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# HARNESSING THE ILLIQUIDITY PREMIUM

Managing liquidity risk in multi-asset  
credit portfolios


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The sharp delineation between different credits – public and private, liquid and illiquid, secured and unsecured – continues to blur, while institutional investors are increasingly likely to take on exposures and liquidity risks across the entire fixed-income spectrum. In our view, illiquid credit can generate attractive returns – through the illiquidity premium – while potentially providing risk reduction characteristics that can enhance an investor’s outcomes over the long term.

In the [first instalment](#) of this two-part paper, we set out to understand the illiquidity premium, observe its behaviour over different market regimes and devise a methodology for measuring it.<sup>1</sup> Even though the illiquidity premium is not readily measurable, understanding it is crucial for investors who see the upside in illiquid alternative investments.

But illiquidity does have major downsides, including:

- Limited flexibility. An illiquid portfolio is less easy to rebalance in response to new information, market movements and changing investor preferences;
- Lower pricing transparency; and
- More complexity when evaluating and managing such risks.

As a result, including illiquid credit in multi-asset credit portfolios requires a paradigm shift in traditional allocation processes with a greater focus on liquidity management than is typical for public, liquid portfolios. In our recent [360°](#) newsletter and [Delta](#) podcast we spoke about how investors need to challenge assumptions about future liquidity and take a flexible approach in order to mitigate potential liquidity mismatches.

In this follow-up paper, we explore the practical implications of the illiquidity premium, asking:

- Can the illiquidity premium be harvested?
- How can the illiquidity premium be exploited within a relative value framework?
- How does the illiquidity premium affect asset allocation and portfolio management decisions?

We also bring into focus the liquidity risks that stem from the challenge of liquidating assets on time with minimal cost or discount (trading risk) and meeting capital-commitment drawdowns or other spending requirements (funding risk).

## CAN THE ILLIQUIDITY PREMIUM BE HARVESTED?

In our last paper, we highlighted the behaviour and characteristics of the illiquidity premia. We now consider if the illiquidity premium can be effectively exploited in practice, and if it is large enough to compensate for the embedded risks<sup>2</sup> and invariably higher management fees<sup>3</sup> typical of illiquid credit mandates.

Illiquidity is the 'transfer of economic rents from illiquid risk avoiders to risk takers.'<sup>4</sup> The risk takers who can understand and tolerate these risks stand to benefit from the attractive returns offered by illiquid assets. In our opinion, less risk-averse buy-and-hold investors who hold illiquid credits through market turmoil are better positioned to successfully harvest the illiquidity premium. In particular, pension funds have increasingly exploited their ability to withstand market-to-market and liquidity risk and have become active participants in illiquid credit market.

Even though it is almost universally recognised that the illiquidity premium exists, the widely held notion that it is a 'free lunch' that is there for the taking is misplaced. We will now explore how the illiquidity premium can be factored into portfolio-allocation decisions to optimise investment outcomes under different market conditions.

## THE ILLIQUIDITY PREMIUM IN A RELATIVE-VALUE FRAMEWORK

### Most relative-value analyses ignore illiquidity risk

It is very common to see relative-value charts or tables comparing spreads between fixed-income assets of a similar credit quality. The implicit assumption is that assets of the same quality should trade at similar spread levels, regardless of the difference in liquidity. Almost always, the less-liquid asset class – typically bank loans – look cheap when using this simplistic comparison.

Such a comparison between illiquid and liquid credit spreads is flawed, as it ignores the illiquidity premium which is the major source of spread. This distortion is often compounded by a misinformed characterisation of illiquid assets as 'less volatile' with higher Sharpe ratios. We therefore advocate comparing the illiquidity premium of two assets in order to effectively determine relative value.

### The illiquidity premium is ever changing and may even turn negative

Strictly speaking, relative-value 'arbitrages' and the instability of the illiquidity premium seem counterintuitive. In fact, the liquidity differential is the reason for the premium. By definition, the illiquidity premium should never become negative, since the benchmark's liquidity will always have extra appeal relative to its illiquid counterpart.

But interest in various markets can ebb and flow, and premia can disappear if many market participants become motivated buyers. Indeed, some illiquid assets are so sought after that their illiquidity premium is actually negative. Going one step further, we believe that sometimes even 'illiquidity discounts' exist. Hence, a flexible approach that lets managers avoid 'rich' asset classes and capitalise on unique and specialist lending opportunities can offer higher risk-adjusted returns.

### Factoring the illiquidity premium into rich-cheap analysis

The illiquidity premium can be factored into relative-value investing, enabling investors to take advantage of situations when a security's illiquidity premium or discount runs counter to their assessment of the underlying value. In a stagnant market, using the illiquidity premium as one relative-value tool can allow managers to benefit from opportunistic risk-on, risk-off trading.

Figure 1 shows the illiquidity premium of emerging-market high yield relative to its liquid benchmark, US high-yield. We can see how dynamic the illiquidity premium is and how it varies according to shifts in market regimes, transitory demand-supply equations and relative-spread movements. This example supports our thesis that illiquid credit is not always cheaper than liquid credit.

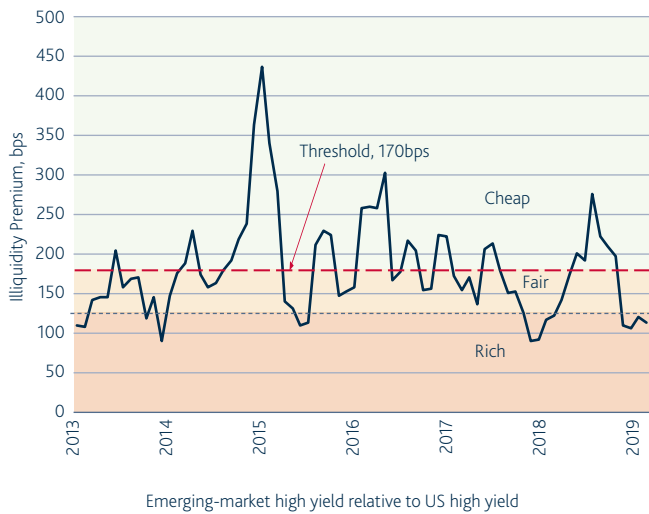
<sup>1</sup>To read the first instalment of this series, "Illiquidity: understanding the premium in fixed-income markets," visit the Insights section of the Hermes Investment Management website.

<sup>2</sup>The risk of deviating too much from the optimal strategic portfolio due to an inability to continuously rebalance.

<sup>3</sup>Illiquid credit (and more specifically private debt products) are inherently more complex to analyse, difficult to originate or source and predisposed to information asymmetry. Higher management fees are usually justified on the grounds of the need for sophisticated skillsets and potential to generate higher alpha.

<sup>4</sup>'Investment considerations in illiquid assets' by Sameer Jain, published by CAIA Alternative Investment Analyst Review in 2013.

**Figure 1: Illiquidity premium of emerging-market high yield relative to US high yield**



Source: Hermes, Bloomberg, Bank of America Merrill Lynch Research, as at August 2019.

