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Understanding the sources of return, risk, and diversification for private assets, and how it fits into a traditional portfolio is the first step toward full public and private portfolio integration. In this piece we discuss practical steps toward real return-enhancement through private markets.

In our final piece in this series on enhancing portfolios outcomes through private markets, we focus on real return-generating investments. Real returns, typically expressed through an allocation to real assets, have gained increased focus from investors as they seek inflation protection and diversification amidst a more uncertain macroeconomic backdrop. Our objective in this analysis is to think about ways in which we can meaningfully improve a traditional portfolio through the implementation of private real assets – primarily centered around real estate and infrastructure.

We examine potential portfolio constructs by taking a wide view across equity and debt investments and look at opportunity across the risk spectrum – for example, considering real estate exposure across the core, value add, and opportunistic spaces. Casting a wide net and continually refining the exposure we believe will allow us to construct a diversified set of building blocks that improves a traditional asset allocation.

Given our broad-based remit for this exercise, we'll continue to leverage the Invesco Vision tool, which will guide us in examining the trade-offs between private assets and help us consider how to most effectively incorporate these investments in the context of a public assets portfolio (i.e., 60/40 portfolio). Our initial portfolio workspace will consider the following assets and weights.

Figure 1 - Private Markets Real Assets portfolio

Asset	Weight (%)
Invesco Infrastructure Core Benchmark Proxy	20
Invesco Infrastructure Credit Benchmark Proxy	20
Invesco Real Estate Credit Benchmark Proxy	20
Invesco Core Real Estate Benchmark Proxy	15
Invesco Value Add Real Estate Benchmark Proxy	15
Invesco Opportunistic Real Estate Benchmark Proxy	10

Source: Invesco, for illustrative purposes only.

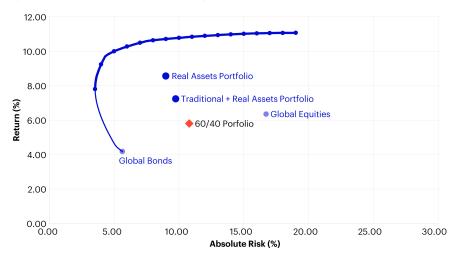
The above asset class mix is split with 60% allocated to "equity" investments (i.e., asset ownership) in infrastructure and real estate, and 40% allocated to "debt" investments, in line with a traditional 60/40 portfolio. This will allow us to appropriately examine the return and risk potential and examine the efficacy of the real return portfolio allocation. Within real estate, given the wide risk spectrum of opportunities, we have constructed a balanced mix of core, value add, and opportunistic building blocks in addition to debt exposure. Thinking through infrastructure, our blocks include core and debt. This mix allows us to achieve income, growth, and diversification objectives. Additionally, the real return nature of these assets, which often have cash flows with direct or indirect relationships with inflation, can improve the overall prospects of a traditional portfolio. It is this real return characteristic that drives considerable investor interest in these assets. When thinking about the primary outcomes in private markets, that is why we believe growth, income, and real return must be targeted when building an optimal portfolio allocation.

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Figure 2 - Efficient frontier analysis using real assets allocation



Source: Invesco Vision, data as of 31 December 2023. Return estimates are based on the Q12024 Long-Term Capital Market Assumptions. These estimates are forward-looking, are not guarantees, and they involve risks, uncertainties, and assumptions.

Looking at the efficient frontier framework above, it's quite evident that diversified real assets have an attractive return/risk profile, particularly compared to traditional assets such as equities and fixed income. When adding the real assets portfolio to a traditional "60/40" portfolio, we can both increase expected return and reduce portfolio risk. Leveraging our long-term capital market assumptions, and Invesco Vision, this exercise becomes much more flexible and scalable.

We review the following return/risk characteristics by combining private markets real assets building blocks along with the MSCI All Country World Index (MSCI ACWI) and Barclays Global Aggregate Bond Index (USD-hedged) indices. We then created a sample portfolio with a 50%/30%/20% among equities, bonds, and private markets real assets, respectively. As seen in the analysis, a portfolio of real assets harvests a meaningful return premium over public assets, particularly on a risk-adjusted basis. We view this as a highly attractive value proposition, particularly for strategic asset allocators.

