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Allocating to real and alternative assets: a framework for institutional investors

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ASSET MANAGEMENT

Editorial



Matteo GERMANO
Head of Multi-Asset

Institutional investors have significantly increased their allocation to real and alternative assets, such as private equity, real estate, infrastructure and private debt, over the past decade, with the objective of enhancing the return or the expected yield of their portfolio, as well as improving its diversification. Integrating such assets into these portfolios raises a number of challenges linked to their limited liquidity, their strong specificity and their sensitivity to risks that are not integrated in traditional financial frameworks. As a result, standard portfolio optimisation is ill-adapted to portfolios mixing standard and alternative assets.

To face these challenges, we think it is important to embrace an approach that combines quantitative and more judgemental elements to portfolio construction, as this may help investors answer questions about how to define their allocation to these assets. A one-size-fits all solution does not exist, hence dedicated advisory work is the basis to understand how to best integrate real and alternative assets in each investor allocation.



Viviana GISIMUNDO
Head of Quant Solutions

The first section of this paper is designed to describe the specificities of these assets and the difficulties in analysing and modelling them due, in particular, to their high degree of idiosyncraticity and to the lack of widely-accepted representative benchmarks, leading to the frequent use of proxies to represent them. We also underline that they are subject to a survivorship bias that needs to be taken care of, while back-filling sometimes has to be conducted to cope with missing data. Another feature is that their performance is often represented by IRR (Internal Rate of Return) rather than by time-weighted total return, and we explain the differences between these two measures.

The second section is focused on the quantitative component of our strategic asset allocation framework for portfolios including real and alternative assets, which is built on three main pillars:

- *an integrated approach for modelling standard and alternative assets based on macro and financial factors;*
- *a specific modelling of liquidity, as a key feature distinguishing these assets from their traditional counterparts;*
- *a flexible approach to portfolio optimisation and construction emphasising expected shortfall as a recommended risk indicator for portfolios that include these assets.*



Jung KIM
Senior Quantitative Analyst

The models we have developed to estimate returns of private equity, real estate, infrastructure and private debt (described in more detail in our [Annual Expected Returns](#) document) can be qualified as normative as they typically propose a decomposition of return between macroeconomic variables, such as GDP growth and inflation in the case of real estate, to which we add a risk premium. These, as well as a liquidity model able to cope with left-tail events (to which these assets can be particularly sensitive), have been integrated in our CASM (Cascade Asset Simulation Model) platform to ensure consistency of approach when designing the allocation of a multi-asset portfolio. Meanwhile, they do not take into account the potential value added of alternative asset specialists in selecting and managing these assets, nor the very strong dispersion of returns between different alternative assets, but they are needed when setting the strategic asset allocation (SAA) of a cross-asset portfolio. We also show that the optimisation process for portfolios that include these assets should focus on expected shortfall as a risk indicator, leading to more diversified allocations than when applying traditional mean-variance optimisation.



Eric TAZÉ-BERNARD
Chief Allocation Advisor

The third section includes qualitative elements that should be integrated in the allocation process, along with the formulation of a number of practical recommendations that investors should follow when envisaging allocation to these assets.

Our conviction is that a decision to allocate to real and alternative assets cannot be based on a pure quantitative framework. The approach we recommend and which is described in this section can be qualified as pragmatic. Allocation to these assets, in particular, should be adapted to the investor's objectives, investment horizon and risk appetite, as well as a clear understanding of the risk of these assets. An example of investor specifics that we address, and that illustrates the need to go beyond pure portfolio optimisation, is that of very large investors, whose allocation to alternatives might be constrained by capacity issues as the marginal return expected from additional investment opportunities tends to decrease above a certain absolute size.

We also highlight that one of the key benefits of real and alternative assets is their diversification potential and that such diversification needs to be looked at from different angles:

- *diversification against traditional asset classes due to their characteristics in terms of liquidity and types of companies they provide access to;*
- *diversification between different types of real and alternative strategies, in particular in terms of investment horizons, that allows investors to combine private equity, private debt, real estate and infrastructure in their portfolio in order to efficiently manage their expected liquidity needs;*
- *diversification within each alternative asset class, due to the diversity of strategies that they cover: for instance, private equity categories include venture capital, mezzanine, leverage buy-outs (LBO), sector funds among others.*

Real and alternative assets can be integrated in a dynamic allocation framework, such as our Advanced Investment Phazer model, in order to determine whether the investment environment for the years ahead might be more favourable to high-risk strategies such as private equity or to lower-risk ones such as private debt. While recalling that SAA remains the key decision and it is highly recommended to invest in these assets in a regular way over several years, these more dynamic decisions can help investors to potentially accelerate or decelerate the pace of their investments into these assets.

The pragmatism we recommend is also illustrated by our conviction that implementation issues are particularly important when dealing with these assets, as they require highly specialised skills in terms of analysis, legal expertise or ability to manage them. Risk analysis and monitoring should also be subject to particular emphasis, as real and alternative assets carry additional types of risk (such as legal, industrial, project risks) compared with traditional assets. Different types of investment vehicles, whether funds, co-investments or direct holdings, are available and can help address different investor needs or degrees of familiarity with these assets.

In conclusion, we believe that institutional investors' increased interest in real and alternative assets is fully justified by the different benefits that they bring to asset allocation, particularly in terms of portfolio diversification, but success in this area depends on a number of conditions. Among them are a solid framework to model the behaviour of these assets, as well as pragmatism in applying it. The ability to rely on sizeable and specialised skills to conduct in-depth analysis of the risks of these assets, along with utmost rigor in investment implementation, are also key elements of long-term performance in this field.

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Real and alternative assets: investors' appetite and challenges to address

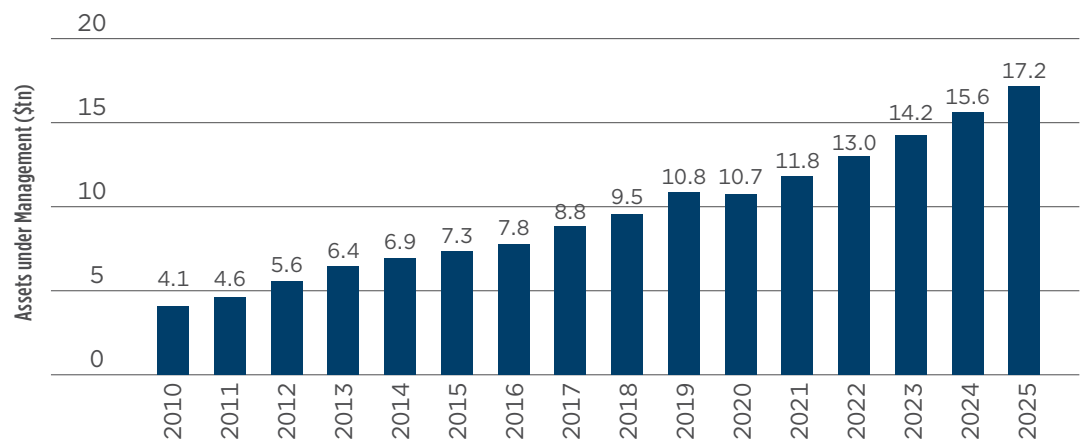
“The institutional investor appetite for real and alternative assets (in particular private debt, infrastructure and real estate) has been rising amid a prolonged period of low rates.”

Institutional investors have been facing a number of challenges in defining their asset allocation approach over the past few years. With monetary policy historically accommodative and set to remain so for a prolonged period, investors have to look for new places to generate returns for their portfolio. The challenge is particularly acute for pension funds whose liabilities have to be discounted at near-zero interest rates given the whole yield curve has shifted significantly downwards.

This situation in terms of interest rates is also leading investors to look for new sources of yield, particularly within the private debt, infrastructure and real estate universes, as partial substitutes to traditional fixed-income assets. This is exemplified by the trend for investors to adopt a Total Portfolio Approachⁱ, along which they tend to target total return objectives rather than benchmark-relative ones, as alternative assets are usually better adapted to this type of objective. Moreover, a growing number of investors are broadening their objectives to integrate climate change or social issues. This leads them to participate in the direct financing of long-term projects, for instance in infrastructure, in place of banks whose lending capacity has been increasingly hampered by regulatory constraints.

In this environment, investors have been increasing their allocation to real and alternative assets (see Figure 1), and we believe the appeal of these assets is likely to increase further in the case of a regime shift to higher inflation which may occur in the coming yearsⁱⁱ.

Figure 1: Alternative Assets under Management and Forecast, 2010-2025



Source: Preqin. 2020 figure is annualised based on data to October. 2021-2025 figures are Preqin's forecasts.

“Investors face the challenge of how to model alternative assets due to their specificity in terms of limited liquidity, heterogeneity and sensitivity to specific risks.”