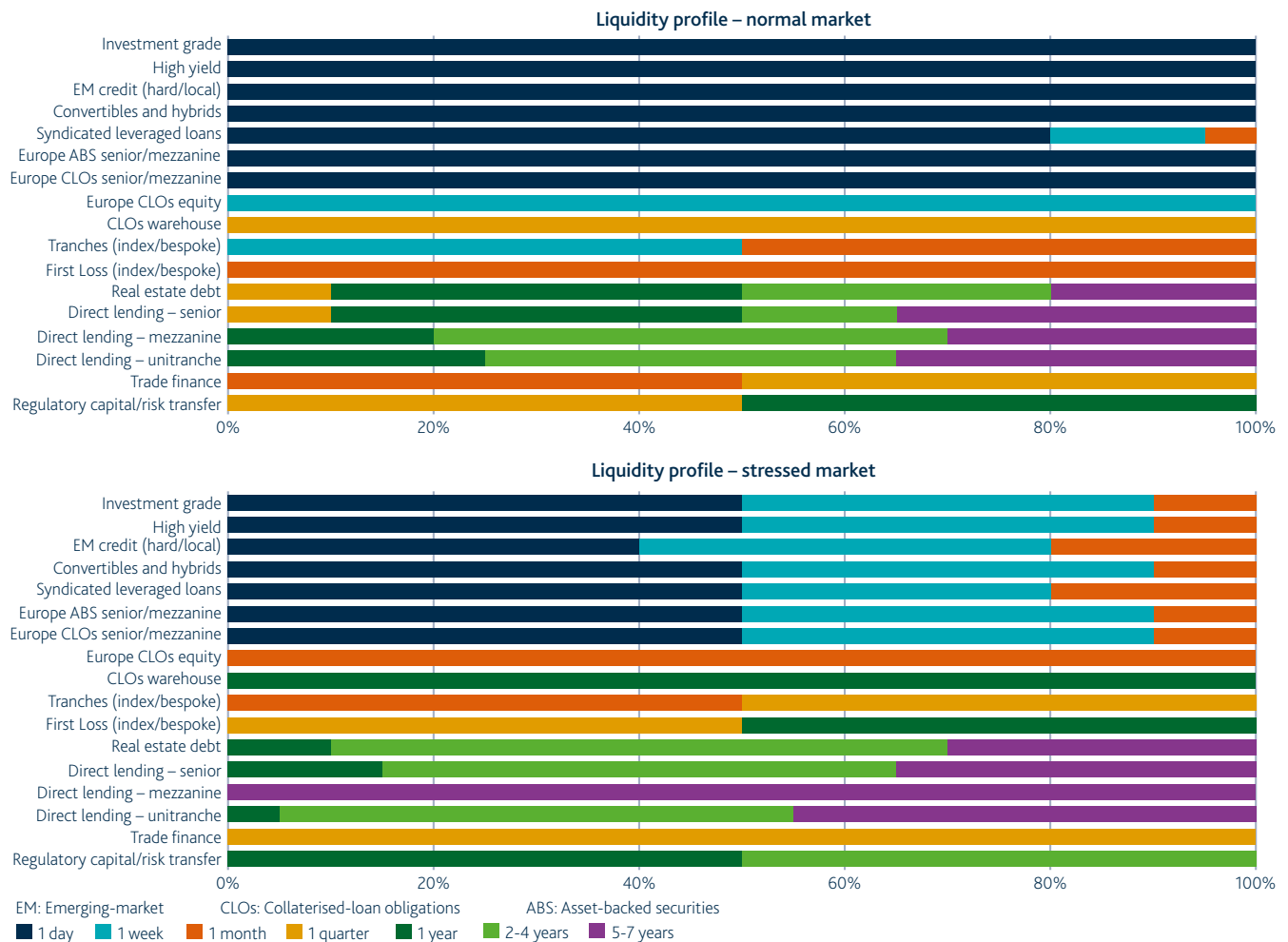
In practice, rich-cheap analysis needs to be coherently framed by comparing the extant illiquidity premium with its threshold level. This can be determined using any of the following approaches. In this instance, we compare the illiquidity premium for emerging-market high yield with that of US high yield, its benchmark liquid counterpart:

- The long-term average of the illiquidity premium, 188bps, across different liquidity regimes.
- Instead of a smoothed threshold, using a contextualised premium value like the regime-matched premium of 170bps, that is dependent on assessment of the existing liquidity regime.
- A theoretically determined level of the expected illiquidity premium, 13bps, which we discuss in the following section.

### Using the liquidity profile to estimate the expected illiquidity premium

First, we assess and develop an asset-specific liquidity profile during normal and stressed market conditions. The liquidity profile depicts the ability to liquidate a certain share of a holding within a given period of time, with minimal price impact. This methodology is often employed when constructing liquidity ladders and is a classic asset-liability management tool. Figure 2 shows our internal assessment of liquidity profiles for key credit products.

**Figure 2: Estimated liquidity profiles in normal and stressed market conditions**  
The share that can liquidated with a limited price impact within the defined time horizon



Source: Hermes, as at September 2019.

Next, we use the illiquidity premium term structure and the liquidity profile to calculate an expected illiquidity premium by asset class. We consider the estimates of liquidity cost across different terms (see figure 3).<sup>5</sup> This helps us approximate the illiquidity premiums by term, based on estimations of the opportunity loss caused by not being able to rebalance the asset allocation with less liquid assets.

**Figure 3:** Estimates of the illiquidity premium for varying liquidity

Expected period during which the asset cannot be traded	Required illiquidity premium, yearly, bps
10 years	600
4 years	430
2 years	200
1 year	90
1/2 year	70
Always tradeable	0

Source: Andrew Ang, as at 2014.

As an illustration, we show here the calculation methodology for determining the expected illiquidity premium of real-estate debt. In a liquidation event under normal market conditions, 90% of the portfolio is assumed to remain on the balance sheet after one quarter, 50% after a year and 20% after four years. The liquidity profile, along with the generic illiquidity premium term structure mentioned before, is used to determine the premium for each liquidity bucket (see figure 4).

**Figure 4:** Real-estate debt liquidity profile and premium

Liquidation timeframe	Illiquidity premium, bps	Share of real-estate portfolio that can be liquidated within this timeframe, %
1 month	10	10
1 quarter	35	40
1 year	100	30
2-4 years	300	20

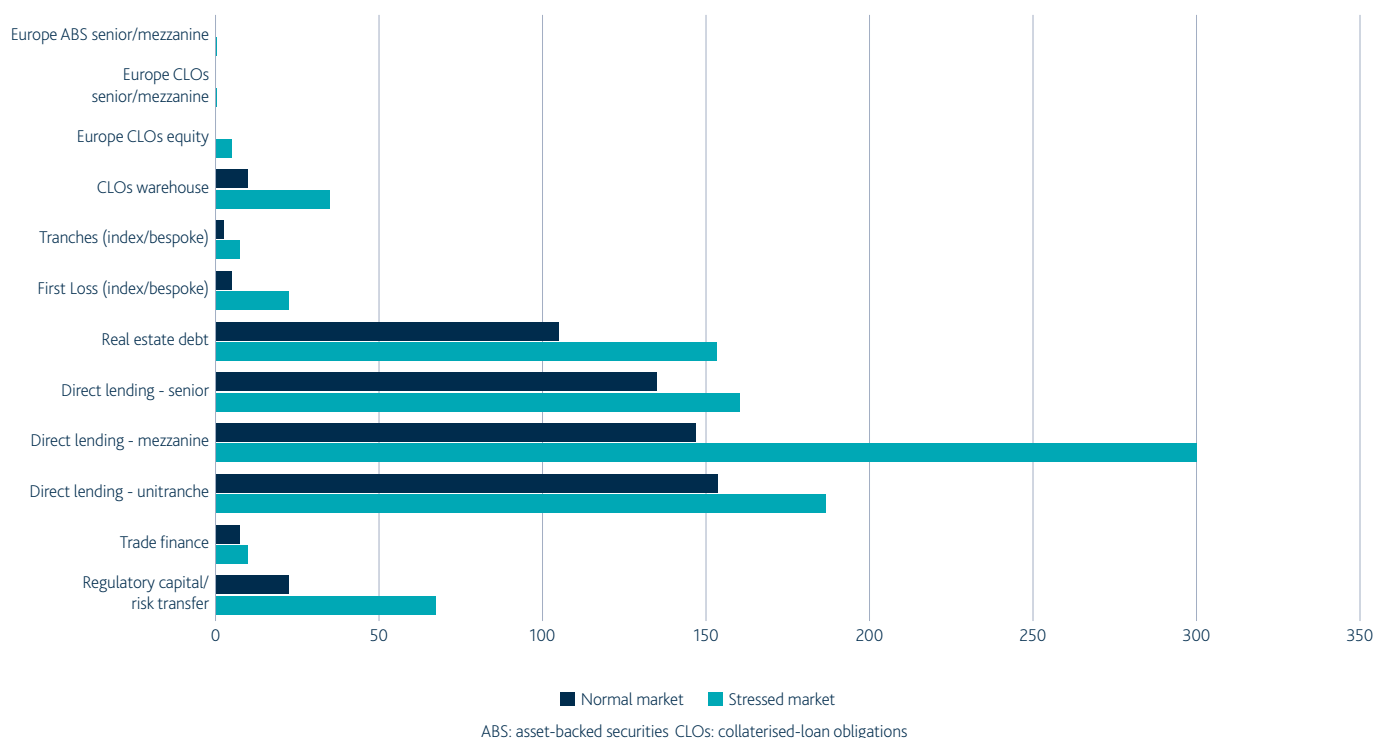
Source: Hermes, as at September 2019.

