



# Guidance for Open-ended Funds for Effective Implementation of the Recommendations for Liquidity Risk Management

CONSULTATION REPORT

The Board of the  
International Organization of Securities Commissions

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# Foreword

The Board of the International Organization of Securities Commissions (IOSCO) is seeking comments on this consultation report on its *Guidance for Open-ended Funds for Effective Implementation of the Recommendations for Liquidity Risk Management* (“Implementation Guidance”).

## How to submit comments

Comments may be submitted through the following survey: [LINK](#) - **on or before 11 February, 2025**.

**Important:** All comments will be made available publicly, unless anonymity is specifically requested. Comments will be converted to PDF format and posted on the IOSCO website. Personal identifying information will not be edited from submissions.

**If you require technical assistance on completing the survey, please contact:** [itsupport@iosco.org](mailto:itsupport@iosco.org)

If you have questions about the report or the consultation, please contact John Wennstrom, Senior Policy Advisor ([j.wennstrom@iosco.org](mailto:j.wennstrom@iosco.org)).

## Questions for Consultation

A complete list of the questions for consultation is provided below. These same questions are also included in relevant sections of the main body of the report. IOSCO invites comments generally on the proposed guidance in this report, as well as views regarding the specific consultation questions listed below and set out in the report. The consultation questions are intended to solicit very targeted points of feedback that will be helpful to consideration of the final guidance, with supporting details where requested or relevant.

Please note that Guidance 4 to 6 are not open to consultation as they are carried forward from IOSCO’s Final Report on *Anti-dilution Liquidity Management Tools – Guidance for Effective Implementation of the Recommendations for Liquidity Risk Management for Collective Investment Schemes* published in December 2023.

### *Proposed Guidance 1 – Determining asset and portfolio liquidity*

1. To what extent does Proposed Guidance 1 help responsible entities to better integrate quantitative and qualitative factors to determine the liquidity of the portfolio? Have all the critical elements been captured?

### *Proposed Guidance 2 – Consistency between portfolio liquidity and redemption terms*

2. Are there any additional considerations or examples that should be added in the

Proposed Guidance 2 regarding consistency between portfolio liquidity and redemption terms?

*Proposed Guidance 3 – Overall framework for the design and use of LMTs and other liquidity management measures*

3. Do you agree with Proposed Guidance 3 regarding the inclusion of quantitative LMTs and/or other liquidity management measures within the overall liquidity risk management framework that OEF managers should have in place at all times?
4. Is Proposed Guidance 3 appropriate for all types of OEFs in its scope, and proportionate for all types of responsible entities to implement? If not, please explain.

*Proposed Guidance 7 – Types of Quantity-based LMTs and Other Liquidity Management Measures*

5. Has the proposed guidance identified all of the quantity-based LMTs and other liquidity management measures commonly used by responsible entities? Are there any other LMTs that share the same objectives and that could be included in this guidance? If so, please describe them.
6. Are the identified quantity-based LMTs and other liquidity management measures described correctly? Do the features or characteristics of the different tools and measures vary or do they generally operate as described?
7. What additional key elements should Proposed Guidance [7] take into consideration regarding the use of each quantity-based LMT and liquidity management measures identified? Are there any particular types of OEFs that are not suitable to use some of these tools and measures?
8. Do you have any practical examples on the use of these quantity-based LMTs and other liquidity management measures that could be included in the implementation guidance?

*Proposed Guidance 8 – Appropriate Activation and deactivation of Quantity-based LMTs and Other Liquidity Management Measures*

9. Do you agree with Proposed Guidance 8 regarding the considerations on activating and deactivating quantitative LMTs and/or other liquidity management measures? Are there any additional key elements that responsible entities should consider in this regard?

*Proposed Guidance 9 – Stress Testing*

10. Do you agree with the stress testing elements identified in Proposed Guidance [9]? Are there any additional considerations or good practices that should be covered

by this section?

*Other*

11. Do you have any practical examples regarding governance arrangement and disclosure about the use of LMTs and/or other liquidity management measures that could be included in the implementation guidance?

You can find the survey clicking [HERE](#)

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# Section I - Background

## 1.1. Drivers for this proposed Guidance

Effective liquidity risk management is important to safeguard the interests and protection of investors, maintain the orderliness and robustness of markets and collective investment schemes (CIS), particularly, open-ended CIS<sup>1</sup>, and help reduce systemic risk, all of which supports financial stability. *The Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities*<sup>2</sup> (FSB 2017 Recommendations), published by the FSB in 2017, include several policy recommendations to address the risks to global financial stability arising from structural liquidity mismatch in OEFs. In 2018, IOSCO published a final report on *Recommendations for Liquidity Risk Management for Collective Investment Schemes*<sup>3</sup> (IOSCO 2018 Liquidity Recommendations), supplemented with a set of related good practices published as *Open-ended Fund Liquidity and Risk Management – Good Practices and Issues for Consideration*<sup>4</sup> (IOSCO 2018 Good Practices).

In December 2023, the FSB published its *Revised Policy Recommendations to Address Structural Vulnerabilities from Liquidity Mismatch in Open-ended Funds*<sup>5</sup> (Revised FSB Recommendations) and, to support the greater use and greater consistency in the use of anti-dilution liquidity management tools (LMTs) by OEFs, IOSCO published its *Anti-dilution Liquidity Management Tools – Guidance for Effective Implementation of the Recommendations for Liquidity Risk Management for Collective Investment Schemes*<sup>6</sup> (IOSCO ADT Guidance).

The Board of IOSCO has reviewed and proposed targeted revisions to the IOSCO 2018 Liquidity Recommendations (Proposed Revised Liquidity Recommendations) to operationalise the Revised FSB Recommendations and incorporate other changes to reflect market and policy developments since the publication of the IOSCO 2018 Liquidity Recommendations and to improve readability. IOSCO is currently consulting on these proposed changes (see IOSCO's Consultation on Revised Recommendations for Liquidity

<sup>1</sup> An open-ended CIS, also referred to as an open-ended fund (OEF), is a registered / authorised / public CIS which provides redemption rights to its investors from its assets, based on the net asset value of the CIS, on a regular periodic basis during its lifetime - in many cases on a daily basis, although this can be less frequently (e.g. weekly, monthly or even less frequently, depending on the jurisdiction). Please note that money market funds and exchange-traded funds have been excluded from the scope of open-ended funds covered by this document due to their unique characteristics and specialised guidance on them.

<sup>2</sup> <https://www.fsb.org/2022/12/assessment-of-the-effectiveness-of-the-fsbs-2017-recommendations-on-liquidity-mismatch-in-open-ended-funds/>

<sup>3</sup> <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD590.pdf>

<sup>4</sup> <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD591.pdf>

<sup>5</sup> <https://www.fsb.org/2023/12/revised-policy-recommendations-to-address-structural-vulnerabilities-from-liquidity-mismatch-in-open-ended-funds/>

<sup>6</sup> <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD756.pdf>

Risk Management for CIS, hereafter “the Proposed Revised Liquidity Recommendations”).

The IOSCO 2018 Liquidity Recommendations, like the IOSCO 2013 *Principles of Liquidity Risk Management*<sup>7</sup>, and the Revised FSB Recommendations, focused on the liquidity risk management for open-ended CIS. However, since investor redemptions are not the only source of liquidity demand on a CIS, some of the recommendations may also be relevant to closed-ended CIS, as indicated in the text of the relevant recommendations.

This proposed guidance further sets out technical elements focusing on OEFs, such as the asset liquidity assessment and considerations relating to the calibration and activation of LMTs and other liquidity management measures, to facilitate effective implementation of the Proposed Revised Liquidity Recommendations by responsible entities.<sup>8</sup> The Proposed Revised Liquidity Recommendations and the Proposed Implementation Guidance incorporate the IOSCO ADT Guidance and should be read in conjunction with each other for completeness.<sup>9</sup>

## 1.2. Objectives and Scope

This proposed guidance aims to support effective implementation of the Proposed Revised Liquidity Recommendations related to the consistency assessments between OEF asset and portfolio liquidity and redemption terms; design and use of LMTs and other liquidity management measures by OEFs; disclosure to investors; overcoming barriers to effective implementation; and stress testing. It draws on (i) relevant policy work, including the IOSCO 2018 Liquidity Recommendations, the IOSCO ADT Guidance, the Revised FSB Recommendations and the IOSCO 2018 Good Practices; (ii) a review of recent academic literature; (iii) the observed good practices of jurisdictions where funds currently use LMTs and measures; and (iv) engagement with industry stakeholders and academics through roundtables and other outreach.

Responsible entities have the primary responsibility and are best placed to manage the liquidity of their OEFs. As such, the proposed guidance neither imposes the use of a given LMT or liquidity management measure to a given situation, nor prescribes a specific calibration for each LMT or liquidity management measure. Instead, it sets out key operational, design, oversight, disclosure and other factors and parameters that responsible entities should consider when LMTs and other liquidity management measures are used, with a view to promoting their greater, more effective and more consistent use. As the OEF sector is very diverse, IOSCO acknowledges that there is no ‘one size fits-all’ approach to liquidity risk management and responsible entities are expected to exercise their sound professional judgement in the best interests of investors.

<sup>7</sup> <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD405.pdf>

<sup>8</sup> Responsible entities in this document generally refer to the entity / entities responsible for the overall operation.

<sup>9</sup> The Proposed Revised Liquidity Recommendations and the Proposed Implementation Guidance, together will supersede the IOSCO 2018 Good Practices and the IOSCO ADT Guidance.



Responsible entities should always consider a broad set of LMTs, including anti-dilution LMTs, quantity-based LMTs and other liquidity management measures. Responsible entities should determine the most effective and suitable tools and measures for the OEFs they manage, considering the characteristics of each OEF, prevailing market conditions and other relevant circumstances.

Reference to and discussion of relevant Proposed Revised Liquidity Recommendations are included throughout this proposed guidance to help illustrate how it can support effective implementation of the Proposed Revised Liquidity Recommendations.

Lastly, as the structural features and liquidity management practices of exchange-traded funds (ETFs) and money market funds (MMFs) distinguish them from other OEFs,<sup>10</sup> the Proposed Revised Liquidity Recommendations and the following proposed implementation guidance are not applicable to ETFs and MMFs.

<sup>10</sup> For example, see IOSCO (2021), Exchange Traded Funds Thematic Note – Findings and Observations during COVID-19 induced market stresses at <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD682.pdf>. See, also, IOSCO (2023), Good Practices Relating to the Implementation of the IOSCO Principles for Exchange Traded Funds, Final Report at <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD733.pdf>.

## Section II - Minimising Structural Liquidity Mismatches in OEFs

### 2.1. Determining asset and portfolio liquidity

**Proposed Guidance 1: Responsible entities should holistically consider quantitative and qualitative factors to determine the liquidity of an OEF's assets and of the OEF's overall portfolio, both at the time of designing an OEF and on an ongoing basis.**

#### **Relevant Proposed Revised Liquidity Recommendation(s)**

Recommendation 2: The responsible entity should set appropriate liquidity thresholds which are proportionate to the redemption obligations and other liabilities of the CIS.

