Investing with Alternatives

An outcome-based approach aligns alternative portfolios with investor objectives

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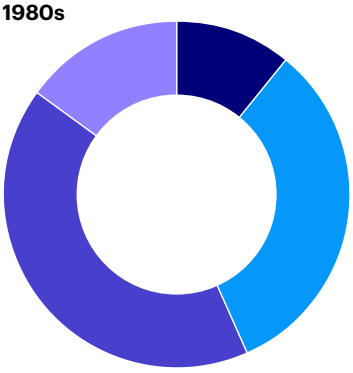
- As investors seek to enhance growth, diversification, and income, alternative assets have become an increasingly important part of institutional portfolios. Alternatives are powerful investment tools, but their behaviour and effect on portfolios is often misunderstood.
- While many institutional investors think about alternatives as an asset class to be treated as a standalone portion of a portfolio, we have seen that the alternative space includes many different types of assets, each with its own distinct drivers of risk and return. Private Market Alternatives are increasing in breadth, but growth in scale and complexity may make this market harder to navigate **(Figure 1)**.
- A factor-based approach to asset allocation can begin to understand forecasted risks, returns, and correlations between portfolio assets. From that analysis, we can develop a more efficient portfolio allocation that includes alternatives to improve the portfolio's ability to meet investment objectives.

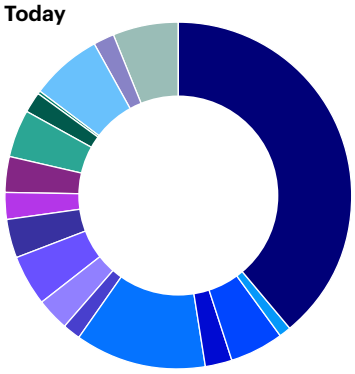
Figure 1
Alternatives: A dramatic change in landscape (%)

1980s



Buyout	**11**
VC Early Stage	**33**
Other PE	**42**
Other Private Debt	**15**

Today



Buyout	**38.90**
Expansion Capital	**1.30**
VC Early Stage	**5.05**
VC Late Stage	**2.44**
Other PE	**12.11**
Senior Debt	**1.82**
Mezzanine Debt	**3.09**
Distressed Debt	**4.58**
Other Private Debt	**3.62**
Real Estate Generalist	**2.48**
Real Estate Value-Added	**3.25**
Real Estate Opportunistic	**4.58**
Natural Resources Oil & Gas	**1.85**
Natural Resources Timber	**0.26**
Infrastructure	**6.74**
Other Private Real Assets	**1.86**
Other Private Assets	**6.09**

Source: Burgiss, Preqin, 31 December 2019.

As investors seek to enhance growth, diversification, and income, alternative assets have become an increasingly important part of institutional portfolios. Alternatives are powerful investment tools, but their behaviour and effect on portfolios is often misunderstood. As allocations to alternatives expand, institutions will need to take a more nuanced view of these investments, drilling down into drivers of risk and return in this asset class and aligning holdings with desired outcomes and constraints.

Assets in alternative assets have grown more than three-fold since 2008, with assets under management increasing from $3.1 trillion to $10.3 trillion at the end of 2019, according to Preqin's "Alternatives in 2020." That growth will likely continue, believes Preqin, reaching $14 trillion by 2023.[1]

Institutional investors have increased their allocations to alternatives dramatically. Willis Towers Watson's "Global Pension Assets Study 2020" found that alternative allocations for the world's largest pension funds now average 23%, up from roughly 6% in 1999.[2] That's another trend likely to persist. The Preqin study found that 84% of the investors surveyed planned to increase their alternative allocations over the next five years.[3]

This movement toward alternatives has likely accelerated over the last several years, as institutions seeking returns of 6%-7% to meet their liability targets adapt to lower forecast return assumptions in traditional assets. In many cases they have been exploring illiquid alternatives, including private equity, private debt, and direct investment in real estate. The unique characteristics of these alternative assets means that they typically generate higher returns than what might be found in public market assets.

Private market assets can often generate additional returns through the value added by skilled management. Private business owners have significantly greater control over their companies. They are unconstrained by burdensome regulations placed on public companies, such as Sarbanes-Oxley[4] requirements, and because they are not required to provide quarterly reporting, they can afford to take a longer view. As a result, they can affect dramatic changes in management and strategy that may generate outsized returns. For companies that depend on acquisitions to grow, private control can significantly enhance the speed and capacity for deal-making. An allocation to private debt and equity provides an exposure to that managerial efficiency.

