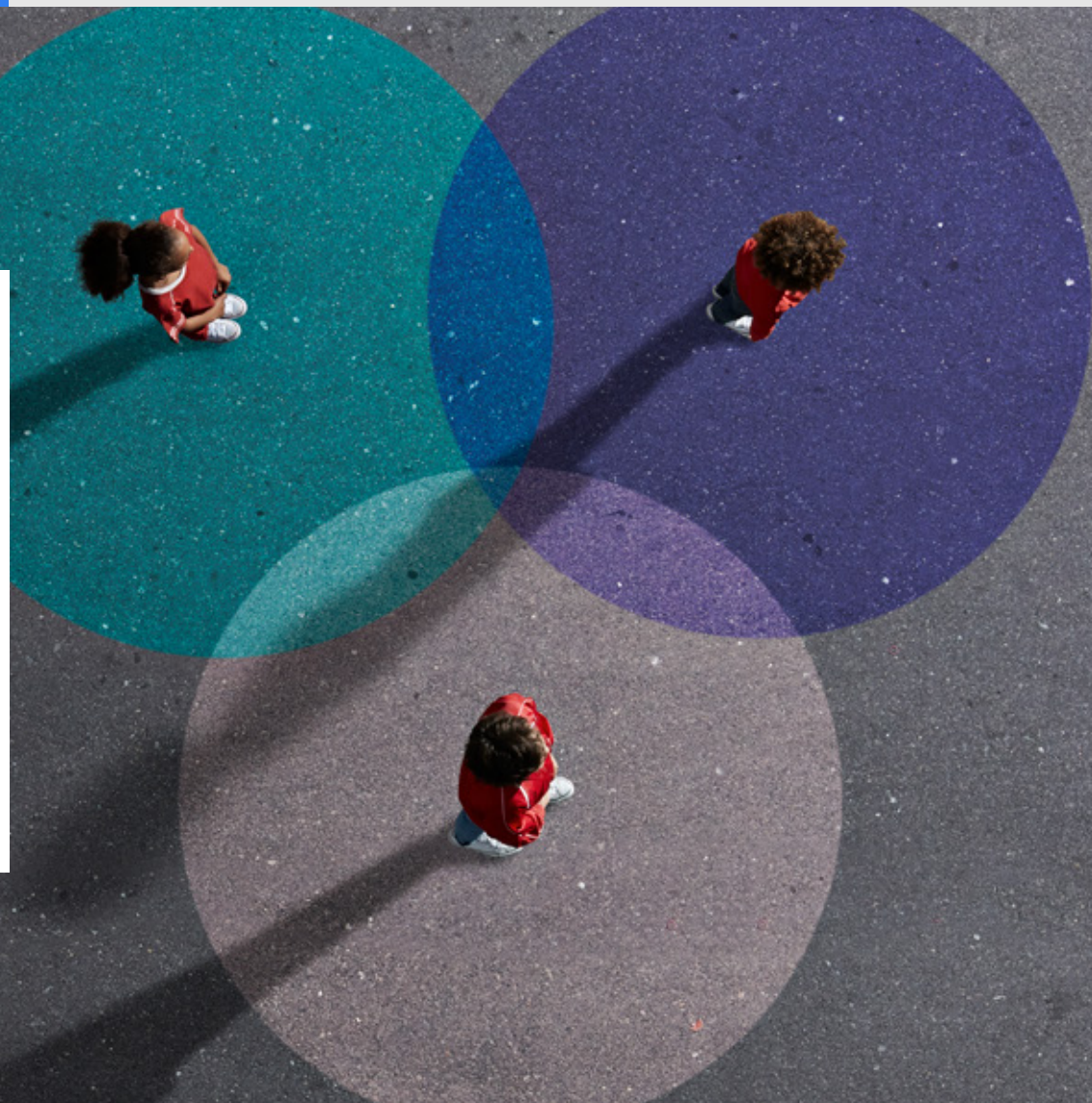


**Liquidity  
management and  
spending frameworks  
for endowments in  
times of stress**

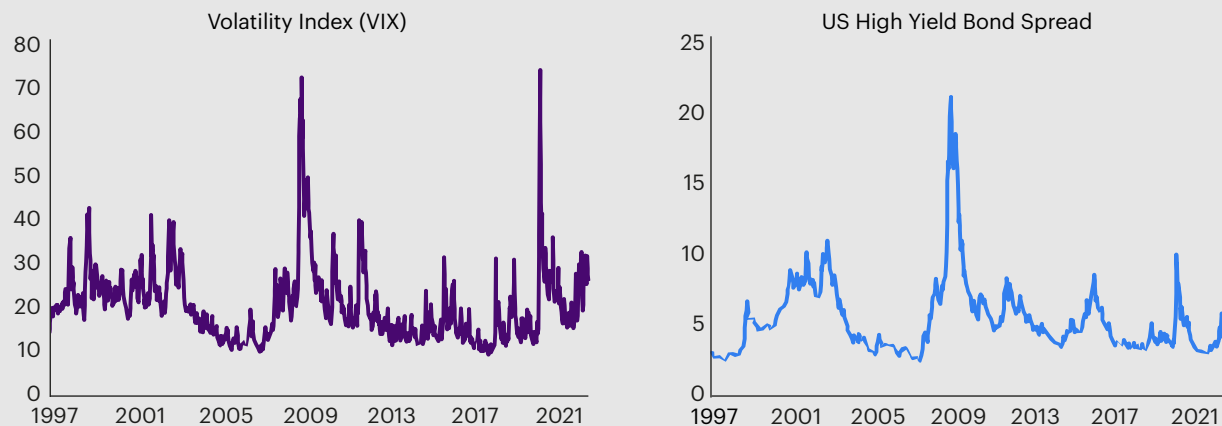


# Lessons from the pandemic – useful today

Endowments and foundations often feel challenged in their ability to generate sufficient returns to satisfy their cashflow needs. Indeed, over the past two decades, such investors have faced a series of market stress events, including the bursting of the tech bubble, the global financial crisis (GFC), the COVID-19 pandemic and most recently the geopolitical conflict in Eastern Europe. Liquidity events often occur during times of increased market volatility (see *Figure 1*). It can be difficult to trade certain asset classes, access funds, rebalance portfolios and meet cash flow requirements. Each event provides a reminder about the importance of liquidity management.