On weighted-average basis, we estimate the real-estate-debt portfolio to theoretically yield an illiquidity premium of 105bps. Using this approach, the illiquidity premium can be estimated for each asset class (see figure 5).

### Integrating the illiquidity premium into Hermes' multi-asset credit relative-value framework

At Hermes, we incorporate the illiquidity premium and complexity premia into our proprietary multi-asset credit relative-value framework<sup>6</sup> (see figure 6). This is done through appropriate weighting to gain a holistic understanding of both liquid and illiquid credits.

**Figure 5:** Theoretically expected illiquidity premium (in bps) across certain credit sectors



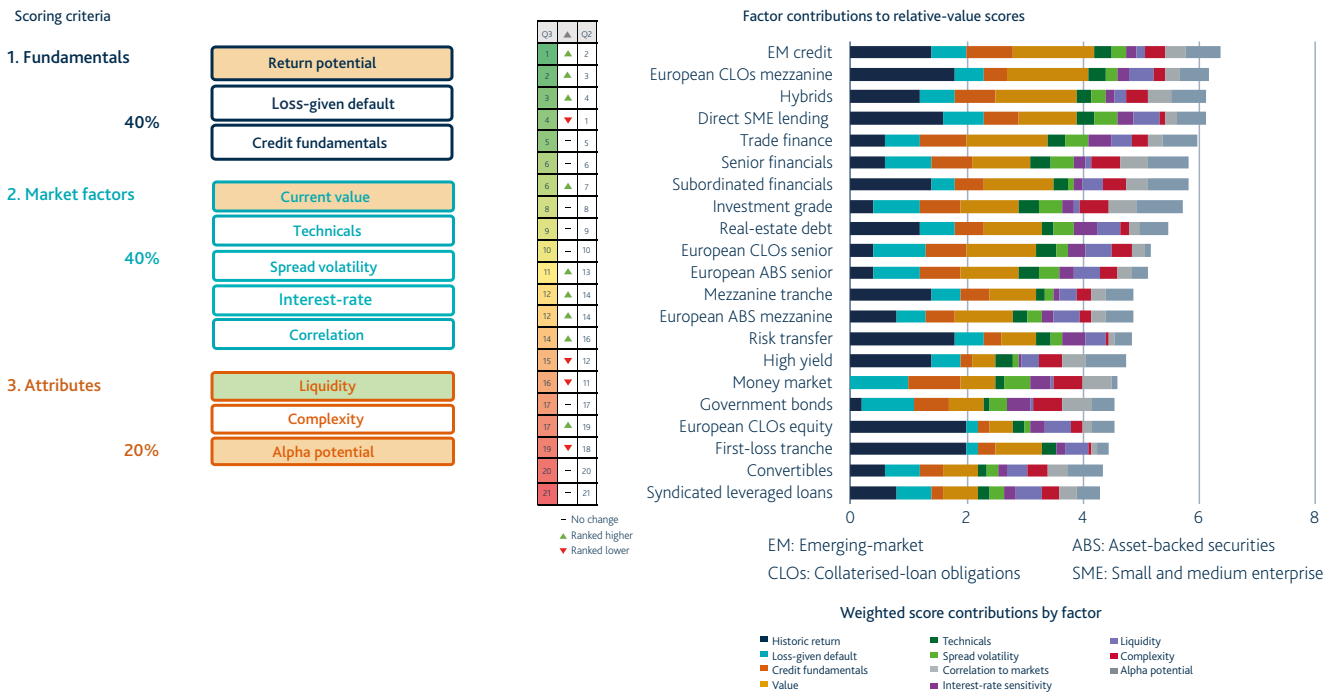
Source: Hermes, as at September 2019.

<sup>5</sup>'Asset Management: A Systematic Approach to Factor Investing', by Andrew Ang, published in 2014. Ang measures the illiquidity premium that is demanded by an investor for assets with liquidity varying from six months to 10 years, or the compensation for not being able to trade for an expected period of time. The premium required above an identical liquid asset ranges from 0.7% to 6%, depending on how illiquid the asset is. But in practice these levels of excess returns are not definitive and are rarely realised.

<sup>6</sup>Hermes' multi-asset credit relative-value framework uses 11 factors to score a broad range of credit assets. Each credit asset is scored on a scale of 1 to 10 (a very liquid one would be given a liquidity score of 10). Each factor score is then weighted to provide an overall number that is used to rank the assets.



Figure 6: Hermes' relative-value framework for multi-asset credit: scoring criteria and weighted scores

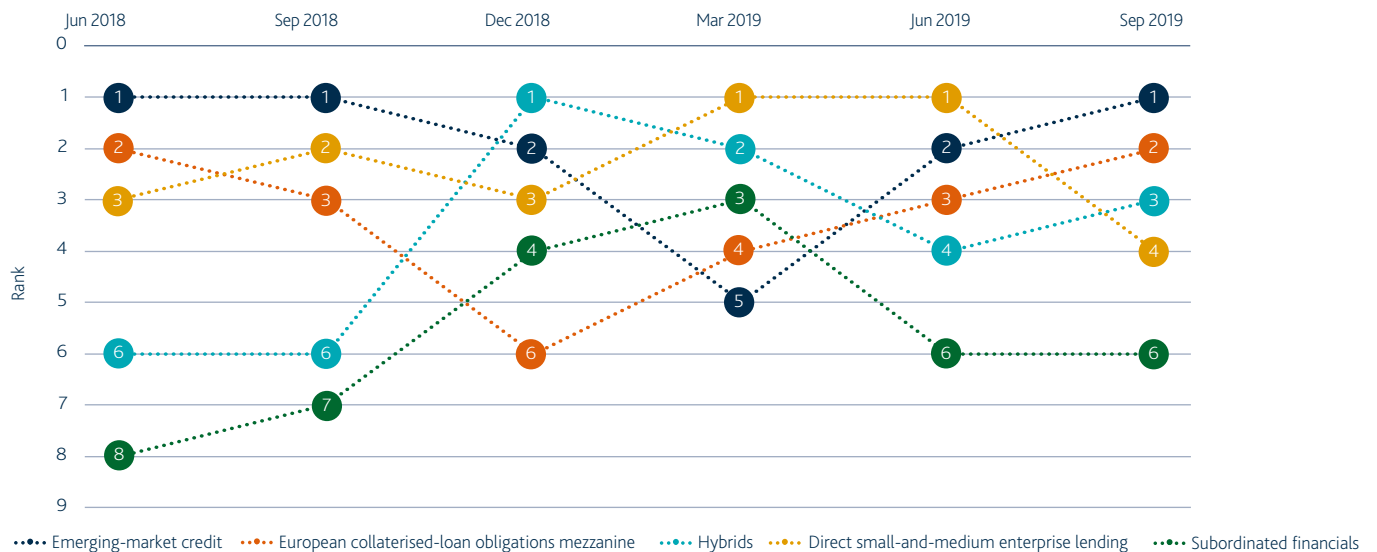


Source: Hermes, as at September 2019.

An asset's level of liquidity is directly accounted for in the liquidity factor, while its illiquidity premium is qualitatively captured in the return potential, current value and alpha potential factors. In most cases, we would expect that a lower liquidity score for illiquid credits is more than compensated by the higher illiquidity premium, which indirectly drives the score for the above three factors.

Relative-value scores and rankings tend to change from quarter to quarter, reflecting the varying fortunes of credit assets as market shifts (see figure 7). For instance, the illiquidity premium for direct lending to small-and-medium enterprises shrunk significantly in Q4 2019, which resulted in a downgraded relative-value score. The fact that illiquidity premia is not persistent and static highlights the need for a flexible approach to credit allocation.

Figure 7: Hermes' relative-value framework for multi-asset credit: changing ranks over time



Source: Hermes, as at September 2019

This evaluation under multiple lenses lets us compare disparate credit assets on a uniform, composite, factor-based scale and rank their attractiveness over time. Incorporating liquidity profiling and illiquidity premia in relative-value analysis can help manage liquidity expectations and provide a robust and transparent framework for deciding whether to invest in less liquid assets.

## ILLIQUID CREDIT IN A MULTI-ASSET CREDIT PORTFOLIO

Clients continue to regularly challenge us with the following questions:

- How illiquid are each credit assets?
- What are the return upsides of investing in illiquid credit?
- How much risk-diversification benefit does illiquid credit provide?
- What is an appropriate allocation to illiquid credit?