Portfolio components	Return (%)	Risk (%)
MSCI ACWI	6.8	16.5
Barclays Global Aggregate Bond Index	4.7	5.7
Private Markets Real Assets Portfolio	8.6	8.6
50% MSCI ACWI/30% Bloomberg Aggregate Bond Index/20% Private Markets Real Assets	6.8	9.8
60% MSCI ACWI/40% Bloomberg Aggregate Bond Index	6.3	10.8

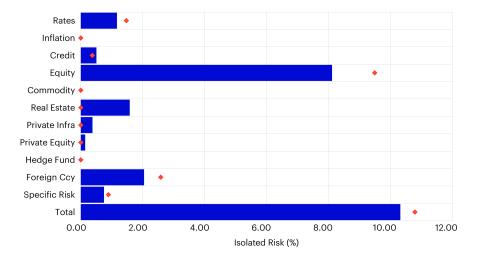
Source: Invesco Vision, data as of 31 December 2023. These estimates are forward-looking, are not guarantees, and they involve risks, uncertainties, and assumptions. An investment cannot be made directly in an index.

We also like to consider the underlying portfolio exposure through a factor lens, as it allows us to further examine portfolio allocations and understand the core risk drivers in a portfolio. This also serves as a check for diversification, and if a private markets allocation diversifies a traditional portfolio away from three traditional portfolio factors – equity, rates, and currency. As we will see below, the traditional real assets portfolio does reduce the reliance on the equity and rates factors, with increased exposure to real estate and infrastructure factors. The overall takeaway is that while the Traditional Real Assets Portfolio does have improved return and risk characteristics, its core factor exposure is much more diversified, and can provide stability for strategic investors willing to allocate to private real assets.



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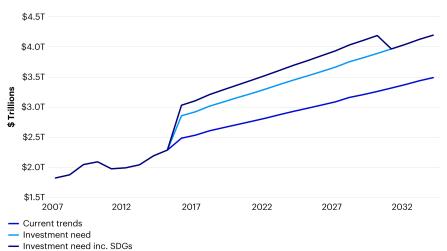
Figure 3 - Factor analysis using real assets allocation



Source: Invesco Vision, data as of 31 December 2023. These estimates are forward-looking, are not guarantees, and they involve risks, uncertainties, and assumptions.

It's apparent through this exercise that implementing real assets exposure can have clear portfolio-level benefits, the key being an emphasis on diversified exposure across asset classes and investment styles. Thinking about the macro backdrop, while inflation concerns have dissipated in the short-term, there is still a long-term concern about upside inflation risk due to climate transition impacts (link to climate CMAs document), and potential underinvestment in traditional sources of energy. Additionally, there are investment opportunities that we expect will arise from the climate transition, such as physical infrastructure buildout.

Figure 4 - Investment need in infrastructure



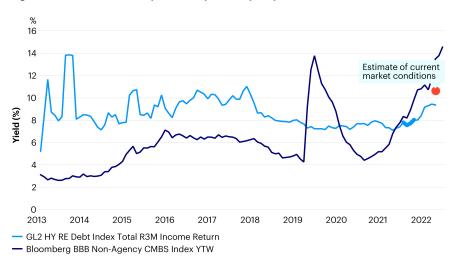
Source: Invesco Solutions, Pitchbook, Preqin, Global Infrastructure Hub, as of Oct. 31, 2023. Note: SDGs refer to Sustainable Development Goals.

Thinking about real estate, we see increasingly attractive opportunities in the debt space, as banking retrenchment and increasing short-term rates have led to meaningful opportunities for private capital to provide loans to high quality commercial borrowers. The confluence of these factors has led to increased focus on real assets and taking an "all of the above" approach to portfolio construction, allowing for flexibility and diversification to improve traditional portfolios.