This paper aims to explore the common cashflow challenges encountered by endowments and foundations, and the key factors considered when planning their investment strategy. Further, we discuss

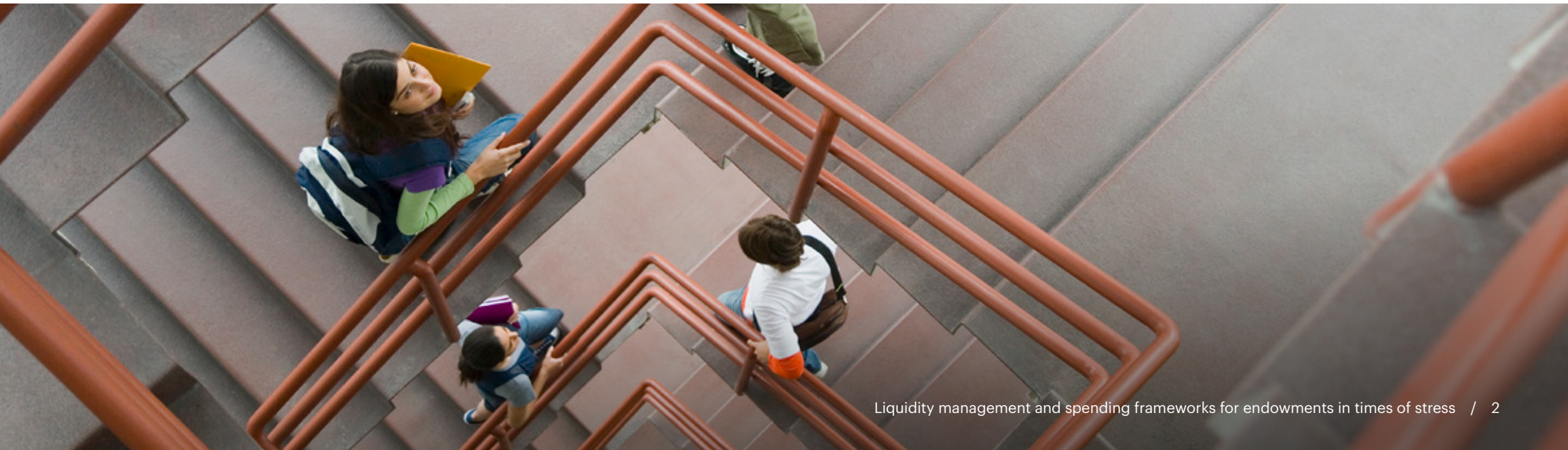
Figure 1: Equity market volatility and US high yield bond spreads since 1997



Source: St. Louis Fed (FRED database). Volatility index as per CBOE volatility index, weekly, not seasonally adjusted. US high yield bond spread as per ICE BofA US high yield index option-adjusted spread, percent, weekly, not seasonally adjusted. Data as of 8 July 2022.

how endowments can proactively prepare to address liquidity issues despite the uncertainty as to when and how they might actually occur.

At a minimum, we believe that it is essential for endowments to perform regular “health checks” on their portfolio’s liquidity and spending frameworks.



# Liquidity matters, especially in times of market volatility

It is challenging for investors to accurately capture their liquidity needs without first having a clear understanding of the mission (or purpose) for why they are investing to begin with. Clarity of mission refers to the principle that an organisation has well-understood and well-articulated goals, expressed through an investment mission statement. A well-defined and clear mission should include explicit goals that specify 'success' over defined time periods and the components of the investment purpose should be prioritised. In our view, it is important to have a clear investment mission and create a shared framework that all stakeholders can align to and buy into. Some of the key benefits to having a clear investment mission include:

- Improving transparency in purpose and decision making for the benefit of beneficiaries and stakeholders
- Helping ensure stakeholders are clear on what can be expected
- Helping decision makers deal with complex issues and focus on/prioritise the right issues
- Saving time by having prior consensus on core issues; this in turn speeds up decision making
- Surfacing sensitive issues via the process of creating an integrated framework, which encourages constructive thinking and conversation, leading to a better shared understanding

For most Endowments, the broader organisational purpose is targeted at giving money to specific causes (ie. scholarships, grants, social causes and research). Therefore, in the simplest form the Endowments' investment mission is to generate a return to support the organisations spending. It is this direct link between the organisation mission and investment mission that can create the potential for liquidity to be a key consideration when determining the investment strategy and constructing the portfolio.

For many endowments and foundations, major income sources are derived from (1) grants and gifts, and (2) investment returns. The first of these two sources, grants and gifts, are sometimes difficult to predict and in fact, might not be available for certain funds. Times of market stress can have outsized impacts on the reliability of cash inflows from grants and gifts. Because of the unreliability of grants and gifts, such institutions must place more importance on the reliability of the second source, investment returns.

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**In an ideal situation, a portfolio would be able to deliver stable investment returns over different market environments to cover the regular cash outflows.**

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However, financial markets are always full of surprises. The COVID-19 pandemic and the subsequent market shock in Q1 2020 undoubtedly had detrimental effects on endowment portfolios. This was especially true for those endowments without excess cash reserves which faced an urgent need to liquidate part of the investment portfolio to fund spending needs. This meant liquidating assets at depressed values, and a need to adjust portfolio positioning to maintain strategic balance.



In a downside scenario, if there is no adjustment made to spending, which can be difficult to adjust, the capital base could be eroded. A reduced asset base might in turn make it difficult for the endowment to support future spending needs.

**By definition, liquidity events occur unexpectedly and often during time of increased market volatility. By having a clear investment mission, endowments and foundations can better understand the factors and circumstances which may cause them to withdraw funds from their investment portfolio at short notice.**

# What happens to endowment portfolios during crises?

To demonstrate the challenges posed by the recent COVID-19 crisis, let's revisit the Global Financial Crisis. Although the nature and causes of these crises are different, endowments and foundations' investment portfolios both suffered during these events.

Figure 2 below summarises the average annual investment returns and spending rates of US university endowments for the years ending 30 June from 2007 to 2012, based on survey data from NACUBO. Similar data is not readily available for other regions.

Following the Global Financial Crisis, most of the US university endowment funds took a big hit in year 2009 and lost nearly one-fifth of their asset size.

Interestingly, we observe that endowment funds of different sizes exhibited different trends for their spending rates. Funds of smaller scale tended to suffer more from the crisis and were forced to cut down their spending over the subsequent years. In contrast, the larger counterparts tended to at least maintain their spending amount and ended up with a higher spending rate given a smaller balance. This could imply that the larger funds were less flexible to adjust their spending or they had more access to alternative income sources apart

from investment returns to support their spending needs. Alternatively, one might argue these funds were comfortable with a temporarily high spending rate and had confidence in their portfolios ability to recover from the losses experienced in the crisis.

Figure 2: Average annual investment returns and spending rates of US university endowments

	2012 %	2011 %	2010 %	2009 %	2008 %	2007 %
<b>Annual net investment returns**</b>						
Average	-0.3	19.2	11.9	-18.7	-3.0	17.2
Median	-0.5	19.8	12.1	-19.1	-3.3	17.5
<b>Larger funds – spending rates*</b>						
Over \$1 Billion	4.7	5.2	5.6	4.6	4.2	4.4
Over \$500 Million to \$1 Billion	4.7	5.2	5.7	4.9	4.5	4.4
<b>Smaller funds – spending rates*</b>						
Over \$25 Million to \$50 Million	3.8	4.0	4.1	4.3	4.3	4.8
\$25 Million and Under	3.7	3.7	3.5	3.9	4.1	4.6

Source: NACUBO, all data are for years ending June 30.

