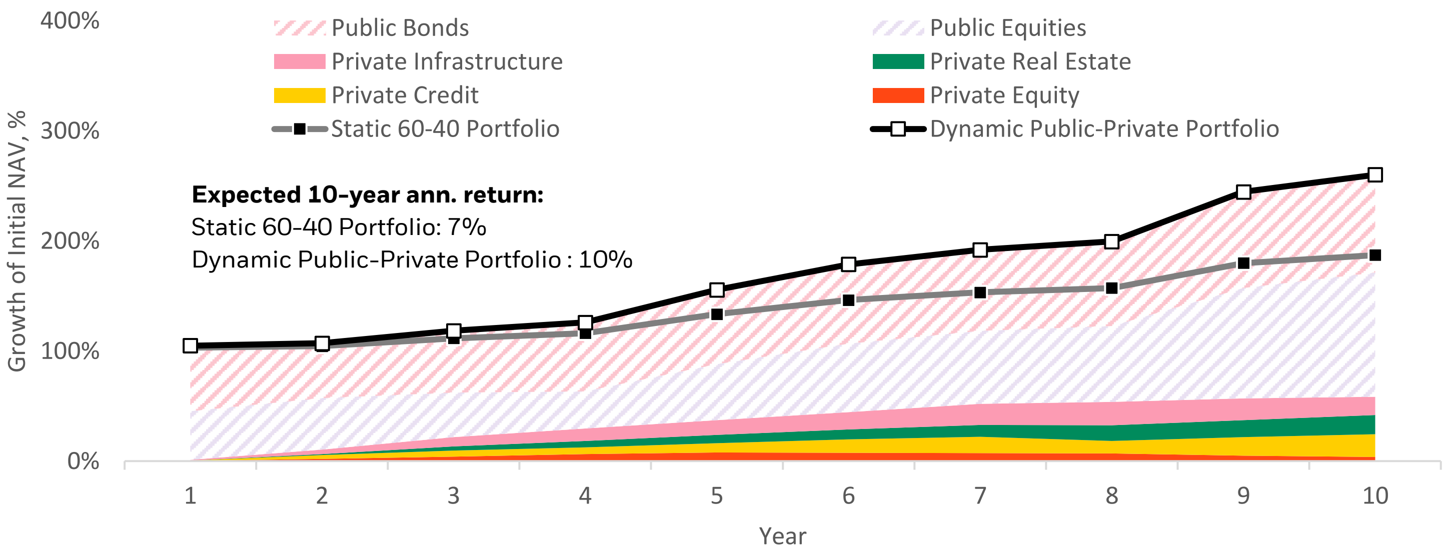
Private market commitments across time



Average pro-rated commitments across time



Projected total portfolio market value



There is no guarantee that any forecasts made will come to pass. Source: BlackRock, as at 28th February 2023. For illustrative purposes only.

Managing private markets? It's a hands-on activity

We know that private markets have been playing a core role in institutional portfolios for decades, and the growth in both private market allocations and the investment landscape will require more thoughtful portfolio construction techniques that we've described in this paper.

Other investors, such as wealth managers, have started to join the private markets journey, too. However, building out robust private market portfolios is resource-intensive and there's simply more to get right – or wrong – in comparison to building public market portfolios.

There's more to get right, or wrong, when implementing private markets in portfolios

We list out three of the mission critical capabilities that set apart successful private market portfolios:

- **Sourcing**: Access to investment opportunities across strategies and implementation types
- **Relative value assessment**: Ability to assess and compare investment opportunities across private market asset classes, strategies and regions
- **Whole portfolio construction**: Decisions for optimal allocation of private markets, adaptive commitment plans and public market portfolios that work together with privates

Designing and managing private market portfolios, building the technology and analytical power for robust portfolio construction techniques, and finally, implementing the right operational processes take a lot of work. A few of the largest investors have the internal resources to directly make and monitor their own private market portfolios. For most investors wanting to benefit from private markets, a greater reliance on private markets will entail determining an appropriate mix of internal and external resources.