Recommendation 3: The responsible entity should ensure that the OEF's investment strategy and the liquidity of its assets should be consistent with the terms and conditions governing fund unit subscriptions and redemptions both at the time of designing an OEF and on an ongoing basis. The redemption terms that the OEF offers to investors should be based on the liquidity of its asset holdings in normal and stressed market conditions. To this end, when structuring an OEF that allocates a significant proportion of its assets under management to illiquid assets, responsible entities should consider low redemption frequency and/or implementing long notice or settlement periods.

Recommendation 11: The responsible entity should be able to incorporate relevant data and factors into its liquidity risk management process in order to create a robust and holistic view of the possible risks.

#### ***Determining asset liquidity – liquid, less liquid and illiquid***

Determining asset liquidity is the building block for determining the overall OEF portfolio liquidity and the fund category. The objective is to classify portfolio assets into the following, by holistically considering a range of quantitative and qualitative factors:

- **“Liquid” assets** are likely to be assets that are readily convertible into cash without significant market impact in both normal and stressed market conditions.
- **“Less liquid” assets** are those assets whose liquidity is contingent on market conditions, but they would generally be readily convertible into cash without significant market impact in normal market conditions. In stressed market conditions, they might not be readily convertible into cash without significant discounts and

their valuations might become more difficult to assess with certainty.

- **“Illiquid” assets** include those for which there is little or no secondary market trading and buying and selling assets is difficult and time consuming (i.e. weeks or months, not days) even in normal market conditions. Individual transactions of “illiquid” assets may, therefore, be more likely to affect market values.

Accordingly, the distinguishing factors across the three liquidity categories are whether an asset is (i) readily convertible into cash without significant market impact and (ii) whether this differs between normal and stressed market conditions.

In this regard, examples of quantifiable metrics include market depth, turnover and days to trade.

### **Box 1: Example – Calculation of days-to-trade for an asset**

Where data is available, responsible entities can calculate the average daily turnover (ADT) of an asset based on observed volume. If the volume data is less reliable or insufficient, responsible entities may estimate the ADT based on internal models, models provided by third-party, insights from trading team, ADT of similar assets, or applying a conservative haircut.

Responsible entities can then derive a days-to-trade figure (or time-to-liquidation) for that particular asset based on its ADT figure, its size in the OEF/OEFs holdings and a market participation rate<sup>11</sup>.

$$\text{Days – to – trade} = \frac{\text{Size of asset}}{\text{ADT x participation rate}}$$

Responsible entities should differentiate the days-to-trade figures for normal market conditions and stressed market conditions by using ADTs at normal times and stress times respectively

Lastly, the number of days to settle the trade could be added to the two days-to-trade figures (one under normal market conditions and one under stressed market conditions) such that responsible entities would have two quantitative figures as basis to determine whether the asset is readily convertible into cash without significant market impact under normal and stressed market conditions.

The above is an example as to how responsible entities may make use of quantifiable metrics to determine asset liquidity, while subject to investment requirements set by

<sup>11</sup> Market participation rate refers to a maximum percentage of liquidity take-up on the ADT without significant market impact, for example, 25%. Such threshold may vary across different assets and market conditions.

local laws or regulation and the guidance provided by authorities and modifications by responsible entities as appropriate. For example, the actual tradable amount of an asset consists of what can be typically traded (i.e. the observed ADT) plus the “latent liquidity” which can be accessed with a higher price or transaction costs. This extra consideration may be particularly relevant in stressed times.

Apart from quantitative factors, responsible entities should also consider qualitative factors related to the nature and features of an asset, in both normal and stressed market conditions to conduct a proper assessment, such as the efficiency and effectiveness of the pricing mechanism; the market impact of large transactions, operational features and potential frictions; and valuation certainty. For example, the reliability of the liquidity assessment based on quantitative factors should be discounted if the asset has a less efficient pricing mechanism, greater operational and other potential frictions and/or greater valuation uncertainty. It would mean the asset is less likely to be readily convertible into cash, especially in stress.

### **Box 2: Examples – A broader range of factors for determining asset liquidity**

Some authorities have developed guidance on a broader range of factors for determining asset liquidity. The relevance of these factors may vary across asset classes, trading venues, funds and market conditions etc.

#### *US SEC rule 22e-4 – Investment Company Liquidity Risk Management Program Rules*

US SEC’s rule 22e-4<sup>12</sup>, generally permits a fund to, as a starting point, classify the liquidity of its portfolio investments according to their asset class. Notwithstanding this general approach, a fund will be required to separately classify any investment if the fund of its adviser, after reasonable inquiry, has information about any market, trading, or investment-specific considerations that are reasonably expected to significantly affect the liquidity characteristics of that investment as compared to the fund’s other

<sup>12</sup> On October 13, 2016, the U.S. Securities & Exchange Commission (“SEC” or the “Commission”) adopted, among other things, [rule 22e-4](#) (or the “Liquidity Rule”) under the Investment Company Act of 1940, which requires each registered open-end investment company, including open-end ETFs but not including money market funds (“funds”), to adopt and implement a written liquidity risk management program (“LRMP”). Investment Company Liquidity Risk Management Programs, Investment Company Act Release No. 32315 (Oct. 13, 2016) (“[Adopting Release](#)”). Among other things, rule 22e-4 requires funds to establish a LRMP which included assessment, management, and periodic review of a fund’s liquidity risk; classification of the liquidity of fund portfolio investments; determination of a highly liquid investment minimum, limitation on illiquid investments and board oversight. Funds are required to assess, manage, and periodically review their liquidity risk based on specified factors. (See page 62 – 65 of the Adopting Release for discussion of applicable factors.) Under rule 22e-4(b)(2) each fund (except those that meet the definition of “in-kind ETF”) is required to classify each of the investments in its portfolio on at least a monthly basis. The classification is based on the number of days in which a fund reasonably expects the investment would be convertible to cash (or sold or disposed of) in current market conditions without significantly changing the market value of the investment, and the determination has to take into account the market depth of the investments. Funds are required to classify each investment into one of four liquidity categories: highly liquid investments, moderately liquid investments, less liquid investments, and illiquid investments. Additionally, funds are permitted to classify investments by asset class, unless market, trading, or investment-specific considerations are expected to significantly affect the liquidity characteristics of that investment as compared to the fund’s other portfolio holdings within that asset class.

portfolio holdings within that asset class.<sup>13</sup> In the adopting release, the SEC discussed the following factors that could be useful and relevant as aspects of the general market, trading, and investment-specific considerations that a fund could consider in evaluating portfolio investments' liquidity characteristics and managing liquidity risk:

- Existence of an active market for the asset, including whether the asset is listed on an exchange, as well as the number, diversity, and quality of market participants;
- Frequency of trades or quotes for the asset and average daily trading volume of the asset (regardless of whether the asset is a security traded on an exchange);
- Volatility of trading prices for the asset;
- Bid-ask spreads for the asset;
- Whether the asset has a relatively standardised and simple structure;
- For fixed income securities, maturity and date of issue;
- Restrictions on trading of the asset and limitations on transfer of the asset;

Discussion of each of the above factors is available in the final rule adopting release.<sup>14</sup>

#### CNMV Technical Guide 1/2022 on the management and control of the liquidity of CIS

This guide contains the criteria, practices and methodologies that the CNMV considers appropriate for compliance with the applicable regulations in the area of CIS liquidity control and management.

Among others, the guide states the elements that the management companies should take into consideration when assessing the liquidity of the assets in which their CIS invest. To this effect, asset managers should consider the assets on an aggregate basis, taking into account the positions held by all CISs and other portfolios managed the guide cites the following factors to be analysed:

- For fixed-income assets: information on the levels of bid/ask spreads, the quality of quotations (analysing the number of financial dealers offering quotes and the volumes offered), asset type and seniority levels, outstanding amounts of the issuance (and the

<sup>13</sup> See rule 22e-4(b)(1)(ii)(A). See Adopting Release at page 133.

<sup>14</sup> Section III.C.4 in the Adopting Release. The Commission noted that this guidance is not meant to cover an exhaustive list of considerations that a fund may take into account in evaluating its portfolio investments' liquidity and recognised that specific liquidity concerns appropriate for consideration could vary depending on the issuer and the particular investment. Adopting Release at page 159.

weight that the investment represents on these amounts), credit quality of the issuer/issuance, duration, maturity, size of the issuer and total debt issued.

- For equity assets: trading volume and frequency, bid/ask spread levels and their evolution, issuer size and market capitalisation, outstanding capital, free float (and the weight that the investment represents on these amounts), shareholding structure (and possible concentration risks in a small number of investors).

For volume estimates, recent data shall be used and, unless there are justified reasons, shall be for periods of between three and six months. It is also considered good practice to establish an estimation of the maximum percentage of the average daily trading at which the asset could be sold without affecting its price. Finally, provided that its use is adequately justified and verifiable, the existence of trading other than that of regulated markets or multilateral trading systems, among others, block trading, may be taken into account to determine the liquidity level of the asset.

- For derivatives: inter alia, the liquidity of the underlying, the levels of bid/ask spreads, the volume traded and the open interest. For these instruments, the margins (in the case of futures, forwards, etc.), the premium or market value (in financial options) and the guarantees will be taken as a reference.

- For investments in other CISs: in addition to taking into account their liquidity frequency, an appropriate due diligence process should be carried out to identify any other possible restrictions on or limitations to redemption (e.g., notice periods and gates), and exposures held in assets which may have reduced liquidity levels, or which could potentially face a higher liquidity risk (e.g., high yield debt, small caps, unlisted assets, etc.).

#### *Bank of International Settlements – Guidance for Supervisors on Market-Based Indicators of Liquidity*

The Bank of International Settlements, Basel Committee on Banking Supervision published in 2014 *Guidance for Supervisors on Market-Based Indicators of Liquidity* that set out a broad range of characteristics, criteria and metrics that supervisors should consider in judging asset liquidity.<sup>15</sup>

The factors are categorised under three broad categories, namely, asset characteristics, market structure characteristics and market liquidity (see table below). Elaboration and example metrics/measures relating to these factors are available in the guidance.

<sup>15</sup> Available at, <https://www.bis.org/publ/bcbs273.pdf>

## 2.2. Consistency between portfolio liquidity and redemption terms

**Proposed Guidance 2:** Responsible entities should ensure that an OEF's redemption terms are consistent with its portfolio liquidity on an ongoing basis to reduce potential structural liquidity mismatches and consequently mitigate material investor dilution and any potential first mover advantage. Responsible entities should ensure the OEF is able to maintain the initial promise of liquidity disclosed to investors in normal and stressed conditions, taking into account the liquidity of underlying assets and overall portfolio, the investor base, and the effectiveness of liquidity management tools implemented by the OEFs.

### **Relevant Proposed Revised Liquidity Recommendation(s)**

Recommendation 2: The responsible entity should set appropriate liquidity thresholds which are proportionate to the redemption obligations and liabilities of the OEF.

Recommendation 3: The responsible entity should ensure that the OEF' investment strategy and the liquidity of its assets should be consistent with the terms and conditions governing fund unit subscriptions and redemptions both at the time of designing an OEF and on an ongoing basis. The redemption terms that the OEF offers to investors should be based on the liquidity of its asset holdings in normal and stressed market conditions. To this end, when structuring an OEF that allocates a significant proportion of its assets under management to illiquid assets, responsible entities should consider low redemption frequency and/or implementing long notice or settlement periods.