\*The effective spending rate is the percentage of the beginning market value of the endowment pool that is made available annually for spending on student financial aid, faculty research, maintenance of facilities, and other campus operations, as determined and defined by each institution. The rate is calculated net of any fees or expenses for managing and administering the endowment.

\*\*Net of external management fees and expenses.



# The impact of COVID-19 on US endowments

Looking at 2019 and 2020 figures in *Figure 3*, we observe relatively consistent spending rates across funds. However, depressed investment returns in 2020 were not sufficient to cover spending rates across larger and smaller funds in that year.

Linked to the data in *Figure 3*, one survey found that a sizeable portion (20%) of US endowment funds were underwater during the first quarter of 2020, at the height of the economic impact of COVID-19<sup>1</sup>. Furthermore, a subsequent survey found that the effects of COVID-19 on endowment portfolios' cash flows were long-lasting; more than 40% of survey respondents reported a decline in cash flows, partially driven by a decline in new gifting which was 16% lower than fiscal year 2019 amounts<sup>2</sup>. As a result, more than 80% of US university endowments reported that their institution sought economic relief from the CARES Act, a US\$2.2 trillion economic stimulus bill passed in the US in March 2020.

Notwithstanding the above, the very strong returns experienced in the market recovery during the 2021 financial year, helped to strengthen the overall financial position. As a result, as seen in *Figure 3*, larger endowments were able to maintain spending rates, but some smaller endowments still experienced a drop in 2021. In part this can be explained by performance differences and adoption of different spending rules.

Figure 3: Average annual investment returns and spending rates of US university endowments

	2021 %	2020 %	2019 %
<b>Annual net investment returns**</b>			
Average	30.6	1.8	5.3
Median	30.1	1.8	5.1
<b>Larger funds – spending rates*</b>			
Over \$1 Billion	4.7	4.5	4.6
Over \$500 Million to \$1 Billion	4.5	4.4	4.4
<b>Smaller funds – spending rates*</b>			
Over \$25 Million to \$50 Million	3.9	4.6	4.5
\$25 Million and Under	4.1	4.1	4.1

Source: NACUBO, all data are for years ending June 30.

\*The effective spending rate is the percentage of the beginning market value of the endowment pool that is made available annually for spending on student financial aid, faculty research, maintenance of facilities, and other campus operations, as determined and defined by each institution. The rate is calculated net of any fees or expenses for managing and administering the endowment.

\*\*Net of external management fees and expenses.

## The CARES Act

About 1.4 trillion in stimulus funding was allocated to colleges, universities, and other institutions of higher education on the basis of total enrolment figures as well as the number of Pell Grant recipients. A Pell Grant is a US federally funded grant awarded to undergraduate students who display exceptional financial need and have not earned any form of higher education degree. There was some public controversy when universities – the likes of Harvard, Princeton, Yale, Stanford, who represent the richest universities in the US (ranking 1st, 5th, 3rd, and 4th respectively) – were set to receive funds from the CARES Act due to their Pell Grant recipients, who represent around 17-19% of their total enrolled student base. Because of the public criticism, these universities first pledged to use 100% of the funds towards student financial assistance, but eventually decided not to accept the aid altogether.



<sup>1</sup>NACUBO-TIAA, "COVID-19 Endowment Impacts and Stewardship Strategies"; [www.nacubo.org/Research/2020/COVID-19-Research/Q1-2020-Endowment-Survey](http://www.nacubo.org/Research/2020/COVID-19-Research/Q1-2020-Endowment-Survey)

<sup>2</sup>2020 NACUBO-TIAA Study of Endowments; [www.nacubo.org/Research/2020/NACUBO-TIAA-Study-of-Endowments](http://www.nacubo.org/Research/2020/NACUBO-TIAA-Study-of-Endowments)



## The challenges of setting a proper spending budget as an endowment

A university's spending budget decision is multi-faceted in nature, with different considerations along the way. Generally speaking, a portion of spending for endowments is considered to be critical and thus, difficult to adjust. Examples of such critical spending include regular operating costs of the fund, as well as ongoing financial support to the end beneficiaries, which may actually increase during times of stress.

Asian endowments tend to have separate pools of capital set aside for different purposes on the balance sheet – a general fund, a long-term development fund, a special purposes fund (for example, for student housing). These funds do not have a separate legal entity or Trust structure. In some cases, such funds

are considered to be more akin to buffer or surplus funds, rather than US-style endowment funds. In any case, it is important to separate out long-term endowment like funds from the balance sheet for long-term strategic planning purposes. This helps to safeguard against external shocks, liquidity mismanagement, and governance risk. Allowing an endowment to maintain a long-term investment horizon separate from balance sheet requirements is an important facet of maintaining the institution's independence in times of stress and uncertainty – this is especially true where the endowment has sizeable exposure to risky assets, invests in private markets and hedge funds, as many seek to do.

Simultaneously, it is important to consider intergenerational equity by not overspending the endowment in the present day at the expense of the next generation's beneficiaries. In fact, governmental regulation may make this consideration necessary. For example, most US endowments are governed by The Uniform Prudent Management of Institutional Funds Act, which requires investing and spending to be set at a rate to preserve purchasing power over the long term.

Finally, university endowment funds, especially public universities, often receive regular funding, e.g., research grants, from the government. The size of the government funding or support to the educational sector can have an outsized effect on how “wealthy” and “resilient” to crises public university endowment funds can be. For example, nearly all of the Australian universities are public and very much rely on government funding, such as commonwealth grants. In Asia, where formal legally distinct endowment structures are less common, it is often the case that universities receive regular funding support from their Government sponsors and have not had to draw much on their accumulated “endowment reserves” in the past crisis. However, we observe that in many cases such funding programs are expected to mature, and this may require Asian universities to revisit their liquidity and spending frameworks.

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**All the above factors are important for a university to consider when setting a proper spending budget.**

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# Liquidity management

## Another factor to add into the equation

After setting a budget for the year, endowments and foundations need to manage their portfolio liquidity. The following ten questions often come up during discussions with clients regarding liquidity management:

1. When should an endowment redeem assets from the investment portfolio?
2. Which asset class(es) should be redeemed from?
3. Is there a rebalancing mechanism that should come into play after redemptions occur?
4. At which points during the year should planned withdrawals occur, and hence when should cash be raised?
5. What are the sources of income in the portfolio and how much do they contribute to regular spending requirements?
6. Is there a buffer for unplanned spending? How are such buffers formulated?
7. What are the expected capital calls for private market investments? How are they funded?
8. What is the capacity or budget to exploit the illiquidity premium?
9. What is the impact on liquidity and asset values from stressed market events?
10. Are there other sources of capital available which can be called on if needed during a crisis?