The strong specificity of these assets, in terms of limited liquidity, heterogeneity and sensitivity to risks that are not integrated in traditional financial frameworks, makes them hard to model and integrate in an investor's portfolio. Despite the difficulties of the exercise, how should investors quantify their allocation to these assets and how should they define the structure between different real and alternative strategies? We propose to answer these questions by combining our modelling capacity in return and risk estimations with more qualitative elements based on the contribution of our internal experts on these assets. This will use our experience as asset allocation advisors, supporting institutional investors in better understanding the impact of these assets on the structure of their portfolio and on Amundi's long track-record of managing portfolios in real estate, private equity, private debt and infrastructure.

Before describing our recommended framework, let us start by reminding investors of the specificities of real and alternative assets as well as the specific challenges of integrating them in an asset allocation framework.

Specificities of real and alternative assets and challenges in integrating them in allocation

Integrating these assets within an asset allocation framework is particularly challenging due to a number of features in terms of the access to data or the inadequacy of the standard market approach that we propose to discuss. The issues that these specificities entail for asset allocators, and the solutions we propose to overcome them, are summarised in the following table.

Table 1. Data identification, collection and quality control

	Issue	Challenge for real and alternative assets	Proposed solution
1	Data scarcity	Lack of data representing the main risk drivers	Definition of proxies
2	Infrequent pricing	Appraisal-based data leads to data smoothing, resulting in underestimated volatility and correlations, and overstated returns	Unsmooth data
3	Back-filling and survivorship bias	Biased return and risk profile	Benchmarking to public market equivalent such as S&P 500 plus a spread
4	Absence of well-recognised benchmarks	Price of illiquid assets not observable on a public market but often expert-based or reported by managers themselves	Definition of proxies
5	Variability of returns	Asynchrony of costs incurred of investment and return due to J-curve effects	Enhance portfolio diversification across assets and vintages (pooled investments)
6	Heterogeneity of return indicators	Internal Rate of Return (IRR), as a measurement of performance of private assets, is not consistent with total return approach	Analyse IRR figures for comparative purposes within a universe of real and alternative assets

Source: Amundi Asset Management

1. Data scarcity

The starting point for any statistical analysis and model development is the definition of the time series data representing the main risk drivers. Identifying data for alternative asset classes remains a well-documented difficulty, requiring treatment for inherent biases and the scarcity of available datasets.

A solution is the definition of a proxy representing the statistical and economic / financial factors driving the alternative asset class in question. The selection of a proxy does not preclude the need to account for inherent biases, a prerequisite for an “apple-to-apple” comparison with traditional asset classes.

2. Infrequent pricing

A key issue regarding raw data for alternative asset classes is the usage of estimated or appraisal-based (as opposed to market-based or mark to market) data and infrequent pricing, as the price discovery process only occurs at the time when a transaction takes place. This leads to a tendency to smooth valuations, with a consequent underestimation of volatility and correlations often coupled with an overstating of historical returns.

“Issues on data identification, collection and quality control can be managed with specific solutions such as the definition of proxies for data scarcity and the absence of benchmarks.”

To counter such shortcomings, the raw data is subject to statistical analysis and research, ultimately resulting in unsmoothed data.

3. Survivorship bias

Additionally, indices for alternative assets are subject to survivorship bias relating to the inclusion of only current investment funds among its constituents, whereas backfill bias entails instances of new index entries including historical returns. These biases result in artificially high realised returns. Correcting such biases involves benchmarking to a public market equivalent (PME), such as S&P500, and econometric methods.ⁱⁱⁱ

4. Absence of well-recognised benchmarks

Moreover, while a global equity portfolio can be represented by well-recognised benchmarks, this is not always the case for alternative assets. Benchmarks are available for listed real estate, listed private equity or listed infrastructure, but these are only partly representative of the behaviour of their illiquid counterparts, such as private equity or physical real estate. Prices on these assets cannot be observed on a public market, as they are sometimes expert-based – in the case of a building for instance – or can be reported by managers themselves. In this instance, they are subject to a selection bias, whereby managers can decide to stop disclosing the valuation of an alternative fund if its performance is disappointing or to smooth return figures. Here, again, the use of liquid proxies can help deal with this issue, but investors should be aware of their limitations and be ready to complete this top-down broadly-defined SAA definition with an integration of the specificities of the assets to be selected in the implementation phase.

5. Variability of returns

The return profile of real and alternative assets can be highly variable over time, particularly in the case of private equity, which is affected by the so-called J-curve effect, which describes its return profile over time. It reflects the fact that a significant portion of the costs are incurred in the early investment phase, whereas returns only come after a few years, once the target company has been restructured or once its development potential is eventually unleashed.

For this reason, beyond the definition of SAA over a long horizon based on strategic returns, we recommend that investors also integrate an estimate of yearly-expected inflows and outflows into their portfolio to ensure they meet their liability needs and to check the extent of potential deviations from the target allocation over time.

6. Heterogeneity of return indicators

Another difficulty is linked to the fact that the performance of private assets is often reported in terms of Internal Rate of Return (IRR) instead of the time-weighted total return (TWTR) as is the case for traditional assets (see Box 1). We strongly prefer TWTR figures to represent the performance of real and alternative assets as the basis of our modelling practice, but we also look at and analyse IRR figures for comparative purposes, as IRR often represents the standard for these investments. The IRR is actually sometimes the only data available in relative terms, when moving from broadly defined to more granular private assets, such as from private equity to buyout, distressed, secondary...

BOX: problems of comparing IRR vs TWTR

In the case of real and alternative assets, performance is often not reported in terms of time-weighted total return, as it is for traditional asset classes, but in terms of the internal rate of return, which is the discount rate that equalises the present value of all invested capital with the present value of all returns, as illustrated by the following formula:

$$PV = \sum \frac{CF(t)}{(1+IRR)^t} = \sum \frac{Dist(t)-Call(t)}{(1+IRR)^t} = 0$$

where 'CF' is the cash flow for period 't', and can be negative in the case of capital calls (call) and positive in case of distributions (dist). The application of IRR as the standard for measuring real and alternative asset performance is the source of some difficulties:

- the formula can be very complex depending on the timing and variations in cash flow amounts. Under certain conditions, for instance if cash flows change sign more than once over the studied period, the IRR estimation may not converge or could yield multiple results;
- all cash flows are assumed to be reinvested at the same discount rate, although these rates will fluctuate in the real world;
- most IRR measures average fund level IRR by vintage year, whereas the average IRR is different from the IRR of the aggregated cash flows; as funds have different durations and the IRR is sensitive to the timing of distributions and early sales of high performing companies in a private equity fund's portfolio, this can raise the measured IRR.
- Phalippou and Gottschalg^{iv} have actually shown that, as duration is negatively related to performance, averaging across funds with various durations leads to an upward bias in IRR estimates.
- As a result, the use of IRR for real and alternative assets creates both **complexity in calculation and discrepancy with the return indicators used for traditional assets**

“Investors should enhance the traditional allocation framework to consider the non-normal return distribution of alternative asset classes, the high level of idiosyncratic risk and diversity of risk sources.”

Inadequacy of the traditional allocation framework

The traditional mean-variance framework looks ill-adapted to handling real and alternative assets, as summarised in the following table:

Table 2. Inadequacy of the traditional allocation framework

	Issue	Challenge for real and alternative assets	Proposed solution
1	Non-normal return distribution	Assuming that prices of risky assets are log-normally distributed, and that the optimal portfolio has a constant weight irrespective of an investor's wealth level, looks unrealistic for illiquid assets	Integrate an illiquidity risk premium for these assets
2	Standard risk measures are inadequate	Standard risk and correlation indicators, that are typically used to perform asset allocation simulations, are less meaningful in the case of alternative assets	Tail analysis
3	High level of idiosyncratic risk	Difficulties in splitting alpha and beta and in modelling the idiosyncratic risk of alternative assets	Importance of fund / manager selection as a performance driver
4	Diversity of risk sources	Real and alternative assets carry other sources of risk than purely financial ones	Possibility to add features relating to asset specificities as add-ons in the modelling (for example relating to vintage year)

Source: Amundi Asset Management

1. Non-normal return distribution

The traditional asset allocation framework promoted by Merton and Samuelson, using the example of an investor employing a risk-free asset and a set of risky assets, assumes that the prices of the latter are jointly log-normally distributed and that the optimal portfolio has constant weights and will be unchanged whatever the level of the investor's wealth. But in the case of illiquid assets, as investors are unable to frequently trade large amounts of assets, and rebalancing involves finding a counterparty in over-the-counter markets and can be costly, these assumptions do not look realistic. Some studies⁹ have therefore shown that if portfolio rebalancing is only possible every 5 to 10 years, investing in illiquid assets is only acceptable if a high level of illiquidity premium is integrated, leading to a reduction in the "optimal" weight of these assets in the investor's portfolio. Coping with this difficulty implies integrating liquidity into modelling, as suggested in the description of our asset allocation framework.