Recommendation 10: The liquidity risk management process should facilitate the ability of the responsible entity to identify an emerging liquidity shortage before it occurs.

Recommendation 11: The responsible entity should be able to incorporate relevant data and factors into its liquidity risk management process in order to create a robust and holistic view of the possible risks.

Based on the assessment per Proposed Guidance 1 above, responsible entities should ensure that an OEF's redemption terms (consisting of dealing frequency, notice period, settlement period, redemption caps, lock-up period etc.) should be consistent with its portfolio liquidity to mitigate material investor dilution and potential first mover advantage on an ongoing basis, taking into account the investor base, the range of LMTs and liquidity measures available for use and other specificities of the OEF.

In this regard, it is expected that depending on the OEF liquidity profile and as portfolio liquidity lowers, the tools and measures as set out below would be considered and used in the best interest of the investors:

- anti-dilution LMTs (see Section IV);
- quantity-based LMTs and other liquidity management measures (see Section V below); and
- lowering redemption frequency.

Examples of particular asset classes where offering frequent redemptions is not expected given the illiquid nature of the assets are real estate funds, infrastructure funds, private equity and private debt funds. Such funds should create and redeem shares at lower frequency than daily and require long(er) notice periods.

The exact combination of tools and measures to be used for an OEF is generally determined by the responsible entity and is difficult to standardise due to the diversity of investment strategies as well as the changing nature of asset liquidity and market conditions. That said, responsible entities should be able to demonstrate to authorities how they met the parameters of the domestic liquidity framework in terms of consistency between portfolio liquidity and redemption terms and the choice of tools and measures. The fund and its offered liquidity should not be solely reliant on LMTs. The OEF redemption policy and the LMTs should be calibrated in such a way that they do not change completely the nature of the fund in stressed market conditions, i.e., it should not be possible to change an open-ended fund into a closed-ended fund.

Set out below are examples of OEFs with redemption terms that are consistent with this guidance based on the liquidity of the OEF's portfolio and tools and measures with respect to their portfolio liquidity.

- A large cap US equity fund designed to be marketed to a broad and diverse investor base is likely not to have significant liquidity challenges although it may face volatility. Structuring such a fund as a daily dealing OEF would be consistent with this guidance. The responsible entity should nevertheless implement its liquidity risk management policy in compliance with applicable legal requirements.
- Where the fund offers exposure to equities that could prove less liquid than large cap equities, such as small cap equities or emerging market equities, structuring the fund as a daily dealing OEF may still be consistent with this guidance. However, the responsible entity should consider a number of measures at its disposal to adequately address additional liquidity risk, such as implementing anti-dilution LMTs (e.g., swing pricing or anti-dilution levies), introducing extended notice periods in times of stress when the fund needs more time to sell its assets etc.
- Similarly, some fixed income funds, particularly those investing in corporate bonds



and high yield bonds whose liquidity may deteriorate significantly during stressed market conditions, may require effective anti-dilution LMTs and/or other liquidity management measures to protect investors from material dilution if structured as daily dealing funds.

- Some asset-backed securities trade daily but with a lead time to gather trade quotes. Notice periods, among other liquidity management measures, should be considered if a fund heavily investing in these securities is structured as a daily dealing fund.
- Where the fund has a concentrated investor base, the responsible entity should consider introducing available mechanisms to protect remaining investors from the dilution impact of potentially large redemptions, such as swing pricing, anti-dilution levies, exit fees or redemptions in-kind, among other liquidity management measures. It could also consider imposing notice periods to have more time to sell its assets in the event of large outflows. In such cases, managers may also want to seek to ensure they have a sufficiently good knowledge of the investor base and its risk appetite to be able to anticipate potential outflows and investors understanding of related liquidity factors.
- UK - In the UK, the Long-Term Asset Fund (LTAF) is a new category of open-ended fund, authorised by the FCA, that is designed to invest efficiently in long-term assets.

Only full scope UK Authorised Investment Fund Managers (AIFMs) are able to act as the authorised fund manager (AFM) for an LTAF. Full Scope AIFMs must comply with extensive reporting requirements, maintain high levels of capital, and adhere to strict risk management protocols. The governing bodies of the AFM of an LTAF must also demonstrate that they have the collective knowledge, skills and experience to be able to understand the AFM's activities, in particular the main risks involved associated with the assets in which the LTAF is invested.

Managers must set appropriate dealing terms and redemption policies for an LTAF, ensuring they are consistent with the fund's liquidity profile and the investment strategy the fund is operating. LTAFs are required to have notice periods. LTAFs are also required to maintain a prudent spread of risk.

LTAFs are required to permit redemptions no more frequently than monthly, and to have at least a 90-day notice period on redemptions. This requirement speaks to the maximum liquidity LTAFs can offer, and redemption periods may need to be less frequent or notice periods longer depending on the underlying asset mix. Investment managers of LTAFs are expected to demonstrate as part of the authorisation process, the appropriateness of dealing terms, including other terms such as deferrals of redemptions and limitations on the amount that can be redeemed at any dealing point, to ensure the dealing terms are consistent with how

long it will realistically take the LTAF to sell the assets. Investors are unable to revoke their redemption request throughout the notice period.

LTAFs are required to be valued on at least a monthly basis. Redeeming units are priced at the valuation at the end of the notice period. In order for redemptions to be fair to all investors, the expectation is that redemptions would be met from the sale of a representative sample of the investment portfolio.

### **Box 3: Liquidity buffer**

A liquidity buffer in an OEF refers to the portfolio or liquidity management practice of maintaining a portion of the fund's assets in highly liquid assets, such as cash or short-term securities. The purpose is to maintain readily available assets to meet expected levels of redemption requests, fees and margin calls or to handle other cash outflows without the need to incur transaction costs and, reducing the chance of being forced to sell holdings potentially at unfavourable prices, or the need to temporarily borrow money. Increasing OEF liquid assets also has the potential to reduce structural liquidity mismatch at the portfolio level by increasing the average liquidity of an OEF's holdings. However, when using this buffer to pay the first investors who redeem in times of stress, the responsible entity must ensure that the price per unit paid to these investors is the result of a fair valuation of the whole portfolio which takes into account market liquidity cost, if any.

The size of the liquidity buffer typically varies from fund to fund and depends on factors such as the investment strategy, redemption frequency, liquidity of its underlying assets and the cost of liquidity. Fund managers recognise that liquidity buffers play an important role in liquidity management and are well positioned to determine the appropriate level of liquidity buffer for each OEF they manage.

However, a regulatory requirement to hold a minimum level of liquidity buffer may have unintended consequences, for example, if breaching regulatory thresholds is associated with restrictions on investors' ability to redeem shares. Such requirements may prompt investors to react to stress in a more pro-cyclical manner to avoid the consequences of a fund's crossing those thresholds, and can exacerbate vulnerabilities arising from structural liquidity mismatch. In response, managers may have to sell more assets than otherwise needed to replenish the reduced cash holdings. Minimum cash levels could also result in "cash drag" and "style drift" that deviates fund holdings from investors' desired asset allocation and moral hazard whereby managers would mechanically rely on regulatory liquidity buffer without considering the need to increase the liquid asset holding according to prevailing market conditions

Given the above, IOSCO is not recommending a minimum level of liquid asset holdings across the OEF sector.

#### **Box 4: Limits on investments in illiquid assets**

Limits on investments in illiquid assets are a restriction measure considered at the time of designing an OEF. They aim to contribute to the consistency between portfolio liquidity and redemption terms by setting the maximum proportion of investments an OEF could make in illiquid assets.

Such a limit should be set in accordance with the investment strategy of the OEF and its redemption terms. For instance, an OEF that offers daily liquidity should invest mainly in liquid assets and have strict limits on its investments in illiquid assets. When setting this limit and assessing the appropriateness of the liquidity of various asset classes, the assessment should take into account expected liquidity in normal and stressed market conditions.

For example, in the US, per the Liquidity Risk Management Program Rules, under the Investment Company Act of 1940, open-ended management investment companies are subject to a 15% limit on the purchases of illiquid investments.<sup>16</sup>

#### **Questions for the Public Consultation**

1. To what extent does Proposed Guidance 1 help responsible entities to better integrate quantitative and qualitative factors to determine the liquidity of the portfolio? Have all the critical elements been captured?
2. Are there any additional considerations or examples that should be added in the Proposed Guidance 2 regarding consistency between portfolio liquidity and redemption terms?

<sup>16</sup> See 17 CFR 270.22e-4(b)(1)(iv) for the prohibition on acquiring illiquid investments, if immediately after acquisition, the fund would have invested more than 15% of its net assets in illiquid investments that are assets.

## Section III - Design and use of Liquidity Management Tools and other Liquidity Management Measures

### 3.1. Overall framework for the design and use of LMTs and other liquidity management measures

**Proposed Guidance 3:** Responsible entities should have appropriate internal systems, procedures and controls in place at all times in compliance with applicable regulatory requirements for the design and use of anti-dilution LMTs, quantity-based LMTs and other liquidity risk management measures, as part of the everyday liquidity risk management of their OEFs to mitigate material investor dilution and potential first-mover advantage arising from structural liquidity mismatch in OEFs.

#### **Relevant Proposed Revised Liquidity Recommendation(s)**

Recommendation 1: The responsible entity should draw up an effective liquidity risk management process, compliant with local jurisdictional liquidity requirements.

Recommendation 6: The responsible entity should consider and implement a broad set of liquidity management tools and measures to the extent allowed by local law and regulation for each OEF under its management, for both normal and stressed market conditions as part of robust liquidity management practices.

Recommendation 14: The responsible entity should put in place and periodically test contingency plans with an aim to ensure that any applicable liquidity management tools and liquidity management measures can be used where necessary, and if being activated, can be exercised in a prompt and orderly manner.

When investors enter or exit an OEF, fund managers have to invest the capital received (in the case of net subscriptions) or access liquidity by selling assets to meet redemptions (in the case of net redemptions). Unless fund managers attribute the associated explicit and implicit transaction costs to subscribing or redeeming investors, remaining fund investors

may suffer dilution, as the NAV per share or unit may be reduced by the amount of the transaction costs incurred<sup>17</sup>.

To mitigate material dilution and to protect remaining investors, responsible entities should attribute the explicit and implicit transaction costs to entering or exiting investors with the use of anti-dilution LMTs to adjust the fund NAV or the final price to be paid / received by transacting investors. Anti-dilution LMTs also mitigate the potential risk, in particular under stressed market conditions, that investors may exit funds preemptively in order to receive a higher NAV that does not take into account the higher cost of liquidating the most illiquid assets within the OEF. This is particularly critical for daily dealing OEFs investing in less liquid assets, which could experience reduced liquidity under stressed market conditions.

In addition, responsible entities should, where appropriate, use quantity-based LMTs and other liquidity management measures to better manage liquidity of OEFs, particularly in stressed market conditions (especially where redemptions could lead to severe market dislocation) or instances of unusually high redemptions.