Hedge funds, a well-known alternative investment, have historically provided diversification benefits since they can invest in a wide array of assets and can take both long and short positions. But high costs and relatively poor performance have soured institutional investors on hedge funds. This changed in 2019 when, the category posted its highest AUM on record ($3.32 Trln) and a double-digit annual return of +10.4%, the strongest calendar year since +20% in 2009.[5] However, this average masked massive gaps between top- and bottom-tier performers. The wide variation in returns makes it particularly important to understand risk and return drivers in this sub-category of the alternatives universe. A factor approach can be extremely useful in understanding how managers achieve their results, how much risk they take on, and how likely their funds are to add value within the portfolio.

This quick survey of the alternatives landscape makes it clear that although alternatives are attractive for a variety of reasons, they are not all the same. Private Market Alternatives are increasing in breadth, but growth in scale and complexity may make this market harder to navigate **(Figure 1)**. Instead of looking at alternative investments as a monolithic block, investors would do well to explore in detail the specific characteristics and embedded risks of the investments they hold.

The fact that the term "alternative assets" is generally used to describe a broad group of assets (e.g. private equity, private debt, real estate, natural resources, and hedge funds) that don't necessarily perform in the same way is problematic. Considering this, alternative assets are not really a distinct asset class as normally defined. First, they're not entirely isolated from traditional assets; different types of alternatives share risk and return characteristics with certain publicly traded assets. And second, they're not all that similar to one another. One type of alternative may differ sharply from another in terms of its correlation with other assets, return characteristics, risk factors, and liquidity characteristics.

We believe alternatives are best viewed within an outcome-based framework that measures their ability to deliver objectives such as growth, income, and diversification within an overall portfolio.

1 "Alternatives in 2020," Preqin, February 2020.
2 Global Pension Assets Study 2020, Willis Towers Watson, February 2020.
3 "The Future of Alternatives," Preqin, October 2018.
4 The Sarbanes-Oxley Act of 2002 is a US federal law that established sweeping auditing and financial regulations for public companies. The legislation was created to help protect shareholders, employees and the public from accounting errors and fraudulent financial practices.
5 Hedge Fund Research, April 2020. Categories including Macro Strategies, Event-driven, Equity hedge, and Relative-value, are asset weighted and include data up to March 31, 2020.

Section 1: The basics

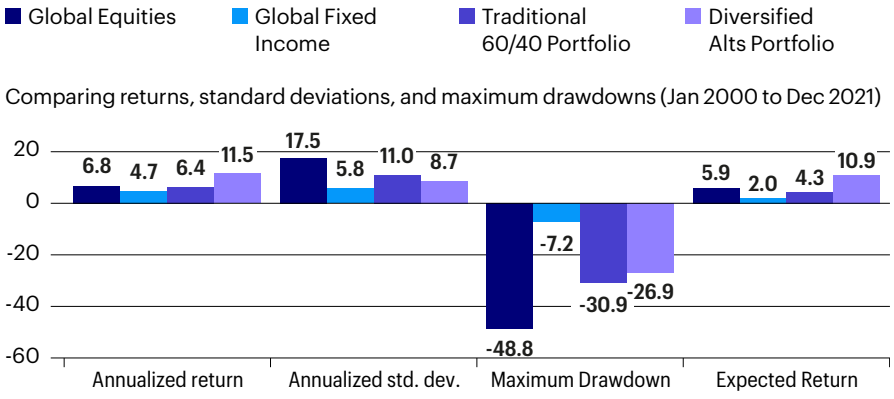
Understanding alternatives

Broadly speaking, alternative investments include any asset outside the traditional three: publicly traded stocks, bonds, and cash. Alternatives can be different from traditional assets in several ways:

- They may engage in shorting – that is, they may seek to profit from the decline in the value of an asset.
- They may invest in real versus financial assets, including commodities, natural resources, infrastructure, and real estate.
- They may invest in illiquid or privately traded assets, including private equity, venture capital and private credit. These types of assets may offer an illiquidity premium, generating additional return potential that compensates for their long holding periods.