2. Standard risk measures are inadequate

As a result, standard risk and correlation indicators, that are typically used to perform asset allocation simulations, are less meaningful in the case of alternative assets, due to the absence of liquid and transparent markets, their limited data frequency compared with listed assets, as well as their variety of risk sources.

Moreover, assuming that real and alternative assets follow normal returns is particularly ill-adapted, as distributions of returns of alternative assets tend to display more frequent losses and gains (fat tails) compared to what a normal distribution would imply. It is therefore more appropriate to assess risk by focusing on the left tail of their return distribution and on their behaviour in difficult market circumstances, as the key risk indicator most investors watch is the maximum drawdown they may incur on their portfolio.

3. High level of idiosyncratic risk

Within the traditional framework, under standard assumptions about investors' preferences and market environment, such as the absence of transaction costs, of short-selling constraints and the ability for investors to continuously trade, the appropriate measure of risk of an asset is its beta. This measures the correlation with the market, while idiosyncratic risk does not have to be priced in as it can be diversified away. Strategic asset allocation can therefore be designed using asset beta estimates. It is not the case for alternative assets, which carry a very high degree of idiosyncratic risk making their modelling very difficult. This can be illustrated by the observation of a very wide performance range between different assets. Take the example of private equity funds, the below table shows that the difference between top quartile and third quartile fund IRRs can be about 20 percentage points in terms of annualised performance.

“The alternative asset class fund universe is very diverse. Therefore, focusing on the implementation of asset allocation and identifying top-performing funds, in particular, appear to be critical.”

Table 3. Dispersion of active management performances over 20 years

	Top Quartile	Median	Bottom Quartile	Delta Top vs Bottom Q
Global Bonds	4.82%	4.32%	3.78%	1.0%
Global Equities	4.60%	3.46%	2.44%	2.2%
Private Equity	21.03%	9.81%	0.35%	20.7%

Source: Amundi Asset Management calculation on Preqin database. Sample: 01/11/2000 – 30/10/2020

This has been confirmed by academic studies. Kaplan and Schoar (2005) in particular have found significant differences in the returns between the top and bottom quartiles of funds, with a 22% cash flow IRR per year for the former, compared with 3% a year for the latter over the 1980 to 2001 period.

Therefore, focusing on the implementation of asset allocation and identifying top-performing funds, in particular, appear to be critical.

4. Diversity of risk sources

Moreover, beyond idiosyncratic risk, the risk of a real and alternative asset cannot simply be captured by its volatility or any other standard measure of financial risk and also potentially encompasses risks of another nature, such as legal, political (for example, if a new government changes the financing rules regarding an infrastructure project), funding or industrial risks, in addition of course to liquidity risk.

This implies the definition of a broad risk framework to integrate these assets.

5. Asset reflexivity

There is also a form of reflexivity in the behaviour of these assets, in that private equity managers, for instance, can directly impact the returns they generate from their investments to a greater degree than from traditional assets, through their actions in helping set the strategy and being involved in the management of companies in their portfolio.

Whenever possible, it is therefore advisable to integrate the specificities of the assets to be selected for inclusion in an investor's portfolio to gain a more accurate description of its return and risk characteristics.

A proposed asset allocation framework including real and alternative assets

“Integrating alternative assets into a portfolio simulation framework requires the modelling of these assets based on macro and financial factors, modelling liquidity risk and selecting risk indicators that best fit the specific universe.”

Despite these challenges, analysing and simulating a portfolio that includes real and alternative assets requires the definition of a global integrated strategic asset allocation framework based on the following pillars:

1. An integrated approach for modelling standard and alternative assets based on macro and financial factors;
2. A specific modelling of liquidity risk
3. A flexible approach to portfolio optimisation and construction adapted to the properties of the universe of asset classes and emphasising expected shortfall as a key risk indicator for portfolios including these assets

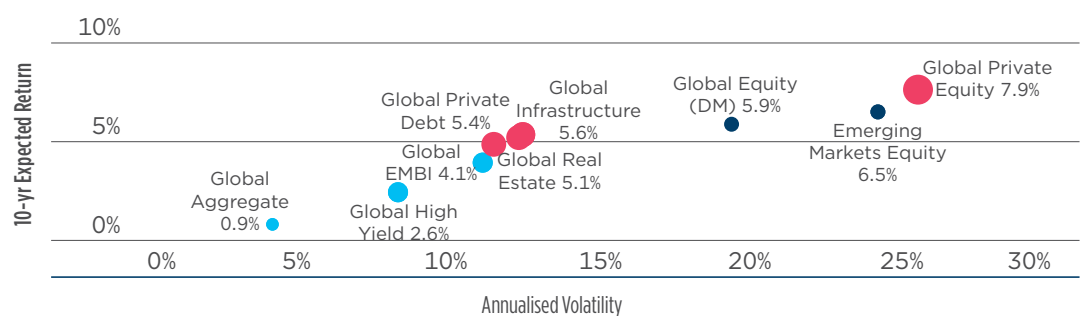
We will focus here on a quantitative standpoint to approach these pillars, before arguing in the third section that investors should complement this with a qualitative assessment.

Real and Alternative Asset Modelling

We have applied a macro-based normative approach to integrate real and alternative asset modelling within our CASM framework, a necessary step when setting the strategic asset allocation of a mixed portfolio. CASM characteristics make it adapted to the medium to long-term horizons that are particularly relevant for unlisted assets, while we exclude tactical and valuation considerations.

The estimation of parameters relative to macro and financial risk factors lies at the core of this approach. We decompose returns between macroeconomic variables, such as GDP growth – modelled including demographic factors – and inflation in the case of real estate, to which we add a risk premium along with the aforementioned corrections for data biases to improve the simulation of systemic risks and intrinsic values. These models do not take into account the potential value added of alternative asset specialists when they select and manage these assets, nor the very strong dispersion of returns between different real and alternative assets. In other words, these models do not consider any alpha component. We developed models for private equity, real estate, infrastructure and private debt assets in order to forecast their expected returns (see Figure 2 and for more details refer to [“Asset Class Forecast: Climbing the Hill”, pag 65-71, March 2021](#))

Figure 2: Risk return and liquidity profiles for the main asset classes. Next 10 year forecasts based on Amundi CASM model.



Source: Amundi Asset Management CASM model. February 2021. Local currency. Bubble size indicates the liquidity risk. Colour indicates asset classes by type (i.e. red for real and alternative assets). Regarding real assets, the chart represents the modelling of core (moderate risk) real estate and direct lending on the private debt side. We have assumed a leverage in the range 20-30% for Real Estate and a leverage of 100% for Direct Lending. In private equity, we considered the risk premium (and the leverage) implied by the LPX time series, premium calculated using a Beta versus the public market. Unlisted infrastructure equity is represented by Edhec Infra300 index. Equities indexes refer to MSCI, bond indexes refer to Barclays and ICE indexes. Real and alternative assets refer to Amundi proxies. Forecasts for annualised returns are based upon estimates and reflect subjective judgments and assumptions. These results were achieved by means of a mathematical formula and do not reflect the effect of unforeseen economic and market factors on decision making. **The forecast returns are not necessarily indicative of future performance, which could differ substantially.**

“Liquidity risk modelling is key for alternative assets. This means adjusting for specific features of these assets (i.e., commitments and distributions) and incorporating information from past liquidity events.”

Liquidity risk modelling

A significant portion of the shortcomings in the underlying data arise from the illiquidity inherent in the infrequent pricing of alternative assets, likely leading to under-estimated risk measures (volatility) and to serially correlated data. Correcting such shortcomings involves a multi-step process, in which we also adjust for specific features such as vintage year, commitments and distributions unique to alternative assets. All these elements are difficult to consider within a general approach, but we can integrate them as add-ons at an instrument level when we simulate them. Within this, illiquidity risk requires special consideration as it has the strongest impact on the investment universe and cannot be diversified away.

We have therefore enhanced our modelling framework by adding a liquidity risk model to better represent real and alternative assets. We define a liquidity event as a sudden jump within a short time, spanning from several quarters to over a year, based on macro-related events and resulting in a haircut to the prices of the assets at which investors can trade them. Analysis of global market shocks, such as the Great Financial Crisis, shows evidence of contagion across regions and asset classes illustrated by a significant uptick in their implied correlation. A shock has effects on most risky assets and can result in a vicious circle: assets are subject to fire sales to meet liquidity needs causing further discounts to market prices that can be particularly severe for alternative assets^{vi}.