Typically, endowment management teams need to work closely with their beneficiaries/university stakeholders to map out future spending needs and develop related policies. Many would have legacy procedures in place, while others may rely on prior experience to tackle cash flow or liquidity issues. However, we would recommend that the fund management team review and enhance existing procedures and policies to ensure their suitability and relevancy – drawing on best practice governance and liquidity management. It is critical that the procedures should be robust to cater for extreme market conditions, e.g., the market drawdown in 2020 due to the COVID-19 pandemic, and more recently due to the geopolitical events in the Ukraine.

The answer to the last four questions, which discuss illiquid investments, may not always be obvious. Typically, illiquid investments have some of the following key features:

1. There is a lack of flexibility in assets once acquired i.e. the investor cannot easily replace the asset with a better one if more attractive opportunities come along;
2. Should sales prior to maturity be necessary, then the investor is confronted with uncertainty about the volume, timing and price achieved by any sales;
3. There is a reasonably long notice period for redemptions (in the case of a fund allocation) and a long time period before cash is settled;
4. In times of stress the redemption terms associated with fund investments can vary significantly to match the liquidity of the underlying investments and can limit the ability to redeem assets.



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**For private market investments, capital deployment often takes years to complete, while the timing of capital calls can be uncertain.**

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In fact, during a crisis, private equity managers could potentially look to take advantage of depressed pricing and opportunities, and call capital accordingly. This can prove to be challenging for endowments where spending (i.e. budget funding) needs are high but liquidity is tight. If an endowment is heavily allocated to alternatives/private markets, and has a minimal allocation to treasuries and cash, and limited ongoing income from investments, this can quickly result in a liquidity drain. Investors are additionally faced with a tough decision of where to redeem from should cash not be readily available. Selling the most liquid assets, like equities or corporate bonds, could be a viable choice, but likely will result in selling at a loss. Simultaneously, if an investor is hedging FX risk, there may also be additional cash calls needed to service the hedge.

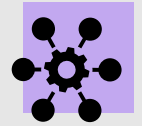
During the GFC, some large endowments struggled with liquidity despite taking a long-term perspective. Possible reasons include:

- **Liquidity trap** – long term investors were trapped in certain positions that either did not have short-term liquidity or had redemption gates (sometimes unexpectedly). Further, some funds introduced significant redemption costs to reflect the drying up of underlying liquidity and extremely wide bid-ask spreads, thus making it more difficult for investors to redeem. This emphasizes the importance of proper, balanced liquidity management.
- **Hedge funds did not provide adequate downside protection** – many look to hedge funds to perform well in crisis times. To do so, it is important for investors to allocate to low beta, low stress correlation strategies, which can add sufficient returns across various market environments and regimes. Unfortunately, poorly constructed hedge fund portfolios that had too much equity and credit market beta often failed to add value at the times when needed most.
- **Lack of available buckets of liquidity** – US endowments profess to have very long time horizons, often considered perpetual. Because of this, they are attracted to private market investments to gain access to the illiquidity premium, which can enhance returns. Private markets can provide good access to long-term themes which can be harder to achieve with listed markets, and the associated alpha streams can be a good diversifier to the more traditional return drivers, e.g., equity and credit risk premia. However, a large private markets program, combined with a sizeable allocation to hedge fund strategies and various forms of alternative credit strategies, can mean there are fewer sources of liquidity available to raise funds if needed during a crisis. As a consequence, there may be a need to sell assets on the secondary market or accept and realise losses in the public market portfolio.

Both liquidity and spending management need to operate under a well thought out framework, supported by robust analysis. Modelling liquidity risk can be tricky; and we have observed that asset owners often take a siloed approach. We suggest evaluating liquidity holistically, with an understanding of how liquidity is an interconnected management concern. Some suggestions for consideration include:

- Review overall portfolio liquidity ladders in normal, and in stressful times, under an informed set of assumptions;
- Evaluate the market pricing impact in the event of needing to “force” sell assets, and factor this potential impact into investment decision making;
- Assess the liquidity terms of each investment, and how they may shift during a crisis. Further, consider the potential shift in redemption costs and their potential application.
- Model scenarios where the ability to trade certain asset classes can be limited during a crisis (e.g. high yield credit) and the possible impact on portfolio income levels (e.g. from dividend cuts);
- Assume a big increase in capital calls for a period of time as compared to a normal run rate e.g. 3-4x run rate – with the multiple depending on the underlying strategies;
- At the same time assume increased requirements for budget financing from the entity receiving support from the endowment or foundation;
- Consider any other potential liquidity drains, such as those required to service hedging programs, and the potential implications on overall liquidity management;
- Evaluate alternative sources of cash flows and access to emergency liquidity in times of crisis, and if needed establish sources of bank credit.

## Crisis planning/ roadmap in the event of emergency situations



It is crucial for investors to come up with a crisis plan/roadmap pre-emptively. Having a plan in place saves time in avoiding last minute discussions and decisions, and also allows for better portfolio/cash management.

Specifically, a robust crisis plan should include a mechanism that is triggered in stress events to draw on capital needed for deployment. Investors should not rely solely on fixed income assets to liquidate for short-term cash needs; rather, it could be useful to also have for example, a credit facility with a bank to assist with short-term cashflow needs, or simply a store of dry powder and a target list of assets ready to deploy as cash.

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**Such crisis planning is core to how WTW manages liquidity for fiduciary client accounts, as well as pooled fund solutions.**

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## The importance of conducting operational due diligence



Another key aspect to consider before making any investment is conducting detailed risk assessment/operational due diligence – which should consider business, people, and process issues. One high level goal of conducting such diligence is to ensure that there is no mismatch between the liquidity terms of the fund vs the liquidity of the underlying assets. Any potential liquidity restrictions should be well known and understood.

Assessing the liquidity of a pooled fund is fairly straight forward in terms of collecting the relevant data on the portfolio (current and historic), the relevant data on the opportunity set (current and historic) and knowledge of how the manager manages liquidity/integrates it into its decision making. We are of the belief that this should be considered part of a due diligence process before making any investment into a fund.

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### It is not sufficient to trust regulations as a safety net, such as UCITS fund or similar type of vehicles.

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For example, there were UCITS feeder funds to Madoff. In the 2019 Woodford case, the fund owned listed companies and its private exposure was below the regulatory limits. However, upon closer examination of Woodford's true liquidity, some of the exposure to "listed companies" was through Woodford listing stakes in some private companies on the Guernsey stock exchange.