Over the last two decades, alternatives have provided attractive returns with moderate risk. In fact, a diversified portfolio of alternatives slightly outperformed equities, bonds, and a 60%/40% stock/bond allocation. During that same period, alternatives had about one-third the standard deviation and half the maximum drawdown of equities.

Figure 2
Alternatives have outperformed stocks, bonds, and balanced portfolios (%)



Source: Invesco, Burgiss Private IQ database as of Dec 31, 2021. Past performance is not indicative of future results. An investment cannot be made directly into an index. Please refer to the methodology regarding the calculations. Global Equities and Global Aggregate Fixed Income are represented by the MSCI ACWI Index and BBG BARC Global Aggregate Bond Index, respectively. The Global 60/40 benchmark is represented by 60% MSCI ACWI Index and 40% BBG BARC Global Aggregate Bond Index. The historical diversified alternatives portfolio is represented by broad fund categories provided by the Burgiss Private IQ database, consisting of 20% Venture Capital, 20% Buyout, 20% Expansion Capital, 20% Private Debt and 20% Real Estate.

Expected return is based on ten year capital market assumptions from January 1 2022 to Dec 31 2031.

Source: IIS proprietary research as of Dec. 31, 2021. Performance, whether actual or simulated, does not guarantee future results. These estimates are forward-looking, are not guarantees, and they involve risks, uncertainties, and assumptions.

Alternatives can also enhance portfolio diversification, since they typically have low correlations to traditional assets.

Performance figures methodology based on Modified Dietz time-weighted returns:

Time-Weighted Rate of Return (TWRR) – unlike the IRR, a money-weighted return, the time-weighted rate of return is calculated by geometrically linking the returns of defined sub periods. The time-weighted rate of return is useful in that it is not sensitive to the magnitude of cash flows and valuations of a period, but rather the returns of the sub periods. The returns of the sub periods can be calculated using various methodologies. In this example, the Modified Dietz method is used to calculate the sub period returns.

Modified Dietz Method – a moneyweighted return that takes into account the timing of cash flows by using a weighting factor. The weighting factor of a cash flow is calculated as the difference between the date of the cash flow and the date of the end of the periods divided by the number of days in the period.

Note: It is important to note that the resulting rate calculated by geometrically linking the sub period returns is the rate for the nominal period. For periods that are in excess of one year, the rate must be annualised. Also, note that sub period returns were used for geometric calculations.

Figure 3
Alternatives have had different performance cycles
Alternatives correlations to traditional asset classes (Jan 2012 to Jan 2022)

	Venture capital	Large Buyout	Growth capital	Infrastructure	Private debt	Real estate	Natural resources	Global equities	Global bonds
Venture capital	1								
Large Buyout	0.68	1							
Growth capital	0.84	0.81	1						
Infrastructure	0.40	0.80	0.55	1					
Private debt	0.48	0.85	0.66	0.74	1				
Real estate	0.40	0.64	0.39	0.68	0.60	1			
Natural resources	0.32	0.72	0.53	0.69	0.80	0.54	1		
Global equities	0.47	0.83	0.71	0.73	0.83	0.43	0.64	1	
Global bonds	-0.07	0.21	-0.01	0.42	0.11	0.02	0.01	0.24	1

Source: Burgiss. Data utilizes quarterly return time series from December 31, 2011 – December 31, 2021. All private asset class returns are from Burgiss, and the asset classes shown are defined by the Burgiss Universe. Global equities represented by the MSCI ACWI Index. Global bonds represented by the Bloomberg Global Aggregate Bond Index. Past performance is not indicative of future results. An investment cannot be made directly into an index.