To achieve the above, responsible entities should establish a detailed framework, as part of an OEF's overall liquidity risk management process and compliant with applicable regulatory requirements, to support the design and effective use of anti-dilution LMTs, quantity-based LMTs and other liquidity management measures in both normal and stressed market conditions. The critical elements of such a framework include:

- (i) the types of anti-dilution LMTs to be used;
- (ii) appropriate calibration of liquidity costs for anti-dilution LMTs (including a pre-set mechanism to exceed any disclosed ranges of price adjustment factors if necessary);
- (iii) appropriate activation thresholds for anti-dilution LMTs;
- (iv) the types of quantity-based LMTs and other liquidity management measures to be used;
- (v) appropriate activation and deactivation of quantity-based LMTs and other liquidity management measures;
- (vi) governance (see Box 5 below for example); and

<sup>17</sup> For subscriptions, fund managers may not be subject to the same timing and cash utilisation pressures as compared to redemptions. Therefore, the dilution risk for subscriptions would be expected to be lower. That said, the principle underpinning the use of anti-dilution LMTs is to mitigate material dilution regardless of the direction of the net flows. Responsible entities should consider and use anti-dilution LMTs where appropriate in line with Guidance 2, whenever the dilution impact arising from subscriptions is material.

(vii) disclosure to investors.

Responsible entities should fully consider these elements and put in place corresponding internal systems, procedures and controls. In particular, the framework should enable fund managers to methodically design their LMTs, estimate the liquidity costs (for anti-dilution LMTs), and evaluate circumstances for activating such tools and other measures in both normal and stressed conditions, as part of the day-to-day liquidity management of the OEFs they manage. The governance and ongoing review process would help ensure the selected tools and measures are used as intended and provide information for future enhancements to their use. Appropriate disclosure to investors on the objectives, design and use of the tools and measures would enhance their awareness of these aspects and enable them to better incorporate the costs of liquidity into their investment decisions. Responsible entities should conduct ongoing liquidity assessments in different scenarios, which could include fund level stress testing, in line with regulatory guidance (see section [VIII]).

In addition, responsible entities should be able to demonstrate to authorities (in line with the authorities' supervisory approaches) how the above-mentioned framework is implemented, including how anti-dilution and quantity-based LMTs as well as other liquidity management measures are and will be used.

Valuation is extremely important because an OEF must redeem and sell its units or shares at its NAV. Stale valuations may contribute to first mover advantage. For example, in a scenario of declining values of a fund's assets, if the fund's NAV does not adjust to fully reflect those declines in value, investors may seek to redeem before that adjustment is made.<sup>18</sup>

Independently of whether and how an anti-dilution LMT is to be applied, to ensure that the price quoted to an investor for redeeming / buying a unit or share is fair, responsible entities should calculate a NAV that represents the fair value of the assets the fund holds and in accordance with local regulations.

In this regard, IOSCO published the *Principles for the Valuation of CIS* in May 2013<sup>19</sup>, currently under review, with an objective to treat investors fairly<sup>20</sup>. If responsible entities cannot be confident that the assets are valued fairly or cannot reasonably estimate the cost of liquidity for these assets, especially in stressed market conditions, the use of quantity-based LMTs and other liquidity management measures (applied in accordance with local regulations), such as side pockets, suspensions, longer notice or settlement

<sup>18</sup> For further information see, for example, IOSCO Best Practices Standards on Anti Market Timing and associated Issues for CIS, available at <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD207.pdf>

<sup>19</sup> <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD413.pdf>

<sup>20</sup> IOSCO Principles for the Valuation of Collective Investment Schemes, available at <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD413.pdf>

periods or reduced redemption frequencies, may be more suitable than the use of anti-dilution LMTs<sup>21</sup>.

While the framework as described above is expected to be applicable to all responsible entities in principle, some of the critical elements may vary according to the nature of each OEF. Further details on such variations are provided below.

#### **Box 5: Example –governance and oversight of liquidity**

In the FCA's multi-firm review of liquidity management in open ended funds in 2023, found best practice in governance to:

- Focus on liquidity management from the top of the organisation. Those firms with a separate liquidity risk management committee charged with either managing liquidity specifically or having a customer protection focus, generally do a far better job at managing liquidity risk. This, along with a liquidity risk appetite statement demonstrates commitment from the top of the organisation and permeates all other aspects of managing liquidity.
- Establish and document protocols for escalating issues and increasing governance frequency during volatile market conditions.
- Create a liquidity 'playbook' outlining governance actions and escalations to be followed when liquidity stress testing triggers are activated, and in preparation for various market scenarios.
- Detailed liquidity reporting, presented to the Board and Governance Committees, including trends of redemptions and 'change flags' on the evolution of liquidity buckets within funds and strategies, particularly when redemptions and deteriorating liquidity coincide.
- Have appropriate representation from all areas of the organisation, including risk and distribution, while having robust internal conflicts management in place.
- Thoroughly scrutinise the least liquid 'buckets' for liquidity, portfolio turnover, valuation, and use of dilution adjustments.
- Willingly challenge investment managers about their funds' liquidity and the composition of portfolio transactions undertaken to meet investor redemptions.

<sup>21</sup> See related revisions to FSB Recommendations. [Addressing Structural Vulnerabilities from Liquidity Mismatch in Open-Ended Funds – Revisions to the FSB's 2017 Policy Recommendations]

Consider longer notice periods or redemption tenors for funds with a high proportion of illiquid assets as part of their product governance.

### **Questions for the Public Consultation**

3. Do you agree with Proposed Guidance 3 regarding the inclusion of quantitative LMTs and/or other liquidity management measures within the overall liquidity risk management framework that OEF managers should have in place at all times?
4. Is Proposed Guidance 3 appropriate for all types of OEFs in its scope, and proportionate for all types of responsible entities to implement? If not, please explain.



## Section IV - Anti-dilution Liquidity Management Tools (Not Open to Consultation)

### 4.1. Element (i) – Types of Anti-Dilution LMTs

**Guidance 4:** As part of their liquidity risk management framework, responsible entities should consider and use appropriate anti-dilution LMTs for OEFs under management (where appropriate as per the explanatory text set out below) to mitigate material investor dilution and potential first-mover advantage arising from structural liquidity mismatch in the OEFs they manage.

#### **Relevant Proposed Revised Liquidity Recommendation(s)**

Recommendation 1: The responsible entity should draw up an effective liquidity risk management process, compliant with local jurisdictional liquidity requirements.

Recommendation 6: The responsible entity should consider and implement a broad set of liquidity management tools and measures to the extent allowed by local law and regulation for each OEF under its management, for both normal and stressed market conditions as part of robust liquidity management practices.

The principle underlying the use of anti-dilution LMTs should be the fair treatment of both transacting and existing/remaining investors with the objectives to mitigate material dilution and potential first-mover advantage arising from structural liquidity mismatch in OEFs. Since the dilution risk differs between OEFs, the application of appropriate anti-dilution LMTs to achieve these objectives may also differ between OEFs.

In this regard, responsible entities of OEFs, particularly those falling into Category 2 (less liquid) as described under Revised FSB Recommendation 3, should consider and use such tools and should ensure that transacting investors will bear the costs of liquidity associated with fund redemptions and subscriptions in order to arrive at a more consistent approach to the use of anti-dilution LMTs by OEFs. For Category 2 funds, there would be a greater likelihood of dilution expected than for Category 1 funds. The expectation is that anti-dilution LMTs would be increasingly used by Category 2 funds as part of their day-to-day liquidity management, unless such LMTs not being used is clearly justified, subject to (i) oversight of authorities in line with their supervisory approaches and (ii) implementation of other effective liquidity risk management measures that meet the broader policy intent of reducing material structural liquidity mismatches underpinning the Revised FSB Recommendations.

In line with the above, anti-dilution LMTs should (i) be included in OEF constitutional documents; (ii) be considered and used in both normal and stressed market conditions, with a view to achieving greater use and greater consistency in their use; and (iii) account for both the explicit and implicit costs of redemptions and subscriptions, including any significant market impact of asset sales and purchases. In addition, responsible entities of such OEFs should have appropriate internal systems, procedures and controls in place that enable the use of anti-dilution LMTs as part of the day-to-day liquidity risk management of the OEFs they manage, even if such tools would not always be in use.

With respect to the above considerations, responsible entities should have proper policies and procedures in place for conducting the relevant assessment of the risk of material dilution in either normal or stressed market conditions.

While the guidance with respect to considering and using anti-dilution LMTs would vary among different OEFs, responsible entities should in any case have a general liquidity risk management framework as per the Proposed Revised Liquidity Recommendations, irrespective of the fund category under which an OEF falls per the Revised FSB Recommendation 3.

IOSCO has identified five anti-dilution LMTs<sup>22</sup> adopted by OEFs in different jurisdictions globally. IOSCO 2018 Liquidity Recommendations noted that anti-dilution levies and swing pricing, “may be considered particularly appropriate where the fund invests in assets where investors may perceive an advantage in redeeming first. By ensuring that costs of transactions required to meet redemption requests are borne by the redeeming investors, these tools provide assurance to remaining investors and remove a potential incentive for investors to redeem.” The IOSCO 2018 Good Practices also addresses anti-dilution LMTs, covering swing pricing, anti-dilution levies, and valuation according to bid or ask prices.<sup>23</sup> Further to these, IOSCO has also identified dual pricing and subscription / redemption fees as additional anti-dilution LMTs. Each of these anti-dilution LMTs provides for liquidity costs to be passed to transacting investors; the calculation of liquidity costs is further discussed in **Element (ii)** below.

- **Swing pricing:** refers to a process for adjusting a fund’s NAV (typically calculated at mid-price) by applying a swing factor that reflects the liquidity cost stemming from net subscriptions or redemptions. All investors pay or receive the same swung price.
- **Valuation at bid or ask prices:** refers to an asset valuation procedure that switches from valuation at mid-price to valuation according to bid or ask-price, depending

<sup>22</sup> While these five tools are generally regarded as the most commonly used anti-dilution LMTs by the industry, the list should not be considered as exhaustive. Responsible entities may consider and use other anti-dilution LMT(s) or variations of these tools which may achieve the same objective in mitigating investor dilution.

<sup>23</sup> Open-ended Fund Liquidity and Risk Management – Good Practices and Issues for Consideration at <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD591.pdf> p. 22-30.

on the direction of net fund flows. Accordingly, the NAV is calculated based on bid-price when there are net outflows and based on ask-price when there are net inflows (a threshold may be set out). All investors pay or receive the same price.

- **Dual pricing:** refers to the calculation of two NAVs per valuation point. One way of implementing dual pricing is to calculate one NAV which incorporates assets' ask prices and the other NAV which incorporates assets' bid prices. Subscribing investors pay the NAV calculated using ask asset prices; redeeming investors receive the NAV calculated using bid asset prices. Another way of implementing dual pricing is to set an 'adjustable spread' around the fund's NAV under which assets are priced on a mid-market basis, with a bid price at which the fund redeems shares and an offer price at which the fund issues new shares. The difference between these two prices is known as the spread as estimated by the responsible entity, which could be dynamic to reflect the liquidity costs in prevailing market conditions.
- **Anti-dilution levy:** refers to a process whereby a variable levy / fee for the benefit of the fund is added to, or deducted from, the fund's NAV (typically calculated at mid-price), increasing the final price paid by subscribing investors or decreasing the price received by redeeming investors, to effectively pass on the liquidity cost. The levy can be based on the fund's net flows and the same levy may be applied to all subscribing / redeeming investors or, where possible, based on an individual investor's in / outflows and charged to each investor accordingly.
- **Subscription / redemption fees:** refers to a process whereby a fixed levy / fee is added to / deducted from the fund's NAV in case of subscriptions / redemptions<sup>24</sup>. The fee is charged to the transacting investors for the benefit of the fund<sup>25</sup> to cover the cost of liquidity. This tool may be particularly appropriate for funds that invest in assets that have fixed transaction fees, such as real estate agency fees or notary fees, and / or for funds that have low-variation transaction costs.