In addition, a detailed operational due diligence would have revealed high risks in the following areas:

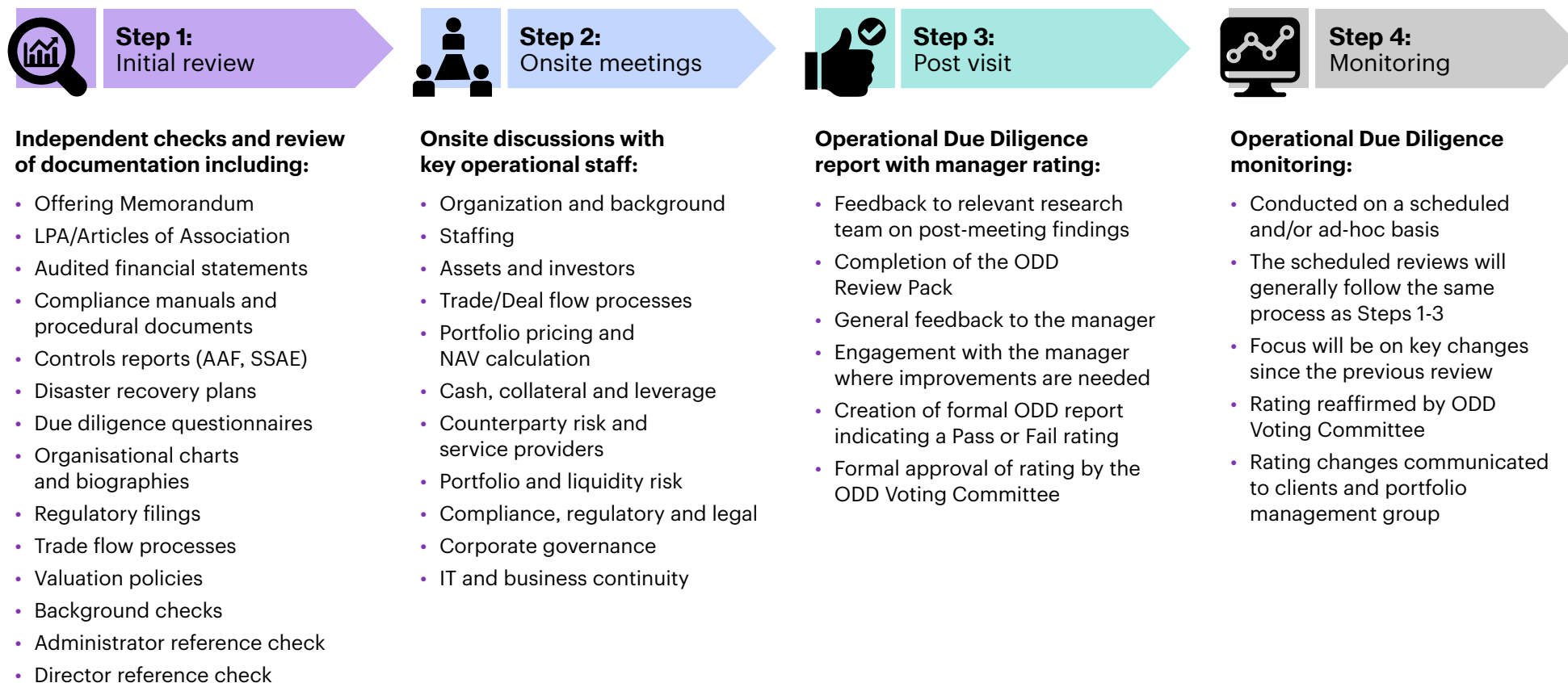
- **Compliance and risk management** – a lack of clear checks and balances provided by a risk or compliance function – which would typically include adequate policies and procedures such as compliance oversight of investment risk monitoring, pre-trade controls, and monitoring of investment staff behaviour.
- **Corporate governance** – independent board members had material conflicts of interest, whereby several board members, including the Chairman, were affiliated with or the CEO of Woodford's portfolio companies. A detailed operational due diligence would examine the independence of the corporate governance structure.
- **Valuation policy and procedures** – valuations of small private companies in Woodford's funds were not completed by a third-party agent or the fund administrator but done internally by the investment team with no checks or balances. Operational due diligence would conduct an exhaustive review of valuation policies and procedures, and also conduct reference calls with fund administrators to determine the extent of their involvement in the valuation process.
- **Financial statement review** – examining the annual report of Woodford Patient Capital Trust plc as at 31 December 2018 revealed that nearly 70% of the portfolio was classified as Level 3 under ASC820. While not an exact proxy for underlying liquidity, such a figure does suggest an extremely illiquid portfolio. Exposure to Level 1 assets would have also been questioned with respect to trading volumes and liquidity assumptions – which would have flushed out some of the Guernsey listed positions.

*Continued overleaf...*

**At WTW, the goal of the operational due diligence (“ODD”) process is to assess the presence of material unmitigated operational risk.**

In order to make this assessment, the ODD team seeks to identify sources of non-investment related risk including operational, business and fraud risk – of which liquidity analysis is a key factor. *Figure 4* outlines the key areas covered in WTW’s operational due diligence process as a four-step process.

Figure 4: Key areas covered in WTW’s four-step operational due diligence process



# How can WTW help?

In developing an appropriate investment and liquidity management strategy it is important to consider the interaction of spending rules (i.e., the expected rate of withdrawals), the asset allocation and how it can impact on the overall liquidity profile of the investment portfolio.

WTW works with university endowments, charities, and foundations to establish an appropriate asset allocation to achieve a certain level of return or income over a specified time horizon.