Section 2:
Factors and alternatives

A factor-based approach to alternatives

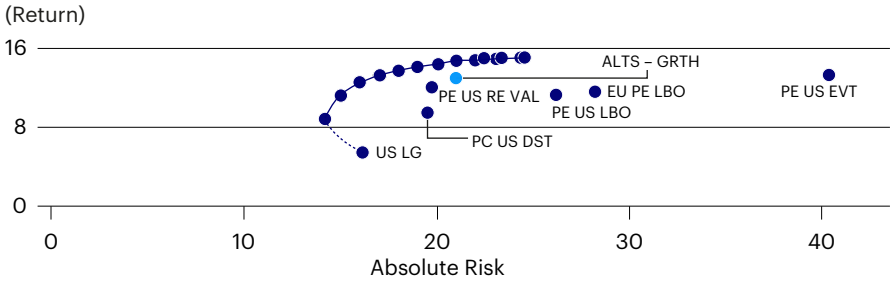
While many institutional investors think about alternatives as an asset class to be treated as a stand-alone portion of a portfolio, we have seen that the alternative space includes many different types of assets, each with its own distinct drivers of risk and return. Moreover, although alternatives may have low correlations to other asset classes, the risk-return characteristics of individual sub-classes of alternatives are linked, to varying degrees, to those of publicly traded assets. For instance, private equity can have a high correlation to public equity.

As a result, alternatives are neither one unitary asset class nor entirely separate from traditional assets. Only by modeling risk, performance, and cross correlations across the alternative space, and against traditional asset classes, can we understand how incorporating various types of alternative investments into a portfolio can affect overall results.

We can do this through factor analysis. By allowing us to get specific about the drivers of risk and return within various types of alternative investments, factor analysis can show us how the performance of alternatives aligns with other assets, and how they can best provide diversification.

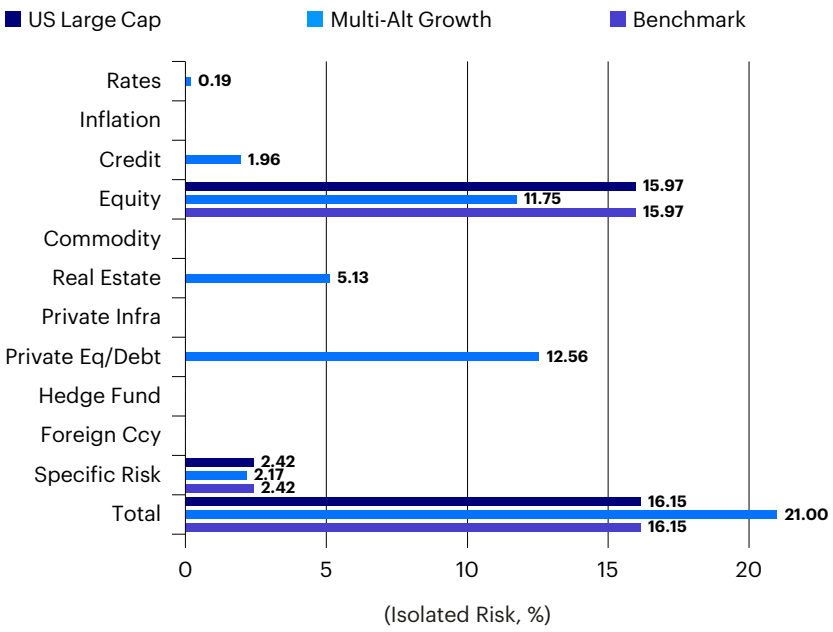
Factor analysis is well advanced in publicly traded equity, somewhat less so in publicly traded fixed income. It is far less developed in the alternative universe. At Invesco, we have spent significant time and resources building our asset modeling capabilities and extending it to alternatives. We look at each sub-sector of the alternative asset class and attempt to model fundamental drivers of risk and return, such as economic growth, interest rates, leverage, liquidity, and others. We also look for proxies for performance and assess how each alternative performs versus its public market equivalent.

Figure 4A
Efficient Frontier - Growth Assets and Hypothetical Portfolio (%)



Source: Invesco Vision, 31 December 2021. Please see Figure 6 for Hypothetical Multi-Alternative Growth Portfolio composition. The labels represent the following asset classes; "PC US DST" is Private Credit – US Distressed, "PE US EVT" is Private Equity – US Early Ventures, "PE US GROWTH" is Private Equity – US Growth, "EU PE LBO" is Private Equity – Europe Large Buyouts, "PE US LBO" is Private Equity – US Large Buyouts, "PE US RE OPP" is Real Estate – US Opportunities, "PE US RE VAL" is Real Estate – US Value-Add. Past performance is not indicative of future results.

Figure 4B
Factor Analysis – Hypothetical Alts Growth vs US Equity



Source: Invesco Vision, 31 December 2021. Please see Figure 6 for Hypothetical Multi-Alternative Growth Portfolio composition. Past performance is not indicative of future results.