In turn, these questions have prompted us to further explain:

- The rationale for incorporating illiquid credit into a multi-asset credit portfolio;
- The pitfalls of naïve allocation and challenges of rebalancing a multi-asset credit portfolio;
- The limitations of traditional portfolio-modelling approaches;
- Prudent illiquid-credit allocation techniques; and
- Liquidity budgeting and management frameworks.

## THE RATIONALE FOR INVESTING IN ILLIQUID ASSETS

Institutional investors have increasingly embraced illiquid and private debt strategies to deliver a range of investment objectives, including:

- **Diverse opportunity set.** Alternative credit gives investors exposure to illiquid and private credit strategies, as well as themes not delivered by traditional liquid securities. An expansive opportunity set lends itself to higher absolute or relative-return objectives and creates more possibilities for investors to add incremental return.
- **Higher risk-adjusted returns.** Illiquid assets have historically generated higher risk-adjusted returns than traditional assets, in part due to the illiquidity premia ranging from 0.5% to 3% a year to compensate for long-term capital commitments.
- **Differentiated return drivers.** The expanded opportunity set and additional risk levers afforded by illiquid-credit strategies can potentially offer lower correlation with traditional assets.
- **Alpha generation and active management.** Skilled private debt managers are more likely to add value through active security selection, origination or sourcing capability, privately negotiated terms, greater control and better governance. Put simply, they can use strategic and operational levers to realise the intrinsic value of the underlying company or asset.
- **Benefit of information asymmetry and short-term uncertainty.** Private credit managers are uniquely placed to capitalise on short-term mispricing and information asymmetry to deliver outsized returns over longer time horizons.
- **Less sensitivity to short-term market gyrations and exogenous noise.** During periods of turbulence, asset prices become disconnected from fundamental values and bid/ask spreads

may gyrate violently. Investors in liquid assets sometimes react instinctively to market movements and make hasty decisions to sell at the wrong time. For illiquid credit funds with a longer redemption period, the ability to sell assets at the right price – as opposed to being forced to sell – can actually protect investors' interests. Indeed, being 'locked in' may be a blessing in disguise.

- **Suitability for liability focused portfolios.** Private debt instruments' lower volatility can create higher tracking error relative to liabilities that are marked-to-market more frequently, a challenge for liability aware investors.
- **Inflation sensitivity of real assets.** Given how real assets are structured, their cashflows are often linked directly or indirectly to inflation.

Private or illiquid credit generates returns from multiple sources: traditional beta from market exposure, an illiquidity premium to compensate for long-term capital commitment and alpha or excess returns from manager skill. Alternative credit can, therefore, provide diverse sources of returns for investors who can tolerate significant levels of illiquidity and complexity.

## THE BENEFITS OF ONE-PORTFOLIO MULTI-ASSET CREDIT SOLUTION

Liquid and illiquid credit solutions can be implemented through a variety of structures, including separate accounts or commingled funds. Some investors with sophisticated resources also prefer to partner with separate, specialist liquid and illiquid credit managers and internally manage their own asset-allocation process. But there is also a large group of investors that look for one-portfolio solutions. This is often in the form of a multi-asset credit mandate that provides the investment manager with greater flexibility to pursue higher return targets.

Compared to distinct liquid and illiquid portfolios, one-portfolio solutions offer investors:

- **A holistic approach** to assessing the type and level of risk premia that is available across fixed-income markets and to allocating capital in an opportunistic and appropriate manner. Liquid-illiquid mandates offer greater flexibility and can help achieve absolute-return objectives, particularly if interest rates rise and credit spreads widen.
- **Improved risk efficiency** as liquid and illiquid investments can be considered in aggregate when managing the portfolio's industry, sector and credit-quality characteristics.
- **Ability to capitalise on stressed financial conditions** as liquidity at the aggregate portfolio level can be deployed across both public and private markets to take advantage of market dislocations.
- **Access to broad range of assets that offer relative value** to take advantage of short-term dislocations in capital markets and their knock-on effect in illiquid or private markets.

One-portfolio solutions are also suitable for insurance companies and pension funds that operate in a liability-hedging framework. Illiquid credit can help generate additional returns and income and can complement the liquid, high-quality investments held to match liabilities. The mix of liquid and illiquid assets can be structured to drive plan-funding levels higher.

Private market assets also tend to perform better during the middle or end of the cycle. This helps boost overall performance statistics over the life of a fund, relative to strategies that hold only liquid assets. This is largely because liquid credit enjoys valuation recovery early in a cycle,<sup>7</sup> while illiquid credit delivers improvements later on. The illiquidity premium is also more valuable in a low-rate environment, as its contribution to overall total return increases as expected returns decline.

Investment managers are better able to deliver attractive liquidity characteristics and capture illiquidity premia in a combined portfolio than in separate liquid and illiquid mandates that are run in parallel. As the opportunity set evolves and expands – particularly in diverse private markets – combined portfolios may be better positioned to capitalise on innovative new structures.

But making the most of these opportunities demands sophisticated scenario analytics and a robust portfolio-construction process. Ensuring that liquidity needs are met is a basic but crucial requirement.

### Liquidity: the holy grail of multi-asset portfolios

Investors need liquidity for a number of reasons: to fund a private-debt commitment, to settle a public-market purchase, to meet distribution requirements or to finance margin, collateral or capital commitments. Kinlaw, Kritzman, and Turkington<sup>8</sup> argue that liquidity has some appealing features in the context of portfolio choice and allows investors to:

- Rebalance a portfolio;
- Meet capital calls;
- Reallocate part of the portfolio to newly discovered opportunities;
- Exit from unproductive investments; and
- Respond to shifts in risk tolerance.

## THE PITFALLS OF ILLIQUID-CREDIT ALLOCATION

No matter how alluring the returns of illiquid credit may appear, any naïve attempt at allocation can potentially result in unintended consequences. Many investors and managers simply segment their portfolios into liquid or illiquid components, setting aside an ‘illiquid bucket’ that is not needed for liquidity purposes and is left untended for years.

The history of asset management is strewn with cases of funds with insufficient liquidity that suffered dramatic losses and were eventually closed. The recent high-profile failures of H2O Asset Management, GAM Holding and the Woodford Investment Fund<sup>9</sup> are pertinent reminders of the risks of liquidity mismatch.

In the following sub-sections, we emphasise the key risks inherent in any allocation to illiquid assets: (i) the non-diversifiable nature of illiquidity risk; and (ii) the risk of creating an unbalanced portfolio.

## ILLIQUIDITY IS A NON-DIVERSIFIABLE RISK

Spreading allocation across a variety of managers and liquid and illiquid strategies gives investors a false illusion of diversification and a belief that this will provide immunity from liquidity crunches. Moreover, investors who rely on diversification alone unwittingly take a bet that the correlation between different asset classes will remain fairly static and benign even under stress.

Illiquidity cuts across almost all credit assets and, unlike other risk factors, liquidity risk is largely systemic and cannot be diversified. It is not possible to offset a liquidity exposure by going short an illiquid security, and there are no liquidity-based derivatives<sup>10</sup> to hedge this risk.

Even though liquidity risk cannot be diversified or wished away, it can be managed. Portfolio managers can choose a liquidation policy appropriate to the liquidity profile of the underlying assets, keeping illiquid assets for longer and trading liquid securities more frequently.

## THE RISK OF AN UNBALANCED PORTFOLIO

In practice, illiquidity is rightly viewed as an implicit transaction cost which investors pay when they rebalance. The rebalancing restriction, besides the inherent complexity of alternative-credit products, is the *raison d’être* for the existence of the illiquidity premium. But the varying degree of tradability means that rebalancing a portfolio with illiquid assets is not, as it is assumed in standard asset-allocation models, an option that can be continuously exercised. Given transaction-cost friction, investors are generally unwilling to rebalance continuously.

### The perils of an unbalanced portfolio in the event of a liquidity shock

In certain market conditions, Siegel<sup>11</sup> shows that the share of illiquid assets in institutional portfolios can become undesirably high, resulting in a very unbalanced portfolio. Funds with asset mixes that are less liquid than the requirements of their investors, and those that have insufficient liquidity protection mechanisms, will likely underperform in mild liquidity squeezes. Such funds also face the risk of being frozen and even closed during episodes of liquidity stress.

**In practice, illiquidity is rightly viewed as an implicit transaction cost which investors pay when they rebalance.**

<sup>7</sup> Liquid credit may also be susceptible to a gradual loosening of underwriting standards later in the cycle.