Our approach to simulating liquidity risk is to incorporate characteristics of past liquidity events: increased exposure to a single risk factor, the severity of a global economic downturn and the outlook of a recovery path. In this matter, investors should keep in mind that even supposedly liquid assets can suffer from a lack of liquidity in certain market circumstances, as has been observed during the recent market crisis^{vii}. Meanwhile, the behaviour of liquidity within so-called illiquid assets can be more variable than in the case of traditional assets.

We have integrated a liquidity model within our CASM framework and are confident that it is appropriate to integrate liquidity as a factor, due to its capacity to characterise significant left-tail risks, a key requirement for a portfolio that includes real and alternative assets.

Focusing on expected shortfall as a key risk indicator

As we have previously highlighted, the classical Gaussian assumptions are not representative when analysing real and alternative assets returns. Our approach focuses on the definition of asymmetric distributions calibrated on specific shortfall and strongly connected with liquidity risk. The optimisation exercise is designed to ensure a coherent incorporation of these assumptions. The CVaR (Conditional Value at Risk) is the risk statistic used in the objective function, while it is variance in the classical mean variance framework. The optimisation scheme relies on simulated scenarios. It minimises the CVaR (which represents the expected shortfall) for every expected return target.

In the charts in Table 5 we represent a set of efficient portfolios obtained by applying CVaR optimisation across a global cross-asset investment universe over a 10-year horizon. The universe is composed of: global aggregate bonds, global HY bonds, EMBI bonds, global DM equities, global EM equities, global private debt (direct lending), global real estate, global infrastructure equity and global private equity (the risk, return and liquidity characteristics of these asset classes are displayed in Figure 2). As our objective here is to explore diversification within the global universe and to select asset allocations that could be suitable for global investors, the asset classes are in local currency, while potential currency biases can be considered as a second step analysis.

We have selected two CVaR constrained efficient portfolios considering 3% and 5% average expected return targets, which correspond to a moderate and a high-risk profile. For both these target return levels, we conduct optimisations including and then excluding alternative asset classes (see Table 5).

“As alternative assets display significant sensitivity to left-tail events (also due to their specific liquidity risk), optimisation should not follow the traditional mean / variance approach but instead be calibrated on specific shortfall measures.”

While for moderate risk profiles private debt, real estate and infrastructure are preferred, the high risk profile portfolio also allows for the inclusion of private equity.”

Table 5. The benefit of including real assets – expected allocations optimised based on CVaR 95%

	Moderate Risk Traditional assets only	Moderate Risk Including real assets	High Risk Traditional assets only	High Risk Including real assets
Total Real Assets	-	21% (6%RE, 10%PD, 5% Infr.)	-	25% (8%PD, 9% Infr., 8%PE)
Expected Return	3.0%	3.0%	5.0%	5.0%
Expected Volatility	6.9%	5.8%	12.2%	10.5%
CVaR 95%	16.2%	13.8%	30.0%	26.7

Source: Amundi Asset management, CASM model, February 2021. Local Currency. Optimisation based on CVaR 95% minimisation, 10 yr horizon. Constraints included min 10% Global Aggregate, max 25% real and alternative assets. Diversification constraints on high risk fixed income and EM assets. Optimisation based on local currency indices. This analysis does not include FX effects, and is illustrative of the diversification benefit of adding real assets within a diversified asset allocation.

In both cases, the inclusion of alternative assets leads to a lower expected volatility and CVaR compared to the portfolios including traditional asset classes only.

For the moderate risk profile, the allocation to real assets favors private debt, real estate and infrastructure, while private equity is excluded. For the high-risk profile, the allocation to real assets is financed by the reduction of the equity allocation, which otherwise would need to be very significant in order to achieve the 5% return target. Within real assets, the optimisation confirms some preference for private debt and infrastructure with the addition of private equity due to its high return / high-risk profile.

Allocation in practice: from strategic decision to implementation

“While quantitative modelling provides some general guidance, qualitative inputs are essential to assess each specific investor need.”

We have shown in the previous section how investors should deal with alternative assets in order to model and integrate them in a holistic strategic asset allocation framework. We are nevertheless convinced that, particularly in the case of these assets which carry very specific features, modelling can serve as a general guide and needs to be adapted to an investor’s specificities and accompanied by more qualitative principles, based on a practical experience of investing in these assets. We propose in the following section to describe such principles and to illustrate them with selected investor examples.

A pragmatic approach

When conducting a strategic allocation exercise, that includes real and alternative assets, we analyse the current portfolio and the investor’s requirements to try to extrapolate relevant inputs regarding the reason for including them (diversification by objectives, by horizon, by assets). This information, representing the investor’s requirements and preferences, will drive the definition of the constraints regarding the portfolio optimisation.

This process is often one of ‘trial and error’, as investors tend to reveal their preferences only when looking at the concrete outputs of allocation simulations. These are conducted on an investment universe that includes standard asset classes, as well as the main real and alternative assets, taken from a top-down perspective, as described in the previous section. We approach the strategic asset allocation choice first from a quantitative point of view. This quantitative component is based on portfolio optimisation and should serve as a guide. Due to the already-mentioned lack of liquidity of real and alternative assets, as well as the discrepancies in valuation frequency between these and traditional assets, it needs to be enhanced by qualitative elements so that the final assessment is a blended solution. This also means that when investors set their allocation to these assets in their portfolio, they should define it in the form of a target range. They should also refrain from applying hard rebalancing rules following significant market trends.

Adapt allocation to the investor’s objectives, investment horizon and risk appetite

The decision to allocate to real and alternative assets requires a formalisation of the objectives that an investor pursues and how these assets can help meet these objectives, in terms of expected return, yield generation or diversification benefits.

This justifies segmenting allocation to these assets along major macro drivers, such as growth, interest rates or inflation, rather than (or in addition to) defining a ‘Real and Alternatives’ bucket in the portfolio. The constraints and rationale guiding the new allocation should also be designed around this segmentation. Then, if liquidity is a key factor in the allocation, for instance due to liability constraints, the investor may still set specific constraints for the allocation to real and alternative assets, while recalling that even within the universe of ‘illiquid assets’ the degree of illiquidity may vary substantially.

The importance of liquidity is underlined in ‘Case Study 1’ describing the case of a large pension fund which we supported in the definition of its SAA faced with expected outflows in the following years.

Let us observe that investing in real and alternative assets may also contribute to meeting an institution’s non-financial objectives. This is particularly the case in terms of climate change mitigation, to which investments in infrastructure energy projects, green bonds or buildings of high environmental quality can contribute. This potential benefit of real and alternative assets is particularly important in a context of increasing investor focus on ESG considerations in portfolio construction. Likewise, institutions may be

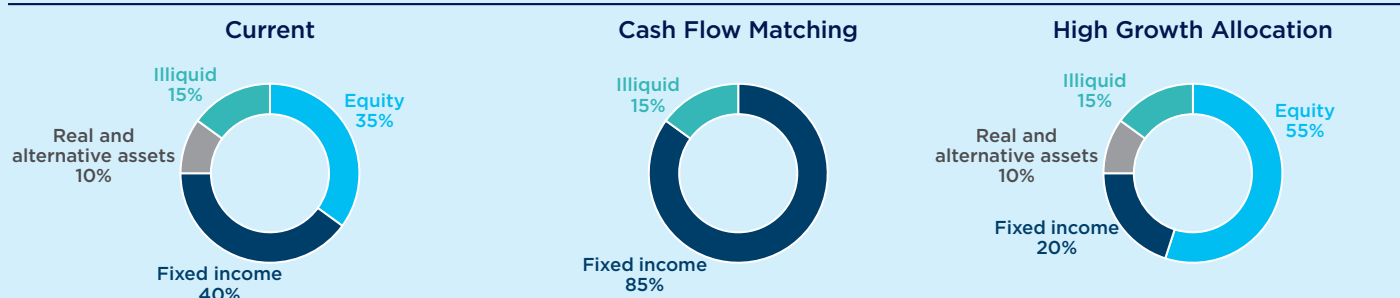
“The inclusion of alternative assets in asset allocation should be based on specific objectives and constraints relevant for the client.”

“Including real and alternative assets can also help achieve non-financial objectives, such those relating to ESG.”

Case Study 1: Integrating expected inflows / outflows into allocation recommendations

- **The client request:** the client, a Public Pension Fund, wanted to check the adequacy of its risk profile to meet outflows due to benefit payments and real alternative investment commitments.
- **The client portfolio setup:** the existing allocation was made of fixed income, equity, liquid alternative investments and illiquid real assets.
- **Solutions under scope:**
 1. **Cash Flow Matching:** we introduced the option of a pure cash flow matching approach as a deterministic reference and we assumed the liquid risk assets (equity and real and alternative assets) were moved into fixed income investments selected according to the cash flow schedule.
 2. **Current Allocation:** we considered keeping the SAA unchanged and analysed the forward-looking outcomes associated with that allocation.
 3. **High Growth Allocation:** we alternatively considered increasing the risk profile to maximise the potential returns (by switching part of the fixed income allocation into equity).