By identifying factors, we are essentially looking for a common language that explains risk and performance across all assets, traditional and alternative. Next, we'll explore how viewing alternatives through a factor lens can support customised portfolio solutions for institutional portfolios.

Optimising portfolios with an understanding of factor exposures

Factor analysis across both alternative and traditional portfolios can help uncover unrecognised risks. That's because portfolios that are diversified by asset class may nevertheless have concentrated factor exposures.

For instance, over the past several years, in response to a strong stock market and very low but gradually rising rates, many institutional managers have loaded up on equity, shortened bond portfolio duration, and reached for yield through high-yield bonds – all assets driven by the economic growth factor. They also sought more growth-oriented alternative investments – for instance, emerging markets private equity. So even though their portfolios are spread across asset classes, institutional allocations are generally overconcentrated in the economic growth factor. Their portfolios have outsized exposures to the risk of slower economic growth.

A factor-based approach can help avoid making these unintentional bets. Invesco's Investment Solutions team begins with a thorough review of investment policies, asset allocation, and risk and return targets. We then feed the entire portfolio through our proprietary portfolio management decision support system, Invesco Vision, to understand forecasted risks and returns and correlations between portfolio assets. From that analysis, we can begin to develop a more efficient portfolio allocation that includes alternatives to improve the portfolio's ability to meet investment objectives.

Different objectives, often driven by funding status, will result in very different portfolios. A relatively well-funded plan, for instance, is free to pursue an income-oriented portfolio in private markets, enhancing returns over an all-public markets portfolio without necessarily taking on additional risk. On the other hand, an underfunded plan might need to consider more growth-oriented strategies to increase its asset base in order to meet future funding needs.

Income portfolios will typically have shorter durations of between five to seven years, and they will typically yield between 6%-8%. Growth portfolios, by contrast, will often have durations between seven to 10 years and will target returns of 10%-12%.

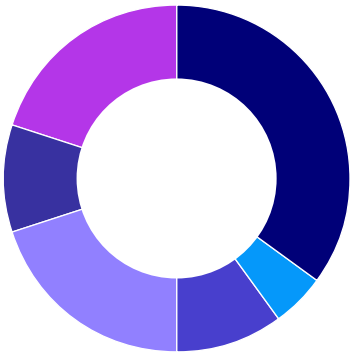
Let's look at how we might construct a few alternatives portfolios, one designed for income, one for growth, and one for real return.

Alternatives for income

Many different asset classes can generate income. In the traditional space, everything from US Treasuries to high-yield bonds to dividend-producing stocks can contribute to income. Similarly, in the alternative space, you need to look within the asset class, and even within sub-asset classes, to identify income generating investments.

For instance, within real estate, both core and private equity real estate have historically generated high income. An income-focused portfolio might also include infrastructure investments – an asset that can yield between 3%-5%, well above Treasuries of similar duration. Privately placed debt, especially middle-market lending, could also play a role in an income-generating strategy. Depending on return targets and risk tolerance, an income-oriented strategy might include dividend-generating equities as well. The idea is not to focus on particular asset classes but rather to look through them to identify income-generating capabilities within each asset class.

Figure 5
Multi-Alternative Income (%)



Senior direct lending	**35**
Senior loans	**5**
Second lien/mezz corp	**10**
Real estate debt	**20**
Infra debt	**10**
Alt credit	**20**

Source: Invesco, 31 December 2021. There is no guarantee that objectives will be met. Invesco does not currently manage this portfolio for any of its clients. The portfolios shown are for illustrative purposes only and do not constitute investment advice nor investment recommendations.

Diversified portfolio designed to capture illiquidity premium across private credit strategies.

Seeks to realize lower drawdowns and less volatility than the high yield index.