<sup>8</sup> Liquidity and portfolio choice: a unified approach’, by Kinlaw, Kritzman and Turkington, published in the Journal of Portfolio Management in 2013.

<sup>9</sup> While the Woodford Equity Income Fund did not invest in fixed income, it is relevant because of its significant allocation to small-cap, unlisted or illiquid companies.

<sup>10</sup> In ‘Liquidity options’, published by the Journal of Derivatives in 2010, Golts and Kritzman propose the creation of liquidity options that could be structured with payoffs, resembling those of a cliquet option that is tied to some broad market index. These liquidity options could provide an attractive alternative to cash reserves in mitigating a liquidity event and the impending market shift. In ‘Hedging liquidity risk - potential liquidity risk hedging solutions in hedge funds’, published in the Journal of Alternative Investments in January 2007, Bhaduri, Meissner and Youn also moot the creation of liquidity derivatives (withdrawal option, Bermuda-style put option, swap/swaptions etc.) to protect against liquidity, return risk, or both. However, to-date we do not know of any liquidity derivatives that have been developed.

<sup>11</sup> Alternatives and liquidity: will spending and capital calls eat your modern portfolio?, by Siegel, published by the Journal of Portfolio Management in 2008.



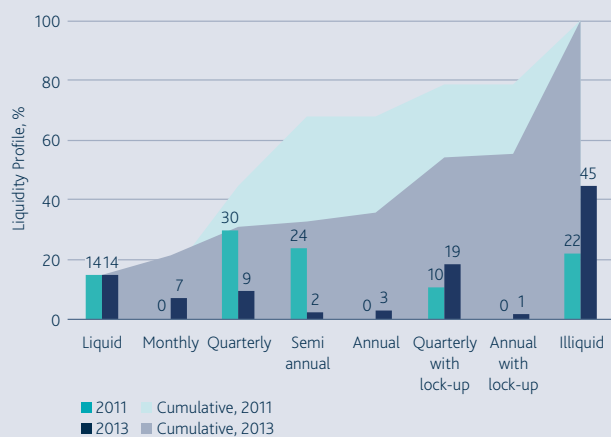
## Gradual drift in allocation

Since illiquid assets cannot easily be rebalanced, it is difficult to maintain a target risk-return profile which can drift for extended periods of time. If illiquid assets outperform liquid ones, they become a greater proportion of the portfolio which might increase overall risk beyond its target level. While remedial action may be taken in the liquid portion of the portfolio to reduce overall risk, that may also have undesirable consequences such as reduced diversification.

### Case study: liquidity-profile drift

The creep in portfolio liquidity risk is well illustrated in the case of a university endowment which invested in a wide range of assets.<sup>12</sup> An initial successful run was followed by period of disappointing returns, which resulted in investor redemptions. These were conveniently funded through the dilution of liquid holdings, which perversely increased the fund's share of illiquid holdings. The problem was further exacerbated as redemptions accelerated and new subscriptions slowed.

Figure 8: The liquidity profile of an illustrative endowment fund



Source: Lazard Asset Management, as at 2013.

## Limitations of one-sided rebalancing

Investors in illiquid and private debt are more restrictively tied up and have fewer opportunities to trade out. Illiquid credit offers a one-sided way to execute portfolio rebalancing, permitting it only when the illiquid allocation is below target. Furthermore, illiquid credit restricts the ability of managers to respond quickly to transient investment opportunities and unforeseen cash-flow requirements. Illiquid credit products also have higher search costs and take longer than others to liquidate. Due to the delay in liquidation, overall portfolio volatility may appear higher than the target level in the interim.

## Liquidity risk is underestimated in benign conditions

Due to the aforementioned liquidity skew, the mismatch between a fund's perceived and actual liquidity only becomes apparent in times of stress. Most of the time, the cost of liquidity is lower than the long-term average. As a result, mismatched funds often outperform in benign conditions. This naturally biases investors to underestimate liquidity costs, because they mostly experience periods with below-average costs.

This bias can be minimised by constantly assessing liquidity in a systematic way, reinforcing the importance of liquidity and factoring it into investment processes. Since the liquidity cost is highly variable over time, it is worth analysing a fund's liquidity as well as performance. A prudent rebalancing strategy involves adopting broader and more flexible capacity – particularly for illiquid assets – and periodically assessing target weights during strategic asset allocation.

## THE LIMITATIONS OF TRADITIONAL PORTFOLIO MODELLING

As we pointed out in the first instalment of this paper, the behaviour of illiquid credit is not fully captured by the traditional definitions of return and risk. A key assumption that underpins a traditional portfolio-allocation technique is invalidated by the difficulty and expense involved in continuously rebalancing to the target level, particularly during large market drawdowns.

Any multi-asset credit portfolio needs to account for effects like capital calls and capital/income distributions, the interaction of the size of the fund and undrawn commitments, and limitations on rebalancing. Failure to incorporate these characteristics into portfolio modelling means investors can be overexposed to illiquid asset in times of distress.

If investors ignore liquidity risk, they risk underestimating the overall risk of a position. Financial crises have shown that otherwise low correlations can abruptly spike. Therefore, mean-variance optimisation based on smoothed return indices often suggests extremely high optimal allocations to illiquid credits, due to their low realised volatility and correlation vis-à-vis publicly traded investments in liquid markets.

Discomfort with the limitations in traditional portfolio modelling often leads investors to impose artificial or *ad hoc* constraints on the maximum allocation to alternative credit investments. In most cases, these constraints simply predetermine policy allocation to alternatives. This type of analysis does not answer the question of what is an appropriate allocation to alternative investments.

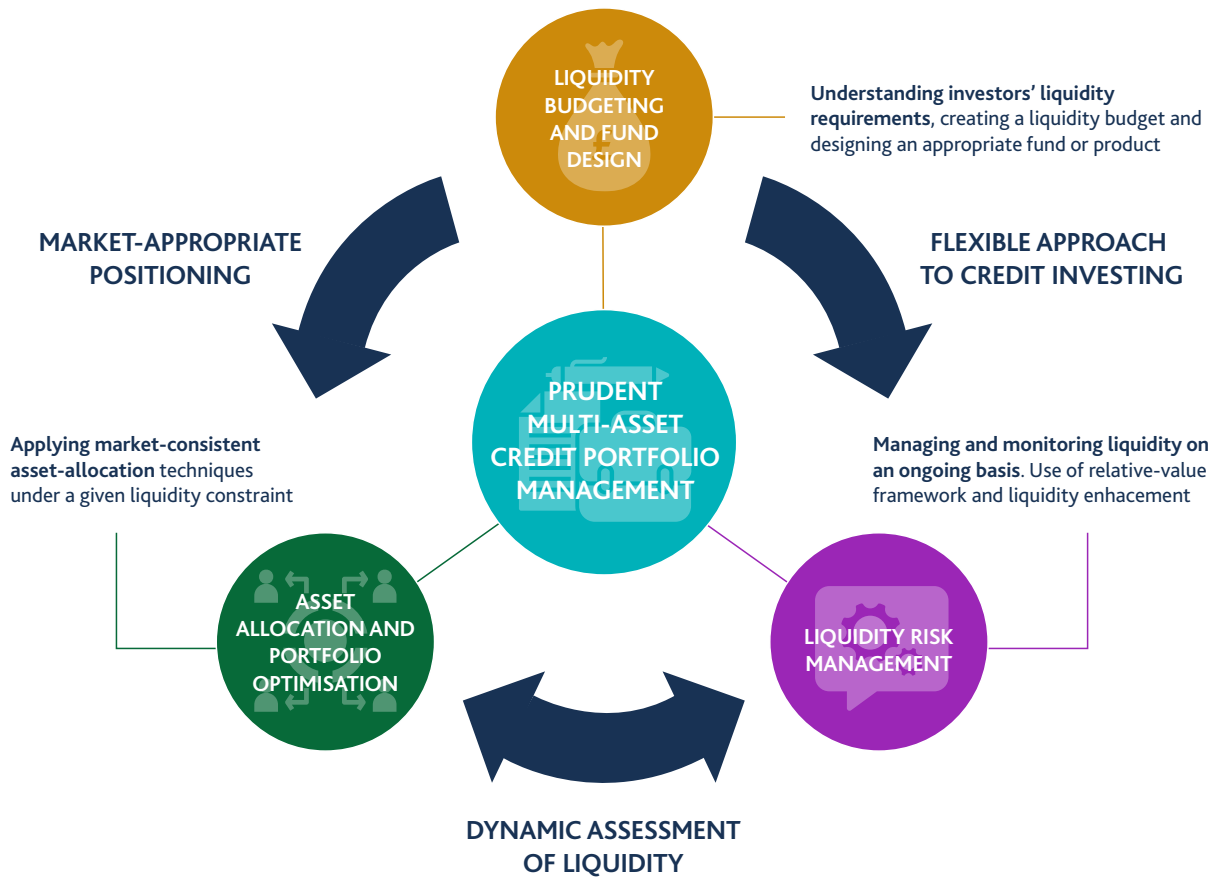
## PRUDENT APPROACH TO ILLIQUID-CREDIT ALLOCATION

An investor's risk-return objectives, investment horizon, preference for active-risk exposure and capacity to hold illiquid assets are key considerations when determining portfolio allocations. From an investment perspective, it is important to assess liquidity risk at all steps of portfolio construction and product design, and throughout the investment process.

