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As we continue the discussion on private markets for Asian investors, for this analysis we'll focus specifically on growth investments. While we've discussed private growth investments in prior pieces, this series is geared toward Asian investors with specific local currency return considerations. We'll continue our focus on analyzing the global interest rate regime and how this adds an additional layer of complexity to Asian investor's portfolios. Ultimately, we expect that investors will need to deploy a wider investment opportunity set to meet this challenge, which will involve greater usage of private markets investments. However, as with any new investment, careful analysis is needed not only for selecting new investments but also implementing this exposure.

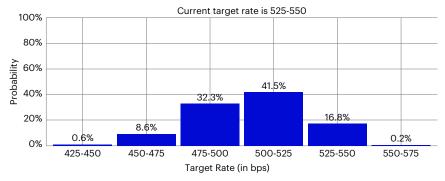
One meaningful shift from our last piece is around market expectations toward the path of Fed rate cuts. Market expectations have shifted toward a more dovish Fed policy, as inflation has moderated, and growth expectations have begun to decline. At this juncture, market participants have priced in at least two interest rates cuts, unlike in May when participants were predicting only one interest rate cut. We show the two graphs below to highlight the shift in market expectations, and ultimately discuss portfolio implications (Figure 1).

While the change in rate cut expectations might give Asian central banks a bit of "breathing room" for policy easing, it also creates a more obstacles if economic deceleration leads to a global recession. Also, if global central banks take cues from the Fed and ease simultaneously, one could argue that interest rate differentials will persist, which we've discussed at length in prior discussions on this topic.

Current target rate is 525-550 100% 80% 61.3% robability 60% 40% 28.4% 20% 9.2% 0.8% 0.3% 0% 450-475 400-425 425-450 475-500 500-525 Target Rate (in bps)

Figure 1 – Target rate probabilities for Federal Reserve meeting on 18 December 2024 (comparing current expectations versus those from May)

Source: CME Group, data as of 26 July 2024.



Source: CME Group, data as of 28 May 2024.

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The increase in perceived softness of the US economy has been led by moderating inflation and persisting negative economic data versus consensus expectations. As an example, the Citi US Economic Surprise Index has been steadily declining over the last three months and at the time of writing stood at -30.1%. While we have commented on the continued resilience of the US economy, the ongoing restrictive monetary policy appears to have taken a firmer hold and pushed the market into a more contractionary regime.

7 6 5 4 3 2 1 0 Korea ndonesia India Singapore China Philippines Australia **Jnited States** apar ■ Emerging market ■ Developed market

Figure 2 - Asia Pacific and US 10-year bond yields

Source: Bloomberg, data as of 26 July 2024. **Past performance does not guarantee future results.**

Since the last publication, we have seen a slight shift in long-term yields, with Indonesia overtaking India, and the shift in the Bank of Japan policy leading to higher Japanese government bond yields. However, the overarching narrative remains the same, with the continued interest rate differential between the US and most other Asian economies expected to persist into the future, unless growth in Asian countries surprises to the upside. This formulates the basis of our analysis as we consider how private markets, particularly growth investments such as private equity, can bolster a portfolio in local currency terms.

When considering global investment through the perspective of Asian investors, one key difference in the approach to currency usually persists when looking at equity versus debt investments – whether to hedge currency risk. The general observation we've seen after hundreds of institutional investor conversations, is that credit exposure is hedged whereas equity exposure is left unhedged. So, we won't dive into the specifics around currency hedging as we've done in prior pieces, but we should still emphasize that market forces remain intact. This is particularly through the observed phenomenon of interest rate parity, which implies that higher yielding currencies will depreciate versus lower yielding peers over the intermediate term, attaching a negative premium to USD exposure for many Asian investors. Essentially, we believe interest rate differentials will still have a meaningful impact on equity investors, whether a formal hedge is implemented or not.