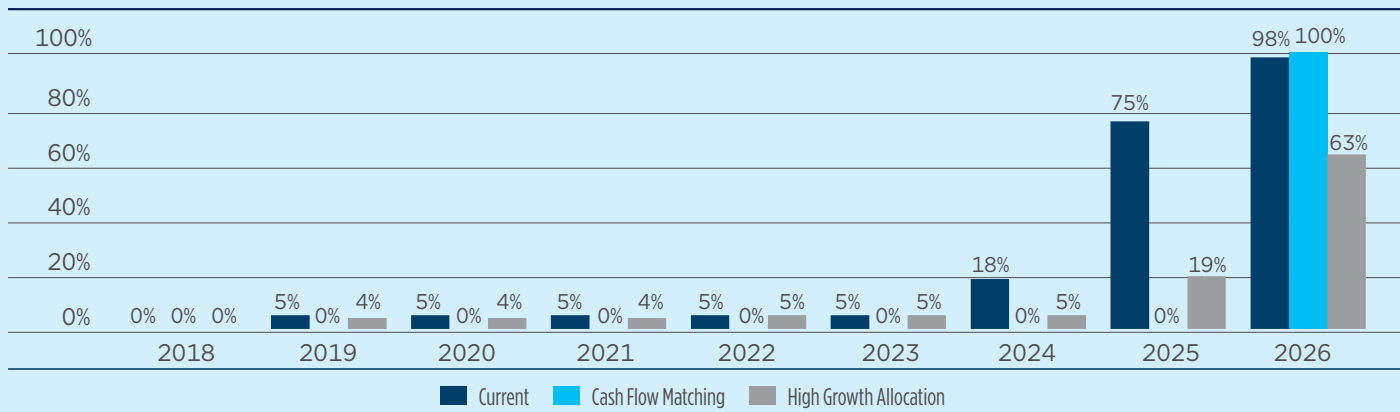
Figure 3: Allocation profile of the current and proposed solutions



Source: Amundi Asset Management. This analysis is for illustrative purposes only. Simulations are customized around the specific client request (base currency, asset classes considered, outflows and asset class constraints). Therefore, the results may differ from other optimizations shown in this paper. Illiquid assets are assets not available for sale.

- **The analysis:** we analysed the different allocations within a probability framework assessing the probability of meeting the outflows year after year. We worked with our real and alternative assets specialists on the planning of inflows and outflows from private equity ventures (within the illiquid allocation). We considered the discount in case of divestment from the private equity strategies (based on typical secondary market conditions) which was incorporated at the scenario level.
- **The results:** our simulations underlined the difference between a deterministic approach (cash flow matching), the existing allocation and the high growth proposed allocation. While the cash flow matching portfolio matched annual cash flows, it was not able to cover all the expected outflows. Conversely, the high growth portfolio was more likely to cover the liabilities, but with a higher volatility compared to the initial allocation. The client confirmed the current allocation was coherent enough with its risk preference and expectations.

Figure 4: Probability of shortfall



Source: Amundi Asset Management. For illustrative purposes.

willing to contribute to supporting their domestic economy, in which case their private equity investments will focus on certain economic sectors or regions to be developed in the long term. The integration of such additional objectives can take the form of a customised investment universe, an adaptation of the return or risk target for the portfolio or the application of a different optimisation function.

“Coherence with the investor’s horizon and risk appetite is also critical.”

Allocation to real and alternative assets should also be coherent with the investor’s horizon and risk appetite. Sovereign investors with a very long investment horizon, no explicit liability constraints and high risk appetite will naturally be attracted to the higher-return segment of the universe of alternatives and invest in private equity or distressed debt as a means to further enhance the return potential of their portfolio. Institutions with limited risk appetite, such as insurance companies, will tend to look for fixed-income substitutes and to focus on private debt with limited credit risk, as well as infrastructure to diversify the fixed-income bucket of their portfolio and enhance its return, while looking to real estate for its combination of yield and diversification qualities. In the latter case, even though a purely quantitative optimisation could recommend some allocation to private equity, this might not be acceptable from a cultural or regulatory standpoint, as unlisted equities can bear a higher capital charge than listed ones within the Solvency framework.

As far as horizon is concerned, the institution must be particularly sure that it will have enough patience to keep these assets in the portfolio over all of their lifespan, as they are long-term investments, reaching 10 years and more in the case of private equity or infrastructure. Such patience should be rewarded. Taking the example of real estate, studies have shown there is a higher optimal allocation to real estate the longer the investment horizon, in line with an observed decline in its correlation with other asset classes when the investment horizon increases^{viii}. Real estate is actually often seen as a natural asset class for investors able to accept illiquidity risk, because they are usually more familiar with it, be it through the holding of their own premises in many cases.

Finally, we should stress that the relationship between the size of the investor’s assets and the capacity of target markets could also influence the allocation decision. For example, this can be key for sovereign wealth funds (leading global investors with more than USD 10 trillion of AUM¹) as illustrated in ‘Case Study 2’. Their ability to reap illiquidity premia due to their very long-term investment horizon and absence of explicit liabilities has led a number of them to follow the so-called endowment model, characterised by a highly dominant weight of equities over bonds, as well as heavy investment in alternative assets. Taken as a whole, sovereign investors allocate an average 18% to these assets, mainly in private equity and real estate^x.

“Capacity and liquidity considerations can be important for large institutions.”

Capacity and liquidity considerations can be important for large institutions. The impact of size on their allocation to alternative assets works in opposite ways. Investing in private assets requires significant and experienced resources to select and monitor ventures, but also to access the market. For instance, the most renowned private equity managers have scarce capacity, which is often only available to large investors that they already know well. Likewise, large sovereign funds can be particularly attractive partners with private equity or infrastructure managers in some ventures along a co-investment approach, while smaller sovereign funds may face difficulties to reach a set target weight on alternatives.

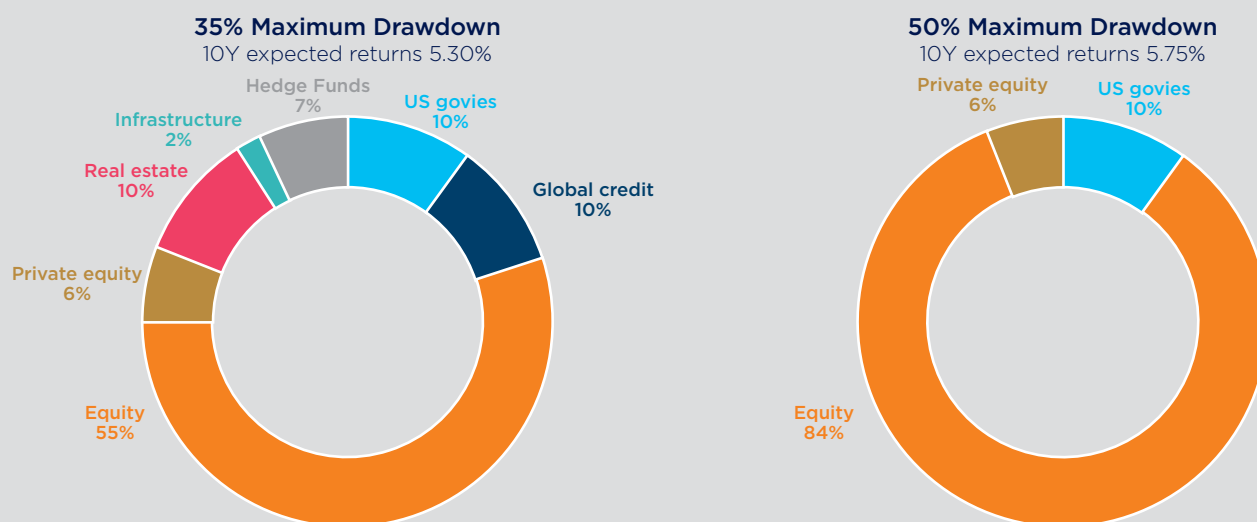
On the other hand, there is an extremely high return dispersion within the universe of private assets, and the universe of available investment opportunities with high return potential is limited. As a result, the marginal expected return on additional private equity investments probably decreases above a certain size of assets. As an illustration, a USD 1trn investor targeting a 10% allocation to private equity may rapidly encounter capacity limits.

¹Amundi’s extrapolation based on various reports relative to 2018.