We now set out the framework for optimal illiquid-liquid portfolio construction. This framework is built on three key pillars (see figure 9).

<sup>12</sup>'The Liquidity Dynamics of Global Capital Markets and Alternative Investments', by Heasman and Boyatt, published by Lazard Asset Management in 2013.

Figure 9: A framework for multi-asset credit portfolio management



## LIQUIDITY BUDGETING AND FUND DESIGN

It is important to understand the relationship between an investor's liquidity requirements and investment objective of maximising portfolio returns. Hence the investment product needs to be designed appropriately for the given liquidity profile.

Mercer<sup>13</sup> outlines a three-step process for reviewing and setting a liquidity budget:

- **Assessing the overall liquidity requirement:** investors need to determine their illiquidity capacity, which helps identify their true liquidity profile.
- **Quantifying the illiquidity tolerance:** this is gauged for both normal and stressed market conditions. Since illiquid credit potentially has high levels of risk and returns, the policy-allocation swings can be pronounced. Investor tolerance must be high enough to withstand periodically elevated risk levels, while the investment horizon must also be long enough such that the benefits can offset the costs.
- **Defining the liquidity budget:** allocating the appropriate share to each liquidity category. The liquidity budget needs to remain suitable and realistic through both normal and stressed market conditions.

The importance of designing a fund structure that is appropriate for an investor's objectives and preferences cannot be over-emphasised. Typical long-horizon multi-asset credit funds are structured with the following liquidity features and redemption provisions to efficiently manage the liquidity requirements:

- (i) Lock-up period;
- (ii) Anti-dilution measures like swing pricing;
- (iii) Redemption frequency restrictions;
- (iv) Redemption notice policies;
- (v) Redemption credit facility<sup>14</sup>; and
- (vi) Gate provisions<sup>15</sup>.

<sup>13</sup> 'Setting an appropriate liquidity budget: making the most of a long investment horizon', published by Mercer in 2015.

<sup>14</sup> A redemption credit facility is a credit-line arrangement between a fund and a bank to manage the cashflow mismatch arising from redemption demands, settlement delays, etc.

<sup>15</sup> Gating temporarily limits the amount of withdrawals to prevent a run on the fund.

## ASSET ALLOCATION TECHNIQUES

Managers and investors typically used to rely on rules of thumb and artificial constraints when they set policy weights for illiquid credit investments. Historical data on return, risk and correlation cannot be relied on to create sensible policy mixes, as they tend to be 'sticky' due to cost-based valuation methodologies.

Moreover, a traditional mean-variance approach excludes path-dependent events like the timing of cash flow and capital calls and does not effectively model the dynamics associated with investing in illiquid assets. Consequently, unconstrained optimised portfolios have unreasonably large allocations to 'low-risk, high-return' illiquid investments.

### Forward-looking return and risk assumptions

Return and risk assumptions used for policy allocations across liquid and illiquid investments must be estimated properly. Indeed, they should be forward-looking, consistently reflect the assets' true underlying economic exposures and eliminate the biases embedded in historical return data. In the absence of forward-looking estimates, we can use long-term return and risk characteristics which are not conditional on current or near-term market and business cycles.

### Incorporating liquidity constraints in optimisation modelling

Correcting for the illiquidity risk factor is the key underlying premise in new-generation asset allocation techniques. This has several implications, such as shift in the efficient frontier and lower allocation to illiquid assets in favour of more liquid credit. We briefly survey a few alternative approaches to standard portfolio optimisation in appendix (see p. 15).

Ma and Pirone<sup>16</sup> demonstrate that stochastic, cash-flow sensitive modelling which incorporates projected liabilities and liquidity constraints is better placed to capture the potential impact of liquidity risk than a traditional mean-variance optimisation. Their approach shows that the optimal allocation to illiquid assets varies with the expected illiquidity premium, potential liquidation discount and timing of distribution from illiquid investments. The framework highlights that allocation can be quite sensitive to changes in the investor's liquidity requirements, and the allocation may move in unanticipated directions when liquidity requirements are high.

**Correcting for the illiquidity risk factor is the key underlying premise in new-generation asset allocation techniques.**

## LIQUIDITY RISK MANAGEMENT AND MONITORING

As we move towards an environment that is potentially more vulnerable to liquidity shocks, we need to assess the measures that managers should implement to deal with liquidity risks. This could help avoid a liquidity trap, when changes in market sentiment lead to redemptions and the subsequent impact on liquidity further exacerbates losses. Liquidity management considerations should, therefore, form the keystone of any investment decision.

### Continuous monitoring

Liquidity risk management should be enhanced by constantly monitoring portfolio's liquidity using scores based on a complete set of factors at both issue and asset level. It is also necessary to look at the liquidity profile and the cost of liquidity. Detecting deterioration in markets using both quantitative and qualitative assessments can help identify possible areas of risk and any adjustment needed, which would make the portfolio more resilient during a liquidity shock.

### Stress testing

The overall portfolio liquidity profile during stress events should be tested, taking into consideration the asset-specific liquidity profile, liquidity cost and portfolio distortion effects. Liquidity monitoring should focus on regular stress testing based on past performance data, and hypothetical scenario analysis to simulate for massive distortions and fund-redemption events. Appropriate liquidity crisis management mechanisms with a specified operating protocol is essential to ensure an optimal response to extreme liquidity events.

### Periodic or tolerance-band rebalancing

While strategic allocations explicitly incorporate and provide liquidity considerations over time through various exposures, tactical increases in liquidity can be useful depending on opportunity in the market. Adopting broader rebalancing bandwidths, particularly for illiquid assets, can result in more efficient outcomes.

<sup>16</sup> 'Alternatives and liquidity: incorporating liquidity constraints into portfolio construction', by Ma and Pirone, published by BlackRock in 2014.

Constant target weights are often determined at the level of strategic asset allocation. On a tactical level, using moderately liquid assets can create wiggle room to dynamically deviate from target weights and profit from near-term opportunities. The use of options can further counteract declines in market value that can otherwise lead to above-target allocation to illiquid assets.

### Use of liquidity buffers

From a tactical perspective, increasing liquidity buffers<sup>17</sup> is essential way to avoid having to sell parts of the portfolio in a challenging market environment. Measures like liquidity facilities at the fund level should not be considered as adequate solutions and can only address very localised and transitional issues.

### Liquidity enhancements

Enhancing liquidity is a way to mitigate rebalancing and opportunity risks in a one-portfolio solution. Ways to achieve this include:

- Diversifying the scheduled maturities of illiquid investments;
- Using short duration and amortising features typical of loans and residential-mortgage portfolios. Private-debt issues may also generate pre-maturity redemptions, should the interest-rate and spread environment incentivise borrowers to prepay their loans; and
- Selecting fixed-income assets which typically pay timely coupons to enable the fund to efficiently meet regular spending requirements.

### Exploiting liquidity enhancement in the portfolio ramp-up phase

Full allocation to liquid credit at the outset ensures that the portfolio is invested immediately and negative drag is minimised. Liquidity enhancement can also be exploited during the portfolio ramp-up phase. For example, higher initial liquid credit allocation and the addition of short-duration public investments like asset-backed securities or investment-grade floating-rate instruments can maximise a portfolio's income and also provide funding over time for private investments.

Identifying the size of the illiquidity premium at any point in time is difficult, and commitments to illiquid credit often take 6-18 months to deploy. As a result, we believe that most investors should aim to build an allocation over time, rather than attempt to achieve a full allocation quickly or wait for the perfect entry point.