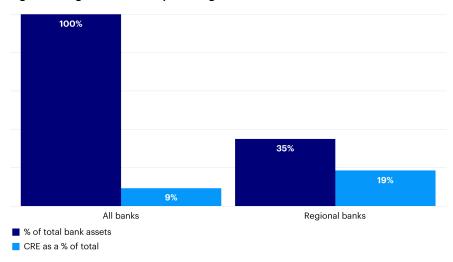
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Figure 5 - Real estate credit yields compared to proxy CMBS YTW



Source: Invesco Solutions; Gilberto-Levy, FDIC, Bloomberg L.P., as of June 30, 2023. Note: CMBS YTW refers to commercial mortgage-backed securities yield to worst. **Past performance does not guarantee future results**.

Figure 6 - Regional banks as a percentage of CRE loans



Source: Invesco Solutions; Gilberto-Levy, FDIC, Bloomberg L.P., as of June 30, 2023. Note: CRE refers to commercial real estate.

Summary

In sum, private assets can be used to greatly enhance the real return properties of a traditional portfolio. By looking at a diversified mix of real estate and infrastructure, investors can harvest the current investment opportunity set to capture long-term secular trends and position portfolios for potential headwinds. However, it's key for investors to take an "all of the above" approach in this space and engage partners who can help to achieve scale to appropriately meet their investment outcomes.



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Investment risks

The value of investments and any income will fluctuate (this may partly be the result of exchange rate fluctuations) and investors may not get back the full amount invested.

Invesco Investment Solutions develops CMAs that provide long-term estimates for the behavior of major asset classes globally. The team is dedicated to designing outcome-oriented, multi-asset portfolios that meet the specific goals of investors. The assumptions, which are based on 5- and 10-year investment time horizons, are intended to guide these strategic asset class allocations. For each selected asset class, we develop assumptions for estimated return, estimated standard deviation of return (volatility), and estimated correlation with other asset classes. This information is not intended as a recommendation to invest in a specific asset class or strategy, or as a promise of future performance. Estimated returns are subject to uncertainty and errors and can be conditional on economic scenarios. In the event a particular scenario comes to pass, actual returns could be significantly higher or lower than these estimates.

Across a variety of alternative investment strategies, our objective is to capture the expected behavior of each strategy as represented by a broad proxy rather than a particular manager or fund. Granular data within private markets is difficult, and often impossible, to find. As such, we use objective, observable data from public proxies wherever possible as an input into our process; where data is not available, our alternatives specialists set forward-looking assumptions informed by their own experience.

Return assumptions vary by category. For Private equity, we use a building-block approach for US leveraged buyouts that captures earnings growth, valuation multiple expansion/contraction, fund leverage (and cost of financing), and fees to derive expected net returns. For other equity strategies such as venture capital, we compare historical returns to buyouts and then apply that difference to our forward-looking estimate for buyout returns on the assumption that return differences in the future will be consistent with the past.

Real Assets. For select real assets, namely Core US Real Estate and Core US Infrastructure, we utilize a building-block approach capturing rental income, maintenance CapEx, expected real income growth, expected inflation, expected valuation changes, leverage (and cost of financing), and fees to derive expected net returns. For other real assets, we utilize historical returns from NCREIF and Burgiss.

Private Credit. For most private credit proxies, we start with gross yields on underlying debt holdings and adjust for expected losses (based on historical averages), fund leverage (and cost of financing), and fees to derive expected net returns.

For a few private credit proxies, such as distressed debt, we utilize historical relationships to derive forward-looking assumptions as described above.

Approach to risk. A key principle of our risk methodology is to represent alternatives as a combination of both private and public exposures. This captures a distinct private element that is not correlated with traditional assets, while at the same time recognizing the underlying exposures themselves are often more public or traditional in nature. Taking private credit as an example, our methodology assumes exposure to a private debt factor as well as a public credit spread factor. The result is a private credit correlation with traditional assets that is greater than 0, but less than what would be suggested by public credit spread exposure alone. Because our Vision modeling platform extensively leverages the Barra framework, absolute risk for a number of alternative strategies is a byproduct of the Barra factor exposures. For alternative strategies not explicitly captured by Barra, we assume overall risk is consistent with history, with factors being mapped to the private and public factors that our alternatives specialists believe best represent the strategy.



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