While anti-dilution LMTs generally attribute the estimated cost of liquidity to transacting investors by either adjusting the fund NAV or the final price to be paid / received by transacting investors, they vary in terms of calibration and responsiveness to the changes in market situations. As such, some anti-dilution LMTs may need to be adjusted or supported by other anti-dilution LMTs to account for larger liquidity costs, including any

<sup>24</sup> The use of this type of fees for the benefit of the fund to cover the cost of liquidity is more common in the case of redemption. This may be because the fund has an obligation to honor redemption payments within a limited timeframe, whereas the time available for the fund manager to manage portfolio acquisitions to reduce potential dilution from subscriptions is more flexible. However, in the case of a large subscription, which may bring material dilution impact to the fund, anti-dilution LMTs such as a subscription / redemption fee should be used to attribute the cost of liquidity to the transacting investors to protect the interest of remaining investors.

<sup>25</sup> In some cases, subscription / redemption fees charged to investors may be retained by the fund managers or the intermediaries. Subscription / redemption fee structured in this manner is not regarded as an anti-dilution LMT as it does not mitigate the dilution impact on the existing / remaining investors in the fund resulting from the liquidity costs incurred by the subscribing / redeeming investors.

significant market impact expected to arise in changing market conditions, particularly in stressed market conditions.

More specifically, subscription / redemption fees should be adjusted upward to account for larger liquidity costs or adjusted based on a tiered approach corresponding to the amount of net fund flows (akin to a tiered swing pricing approach as described on p.34 below). In addition, jurisdictional differences in OEF regulations, the operational set-up and the distribution channel<sup>26</sup> may have a bearing on whether each of these tools is available or operationally feasible in a particular jurisdiction.

Subject to the guidance as set out in Element (ii) below, the selected anti-dilution tools may have to allow for adjustments or to be complemented by other anti-dilution LMTs in stressed times to cater for different market conditions. Responsible entities are also expected to pass the benefit of the spreads, fees or levies arising from application of anti-dilution LMTs to the OEFs.<sup>27</sup>

## 4.2. Element (ii) – Calibration of Liquidity Costs

**Guidance 5: Anti-dilution LMTs used by responsible entities should impose on subscribing and redeeming investors the estimated cost of liquidity, i.e., explicit and implicit transaction costs of subscriptions or redemptions, including any significant market impact of asset purchases or sales to meet those subscriptions or redemptions. Independently of the anti-dilution LMT used, responsible entities should be able to demonstrate to authorities (in line with the authorities’ supervisory approaches) that the calibration of the tool is appropriate and prudent for both normal and stressed market conditions.**

### **Relevant Proposed Revised Liquidity Recommendation(s)**

Recommendation 6: The responsible entity should consider and implement a broad set of liquidity management tools and measures to the extent allowed by local law and regulation for each OEF under its management, for both normal and stressed market conditions as part of robust liquidity management practices.

<sup>26</sup> For example, some fund managers expressed that, when a fund is distributed by a third party (e.g., fund platform), applying anti-dilution levies may be more operationally burdensome, compared to swing pricing, because the third party would have to correct the price provided to fund investors by adding the anti-dilution levy to the fund NAV.

<sup>27</sup> See UK FCA Asset Management Market Study (April 2018) for discussion of box profits at <https://www.fca.org.uk/publication/policy/ps18-08.pdf>

Recommendation 14: The responsible entity should put in place and periodically test contingency plans with an aim to ensure that any applicable liquidity management tools and liquidity management measures can be used where necessary, and if being activated, can be exercised in a prompt and orderly manner.

Anti-dilution LMTs should pass on the estimated cost of liquidity to transacting investors. Fund managers have to estimate those liquidity costs to be incorporated in anti-dilution LMTs because the adjustment of the portfolio as a result of the net fund flow on a particular day may not take place before the calculation of the fund's NAV for that day. This guidance seeks to provide key principles and considerations for estimating such cost to promote a more consistent approach on the use of anti-dilution LMTs for OEFs.

Estimating liquidity cost consists of two major parts, namely determining the basis for the estimate and considering each of the liquidity cost components.

### ***Estimation Basis***

The underlying principle for estimating liquidity costs is to arrive at a fair and reasonable estimate treating all investors fairly, taking into consideration reasonably foreseeable market conditions.

To achieve this, responsible entities should duly consider the liquidity costs associated with transacting a pro-rata slice of all assets in the portfolio ("pro-rata approach"<sup>28</sup>). This gives a starting point for estimating the liquidity cost to be charged to the transacting investors<sup>29</sup>. However, it does not mean responsible entities will always need to buy / sell a pro-rata slice, nor pass on the costs of transacting a full pro-rata slice where that would not represent a fair estimate of the true cost.

If responsible entities make the professional judgement that buying / selling a pro-rata slice would not, overall, be in the best interest of all investors, considering the OEF's investment strategy, the feasibility and cost of alternative transaction approaches, the liquidity risk profile and management of the portfolio, as well as reasonably foreseeable market conditions as a whole, responsible entities may adjust that estimate to reflect more accurately the expected cost of liquidity when transacting in selected individual holdings of the portfolio.

<sup>28</sup> Also known as "vertical slicing approach"

<sup>29</sup> There are however cases where using a pro-rata approach to estimate the transaction cost is not possible: for example, for OEFs that allocate a significant proportion of their AUM in inherently illiquid assets, such as real estate OEFs and private equity OEFs. In these cases, a long notice period and/or a pre-determined discount of the NAV unit price (similar to a fixed redemption fee) to be received by redeeming investors, could be envisaged to protect remaining investors and reduce the risk of fire sales and first mover advantage.

Nevertheless, responsible entities should particularly consider using the pro-rata cost in stressed times, when it is most relevant for mitigating the potential dilution impact on the remaining investors. If managers were to use the most liquid assets first in order to meet redemptions, the remaining investors would be left with less liquid assets, at which point the cost of liquidity would be likely to increase as the stress continues. Therefore, it would be expected that the pro-rata approach should be applied to estimate liquidity costs in stressed market conditions to ensure fair treatment to all investors, particularly for funds investing in less liquid assets.

### ***Liquidity Cost Components***

The liquidity costs are comprised of two components, namely explicit transaction costs and implicit transaction costs. The latter includes potential market impact.

#### ***Explicit Transaction Costs***

These are transaction costs that are explicitly charged to a fund for its acquisition or disposal of assets. They include brokerage fees, trading levies, taxes and settlement fees. They are generally stable in amount and quantifiable in advance of the transactions.

Responsible entities should be able to identify the types of explicit transaction costs that are applicable and calculate their approximate amount with a high level of certainty for each asset by using, for example, previous transactions, contractual arrangements they have in place with brokers, and referring to third parties, where appropriate, for confirmation.

#### ***Implicit Transaction Costs***

These are transaction costs incurred indirectly upon acquisition or disposal of assets by a fund, with the bid-ask spread and market impact (to be discussed next) being the key components. These costs may vary depending on, among others, the asset in question and underlying market conditions. For example, bid-ask spreads may range from less than 10 basis points for some developed market equities in normal times, to more than 5% for high-yield corporate bonds in stressed market conditions.

In addition, the transparency of bid-ask spreads may vary across assets and their trading venues. For example, the bid-ask spreads for assets that are traded in centralised exchanges (e.g., stocks and futures) tend to be more stable and transparent. The bid-ask spreads for assets that are traded OTC (e.g., corporate bonds) may fluctuate more and may be less transparent.

When the information sources that responsible entities use to determine bid-ask spreads become less reliable or unavailable, particularly in stressed market conditions, they should use their professional judgement, trading experience and best efforts to arrive at a reasonable estimate, which should be typically larger than the costs incurred during normal times and aim at a fair treatment of all investors.

Overall, depending on the OEF's underlying assets and market conditions, responsible entities should source bid-ask spread information from the relevant commercial data bases, directly from broker dealers, and / or use estimations based on comparable assets and / or historical data, with a view to obtaining reasonable inputs to calibrate anti-dilution LMTs. Some responsible entities use pricing models when the market price is not available. However, those models should be used with caution and be adjusted as appropriate to reflect generally larger liquidity costs under stress.

### ***Significant Market Impact***

Market impact is another implicit transaction cost incurred, in addition to bid-ask spreads, when a fund takes / supplies liquidity from / in the market to complete the trading necessary to meet a net fund flow. For example, when the transaction by an OEF is large in size relative to the market liquidity, part of the transaction may be executed outside the market 'screen price' and 'move' the market price because it takes up a considerable depth of immediately available liquidity (i.e., 'on-screen' liquidity)<sup>30</sup>.

A reasonable input for the estimation of market impact could be to analyse previous transactions under similar market conditions to compare the difference between the price when the order was placed and the final executed price. Such price difference, after excluding all execution costs, is sometimes referred to as 'slippage'. For fixed income securities, the quote provided by data providers or brokers is likely an indicative price and not executable. This makes fixed income securities more prone to larger slippage, especially in stressed market conditions.

Responsible entities should include significant market impact in the calculation of the cost of liquidity when calibrating the anti-dilution LMTs. In order to do so, an assessment (e.g., slippage assessment) is needed before the sale / purchase is made, taking into account the size of the transaction, asset class, market structure and the prevailing market conditions. Responsible entities should use their best efforts to make estimates based on analysis of previous transactions (in consultation with subject matter experts such as their trading desks) or relevant market data / models.

Once the market impact is estimated, responsible entities should assess the materiality of the impact and whether it is appropriate to incorporate it in the calibration of the anti-dilution LMT, according to their own pre-set framework.

Overall, IOSCO recognises that there could be a degree of uncertainty for the market impact estimated despite the best efforts made by responsible entities. Nevertheless, responsible entities should be able to support their assessment of the market impact with appropriate documentation. Regarding the precision in estimating market impact, responsible entities should be able to demonstrate to authorities that they have made

<sup>30</sup> See, for example, ALFI Swing Pricing document, update 2022, p.14 at: [https://www.alfi.lu/getattachment/3154f4f7-f150-4594-a9e3-fd7baaa31361/app\\_data-import-alfi-alfi-swingpricing-brochure-2022.pdf](https://www.alfi.lu/getattachment/3154f4f7-f150-4594-a9e3-fd7baaa31361/app_data-import-alfi-alfi-swingpricing-brochure-2022.pdf).

reasonable efforts aiming to arrive at fair and reasonable estimates of market impact, taking into account any limitation on data availability. The calibration of market impact is an iterative process due to the complexities involved and the forward-looking nature. While it may take time for responsible entities to develop the framework and operational processes to do so, it is expected to be improved over time based on experience gained by the fund managers and regular reviews to refine the calibration.