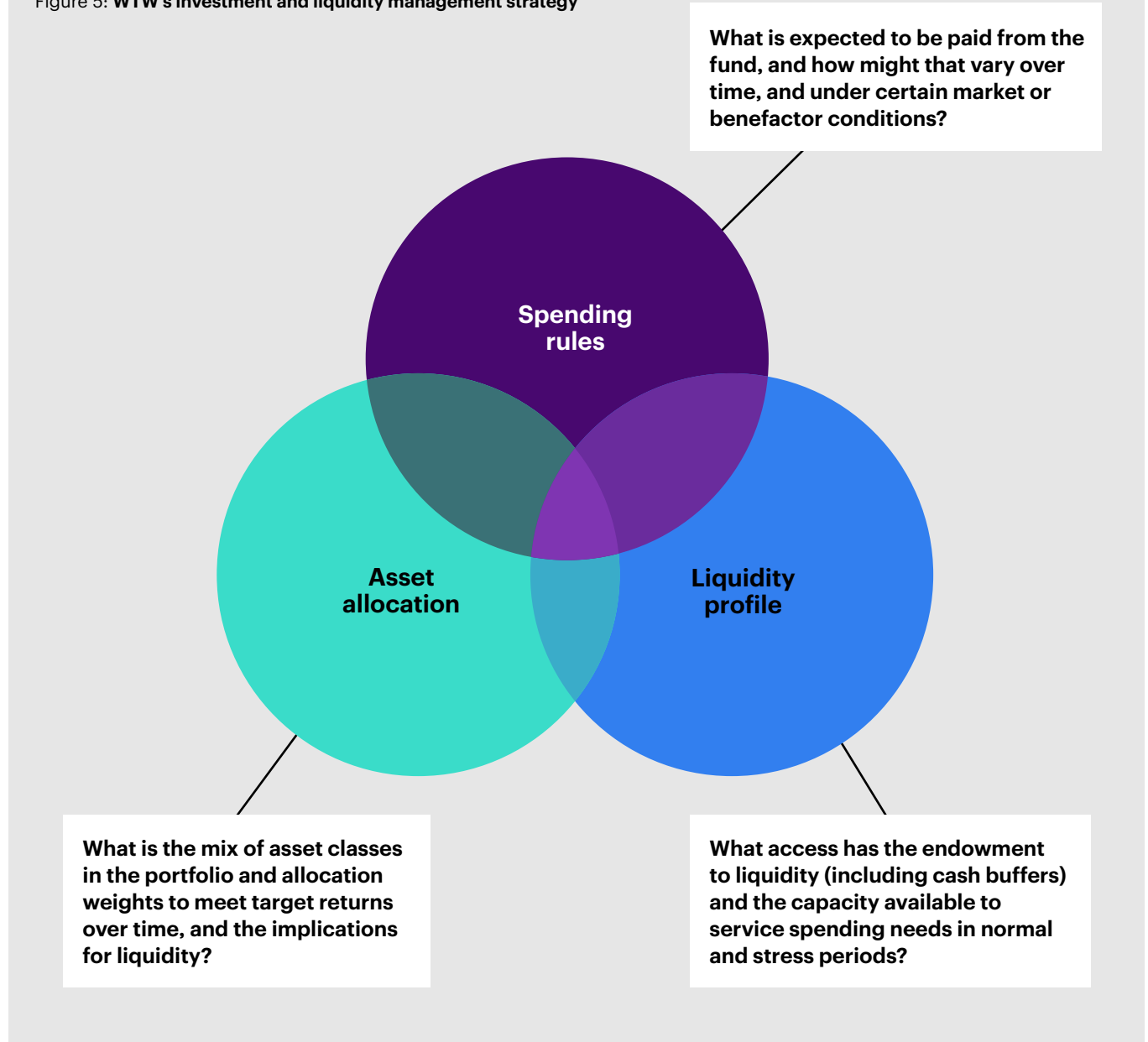
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**The main goal being how best they can structure the investment portfolio to meet a target spending rate sustainably over time, and to the extent possible allow the fund to grow.**

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Providing an overview of the WTW asset allocation philosophy and approach is beyond the scope of this paper. As illustrated in *Figure 5*, we focus on how we work with such clients to set appropriate spending rules, and how to evaluate their liquidity profile in the context of their asset allocation.

Figure 5: WTW's investment and liquidity management strategy



# Spending rules

## Advice on how best to formulate an appropriate spending framework

Spending rules provide a disciplined way to balance near-term spending needs and long-term capital preservation. Given the competing priorities of spending needs and capital preservation, endowments and foundations can benefit from establishing a spending rule, (rather than setting a one-off budget year over year without a clear framework in mind) to reflect the relative importance of these priorities. *Figure 6* lists some of the commonly adopted spending rule approaches.

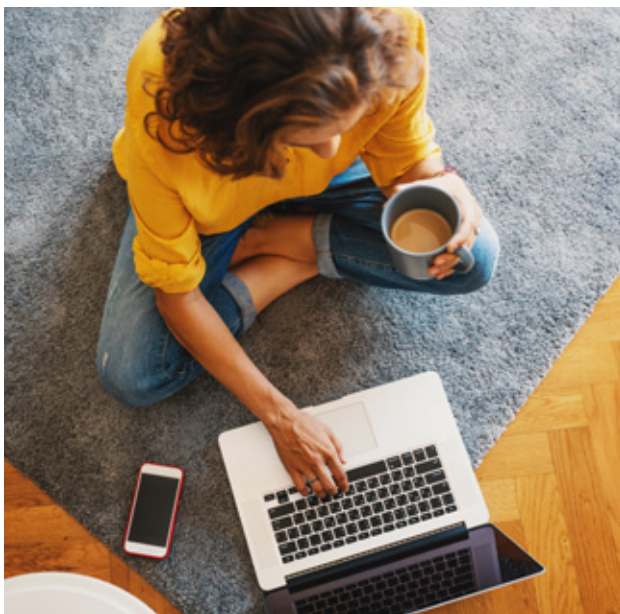






Figure 6: Different spending rule approaches

Spending rule approach	Description
 <p><b>Income only rules</b></p>	<ul style="list-style-type: none"> <li>Spending is drawn only from income payments (coupons/dividends) that are generated from the Fund's capital, as well as realised capital gains.</li> <li>To the extent that income streams from fund assets are stable, the amount of spending drawn from the Fund will also stay stable.</li> <li>This approach potentially imposes reinvestment risk on beneficiaries, to the extent that income levels are linked to prevailing bond yields.</li> </ul>
 <p><b>Market value related rules</b></p>	<ul style="list-style-type: none"> <li>Spending is linked to a fixed percentage of fund assets, usually averaged over a period of time.</li> <li>This broadly supports maintaining the value of the fund as spending is reduced when fund balance declines.</li> <li>Short term volatility in asset returns imply that amount of spending will also be volatile; marked-to-market losses flow directly into a reduction in spending levels. Likewise, in periods of rising markets spending levels increase dramatically. Market value related rules therefore tend to be "pro-cyclical".</li> </ul>
 <p><b>Inflation-adjusted rules</b></p>	<ul style="list-style-type: none"> <li>Current year spending is set equal to the amount spent last year, adjusted for inflation.</li> <li>Spending levels are stable, predictable and maintain their real value.</li> <li>Spending levels do not reference the fund assets and are immune to investment losses, meaning that in sustained market downturns, the real value of the fund can be quickly eroded. In contrast, spending lags asset growth during a rising market, meaning that excess returns could potentially be used as a buffer and support spending when conditions turn.</li> </ul>
 <p><b>Hybrid rules</b></p>	<ul style="list-style-type: none"> <li>Attempts to chart a middle course between the above methods by adopting a weighted average between a market value rule, where spending is purely based on the fund's value, and a rule that links current year spending to an inflation adjusted version of the year just gone.</li> <li>This type of rule provides flexibility; by adopting a hybrid rule the Trustees can express the relative importance they place on the competing goals of capital preservation and spending stability by varying the weightings.</li> <li>Some hybrid rules may also introduce degrees of subjectivity and flexibility to the process.</li> </ul>