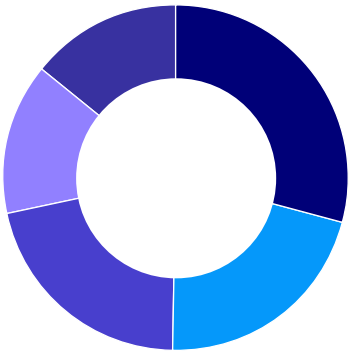
Target return
6-8%% net over a full market cycle

Est yield
5-7% over a full market cycle

Growth-oriented alternatives

Now let's consider how a factor approach to alternatives can be constructed to deliver growth. Here, a significant allocation to private equity might focus on high-growth sectors including large-cap buyouts, international exposure in Europe and Asia, and venture capital. In real estate, a growth-oriented portfolio might include value-added and opportunistic strategies instead of core, and real estate equity as opposed to debt. It is even possible to identify growth-driven sectors of the private credit space, including opportunistic or distressed credit and certain types of middle-market lending.

Figure 6
Multi-Alternative Growth (%)



US buyout (flexible capital)	**29**
European buyout	**21**
US value-add real estate	**21**
Venture capital	**14**
Distressed	**14**

Source: Invesco, 31 December 2021. There is no guarantee that objectives will be met. Invesco does not currently manage this portfolio for any of its clients. The portfolios shown are for illustrative purposes only and do not constitute investment advice nor investment recommendations.

Diversified portfolio designed to capture illiquidity premium across private equity strategies.

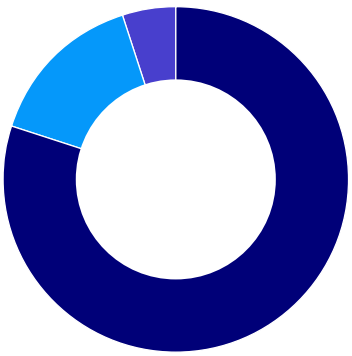
Seeks to realize lower drawdowns and less volatility than the public equity markets.

Target return
12%+ net over a full market cycle

Real return alternatives

For investors looking to generate returns from diversified income streams and hedge their portfolios from unintended exposure to inflation, a real-return portfolio may be the answer. While inflation has not been a major theme in capital markets for some time, the risk is one not to be taken lightly as it can erode portfolio performance on a real basis. Alternatives including real estate, infrastructure and natural resources have built in hedges against this scenario and are traditionally benchmarked for a return above inflation (ex: CPI +5%). Their inherent hedge comes from either price appreciation of assets, think metals and materials, or price variable yield sources such as rents or tolls.

Figure 7
Global Direct Infrastructure (%)



Direct infra	**80**
Listed infra	**15**
Cash	**5**

Source: Invesco, 31 December 2021. There is no guarantee that objectives will be met. Invesco does not currently manage this portfolio for any of its clients. The portfolios shown are for illustrative purposes only and do not constitute investment advice nor investment recommendations.

Diversified portfolio designed to capture illiquidity premium across core infrastructure equity strategies.

Targets less volatility than publicly-listed infrastructure and higher liquidity profile relative to direct infrastructure.

Target return
CPI + 5% over a full market cycle

Est yield
Mid single digits

Customising liquidity exposure

We have already touched on the ways that funding status may affect a plan's emphasis on growth or income outcomes, and consequently on its portfolio allocation to alternatives. But liquidity needs can drive portfolio construction in more granular ways as well.

Although private market alternatives tend to have longer lock-up periods than public market investments, they also have predictable timetables for capital commitments, investment holding periods, and return of capital. As a result, it is possible to align the timing of capital flows from alternative investments with the liquidity needs of investors. This has important implications for investors pursuing asset liability matching strategies.

Different kinds of institutions face different sets of portfolio constraints. Pension funds must demonstrate that they can meet future pension obligations. Insurance companies are required to meet solvency capital ratios. When we integrate these constraints into proprietary models, they can shift allocations considerably. A pension portfolio with a defined set of risk and return assumptions would have one allocation, and an insurance company subject to solvency capital ratios would have another.

Consider the European Commission's Solvency II requirements, which seek to guarantee that insurers and reinsurers have a 99.5% probability of meeting their obligations over the next 12 months. Solvency is calculated in individual risk categories, then aggregated.[6]

The European Commission's solvency requirements assess more stringent capital charges on high-risk assets (such as publicly traded stocks and hedge funds) than on low-risk ones (U.S. Treasury notes).[6] That's why many insurers employ a barbell strategy that emphasises fixed income and private equity, with smaller allocations to public equities and hedge funds. By including factor analysis with regulatory considerations as part of their portfolio construction toolkit, investors can easily adapt portfolios to specific regulatory requirements.