### ***How Different Anti-dilution LMTs Incorporate the Cost Components***

All anti-dilution LMTs adopted should aim to attribute the cost of liquidity to transacting investors by including the explicit and implicit costs (including any significant market impact) mentioned in the previous section. In principle, there should not be any caps or restrictions that prevent anti-dilution LMTs from achieving this objective. Therefore, the calibration of anti-dilution LMTs should be adjustable when needed, even if a normal range of adjustment factors / fees is disclosed or set.

By design, the swing factor of swing pricing and the anti-dilution levies are often adjustable on a regular basis. As such, they are able to incorporate both the more stable explicit transaction costs and any implicit transaction costs that are contingent on market conditions, including significant market impact. Therefore, they are useful anti-dilution LMTs for OEFs that invest mainly in assets with market-contingent liquidity costs. However, responsible entities may need the relevant expertise and operational set-up to enable their use.

Dual pricing (based on bid or ask prices) or valuation at bid / ask are more useful to OEFs that invest mainly in assets whose liquidity costs are mainly comprised of the bid-ask spread, as the fund's adjusted NAV would already reflect that spread in normal times. However, any significant market impact or explicit transaction costs would need to be accounted for separately, either by additional adjustment to the NAV or via other (anti-dilution) LMTs.

Alternatively, if dual pricing is designed with the 'adjustable spread' approach as explained in Element (i), this would enable dual pricing to be more dynamic and reflect liquidity costs at prevailing market conditions, akin to swing pricing or anti-dilution levies. That said, this may require a similar level of expertise and operational set-up for implementation.

For subscription / redemption fees, the liquidity cost calibration tends to be more static than the other anti-dilution LMTs identified by IOSCO and they are hence more appropriate to capture explicit transaction costs that are known beforehand and any implicit costs that are stable. Subscription / redemption fees may well be useful for OEFs that have constant or low-variation transaction costs in normal market conditions. In any case, the calibration of subscription / redemption fees should be fair and reasonable and should allow upward adjustments in response to changing market conditions, particularly during stressed times, to reflect the higher cost of liquidity.

These attributes are crucial to achieving the objectives of anti-dilution LMTs (i.e., to mitigate dilution and potential first mover advantage), especially when used by daily-dealing OEFs



that mainly invest in less liquid assets. Otherwise, managers should adopt another anti-dilution LMT in combination with subscription / redemption fees or adopt quantity-based LMTs or other liquidity management measures under stressed market conditions.

### ***Disclosed Ranges of Liquidity Cost Adjustment***

While disclosing a normal range of liquidity cost adjustment (e.g., a range of swing factors or anti-dilution levies) to be applied may help set the expectation on anti-dilution LMTs' effect and may satisfy a regulatory disclosure requirement in some jurisdictions with a view to benefitting investor communication and help reduce the incentive to redeem due to first mover advantage, the range should not be regarded as a cap or restriction that would prevent anti-dilution LMTs from achieving their objectives to pass the relevant liquidity costs to transacting investors.

Therefore, where such parameters are disclosed, responsible entities should put in place mechanisms to allow an adjustment beyond the disclosed ranges if necessary to sufficiently cover the costs of liquidity (including any significant market impact), particularly in stressed market conditions. An example would be to include a clause in the fund documentation that explicitly states that the ranges of liquidity cost adjustment could be exceeded on an exceptional basis and if justified by the market conditions.

### ***Expectations on the Level of Confidence and Sophistication of Estimations***

As bid-ask spreads and market impact cannot be calculated definitively ex-ante, the overall cost of liquidity to be incorporated in anti-dilution LMTs is expected to be estimated on a best-effort basis. Under normal market conditions, the cost of liquidity could usually be estimated with a higher level of confidence. Under stressed market conditions, transaction costs may become more unpredictable and econometric models may not be fit for purpose. In such cases, it would be appropriate for responsible entities to rely on expert judgement to account for uncertainty based on available information.

Independently of the type(s) of anti-dilution LMT(s) used, responsible entities should be able to demonstrate to authorities that their calibration is fair and reasonable for both normal and stressed market conditions, taking into account the best interests of investors. This should be supported by a strong liquidity risk management framework, which should include periodic back-testing and strong governance.

The degree of sophistication of the estimation is expected to be commensurate with the fund's overall portfolio profile, such as fund size, complexity of strategies, types of asset classes and their market liquidity, investment sectors, redemption terms and conditions of the OEF, as well as the overall liquidity risk management framework<sup>31</sup>. Responsible entities

<sup>31</sup> For clarity, it may be appropriate for a large OEF or an OEF with a complex investment strategy / portfolio to use a simple calibration model for their anti-dilution tools, if such a model is consistent with the OEF's overall portfolio profile, liquidity risk management framework and local regulatory guidance.

should also document how judgement and discretion were applied and review their models regularly to continuously improve their estimations. The review should take into account experience of past stress events as well as the results of liquidity risk assessments and stress testing.

#### **Example – Calculation of Significant Market Impact**

Market impact could be calculated for each asset in the portfolio (i.e., bottom-up approach), using previous transaction data to model the calculation. Back-testing is used a posteriori to enhance the accuracy of that model over time.

Alternatively, in particular when under stress or when adequate data is not available, the discounts required by the market in asset sales may be estimated based on a representative sample of assets which, in the case of fixed income, could be done by type of asset (e.g., public or private debt, sector, rating, priority level, etc.) or, in the case of equities, could be based on information from transactions carried out or observed in the market for similar volumes (especially through block transactions).

In the early stages of adopting an anti-dilution tool, fund managers could start by relying on simple models to estimate the implicit costs, including the market impact, then gradually move to more advanced models using their historical transactional data.

When using dual pricing, estimated transaction costs for buying and selling can be applied to the respective bid and ask valuations, so it should be possible to adjust these to include the market impact estimates.

#### **Example – Tiered Swing Pricing Approach**

Some managers use a tiered swing pricing approach by pre-setting and applying a progressively increasing swing factor based on the net fund flow amount and market conditions. For example, when the net fund flow is less than x% of the OEF's NAV, the swing factor to be applied is set to be less than y%. When the net fund flow exceeds x%, the swing factor will be adjusted upward accordingly to an appropriate level (which is higher than y%). The same mechanism could apply based on market conditions (e.g., market volatility). This approach facilitates a clear and systematic implementation of anti-dilution mechanisms while taking proportionality into account. However, its implementation may be operationally more complex.

### 4.3. Element (iii) – Appropriate Activation Threshold for Anti-dilution LMTs

**Guidance 6:** If responsible entities set thresholds for the activation of anti-dilution LMTs, those thresholds should be appropriate and sufficiently prudent so as not to result in any material dilution impact on the fund.

#### Relevant Proposed Revised Liquidity Recommendation(s)

Recommendation 13: Responsible entities should have adequate and appropriate governance arrangements in place for their liquidity risk management processes, including clear decision-making processes for the use of liquidity management tools and other liquidity management measures in normal and stressed market conditions.

Recommendation 14: The responsible entity should put in place and periodically test contingency plans with an aim to ensure that any applicable liquidity management tools and liquidity management measures can be used where necessary, and if being activated, can be exercised in a prompt and orderly manner.

Recognising that OEFs provide investors with the benefits of collective investing, investors in OEFs should also collectively bear the reasonable costs of investing via such vehicles. As such, they should expect to share transaction costs as well as other costs of the OEF in a reasonable manner. In this regard, while proper procedures are expected to be put in place to enable the use of anti-dilution LMTs as part of the ongoing liquidity management, such LMTs are not necessarily expected to be activated at all times.

It is appropriate for responsible entities to set different levels for the activation of anti-dilution LMTs for each OEF they manage. The activation threshold should be set appropriately and prudently so as not to result in any material dilution impact in the fund if it is set too high, taking into account factors such as the OEF's AUM size and portfolio characteristics (including the investment strategy and asset liquidity), estimated cost of liquidity (as defined under Element (ii) above), investor profile and historical fund flows. If it is set too low, it can create unnecessary costs for both transacting and remaining investors and increase the volatility of the OEF's NAV.

For example, some OEFs may adopt a partial swing pricing mechanism, which is activated only when net subscriptions or net redemptions are greater than a pre-determined threshold. This threshold can also be based on the cumulative flows registered in a pre-determined period. In that case, the swing adjustment will be activated the day when the cumulative flows exceed that threshold. The activation thresholds in respect of net fund flows for OEFs investing in less liquid assets should be set more prudently, compared to

OEFs investing in more liquid assets, as less liquid assets usually involve relatively higher liquidity costs.

Another type of partial swing pricing is the tiered swing pricing model, where the OEF's NAV is adjusted based on multiple pre-determined thresholds and factors. Depending on the pre-defined inflow / outflow threshold breached, the OEF applies a different swing factor. OEFs may use different factors for subscriptions and redemptions or have several differently tiered factors, depending on the asset class, fund size and market conditions. The tiered approach potentially reflects the trading curve better by taking into account different potential dilution impacts when trade sizes vary. In addition, it may help to reduce the opportunity for some investors to try to 'game' the use of swing pricing, as smaller fund flows can also trigger its use. The tiered approach also facilitates the use of swing pricing during the whole life of the fund from its inception, and under both normal and stressed market conditions (also see the Box above for example).

Both approaches can be applied when using other anti-dilution LMTs such as anti-dilution levies.

Alternatively, an activation threshold can be set in terms of the estimated liquidity cost of the assets in which the OEF invests. For example, in times of market stress and when that estimated liquidity cost exceeds a pre-determined level, the anti-dilution LMT will be activated independently of the total amount of flows.

The appropriateness of the activation threshold for each OEF should be subject to ongoing review, taking into account changing market conditions. For example, some OEFs may adjust their activation threshold (even reducing it to zero) during market stress to account for the increase in estimated liquidity costs and apply the anti-dilution LMT independently of the amount of flows.

## Section V – Quantity-based Liquidity Management Tools and Other Liquidity Management Measures

### 5.1. Element (iv) – Types of Quantity-based LMTs and Other Liquidity Management Measures

**Proposed Guidance 7:** As part of their liquidity risk management framework, responsible entities should consider and implement a broad range of quantity-based LMTs or other liquidity management measures for OEFs under management as part of their liquidity risk management.

#### **Relevant Proposed Revised Liquidity Recommendation(s)**

Recommendation 1: The responsible entity should draw up an effective liquidity risk management process, compliant with local jurisdictional liquidity requirements.

Recommendation 6: The responsible entity should consider and implement a broad set of liquidity management tools and measures to the extent allowed by local law and regulation for each OEF under its management, for both normal and stressed market conditions as part of robust liquidity management practices.

Recommendation 14: The responsible entity should put in place and periodically test contingency plans with an aim to ensure that any applicable liquidity management tools and liquidity management measures can be used where necessary, and if being activated, can be exercised in a prompt and orderly manner.

Quantity-based LMTs aim to limit the amount of liquidity available to redeeming investors. As they restrict investor redemption rights, they are typically used under stressed market conditions. They are different from anti-dilution LMTs in the sense that they are activated once the risk has materialised i.e., high level of redemptions or valuation uncertainty. Quantity-based LMTs are also different from other redemption terms which are set at the design phase of the fund such as redemption caps<sup>32</sup>, notice periods or lock-up periods, for example.