### Appropriate use of leverage and derivatives

In the discussions so far, allocations represent an unlevered opportunity set. Asset classes like global investment-grade credit may be incorporated into strategic allocations for investors that wish to pursue leveraged solutions. Similarly, derivatives can be used to tactically adjust the interest rate and credit exposures of these liquid-illiquid portfolios.

**Identifying the size of the illiquidity premium at any point in time is difficult, and commitments to illiquid credit often take 6-18 months to deploy.**

## THE VALUE OF ACTIVE MANAGEMENT IN A MULTI-ASSET CREDIT PORTFOLIO

Since information on illiquid markets is harder to gather and analyse, illiquid investments can offer greater alpha opportunities. This implies that skilled managers in illiquid markets can use the information to distinguish between good and bad investments and are more likely to add value in less efficient markets. Swensen<sup>18</sup> argues that reasons for investing in illiquid assets should therefore go beyond simply achieving higher risk-adjusted returns.

### Superior skills deliver higher alpha

Illiquidity shifts the primary source of return from the beta, or market movements, to how skilled the manager is at delivering a more successful outcome. Experienced managers should be able to adjust the pace of investment to scale exposure to illiquid assets – and different segments of the opportunity set – up and down as market conditions evolve.

### Crossover expertise in both liquid and illiquid credit classes

Public-private fixed-income portfolios require investment managers with hybrid skillsets and expertise in both asset classes. A manager not only needs deep experience of the nuances of large, fragmented public-bond markets, but must also be proficient at sourcing and structuring private credit.

Multi-asset credit portfolio managers should ideally deploy derivative hedges to manage portfolio risk, and also have the processes in place to understand how capital deployment in private markets can be exploited to enhance portfolio liquidity. Investment managers whose processes, platforms and experience are equally robust in public and private markets are best placed to deliver outperformance.

### Choosing best-in-class managers

Alternative credit is a relatively new asset class. Across the full economic cycle, only a few managers have a demonstrated track record, with pronounced dispersion in performance amongst the managers. Investor concern can be mitigated by selecting best-in-class asset managers with an established track record, committing to them for the long term. It is worth pointing out that manager performance tends to be more persistent in illiquid assets than in more liquid credit and traditional long-only portfolios.

<sup>17</sup>Cash allocations used to fund illiquid commitments or to act as an investment reserve.

<sup>18</sup>'Pioneering portfolio management: an unconventional approach to institutional investment', by Swensen, published in 2009.

## HERMES' LIQUIDITY RISK MANAGEMENT FRAMEWORK

At Hermes, we are proud of the fact that we live and breathe liquidity. Our flexible approach to credit investing and embrace of the illiquidity premium are fundamental to the way we work.

In keeping with Hermes' overarching focus on sustainable investment, we prioritise investments with positive environmental, social and governance (ESG) characteristics where available, across both liquid and illiquid credit. Mixing all of these inputs into a single framework is the key to generating robust and repeatable alpha, while addressing the liquidity costs incurred by active trading.

We are fully cognisant of – and prepared for – new market dynamics which strongly suggest a trend towards more liquidity bifurcation, or the phenomenon where liquidity concentrates in more liquid securities at the expense of less liquid ones.

Our flexible approach that is focused on finding relative value is key to avoiding common liquidity traps and constructing a resilient portfolio mix that is appropriate across all market conditions. Our robust liquidity risk management framework is supported by a strong governance structure, comprehensive monitoring processes and tools, and stringent product suitability reviews.

### Liquidity budgeting and product suitability

At Hermes, as part of our due-diligence process, we go to great lengths to understand clients' liquidity needs and preferences. The liquidity budget is not considered on a set-and-forget basis but is consistently monitored and integrated within the strategic asset-allocation process.

We vigorously challenge investors' illiquidity tolerance limits and incorporate these inputs into our proprietary liquidity matrix. We then identify assets best suited to deliver investment objectives, quantify their sensitivity to liquidity crash events and accordingly construct the appropriate mix. The fund structure is carefully designed with adequate liquidity features to enable it to perform resiliently even in stressed market conditions.

### Asset allocation and rebalancing

When building the model portfolio, liquidity risk is one prominent factor we consider. In the previous section, we have already covered how we incorporate an illiquidity premium assessment into our relative value framework. Our asset allocation methodology uses a probabilistic, simulation-based approach to account for the path dependency of cashflow requirements and capital calls. The portfolio construction is conducted with an eye to minimising liquidity costs – and therefore turnover – on an issue-by-issue level.

Portfolio managers express their views on future relative spread movements for both top-down and bottom-up security selection strategies. The expected excess returns that stem from portfolio managers' views are put in balance with the costs and constraints of implementing them. Breakeven relative spreads are then derived for each aggregate bucket. If the expected gain of implementing a view is offset by the potential liquidity cost generated by turnover, the strategy is challenged.

**It is important that the policy portfolio should be understood as an appropriate rather than optimal mix, since mathematical optimisation cannot be the sole determinant of allocation.**

When we rebalance, we keep in view the investment objective, the investor's liquidity profile, tolerance for risk, investment time horizon and fund liquidity features. Our rebalancing policy is driven by a forward-looking view of liquidity, potential declines in market value and expected cash outflows, rather than just current market conditions. This helps obviate unnecessary activity and costs associated with rebalancing.

We should caveat that the exact timing of liquidity events is difficult to predict, and it is therefore hard to reap illiquidity premia using dynamic strategies. But if a counter-cyclical strategy is pursued, rebalancing – which supplies liquidity – can be more efficiently executed.

### Liquidity risk management

Liquidity risk is closely monitored by Hermes' Multi-Asset Credit Investment Committee (MACIC). The salient features of our liquidity-risk management framework and processes are:

- Using several complementary metrics like time, cost and volume dimensions<sup>19</sup> for market liquidity and carrying out a forward-looking assessment of fund liquidity;
- Regularly assessing, monitoring, reviewing and challenging the liquidity profile and liquidity risk management process in normal and stressed liquidity conditions;
- Instituting a 'bear council' to flag conditions that might lead to extreme scenarios;
- Liquidity stress testing and scenario analysis, using historical and hypothetical scenarios, for both asset and funding liquidity risk; and
- Contingency planning to address tail events and implement orderly management during liquidity crashes.

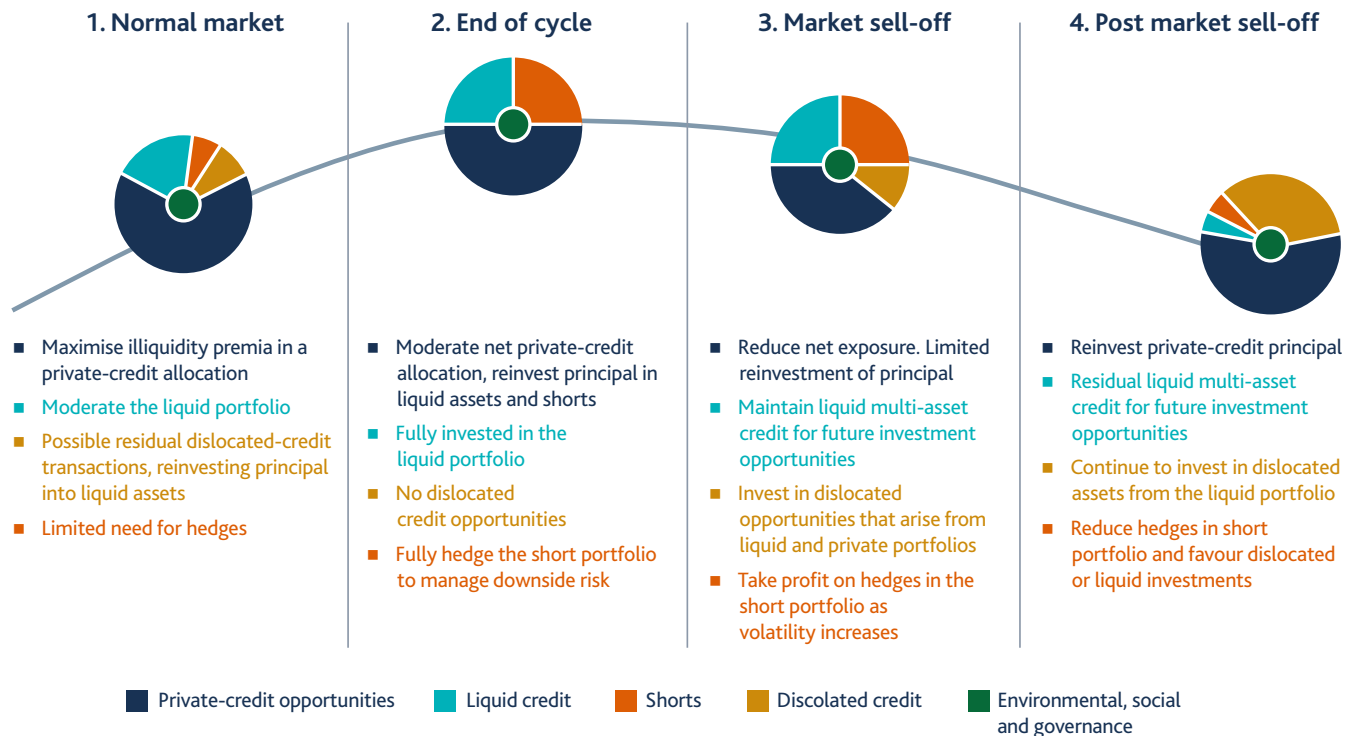
### Using defensive strategies and dynamic options