To illustrate this and analyze the benefits of private markets growth investments on local currency returns, we'll consider the addition or diversified growth investments to a public equity portfolio and observe the potential trade-offs. For this exercise, we'll assume the investor has a base currency of Singapore dollar (in our previous analyses we chose Korean won and Thai baht, but as discussed we'll explore multiple currencies in this series to demonstrate the efficacy of this analysis across geographies. The choice of SGD also pays homage to the author's current home and strong love for nasi lemak and laksa).



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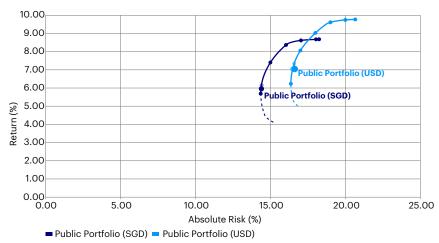
Let's consider a baseline global portfolio with the following allocation:

Public portfolio	Sample allocation (%)
Developed ex-US equity	25
US equity	40
Emerging markets equity	15
Singapore equity	20

We'll now analyze this allocation through the Invesco Vision tool, which should help us to formulate an efficient frontier analysis. Please note, we included Singapore equities to reflect the common occurrence for local investors to overweight local markets relative to actual global exposure, typically measured by market cap. This principle could also be applied across other Asian countries, as this is a common practice in equity portfolio allocations.

For comparison's sake, we'll contrast USD and SGD-denominated frontiers to demonstrate the impact of long-term currency shifts (assuming interest rate parity) and associated local return reduction. Since the exercise is focused on public and private equity, we'll home in on the expected returns of each portfolio, using our long-term capital market assumptions as a baseline and construct an efficient frontier accordingly.

Figure 3-Efficient frontier of a USD portfolio versus SGD portfolio



Source: Invesco Vision, data as of 30 June 2024. Return estimates are based on the 2024 Long-Term Capital Market Assumptions. These estimates are forward-looking, are not guarantees, and they involve risks, uncertainties, and assumptions. Note: Proxies are as follows: Developed ex-US equity – MSCI World ex US, US Equity – MSCI USA, Emerging market equity – MSCI Emerging Market, Singapore equity – MSCI Singapore

When we look at the portfolio return and risk assumptions leveraging Invesco Solutions long-term capital market assumptions, we see a noticeable return reduction when converting from USD to SGD, like we've seen in prior exercises.

	Public portfolio (USD) (%)	Public portfolio (SGD) (%)
Expected return	7.1	6.0
Expected risk	16.6	14.4

For illustrative purposes only. There can be no assurance that any estimated returns or projections can be realized.



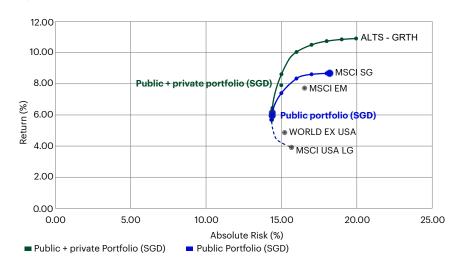
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In this case, the difference is over 100 basis points. If local investors are looking to achieve returns like what would be expected through a USD-lens, it is essential to examine additional asset classes, such as private growth investments.

Considering this, we have created a new portfolio with a 30% allocation to diversified private markets growth investments. The portfolio has been constructed as follows:

Public + private portfolio	Sample allocation (%)
Developed ex-US equity	15
US equity	25
Emerging market equity	10
Singapore equity	20
Private markets growth	30

Figure 4 - Efficient frontier with private markets (SGD)



Source: Invesco Vision, data as of 30 June 2024. Return estimates are based on the 2024 Long-Term Capital Market Assumptions. These estimates are forward-looking, are not guarantees, and they involve risks, uncertainties, and assumptions. Note: Proxies are as follows: Developed ex-US equity – MSCI World ex US, US Equity – MSCI USA, Emerging market equity – MSCI Emerging Market, Singapore equity – MSCI Singapore.