<sup>32</sup> As defined in the Proposed Revised Liquidity Recommendations.

From an investor protection point of view, quantity-based LMTs reduce the need to sell assets at discounted prices during conditions of high volatility or market dislocation to honour redemptions. This could be seen also as a positive effect from a financial stability perspective. However, if investors can anticipate the activation of quantity-based LMTs, it could prompt a higher volume of redemption demands to avoid the liquidity restrictions that would apply to them.

In addition to anti-dilution and quantity-based LMTs, there are other liquidity management measures which have very particular objectives, such as segregating hard-to-value or illiquid assets from a pool of assets or avoiding the crystallisation of losses.,

Overall, the common goal of quantity-based LMTs and other liquidity management measures is to allow OEF's managers to manage the fund's liquidity risk, as they see fit and always in the best interest of all investors. Therefore, they are both complementary to anti-dilution LMTs which, under normal circumstances, should be able to effectively mitigate material investor dilution and potential first mover advantage.

IOSCO has identified four types of quantity-based LMTs and two types of other liquidity management measures that are adopted by OEFs in different jurisdictions globally, namely (i) suspension of redemptions and subscriptions; (ii) redemption gates; (iii) extension of notice periods; (iv) extension of settlement periods; (v) side pocket; and (vi) redemption in-kind<sup>33</sup>.

Responsible entities should exercise their professional judgement, in both normal and stressed market conditions, to achieve a balance between anti-dilution LMTs and quantity-based tools and other liquidity management measures in terms availability and usage, as permitted under the relevant regulations and considering the best interests of fund investors, particularly in exceptional circumstances. In particular, exclusive reliance on quantity-based LMTs may result in unintended consequences. For example, investor expectations that an OEF will use quantity-based LMTs may add to excess redemptions in stressed market conditions, if investors seek to anticipate potential restrictions on redemptions.

Considerations about the use of each of the identified quantity-based LMTs and other liquidity management measures are discussed below.

## **Types of quantity-based LMTs**

### ***(i) Suspension of redemptions and subscriptions***

<sup>33</sup> While these four tools and two measures are generally regarded as the most commonly used quantitative LMTs and other liquidity management measures by the industry, the list should not be considered as exhaustive. Responsible entities may consider and use other anti-dilution LMT(s) or variations of these tools which may achieve the same objective in limiting the amount of liquidity available to redeeming investors.

Suspension is an action taken by a fund or its manager which prevents investors in the OEF from withdrawing their capital and new potential investors from investing in it. In most cases, it is a temporary measure for a short period of time which should be activated under exceptional circumstances only and consistent with local law and regulations. Under such circumstances, a suspension of redemptions is an extraordinary LMT generally considered to be a last resort tool that needs to be activated in order to protect the best interest of investors.

Exceptional circumstances could be understood as unforeseen events and/or operational/regulatory environments that have a material impact on the OEF's ability to carry out normal business functions and activities and which would temporarily prevent the manager to meet the funding obligations arising from the liabilities side of the balance sheet. Examples of exceptional circumstances may consist of:

- asset valuation difficulties;
- severe liquidity issue for instance due to margin calls or significant withdrawals, where executing the sale of underlying assets could worsen liquidity issues for the fund (e.g.: large discounts in asset sales, large dilution of remaining investors);
- critical cyber incidents that impact on the fund, the responsible entity and/or fund's services provider capacity to operate;
- unforeseen market closures;
- trading restrictions; closure of trading venues;
- severe financial and/or political crisis;
- identification of significant fraud;
- natural disaster.

Consequently, suspension of redemptions, as an extraordinary LMT, allows time for the manager to determine fair valuation, to determine how best to meet redemptions in a period of uncertainty, or to see whether the uncertainty is lifted from the underlying markets.

When activating suspension, responsible entities should close the OEF to both redemptions and subscriptions. In other words, the suspension should apply to all existing and any potential new investors, and all subscription and redemption orders that have been placed but not executed before the responsible entities suspends shall not be executed before the suspension is lifted.

After the activation of a suspension, there could be a number of possible outcomes according to national legal provisions, including:

- The OEF is reopened for subscriptions, repurchases and redemptions after a certain period of time and the fund is managed according to the fund's rules.
- The OEF manager might create a side pocket.
- The OEF is put into liquidation if the fund manager comes to the conclusion that it is in the best interest of shareholders or unit-holders as a whole.

As part of the responsible entity's governance, the OEF manager should clearly define a playbook for activating suspension, which should include, where relevant: i) the conditions that could trigger the activation of suspensions; ii) a simulation of the liquidity profile of the OEF and the assets; iii) an assessment of the impact on investors; (iv) a communication plan for investors, stakeholders, service providers and NCAs; (v) if there will also be a suspension of the OEF's NAV calculation; (vi) an exit plan; (vii) an assessment of the legal and compliance requirements and risks associated with the suspension; and (viii) in case it is impossible to re-open the OEF or create side pockets, the process to enter the OEF into liquidation.

Suspensions are suitable to all type of funds.<sup>34</sup>

- France – The French AMF demanded the suspension of subscriptions and redemptions of units of funds in two occurrences: once in 2014, for two funds<sup>35</sup> and, more recently, in 2020 for three French domiciled UCITS funds managed by H2O Asset Management LLP<sup>36</sup>. The management company decided to further extend this suspension to five other funds in their product range. The French AMF requested this suspension because of valuation uncertainty on the significant exposure these funds had to private securities. H2O left those hard-to-value assets in the original UCITS (side pockets) and transferred the rest of the relevant funds' assets to new authorised UCITS funds.
- US – Generally, under section 22(e) of the Investment Company Act of 1940, a registered investment company (other than a money market fund in certain circumstances) cannot suspend the right of redemption or postpone the date of payment of redemption proceeds upon redemption of any redeemable security in accordance with its terms for more than seven days after the tender of such security to the fund or its agent designated for redemptions. There are certain limited exceptions (e.g., any period during which the NYSE is closed/restricted, other than customary weekend and holiday closings). If a registered investment company would like to suspend redemptions (such as if it cannot timely satisfy shareholder redemption requests), it must submit a request for an order from the

<sup>34</sup> In Europe, suspensions are available to all funds even if they are not included in the fund legal documentation.

<sup>35</sup> See [https://www.amf-france.org/sites/institutionnel/files/private/2021-11/lmt\\_en.pdf](https://www.amf-france.org/sites/institutionnel/files/private/2021-11/lmt_en.pdf), p.13

<sup>36</sup> See <https://www.amf-france.org/en/news-publications/news-releases/amf-news-releases/amf-confirms-having-requestedsuspension-subscriptions-and-redemptions-units-three-french-domiciled>



U.S. SEC. The Commission may grant such an order, however, only if it determines that the order is necessary for the protection of the fund's shareholders.

### ***(ii) Redemption Gates***

Redemption gates are partial and temporary restrictions to investors' ability to redeem their capital, generally on a pro-rata basis, that aim to spread redemption requests and asset sales over time in the best interest of all investors, hence alleviating the redemption pressures on the responsible entity.

Redemption gates require the determination of a redemption gate threshold above which responsible entities may decide to activate redemption gates. This means that, despite the redemption amount exceeding the threshold, responsible entities may decide, upon exercising their professional judgement, to still execute in full the redemption orders having regard the liquidity of the OEF assets and provided that the full execution of the redemption orders is in the best interest of both redeeming and remaining investors.

#### **Difference between redemption caps and redemption gates**

The main difference between redemption caps and redemption gates is the level of certainty that they will be applied to investors: the former will always apply as it is one of the redemption terms that the OEF may choose to incorporate in its redemption policy; the latter, however, as it is an LMT and not a redemption term, the responsible entity will have discretion to activate it or not when the activation threshold is exceeded.

The automatic application of redemption caps could potentially induce a first mover advantage, in particular when such redemption term is used by a fund marketed to both professional and retail investors given the difference in knowledge between these two categories of investors.

This activation threshold can be determined on the basis of net redemptions expressed as a percentage of the NAV for a given dealing day or on an accumulative basis, for example the net redemptions experienced in a week, month or a quarter. Responsible entities should calibrate this activation threshold in order to ensure that its effectiveness and implementation is in the best interests of investors at all times, thus being able to actually activate the redemption gates when needed according to market conditions. In calibrating such threshold, responsible entities should give due consideration to the OEF redemption terms, the investment objective of the OEF and the liquidity of the underlying assets and should ensure that investors are able to redeem their units or shares under normal market conditions.

To also ensure a fair treatment among investors, the same redemption gate shall apply to all redeeming investors, and no differentiation should be done by type of investor or share class.

For example, a French responsible entity indicated in the sales prospectus of an OEF it manages that “the threshold above which gates will be triggered [...] is set at 5% of the Fund’s net assets and applies to centralised redemptions for the Fund’s assets as a whole and not specifically for the different fund’s unit classes”.

Having said that, some OEFs with a limited amount of institutional investors may impose gates at investor level. This means that each investor can redeem only a percentage of the fund at a certain time to protect the interest of remaining investors.

With regard to the non-executed part of the redemption orders, responsible entities should specify in advance whether they are automatically cancelled or carried over to the next dealing day, and thereafter until the orders are fully executed. Should non-executed parts be carried over, it should be clarified if they will receive preferential treatment or be treated on an equal footing with new redemption orders submitted for execution at this dealing day, considering that giving them priority would fuel first-mover advantage.

In general, as suspensions, redemption gates are suitable to all types of funds to avoid a full fund suspension and provide some liquidity to redeeming investors.

- A French responsible entity implements redemption gates to an OEF investing in listed equity and offering daily redemptions. It sets and discloses the redemption threshold (5% of the net asset value of the OEF).

Should redemption orders exceed the redemption threshold, the responsible entity may decide or not to activate redemption gates depending on market conditions observed on this day. If it decides to activate them, the responsible entity has discretion to determine the exact threshold, which could be 5% or above.

According to market conditions, the responsible entity could process all or part of the redemption requests received. Once the exact threshold set, the responsible entity determine the fraction of each redemption request that cannot be executed and informs investors.

The fraction of redemption orders that is not executed will be automatically carried forward and considered as a redemption order received on the following dealing date (i.e. they will not benefit from any priority). Investors cannot object to the postponement of the unexecuted part of their redemption order, nor can they request the cancellation of the unexecuted part of it, in accordance with the fund’s centralisation notice period.

According to the constituting document of the OEF, redemption gates can only be activated 20 times over a three-month rolling period, and the maximum period of time they may remain in force is one month. If one of these limits is reached, the responsible entity will consider other exceptional solutions such as suspensions if necessary.

- Germany – Under section 98 para. 1b of the German Capital Investment Code (*Kapitalanlagegesetzbuch*) a responsible entity may decide to implement redemption gates for an investment fund it manages. In such cases, the investment fund's terms and conditions as well as the prospectus must state that, if a pre-defined threshold is reached or exceeded, the responsible entity may accept only a certain proportion of each redemption order, whereas the rest of the order will expire.