We cannot overstate the importance of using properly calibrated defensive and flexible strategies in a multi-asset credit portfolio. In one of our credit strategies we successfully employ a dynamic-options overlay as a defensive hedge to fulfil rebalancing and risk-management functions. We also consciously tilt our allocation to defensive fixed-income instruments with a regular coupon and defined maturity schedule, in order to maintain enhanced liquidity.

<sup>19</sup>Time taken to liquidate assets, cost/discount for liquidation and volume that can realistically be liquidated.



Figure 10: Credit allocation through the cycle as risk appetite and relative value change



For illustrative purposes only. To be measured over the market cycle  
Source: Hermes.

## Through-the-cycle outlook

Figure 10 illustrates our approach to creating a multi-asset credit opportunity strategy.<sup>20</sup> We aim to flexibly allocate throughout the cycle and reflect the investment committee's changing assessment of risk appetite and relative value over time.

## Strong expertise and independent governance structure

Our multi-asset credit team is comprised of experienced portfolio managers, structurers and credit analysts who can allocate capital across the full credit spectrum. We have a track record of delivering high alpha through credit selection, assessing relative value across credit exposures, exploiting the illiquidity premium and seeking dislocated opportunities. Hermes' portfolio managers also have significant prior experience in managing subscription and redemption requests.

MACIC governs asset allocation across liquid and illiquid fixed-income markets. It has cross-functional representation from the investment management, trading, risk and compliance teams. Independent compliance and risk oversight and controls are keystones of our liquidity risk management governance structure.

## CONCLUSION

There is a broad consensus that the illiquidity premium exists and the rationale for investing in illiquid credit is well understood. Yet illiquidity constraints impose opportunity costs, increase risk and limit flexibility. In the years running up to the financial crisis, the collective unwillingness of investors to challenge growing liquidity risks was perhaps the biggest oversight. Structural changes in the market since the crisis has resulted in greater liquidity bifurcation and market fragility, meaning that liquidity squeezes and stress events – including those without a clear driver – are likely to be regular occurrences.

We make a strong case for including illiquid credit in a multi-asset credit portfolio but assert that traditional constructs and tools like the Sharpe ratio, mean-variance optimisation, historical data and static allocation – or 'fill it and forget it' – are woefully inadequate for the purpose.

Instead, liquidity risk needs to be assessed through multiple lenses and managed flexibly. New multi-credit allocation strategies demand the use of path-dependent, scenario-driven optimisation techniques and a prudent rebalancing policy to successfully navigate market cycles.

In this paper we have attempted to show how manifest liquidity risk can be judiciously managed through a robust liquidity management process. We believe that it is possible to factor liquidity risk into the portfolio-construction process, and thereby exploit the illiquidity premium and deliver optimal outcomes for investors.

<sup>20</sup>Our proposed multi-asset credit (MAC) opportunity strategy, MAC Opportunity, seeks to develop a dynamic growth solution by allocating across liquid and illiquid credit markets. The aim is to capture superior relative value across the full credit spectrum, outperform high-yield corporate credit and provide higher risk-adjusted returns than equities.

## APPENDIX: ASSET ALLOCATION AND PORTFOLIO-OPTIMISATION TECHNIQUES

### (i) Adjusting the illiquid credit return:

Illiquid credit can be analysed within the Markowitzian risk-return construct. This involves adjusting the expected return of an illiquid asset by its illiquidity premium in order to create risk parity with the liquid assets in the portfolio. Although it is tricky to implement, offsetting for liquidity can resolve asset allocation problems related to alternative credit.

### (ii) Adjusting illiquid risk (volatility) measures:

Pedersen et al<sup>21</sup> propose adjustments to key risk measures using a unified risk-factor framework. Using public proxies for private assets, statistical models and parsimonious econometric regression, they adjust correlation and volatilities to reflect the reporting biases in illiquid-return series. By unsmoothing the return, they show that for example the volatility of real-estate assets increases from 5% to 13%.

### (iii) Mean-variance optimisation under illiquidity constraints:

Shen and Phelps<sup>22</sup> develop a stylistic asset-allocation framework by explicitly treating illiquid assets as not saleable until maturity, incorporating the cost of liquidity constraints and assessing liquidity adequacy over the investment horizon.

Lo, Petrov, and Wierzbicki<sup>23</sup> suggest three different settings to adjust the mean-variance optimisation:

- (a) Filtering out illiquid assets before optimisation, only including assets with an illiquidity level that is lower than a given threshold in the portfolio, and treating them equally;
  - (b) Enforcing illiquidity constraints after the portfolio has been constructed, then choosing assets on the frontier that satisfy the illiquidity requirements; and
  - (c) Adding illiquidity constraints to the mean-variance optimisation by adjusting the utility function and risk preferences to account for the weight placed on illiquidity constraints. In a similar vein, Hayes, Primbs & Chiquoine<sup>24</sup> introduce a portfolio marginal illiquidity penalty function to incorporate illiquidity constraints.
- (iv) **Mean-variance optimisation using robust algorithm and stochastic programming:**  
Other frameworks that integrate illiquidity into asset allocation:
- (a) Kinlaw, Kritzman and Turkington<sup>25</sup> use shadow assets or liabilities as embedded illiquidity constraints in order to derive the optimal portfolio;
  - (b) Takahashi and Alexander<sup>26</sup> tackle the problem using multiperiod stochastic programming;
  - (c) Asl and Etula<sup>27</sup> use the robust optimisation algorithm for its rigorous theoretical foundation and ability to handle different investment objectives. They map asset-risk factors to macroeconomic indicators to determine risk premiums, then solve for the corresponding mean-variance optimisation on factors.

<sup>21</sup>'Asset allocation: risk models for alternative investments' by Pedersen, Page and He, published in 2013.

<sup>22</sup>'Illiquid private assets: interaction of illiquid and liquid assets in investor portfolios', by Shen and Phelps, published by PGIM in 2018.

<sup>23</sup>'It's 11pm - do you know where your liquidity is? The mean-variance-liquidity frontier', by Lo, Petrov and Wierzbicki, published by the journal of Investment Management in 2003.

<sup>24</sup>'A penalty cost approach to strategic asset allocation with illiquid asset classes', by Hayes, Primbs and Chiquoine, published in the Journal of Portfolio Management in 2015.

<sup>25</sup>'Liquidity and portfolio choice: a unified approach', by Kinlaw, Kritzman and Turkington, published in the Journal of Portfolio Management in 2013.

<sup>26</sup>'Illiquid alternative asset fund modelling', by Takahashi and Alexander, published in the Journal of Portfolio Management in 2002.

<sup>27</sup>'Advancing strategic asset allocation in a multi-factor world', by Asl and Etula, published in the Journal of Portfolio Management in 2012.

## HERMES INVESTMENT MANAGEMENT

We are an asset manager with a difference. We believe that, while our primary purpose is to help savers and beneficiaries by providing world class active investment management and stewardship services, our role goes further. We believe we have a duty to deliver holistic returns – outcomes for our clients that go far beyond the financial – and consider the impact our decisions have on society, the environment and the wider world.

Our goal is to help people invest better, retire better and create a better society for all.

### Our investment solutions include:

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#### Credit

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#### Stewardship

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