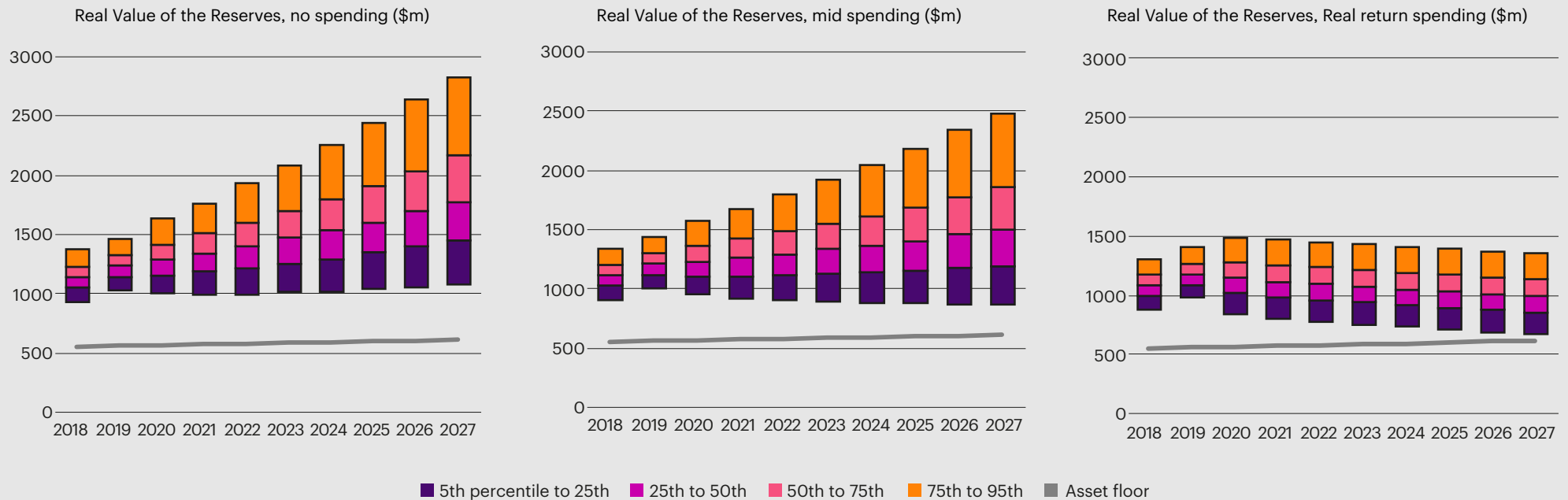
**WTW has assisted different types of endowments and foundations, ranging from university/educational endowment funds to charitable foundations and trusts, in designing or reviewing their set of spending rules.**

During the process, their specific preferences and circumstances have been considered such that the spending rules are appropriately set and are not just a one-size-fits-all solution.

The approach considers both quantitative and qualitative aspects. Endowment fund balances are projected through time using WTW's proprietary stochastic models and the potential impact of certain spending rules and cash flow patterns are evaluated, as illustrated in *Figure 7*. The modelling shows the projected median fund balances, as well as the spread of fund balances corresponding to different percentile ranges used to highlight good and poor outcomes. In addition, projected fund balances are shown against any asset floor level, as set by the client. This enables stakeholders to understand the sustainability of their spending policy in the context of their asset allocation, market and liquidity risk profile.



Figure 7: Stochastic modelling of fund balances and impact of different spending rules



# Liquidity profiling and management

## Models to assess an endowment's liquidity profile/tolerance, and advice on how best to spend the illiquidity risk budget

As alluded to earlier, many liquidity requirements cannot be predicted in advance. Market movements could mean that there is a need to make payments or rebalance the portfolio at a time when it is inopportune to do so.

At a minimum, it is therefore necessary to hold sufficient liquid assets at all times in order to meet potential liquidity requirements which could reasonably be expected to arise in a normal course of events. With the above, we have developed a set of liquidity analysis tools to help clients identify and understand their liquidity profile on an ongoing basis, and under different market conditions. Sample output is shown in the figures below.

Figure 8 assess the impact of stresses arising from extreme asset class returns, foreign exchange movements, and the cash flow impact of any capital commitments on the Fund's allocation to illiquid assets. We initially focus on what happens to portfolios immediately after a market shock occurs, and the plausible market returns over a 3-month timeframe.

As part of the liquidity analysis, we then look at the proportion of the Fund's overall portfolio which could be liquidated over different time horizons both in a normal and stressed market environment. This allows the Fund to assess its liquidity tolerance and frame its liquidity management plan around these constraints. The liquidity timeframe under stressed conditions is defined as the period of time likely to be required to redeem assets at the price indicated in the market.

Using the example shown in Figure 8, key for the client in this scenario would be to understand that in normal market conditions, around 80% of the portfolio is expected to be available within a week or less.

However, under stressed conditions, only 35-40% of the Fund's assets are expected to be available within a week and 75% within one month. This analysis enables the client to understand that there is likely to be sufficient liquidity across the portfolio to meet business-critical cash requirements within 1 month.

**This will inform the client on whether their strategic asset allocation (SAA) and the proportion of illiquid assets remains suitable for their needs.**