Approaches to investing in private assets are bound to keep evolving. In the days when allocations were smaller and performance did not move the needle for overall outcomes, investors rightly focused most of their attention and resources on constructing public market portfolios. But as allocations to private strategies grow, investment opportunities are getting increasingly dispersed, and the market regime remains challenged. The management of private market portfolio matter more and more — bringing us to the current state of play.

We believe there are three supportive elements at play that BlackRock can help investors with:

A focus on outcomes

A vast sourcing capabilities in private markets coupled with attention to relative value

A more specific view of risk

If this approach sounds ambitious, it's because it is.

We've found none of these criteria can be met with ease – nor in short amount of time. This is why we have been laser-focused on bringing our multi-alternative solutions to our clients.

We believe that this new age calls for a more comprehensive review of building dynamic, robust whole portfolios with private markets – one that looks beyond the siloed approaches of the past – we invite investors to join us on this journey together.

Want to explore portfolio construction within private markets further?

Please reach out to your BlackRock relationship manager and ask to speak to the **Multi-Alternative Solutions** team.

We look forward to partnering with you on your portfolio construction journey.

Appendix

Parameters of denominator effect case study

Drawdown ← Recovery Path →

Asset Classes	Shock 1	Shock 2	Shock 3	Shock 4	Shock 5
Public Equities	-49%	55%	14%	-1%	11%
High Yield Bonds	-14%	19%	4%	0%	3%
Government and Investment Grade Bonds	-4%	5%	1%	0%	1%

Shocks based on the Global Financial Crisis

Implied Shocks

We start by analyzing the maximum drawdown of public equities (MSCI All Country World Index) over the last 20 years, which occurs during the Global Financial Crisis with drawdown return of -49% (we call this Shock 1). It then takes the index a subsequent four more years to make full recovery (we call this Shock 2 – Shock 5). These five shocks make up the shock path we apply to our whole portfolio for public equities. We then use these shocks in public equities to calculate and apply implied shocks to other assets using our proprietary risk platform, Aladdin®.

We assume a 10% allocation from public equities was used to fund commitments to a diversified multi-private markets portfolio which is 2 years into it's investment period. The first chart in the "Addressing your concerns" page shows how the whole portfolio would evolve under normal market conditions, the second chart with the stress scenario built from the shocks above. We assume the portfolio is not rebalanced, distributions get held as cash and no critical liquidity event occurs which may have forced sales. We observe that immediately after Shock 1, public markets' allocation reduces significantly causing private markets to rise to 23% instead of 16% under unstressed conditions – possibly breaching an allocation limit. However, this denominator effect is largely eradicated as the recovery in public markets is made. In this case, the following year private markets under stressed market conditions is similar to that under unstressed, and by the end of the recovery period the private market allocation is exactly the same. This is an example of how, unless faced with extreme liquidity crisis, denominator effects can be momentary and be naturally reversed back during and after recovery of the stressed market.

Parameters of illiquidity risk case study

Input	Range Tested
Target allocation to private markets	0 – 100% of the initial portfolio value
Annual liquidity / spending requirement from total portfolio	0 – 12% of the initial portfolio value
Mix of liquid assets	100% global equity (MSCI All Country World Index) to 100% US fixed income (Bloomberg Barclays US Aggregate Index)
Number of private market fund commitments per year	4 - 20 funds per year
Age of private markets portfolio	1 – 20 years, although the output is conservatively based on the age with the greatest liquidity requirements during the global financial crisis
Quarterly NAVs and cash flows for private market funds	All fund types and geographies from Preqin

For each combination of the input parameters in the table above, we run 200 Monte Carlo simulations of portfolio performance over ~15 year period, each time selecting a random combination of private market funds to allocate to. The probability that the liquid assets fall below two years of spending requirements is recorded and used to produce the chart on page "Addressing your concerns." The conservative zone on the chart represents the range of allocations to private markets that don't result in greater than a 5% chance of a liquidity event for any combination of the other input parameters. The danger zone is the opposite extreme, where all combinations of input parameters lead to at least a 5% chance of a liquidity event. The caution zone is the middle ground, where an investor's ability to tolerate liquidity risk depends on how conservatively or aggressively they allocate their portfolio. We ran the analysis on the entire Preqin private market fund universe of about 3,500 funds.

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