Case Study 2: Dealing with capacity considerations – the case of a large sovereign investor

- **The client request:** The client, a very large sovereign investor, wanted help to review its strategic asset allocation, which included a significant weight in real and alternative assets, using maximum drawdown as the major risk indicator.
- **Proposed solutions:** we proposed a maximum target weight on certain alternative assets expressed as a percentage of the total estimated size of the asset class at a global level. In this instance, as the investor was using maximum drawdown as the major risk indicator to help set its strategic allocation, we estimated it for both traditional and alternative asset classes based on major historical market corrections. As an approximation, we considered a
 - 50% maximum drawdown on public equities in developed markets as representative of the past major market corrections
 - a drawdown of around 20% for real estate observed during the 2008 crisis
 - as a result, an approximate 0.4 ratio for relative risk between real estate and public equities, which was actually consistent with our other measures of risk, such as volatility, unsmoothed in the case of the former.
- **The analysis:** we simulated different asset allocations depending on the accepted maximum drawdown level.
 - For a maximum drawdown of 35%, the recommended allocation to real and alternative assets was 18%, in the form of real estate, infrastructure and private equity (please note that hedge funds were also included in the investor's allowed universe, although they are not in the scope of this paper).
 - For a maximum drawdown of 50%, the recommended allocation to real estate and infrastructure came down to 0, with only private equity remaining in the recommended portfolio, along with public equities, as a higher acceptable risk level led us to look for assets with the highest expected return.

Figure 6: Proposed strategic asset allocation for different drawdown levels



Source: Amundi Asset Management. This analysis is for illustrative purposes only. Simulations are customized around the specific client request (base currency, asset classes considered, outflows and asset class constraints). Therefore, the results may differ from other optimisations shown in this paper.

“Diversification is among the key benefits that alternative assets bring.

This diversification comes in different dimensions: low correlation to traditional asset classes, different sensitivity to macro factors, different investment horizons and investment universes.”

“Private equity or infrastructure equity, as growth assets, will help diversify the growth bucket of an institutional portfolio. Private debt complements the yield bucket, while real estate is a mixed asset class combining both growth and yield characteristics.”

Apply diversification across different angles

The described SAA exercise can be applied to a broad definition of asset classes, but actual implementation requires more granularity in order to fully benefit from what is probably the key benefit of real alternative assets, which is the diversification they bring to a portfolio.

This is already the case when looking for macro factor diversification that we have regularly advocated when constructing a portfolio, as real and alternative assets actually respond to a variety of investment objectives^x, which makes them extremely useful.

They can in particular:

- Enhance portfolio return, particularly through the capture of the illiquidity premiums attached to these assets and are only suitable for investors with a long enough investment horizon;
- Generate yield, through rents in the case of real estate or a regular coupon the case of private debt;
- Bring portfolio diversification, that can be provided along different dimensions:
 - Limited correlation with traditional assets, even though we have already stressed the limits of volatility and correlation as risk indicators for these assets;
 - Capacity to contain portfolio drawdown in the case of high market volatility^{xi};
 - Diversification across macroeconomic scenarios, due to different degrees of sensitivity to macro factors such as growth, interest rates or inflation;
 - Diversification across investment horizons, following our recommendation to combine strategies designed for the long, medium and short term in a robust multi-asset portfolio;
 - Diversity of investment universes: taking the example of private equity, it provides access to different types of companies than those represented in the listed equity market in terms of sector exposure, size, growth outlook or balance sheet structure.

Private equity or infrastructure equity, as growth assets, will help diversify the growth bucket of an institutional portfolio. Different forms of private debt will complement the yield bucket of the portfolio. Real estate can be considered as a mixed asset class: it does combine some exposure to growth – due to its sensitivity to macroeconomic conditions – and yield – due to the rents it provides – as well as sensitivity to inflation as indexation mechanisms are attached to these rents. Real estate is therefore particularly suited to enhancing portfolio diversification.

Such diversification is also very helpful for liability management as different alternative assets have different investment horizons: this is typically up to 5 years for private debt; between 5 and 10 years for real estate; 10 years or more for private equity; and it can be much longer for infrastructure². A combination of these assets will therefore contribute to the time diversification of the investor’s portfolio and will help mitigate the J-curve effect. As a result, an investor in private equity willing to ensure positive cash-flows on a regular basis should, especially in the first years, diversify their portfolio with investments in private debt assets, for example, that will rapidly deliver yield with a high degree of visibility, while regularly allocating to private equity across vintages in order to smooth the J-curve effect.

²These horizons are indicative and can vary significantly depending on the specific asset characteristics

Case Study 3: Diversification of the growth allocation for a corporate pension fund

- **The client request:** one of our partner pension funds wanted to explore the opportunity of including real and alternative assets in their growth bucket. They were targeting an improvement of the asset risk profile by exploiting the diversification potential of real and alternative assets, whereby the enhanced allocation would be designed to improve the expectations of the funding levels (average and shortfall) from an Asset and Liability Management (ALM) point of view.
- **Key features of pension funds:** pension funds, similar to other investors, will look at alternative assets for many of the reasons already detailed in this paper, although some of their characteristics set them apart from other investors:
 - Their SAA is driven by the need to meet liabilities, often with a sensitivity to interest rates and inflation
 - They may be subject to conflicting investment horizons: long-term given their liabilities' duration, short-term if there is pressure from yearly result publications
 - An asymmetry in return appetite, with an aversion to downside risk (investment losses will need to be offset by uncertain contributions) and little appetite for surplus, as surplus' ownership is often uncertain. This results in a change in risk aversion as the funding ratio of the pension plan changes: risk aversion will usually decrease as funding improves.
 - A governance that is better suited to strategic than tactical decisions
- **The client portfolio setup:** 75% liability-matching assets and 25% growth assets composed the original portfolio. The global investment universe of the growth bucket was originally tilted to fixed income and equity,
- **The analysis:** we simulated different allocations including and excluding real assets in the growth bucket and also changed the initial allocation (75% liability-matching assets and 25% growth assets) to increase the portion of growth assets. We considered the following inputs from the client:
 - The preference for a certain portion in fixed income-orientated assets was also considered, with the high risk fixed-income allocation being complemented by real estate.
 - In our interaction with the partner institution, they stressed their scepticism about private equity, which led us to conduct our simulations on an investment universe excluding and also including private equity, as the inclusion of private equity amplifies the possibility of getting higher returns (with higher risk). The client decided to focus on infrastructure and real estate only and we explored the benefit of including real and alternative assets looking at different levels of risk appetite and different risk profiles.
 - The allocation exercise on growth assets was constrained by a minimum allocation to income assets, to represent the assets able to generate stable income used to cover expected outflows.
- **The results:** in Table 3 we show the results of our simulations. The starting point was the 75-25 allocation of the client (the first white column). We simulated different asset allocations increasing the allocation to the growth bucket (from 25 to 30% in the 70-30 and to 35% in the 65-35 allocation). For each of these risk profiles, we also analysed the portfolios including real estate and infrastructure (the columns with the blue border in the table). For each allocation, we analysed the median funding gap versus the original 75-25 allocation (for which therefore the funding gap is 0%) and the funding gap in the worst 5% and 1% of cases, to get a sense of what could happen in extreme circumstances. Including real assets was shown as improving the funding ratio in extreme circumstances (5th and 1st percentile) for all allocations analysed. Moving towards higher risk allocation (70-30 and 65-35) the median funding ratio improves, but the extreme case (1st percentile) worsens unless the allocation also includes real assets (RE and infrastructure) that, thanks to their diversification profile, help improve the outcome. Overall, this shows how the diversification benefit of including real assets can help to move towards riskier allocation while also improving the expectations on the funding levels (average and shortfall) from an ALM point of view.