Figure 8: Liquidity analysis under normal and stressed conditions

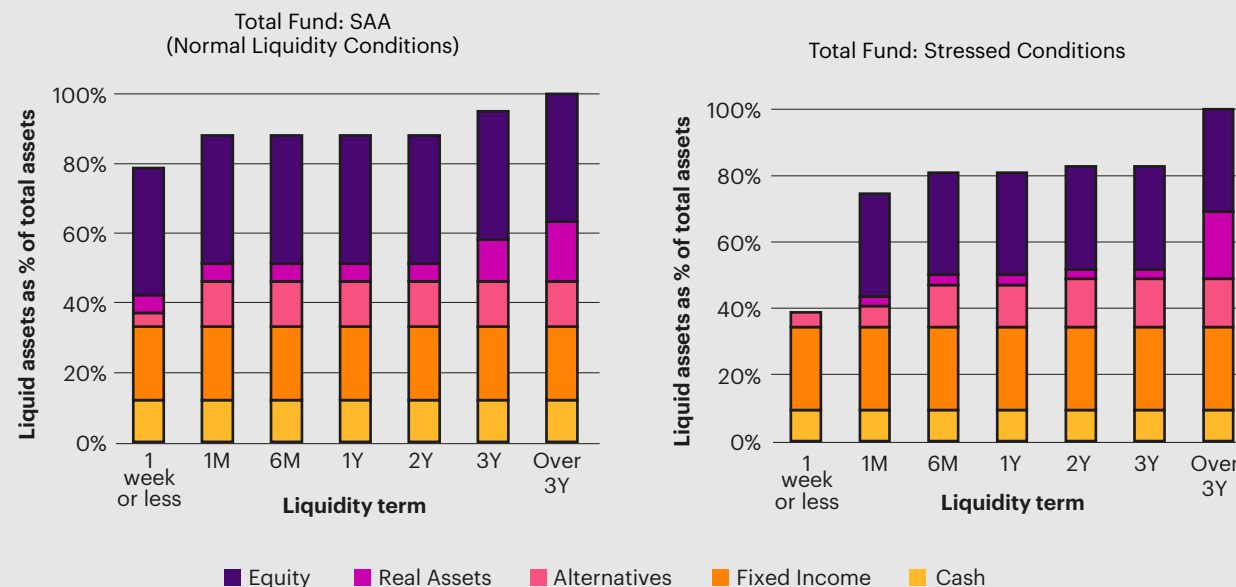


Figure 9: Drawdown analysis – change in market value under a GFC scenario

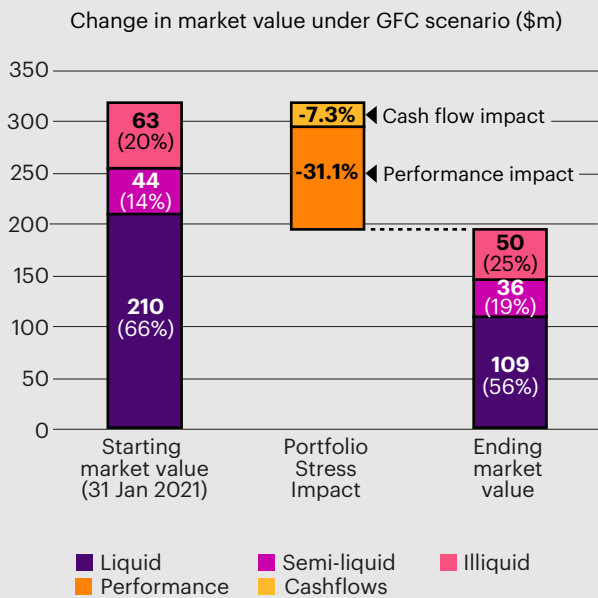
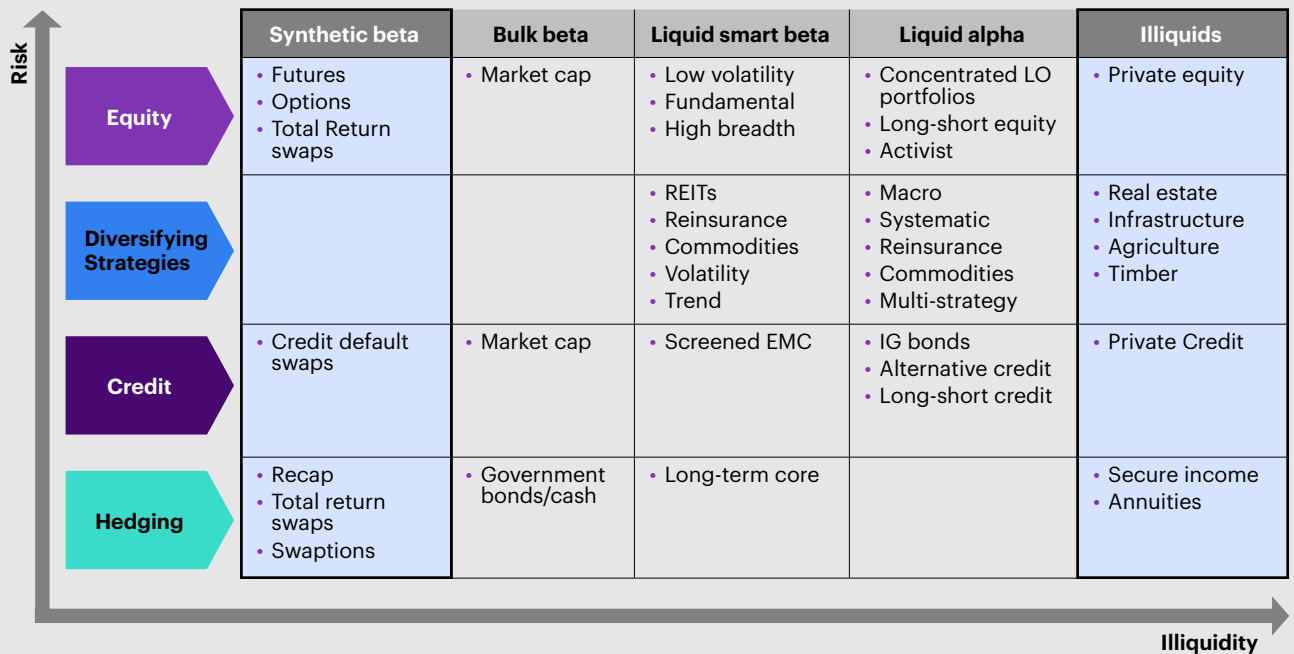


Figure 10: Liquidity and risk across different asset classes



In addition, it is possible to conduct analysis on the potential impact on the market value of the portfolio after a portfolio stress event, using historical drawdowns. *Figure 9* above utilises GFC shock figures as the historical drawdown and calculates the post-shock NAV of the client’s portfolio. In this instance, the liquid portion of the portfolio is compared against the current spending of the client. From this it was noted that there were sufficient assets to support approximately 10 years of spending.

After assessing the liquidity profile of the endowment fund, it is equally important to consider how best to spend the illiquidity risk budget. We suggest adopting a total portfolio approach, where every position in the portfolio competes for capital and is evaluated

holistically in terms of its contribution to total portfolio return, risk diversification, and liquidity.

The opportunity set for spending the illiquidity budget spans the entire risk/return spectrum as shown in *Figure 10*. Our starting point, subject to investor constraints, would be for a fund to hold a liquid and illiquid portfolio that broadly have the same amount of exposure to underlying economic risks, with the illiquid portfolio offering an additional illiquidity premium. However, in cases where the illiquidity budget is quite constrained, it may be more efficient to target higher return illiquid asset classes to contribute to fund growth targets rather than lower return/income focused strategies. A “barbell” liquidity framework can be employed, allocating to both

low-risk, highly liquid assets (including cash) to help with liquidity management, and high-risk, illiquid assets focused on long-term return generation.

**We help endowments test and adjust their illiquidity risk budget and how it is spent based off in-depth work alongside the endowment management teams to ascertain the endowment’s ability to take on and appetite for illiquidity. Advice is tailored to each client as there is no “standard” portfolio which fits all needs.**



## Start now and review your own status

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It is impossible to predict when the next crisis or market shock will take place. As such, we believe it is prudent for endowment and foundations to undertake a review of their spending and liquidity frameworks, starting today.

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**This quick checklist should provide a useful starting point:**

- Review your organisation's mission and ensure its clarity, with explicit goals that define "success" over set periods
- Understand and assess your spending needs
- Review your spending rule, or establish one if it does not already exist
- Assess your liquidity profile and identify any non-utilised illiquidity risk budget
- Review your investment strategy based on your spending rule and liquidity profile
- Undertake crisis planning and get prepared
- Collaborate with specialists to generate a better investment outcome

**We urge you to act now, and to act thoughtfully. WTW can provide support and strategic advice.**

We hope this paper provided some practical and in-depth examples of how investors can prudently respond to liquidity issues in the event of market crises.

### Further Information

If you have any questions or would like to learn more about WTW's investment advisory or portfolio solutions services, please reach out to your usual WTW consultant, or contact:

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