Additionally, liability modelling can be performed over multiple time periods, identifying not just the size of the liability but when it is likely to occur. For example, if a large chunk of a company's employees is set to retire in ten years, we can predict a bulge in pension obligations at about that time. By matching the duration of illiquid, private market assets to these liquidity events, pension investors can pursue the higher returns offered by private markets without sacrificing their ability to meet obligations.

Employing liquid alternatives

So far, we have focused on less liquid alternative assets such as private equity and debt, which provide significant return benefits. But there can also be a place in institutional portfolios for liquid alternatives such as funds, managed accounts, and ETFs, which provide exposure to hedge fund-like strategies while offering daily liquidity.

Investors typically use liquid alternatives to enhance diversification, taking advantage of their ability to take both long and short positions and to invest in assets outside traditional stocks, bonds, and cash.

[6] The Top 10 Things Every Fund Manager Needs to Know about Solvency II, Simmons & Simmons, January 2016

Section 4: Conclusion

Bringing factor analysis to the alternative space

Alternative allocations are growing. And as they expand, institutional investors are looking to integrate these assets within their total portfolios' objectives and constraints for risk, return, diversification, and liquidity. Factor analysis provides a common language for viewing all assets – traditional and alternative – through the same lens. It enables investors to position their portfolios to pursue desired investment outcomes – growth, income, liquidity, or some combination of the three.

We've dedicated considerable research efforts to developing analytics to support our work in this area. In particular, we've advanced our capabilities in modeling alternative assets, applying proprietary diagnostics and capital market assumptions to find drivers of risk and return across public and private markets. This focus has resulted in the ability to develop portfolio optimisation inputs for a wide array of alternative assets, including real estate, private debt, private equity, infrastructure, hedge funds, and liquid alternatives, that are consistent with those we produce for traditional assets.

For investors looking to understand the drivers of risk and return in alternative assets, and the diversification benefits they can provide a portfolio of traditional assets, we offer innovative analysis and actionable insight. For more information about how Invesco can help your organisation integrate alternatives into a factor framework to meet your portfolio objectives, please contact your Invesco representative.

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.

Alternative investment products may involve a high degree of risk, may engage in leveraging and other speculative investment practices that may increase the risk of investment loss, can be highly illiquid, may not be required to provide periodic pricing or valuation information to investors, may involve complex tax structures and delays in distributing important tax information, are not subject to the same regulatory requirements as mutual funds, often charge higher fees which may offset any trading profits, and in many cases the underlying investments are not transparent and are known only to the investment manager. Property and land can be difficult to sell, so investors may not be able to sell such investments when they want to. The value of property is generally a matter of an independent valuer's opinion and may not be realised.

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 error 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.

Section 4: Conclusion

About our capital market assumptions methodology
We employ a fundamentally based "building block" approach to estimating asset class returns. Estimates for income and capital gain components of returns for each asset class are informed by fundamental and historical data. Components are then combined to establish estimated returns. Here we provide a summary of key elements of the methodology used to produce our long-term (10-year) and medium-term (5-year) estimates.

Fixed income returns are composed of; the average of the starting (initial) yield and the expected yield for bonds, estimated changes in valuations given changes in the Treasury yield curve, roll return which reflects the impact on the price of bonds that are held over time, and a credit adjustment which estimates the potential impact on returns from credit rating downgrades and defaults.

Equity returns are composed of; a dividend yield, calculated using dividend per share divided by price per share, buyback yield, calculated as the percentage change in shares outstanding resulting from companies buying back or issuing shares, valuations change, the expected change in value given the current Price/Earnings (P/E) ratio and the assumption of reversion to the long-term average P/E ratio, and the estimated growth of earnings based on the long-term average real GDP per capita and inflation.

Alternative returns are composed of; a variety of public versus private assets with heterogenous drivers of return given their distinct nature. They range from a beta driven proxy to public markets or a bottom up, building block methodology like that of fixed income or equities depending whether they are more bond like or stock like.

For volatility estimates for the different asset classes, we use rolling historical quarterly returns of various market benchmarks. Given that benchmarks have differing histories within and across asset classes, we normalize the volatility estimates of shorter-lived benchmarks to ensure that all series are measured over similar time periods.

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