Table 3: Sensitivity of proposed allocation to funding ratio gap

Change relative to current allocation:	75-25	75-25 + RE & Infr.	70-30	70-30 + RE & Infr.	65-35	65-35 + RE & Infr.
in Median funding ratio	0.0%	-0.3%	2.7%	2.1%	5.4%	4.7%
in 5 th perc. Funding ratio	0.0%	2.2%	0.2%	3.0%	0.3%	3.7%
in 1 st perc. Funding ratio	0.0%	3.0%	-0.6%	3.3%	-1.2%	3.2%

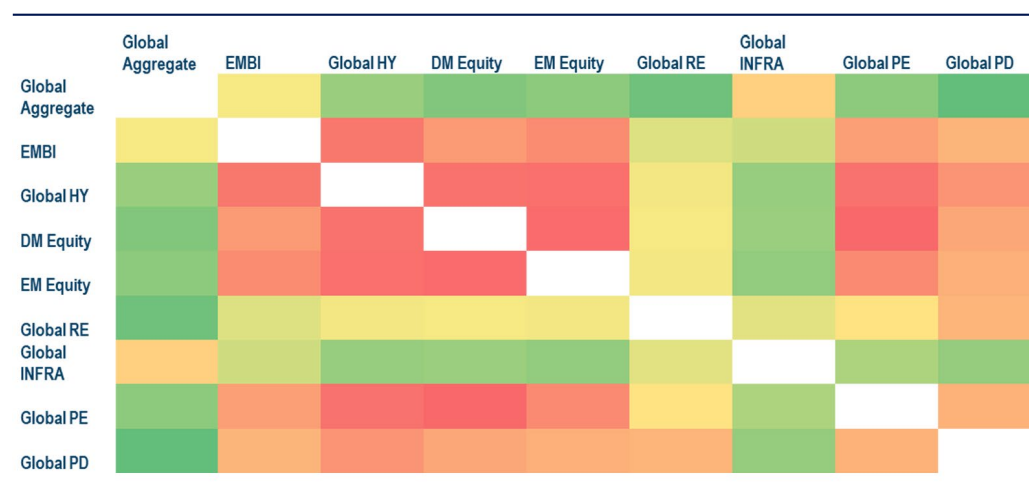
Source: Amundi Asset Management, for illustrative purposes.

“Real asset investing can help limit a portfolio drawdown in crisis environments, subject to the investor being able to stick to the appropriate time horizon and liquidity constraints.”

Real and alternative assets do provide diversification against traditional asset classes. As already discussed in the previous section, low correlation may indeed be misleading as partly linked to scarce valuation of illiquid assets that are not traded on public markets. We have also acknowledged that both private and public assets are sensitive to certain macro drivers such as growth, interest rates or inflation, as it is clear that changes in interest rates affect the valuation of all asset classes.

We base our correlation estimates for some real and alternative assets with traditional assets on unsmoothed time-series. Such correlations tend to be higher compared to those based purely on historical calculations and raw data.

In the illustration below, we represent the correlation matrix, where colours range from dark green (indicating significantly negative correlation) to dark red (indicating very high correlation). This confirms that global real estate and infrastructure display relatively low correlation with traditional assets (above all versus fixed income assets) and can be particularly useful in diversifying a bond / equity portfolio.



Source: Amundi Asset Management on DataStream, Bloomberg data from 2004 to 2020. Indexes and real assets as for Figure 2. Colours indicate the level of correlation with dark red being high correlation (from 0.75 to 1) and dark green high negative correlation.

Still, their characteristics and behaviour are different. Assessing private and public equity correlation is not straightforward, as they typically do not cover the same type of companies, especially given the particularly high exposure private equity has to high-growth and high-risk technology and healthcare sectors, as well as high valuations linked to the fact that the earnings potential of such companies still needs to be unleashed. Private equity may help to limit portfolio drawdown in crisis environments due to its lagged reaction to a strong correction in risky assets. Needless to add that this is subject to the investor being able to stick to their illiquid investments in such circumstances, as having to liquidate alternative asset holdings could lead them to trade at strongly depreciated prices. This has been well observed during the Great Financial Crisis when some US endowments, in particular, had to sell some of their private equity holdings in extremely adverse circumstances, as they faced unexpected liabilities.

Moreover, there is a strong heterogeneity within each of these asset classes, which underlines the benefits of a diversified strategy within each of them.

As an illustration, some strategies within **private equity**, such as venture capital, mezzanine or sectorial funds, allow a precise targeting of certain growth-oriented market segments but their return profile is uncertain; whereas other strategies, particularly on the secondary market, have an attractive return profile, particularly in terms of reducing the J-curve effect, but their economic impact is less direct.

Likewise, the **private debt market** offers a wide range of opportunities, from senior debt, such as euro-private placements or small LBOs, to large cap loans, direct lending, real estate debt, infrastructure debt... As some of these markets are purely national, diversification by country is also much more efficient than in public markets that are often internationally integrated.

The **infrastructure market** also offers diversification by sector (transport, energy, telecommunications...) and geography, as well as between core strategies with long maturities offering 4% to 8% performance targets, including a regular yield, and « value-add » (growth) strategies; these are more similar to private equity in terms of maturity and performance, with regional and sectorial approaches on an opportunistic basis.

Finally, the **real estate market** is obviously highly diversified in terms of geographies, type of asset (housing, industrial, office, warehouse...), and the degree of leverage and risk levels, from core to value-add or opportunistic assets.

Limited scope for dynamic allocation to real and alternative assets

Once a strategic allocation to real and alternative assets has been defined, investors may be tempted to implement some degree of dynamic allocation around target weights, as they often do for traditional assets. Economic backdrop and valuation considerations, in particular, can be integrated in a broad asset allocation framework applied over a medium-term horizon (1-3 years). More short-term considerations, such as technicals and risk sentiment, which are also included in our standard asset class assessment, are less adapted to analysing the universe of real and alternative assets, due to their limited liquidity.

Influence of cyclical conditions

Within the economic backdrop, we can analyse the impact of the economic cycle. In fact, real and alternative asset classes are affected by the business cycle, public debt and equity market conditions. In addition, they display time-dependent volatility and behave differently depending on the prevailing economic and financial conditions. We have applied these assets to our Advanced Investment Phazer (AIP) methodology that identifies five different investment regimes, as well as the asset classes that should be favoured in each of them. The regimes are the four ones that conventionally characterise the position in the economic cycle (slowdown, contraction, recovery, late cycle), to which we have added a fifth one (asset reflation) that explicitly takes into account the unconventional monetary policy approach increasingly adopted since the Great Financial Crisis.

The AIP is our analytical tool that deploys cluster-based algorithms to provide probability-backed assessments of short-to-medium-term global economic trends and eventually derive investment recommendations. The AIP wraps macroeconomic and financial regimes by partitioning the dataset using global factors and local determinants (DM and EM data are considered). Therefore, monetary policy – both conventional and unconventional – and private leverage are considered together with economic activity indicators.

The model allows regimes' 'likelihood' calculation conditioned and defined by internal macroeconomic forecasts. It can be used to assess the opportunity of investing in real and alternative assets by looking at the expected probability for each of the regimes in the short-to-medium term. Notwithstanding all the limitations, we believe it is useful to apply a common framework to traditional and alternative assets in dynamic allocation as well, with a medium-term horizon.

Applying the AIP to real and alternative assets, we show that growth-oriented and cyclical alternative assets, such as private equity, should benefit from normal expansionary environments (as confirmed by historical evidence), whereas more defensive alternative assets, such as private debt and infrastructure, should be favored in recessionary environments. Our central scenario for 2021 remains in favor of growth-orientated and cyclical alternative assets, but the probability of a downside risk scenario is not negligible.

“Economic backdrop and valuation considerations can help to implement some degree of dynamic allocation with a mid-term perspective.”

Table 4. Alternative assets preference in different regimes defined by the Advanced Investment Phazer

	CORRECTION	CONTRACTION	REFLATION	RECOVERY	LATE CYCLE
	Defensive phase	Defensive phase	Positive phase	Positive phase	Mild positive phase
Real estate Equity					
Private Equity					
Private Debt					
Infrastructure					

Source: Amundi Asset Management, Cross Asset Research. Advanced Investment Phazer, January 2021. Red color refers to the least favorable assets and green color the most favorable ones.

“More short-term, tactical indicators, such as transaction volumes and inflows into funds, can facilitate the understanding of the dynamics of real and alternative assets.”

Valuation considerations

Valuation is another key variable to integrate in the definition of dynamic (medium-term) asset allocation. As far as private equity is concerned, professionals tend to look in particular at EBITDA multiples embedded in purchase prices. Meanwhile, real estate specialists tend to closely watch capitalisation rates³, relative to historical trends, but more significantly to bond yields in order to evaluate the relative attraction of the asset class. In the universe of private debt, investors will focus on spreads against similarly-rated public securities.

More short-term, tactical indicators, such as transaction volumes and inflows into funds, can facilitate the understanding of the dynamics of these assets. Dry powder, in particular, or the amount of cash that has yet to be invested, for instance in funds, is representative of the market equilibrium, high levels typically meaning that there is an excess demand relative to attractive investment targets.