Implementing a 30% allocation to private markets growth generates the following output:

	Public portfolio (SGD) (%)	Public + private portfolio (SGD) (%)
Expected return	6.0	7.9
Expected risk	14.4	15.0

For illustrative purposes only. There can be no assurance that any estimated returns or projections can be realized.

Adding private markets growth investments clearly drives the expansion of the efficient frontier and increases expected returns by almost 200 basis points, whilst maintaining the same allocation to local equities and ensuring there is adequate portfolio liquidity. Our baseline return expectation for diversified private markets growth is 12% (net) ², with a volatility of roughly 20% ³. This "premium" of private growth over public equity of about 600 bps ⁴ is commensurate with historical results. Ultimately, by incorporating a diversified private markets growth sleeve into a public global equity portfolio, non-USD investors can meaningfully enhance portfolio returns, and better position their portfolios for the current market environment.



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When looking at private growth investments, it's also integral to consider diversification across asset classes, vintages, and managers. Additionally, we believe it's important for investors to incorporate asset classes outside of private equity into their growth sleeve – notably value-add real estate and distressed debt. These two asset classes can also be categorized as growth investments as they fit the return and risk profile of equities.

In addition, sovereign wealth funds allocated around 14% of their AUM to liquid alternatives and direct strategic investments in 2024 according to Invesco's latest Global Sovereign Asset Management Study (IGSAMS). ⁵ This figure has remained the same year-on-year indicating continued asset owner interest in private growth investments. One additional trend we notice is a decline in direct investments in favor of illiquid alternatives, which are typically implemented through diversified exposure such as funds. This insight points to a potential uptick in sovereign investor interest in partnering with external experts to achieve exposure to private markets, as opposed to investing directly.

22 23 22 17 17 18 ¹⁷ 16 13 Illiquid alternatives Liquid alternatives 2016 2017 **2018** 2019 **2020** 2021 ■2022 2023 **2024** Sample size: 2016 = 57, 2017 = 62, 2018 = 63, 2019 = 53, 2020 = 78, 2021 = 54, 2022 = 74, 2023 = 80, 2024 = 74,

Figure 5 - Asset allocation trends (% AUM)

Source: Invesco Global Sovereign Asset Management Study 2024

Going forward, we believe investors will face myriad challenges due to the changing interest rate environment, potentially decelerating macroeconomic headwinds, and downward shift in growth expectations. Private markets growth investments can fill an important void in portfolios to meet investment objectives over the next market cycle.

In sum, we believe Asian investors, many of whom have specific local currency return objectives, are well positioned to implement private growth investments into their public global equity allocations. The current US interest rate regime, which has lasted longer than anticipated, has impaired local currency expected returns. This warrants the consideration of additional approaches to portfolio construction and new asset classes, including private equity and other growth investments.

^{2.} Invesco Solutions Long Term Capital Market Assumptions, data as of 30 June 2024.

^{3.} Invesco Vision, data as of 30 June 2024.

^{4.} Invesco Solutions Alternative opportunities Q2 Update. Sources: Investment growth of 100; Private asset index return data is from Burgiss and is net of fees; US equity returns represented by Russell 3000 TR index; Global ex-US equity returns represented by MSCI ACWI ex USA net TR index are gross of fees, quarterly from Dec. 1999 to Dec. 2023. Past performance does not guarantee future results.

^{5.} Sample size of sovereign wealth funds: 2024 - 73, 2023 - 80.



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Appendix Invesco Multi-Alternative Growth Proxy Benchmark Sub-Components

Asset	Weight(%)
Invesco U.S. Large Buyout Benchmark Proxy	30
Invesco Europe Large Buyout Benchmark Proxy	20
Invesco U.S. Value Add Real Estate Benchmark Proxy	20
Invesco U.S. Distressed Debt Benchmark Proxy	15
Invesco U.S. Growth Equity Benchmark Proxy	7
Invesco U.S. Late Venture Benchmark Proxy	8

All data pulled from Invesco Vision as of 30 June 2024. For illustrative purposes only. There can be no assurance that any estimated returns or projections can be realized.



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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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