Challenges to dynamic allocation to real and alternative assets

Rebalancing a portfolio that includes real and alternative assets is nevertheless subject to strong constraints and we would advise caution regarding the potential benefit of dynamic allocation decisions, due to the specificity of real and alternative assets:

- The high degree of idiosyncrasy of these assets weakens the link between an asset allocation view and its implementation;
- Investors should have in mind that quantitative indicators relative to alternative assets are not as meaningful as they are for traditional assets. Officially reported capitalisation rates might be overestimated, for example, if the owner has waived rent for a certain period or offered to take care of restoration work in order to avoid having an empty property;
- Another major difficulty lies in the potentially long delay between the timing of a decision to commit assets to these strategies and the actual investment. If investors consider that the valuation of private equity is attractive and make a decision to overweight it, it may take a few years, even if they go through a fund, for the selected vehicle to invest its cash in its target companies. The risk is that at that time the valuation case might be far less compelling. As an illustration, one of the best vintages of the past years for private equity was 2007, although this represented a peak for public equities, as funds launched in that year were able to make a good part of their purchases in 2009, at much lower valuation levels.

³Capitalisation rate (or cap rate) is an indicator widely used to evaluate the rate of return on the investment made in a property. It is defined as the ratio of Net Operating Income (NOI) to the current market value of the asset.

- As already mentioned, liquid proxies can be used to manage changes in asset allocation but, as proxies, they imperfectly reflect the behaviour of the underlying asset. This lack of flexibility in dynamic allocation is obviously less problematic for the alternative asset classes that offer more liquidity, such as private debt where investors can be reimbursed relatively quickly, or even real estate where liquidity may be achievable, although at a price.

Despite these limitations, we believe that the general compression of returns and rising investor demand for these assets may increase the importance of a more dynamic component in return generation for portfolios including these assets in the future. We also anticipate that the challenges in terms of data availability and significance mentioned in the first section will be gradually alleviated as the universe of real and alternative assets expands and their coverage improves.

This will likely lead investors to pay some attention to indicators relative to the impact of the economic cycle and valuation considerations to pilot their allocation. It can particularly help them set the path to reaching a strategic target allocation to these assets: in other words in deciding to accelerate or decelerate the pace of their investments depending on their evaluation of the current attraction of these assets. This maneuvering is obviously easier to implement in the 'less illiquid' segment of this universe, i.e. for private debt rather than for infrastructure.

“Dynamic asset allocation considerations are worth investigating, and instruments exist, however imperfect, to implement rebalancing to these assets.”

The use of liquid proxies can facilitate this rebalancing but these, as we stressed earlier, may behave very differently from their illiquid counterparts. Going through the secondary market is another possibility as there is a regular flow of asset sales by funds that face governance problems or are approaching the end of their life. Associated costs can be significant, however, as this market is currently driven by sellers, while buyers typically have to go through an auction process and have very limited capacity to select ventures within the package that is proposed.

In summary, SAA clearly remains the key decision in determining the appropriate exposure (beta) of global portfolios to real and alternative assets, which are typically long-term investments, and investors should pilot their allocation to these assets in gradual steps; but dynamic asset allocation considerations are worth investigating and instruments exist, however imperfect, to implement rebalancing to these assets.

Implementation is key

Once the asset allocation decision has been set comes the issue of how to implement it. Implementation is particularly challenging in relation to real and alternative assets, which are different from a number of standpoints. As these assets are composed from a highly diverse universe, success in investing in this area hinges on investors' skill in sourcing, analysing, and monitoring of assets, as well as properly handling them from an operational standpoint.

1. **Sourcing of assets**, we would like to stress that performance is extremely variable and depends on managers' ability to have access to the most attractive deals. Specialist private equity managers with deep pockets or with access to a network will more naturally be able to identify potential deals and be called in to participate in the financing of them, while second-tier institutions with limited analysis and investing capacity may not have access to the best opportunities.
2. **Strong capacity of analysis** is required in an area where official information is often lacking. An increasing proportion of companies prefer not to go public due to the heavy constraints that go with a market quotation and the pressure of quarterly reporting. Analysing a private company is therefore highly labour-intensive, even more so as such companies often belong to high-growth sectors, making their evaluation highly uncertain as it is based on their long-term outlook and potential. This is also the case when analysing such high return / high-risk securities as distressed debt or companies in restructuring.

“Success in investing in alternative assets hinges on investors' skill in sourcing, analysing and monitoring of assets, as well as properly handling them from an operational standpoint.”

3. **Strong legal skills are needed** as well, especially at the initial investment stage when drafting the contract, for instance when negotiating covenants on a private debt deal, and during the life of the investment. The terms of the contract can have an impact on the risk of the asset, depending on the level of protection one has been able to define as a creditor. Legal expertise is also important at a later stage, in particular in the determination of how to share costs in maintaining a property or an infrastructure project, as well as maximising the potential recovery in the case of a debt default.
4. **A specific risk analysis framework** should also be set to take into account the variety of risk sources associated to these assets.
5. Then, once assets are sourced, performance is also highly influenced by the **ability to manage them over time**, and this includes a number of layers. Taking real estate as an example, there is added value in asset management, i.e. in maximising property value for investment purposes, property management, which consists of handling the day-to-day activities related to a property's operation and facility management.
6. **Moreover, operational skills should not be overlooked in managing real and alternative assets.** Operational difficulties in this area are due to the lack of automation of a number of operations, raising potential difficulties in trade execution, fund accounting and reporting. Handling frequent inflows and outflows can also be a challenge for institutions in terms of asset / liability management, requiring them (particularly when investing in private equity funds) to develop tools to help them manage dividends or proceeds from asset sales, on the side of inflows, and outflows due to cash calls.

“The approach to investing in real assets can take different forms from investment through fund of funds or funds of mandates to direct investments, depending on the size and the expertise of the investor.”

Faced with these challenges, institutions typically start their journey in the real and alternative assets universe by investing in funds of funds, or funds of mandates, an appropriate way to become familiar with these complex assets. These vehicles actually provide useful diversification to investors which can only envisage a modest allocation to these assets with high specific risk and facilitate diversification over time, as performance can vary widely between funds launched in different vintage years. On the negative side, funds of funds carry a double layer of fees, a drawback that can be alleviated through the use of funds investing both in funds and co-investments. Some European insurers have delegated the management of a real estate fund to an alternative asset specialist. This fund includes both direct real estate investments that the insurer already owned and other assets. This fund could then be included in the range of unit links it offers to its clients.

In a second step, investors can decide to capitalise on their experience to invest in funds that they now feel able to select themselves. Funds have the advantage of allowing investors to manage their allocation to real and alternative assets with some flexibility. As an illustration, as it can take a few years to reach a certain target weight to direct real estate, using real estate funds, which offer a certain liquidity, can be helpful. In the case of a mixed allocation to real and alternative assets, initially investing a share of the portfolio in private debt and real estate funds that generate returns can offset the negative J-curve effect of initial investments in private equity. These can subsequently be redeemed as direct investments are being completed.

Then in the last step, investors may decide to do direct investing. This supposes that the size of their assets under management is large enough to provide them with sourcing capacity and that they have developed the necessary skills in house that we mentioned above, ranging from analysis to legal, risk and execution.

At the end of this journey, we advise institutional investors willing to integrate alternative assets to adopt an asset allocation framework defined around the following four steps.

Figure 7: Amundi asset allocation framework for institutional investors

Source: Amundi Asset Management.

Conclusion

Real and alternative assets represent a rising share of investors' portfolios and this trend is probably set to continue in the low interest rate global environment that will prevail for a prolonged period. Their integration in an asset allocation framework raises a number of challenges and complexities particularly due to their limited liquidity and valuation frequency, as well as their strong degree of heterogeneity. Despite these, we have shown how applying and adapting our modelling framework to account for these assets could support asset allocation decisions. We believe that there are definite benefits in analysing and better understanding them from a quantitative point of view, a useful input for running an optimisation exercise, whose result is the disciplined starting point to be integrated with many judgmental inputs. Likewise, despite clear limitations to dynamic allocation in the case of these assets, we have described how the identification of phases in the economic cycle and valuation indicators can help in setting the gradual pace towards a target strategic allocation.

We strongly believe that a key benefit of these assets is linked to their diversification potential across many different dimensions, such as investment horizon, risk level or macro factors and that they complement traditional assets in reaching these objectives as they allow investors to have access to a widely different investment universe.

A key message is that, even more than in traditional asset allocation, defining how to weight real and alternative assets in a portfolio requires taking investor specificities into account. These are related to investor liabilities, risk appetite and investment objectives, including non-purely financial ones, such as ESG-related considerations, that are increasingly applicable to this universe of assets. We have also argued that resources available to analyse these assets and monitor them over time can affect the allocation decision. As their degree of heterogeneity is particularly high, implementation issues can indeed have a significant impact on performance, particularly as far as instrument selection and operational management are concerned. As a result, however attractive these assets may appear, allocating to them requires the utmost professionalism and should be applied in steps, starting with funds of funds and then funds before going through direct investments. We hope this article helps investors identify how to approach these assets more clearly.

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Chief editors

Pascal BLANQUÉ
Chief Investment Officer

Vincent MORTIER
Deputy Chief Investment Officer

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