The responsible entity may determine the level of the threshold at its own discretion. If the threshold is reached or exceeded, the responsible entity has a discretion whether or not to restrict redemption orders. The threshold for redemption gates is the level at which accepting redemption requests may adversely affect the overall liquidity profile of the funds and may not be executed anymore in the best interest of the investors.

The responsible entity must notify BaFin without undue delay when redemption gates are activated and deactivated. In case of a retail investment fund, the responsible entity has to further publish the activation and deactivation on its website.

Redemption gates may be activated for no longer than 15 business days.

### ***(iii) Extension of notice periods***

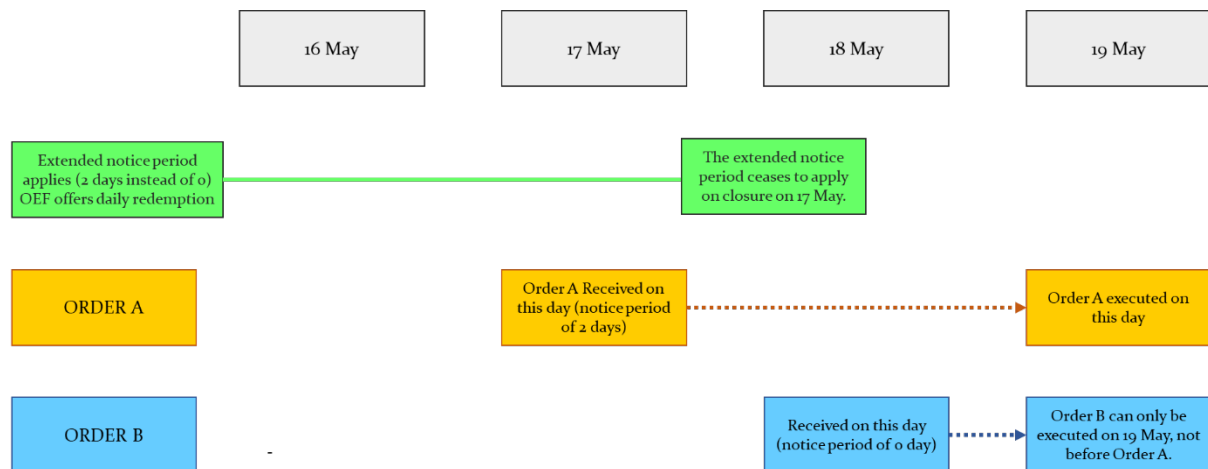
As previously mentioned, OEFs may be structured with notice periods of zero or more days to facilitate the management of redemption orders. Subject to the applicable laws and regulations and the terms as set out in the OEF's offering documents, responsible entities may decide to extend the OEF's notice period in case of liquidity issues if they are confident that required asset sales can be completed within a set timeframe. This extension will enable them to sell assets over a longer period of time to meet the redemption request in an orderly fashion without the need to sell assets urgently at discounted prices. That said, it would mean reduced liquidity and accessibility for investors who need quick access to their money.

To protect investors, the extension of the notice period should be proportionate to the initial notice period and in any case, it cannot change the nature of the OEF or have an impact on the dealing frequency. To ensure a fair treatment among investors, the extension should also be applied to all investors equally, included to all the share classes in an equal manner.

When deactivating the extension of the notice period (i.e. reverting to the initial notice period as defined in the OEF offering documents), responsible entities should ensure that this uplift does not allow orders not subject to the extension to be executed before orders that have been received previously and which are subject to the extended notice period (see the illustrative graph below).

Careful evaluation of the specific circumstances is required by the responsible entities.

Graph 1 - Hypothetical example of a fund offering daily redemption, with a notice period extended from zero to two days.



- In Spain, it is quite frequent (around 85% of all OEFs have this possibility set in their fund rules and prospectuses) to establish a standardised notice period regime: requiring up to ten-day notice period to the investors who redeem over 300.000 € within a ten-day period. Nevertheless, if the fund has enough liquidity to honor redemptions, this notice period may not be applied, or be applied in shorter terms.

In addition to this regime applied in normal times, the Spanish Collective Investment Law allows the CNMV (to ensure a fair treatment to investors and for financial stability purposes) to authorise an asset manager, in regard to all or some of its managed investment funds, to request a notice period to investors willing to redeem, regardless of the amount of redemption and for any length deemed necessary, even though this possibility is not contemplated in the fund's rules. The CNMV is also empowered to impose the use of these notice periods to asset managers, in general or particular cases. The aim of this measure, that can be used on a temporarily basis, is to provide more flexibility to assets managers to deal with heightened redemptions in an orderly manner.

- In the UK, during the market uncertainty caused by the COVID pandemic in 2020, a UK authorised property fund applied a 7% Fair Value Pricing (FVP) adjustment to the unit price<sup>37</sup> and activated the use of deferred redemptions, as a result of a drop in asset values and increased liquidity pressure. The fund was set up as a daily dealing fund with a minimum investment of £1mn, and was not widely marketed and not directly available to retail investors.

<sup>37</sup> The 7% adjustment to the property element of the fund was based on the assessment by the Standing Independent Valuer ("SIV"), a specialist professional firm which is a compulsory appointment for an authorised fund holding direct property investments. It was discussed with the depositary and agreed by the fund board.

In accordance with the fund's prospectus, with effect from 16 March 2020 redemptions were deferred for 185 days from receipt of the redemption request, then the redemption deal was effected at the valuation point on the first dealing day after the 185th day from receipt. Such deferred redemption mechanism is similar to extension of notice period. Investors were able to revoke their redemption orders throughout the period of deferral with the fund manager's agreement. The fund remained open for subscriptions.

#### ***(iv) Extension of settlement periods***

Settlement periods refer to the time between the trade date when a redemption request is made and the date when the transaction of fund units and money are completed and settled. The typical settlement period for OEFs is around one to three days, depending on the jurisdiction, the distribution set-up as well as the individual features and operating model of the fund.

Similar to notice periods, managers may extend the settlement periods to allow them to sell assets over a longer period of time to meet redemption requests in an orderly fashion. Managers may impose a longer settlement period for redemptions that exceed a certain size or when the OEF's assets become less liquid, thereby requiring a longer liquidation horizon. From an investor's perspective, such extended settlement periods reduce, to a certain extent, the liquidity of an investment in a fund, similar to notice periods.

Compared to notice periods, the extension of settlement periods may be limited by local regulations to no more than a few days, as many jurisdictions limit the timing of the delivery of investor's money after the redemption order has been accepted. Therefore, extended settlement periods might not be appropriate for funds requiring more time to sell their illiquid assets.

Furthermore, compared to notice periods, the exit NAV for redeeming investors is determined before managers begin to sell assets over the extended settlement period, which can introduce unfair treatment between investors, as exiting investors are artificially locking the price at which they will exit the fund, leaving the remaining investors to carry larger market risk than usual.

#### **Other liquidity management measures**

##### ***(v) Side pockets***

Side pockets are a mechanism by which a fund manager segregates specific assets (e.g., assets for which there are valuation issue or legal uncertainty) from the fund's overall portfolio. Investors then receive shares or units of the new holding on a pro rata-basis of their holdings in the existing fund.

As such, the manager, through unit segregation can better manage the unique liquidity or valuation of the different underlying assets. The advantage is that the fund holding the

“unaffected” assets remains open to subscriptions and redemptions, while the “uncertain” assets in the side pocket can be dealt with separately.

There are generally two forms of side pockets:

- physical separation, where assets for which there are valuation issues or legal uncertainty are located into a new vehicle, or remain in the existing fund while “unaffected” assets are located into a new fund.
- accounting segregation, with assets for which there are valuation issues or legal uncertainty allocated to a dedicated share class of the existing fund.

The side pocket, which holds the “uncertain” assets, is close-ended and the responsible entity manages it in the best interest of the investors and potentially with the objective of being liquidated. The possibility of reintegration could be considered in case that sanctions and trading restrictions (the reason to set up the side pocket in the first place) were lifted. In order to fulfil liabilities arising from the management of the side pocket, the responsible entity should allocate a proportion of liquid assets to it.

Responsible entities should manage the remaining part of the portfolio (i.e. the liquid assets) in accordance with the investment strategy of the existing fund. In that respect, only the NAV of this remaining part, other than the side pocket, may be known to the investors. In the case of new subscriptions and redemptions in the fund, they should be executed on the basis of these assets (i.e. holdings of the side pocket should be excluded).

Side pockets are an exceptional tool that should be used under exceptional circumstances only (*see the examples of exceptional circumstances in the section for suspensions of redemptions and subscriptions above*).

Often, side pockets are used to hold illiquid securities and used in times of uncertainty where fair valuation of an asset is temporarily very difficult or impossible. They are most often used in funds investing in less liquid assets, such as private equity, venture capital or hedge funds. However, in Europe, after the review of the UCITS and AIFM directives, all OEFs will be able to activate side pockets under exceptional circumstances.

Responsible entities should determine the triggering conditions for activating a side-pocket, including legal and regulatory requirements. In order to activate side pockets, responsible entities should have the operational capacity and governance to put in place side pockets efficiently. This is important to avoid abuse of side pockets. There have been some examples of illiquid assets being segregated into side pockets accounts to protect managers’ fees on the more liquid part of the investment strategy.

- In Luxembourg, side pockets have been implemented in the context of the Ukraine/Russia war. At the time, the CSSF made a distinction between investment funds under its supervision whose exposure to assets, which had become illiquid/non-tradeable because of the ensuing crisis, was only limited and

investment funds with a higher exposure to such illiquid assets. While investment funds with a limited exposure could continue to operate normally and were in a position to use more straightforward and temporary options to deal with the situation, governing bodies of investment funds with higher exposures were encouraged to suspend their funds as a first immediate measure to protect the interests of the investors, before deciding on how to deal with the illiquid assets across time. In several instances, the structural measures employed by these investment funds consisted in segregating the illiquid assets from the liquid assets, most commonly by means of a new dedicated share class or, more rarely, as a new compartment, in order to reopen the funds with only the liquid assets remaining. Before determining the adequate option to deal with the assets that became illiquid as a result of the restrictive measures in the context of the Ukraine crisis, the governing body of the fund was expected to conduct a thorough analysis. The CSSF also required notification of the selected approach with a view to authorisation and also asked for proper information of investors.<sup>38</sup>

- In Spain, to avoid abuses on side pockets, the Spanish regulation sets a cap on the management fee on the segregated vehicle (a maximum 0,2% of NAV per year). This cap starts applying two years after the segregation. In any case, the management fee would be accrued and charged to the segregated fund only when it gets enough liquid assets.

In addition, there is a liquidity management mechanism that is similar to side pockets which is known as “partial subscriptions/redemptions”. In circumstances where it is not possible to estimate the fair value of some funds’ holdings because their trading has been, either suspended or become highly illiquid, the valuation of these assets will be “frozen” in the NAV calculation at the last known market value. In parallel, a number of units are set aside from an accounting perspective, whose value equals the affected assets at the “frozen” NAV. In subscriptions, investors will receive units corresponding only to the NAV of the fund’s liquid assets (i.e., a partial subscription). Similarly, in redemptions, investors will receive the redemption proceeds corresponding only to the NAV of the fund’s liquid assets (i.e., a partial redemption). After the suspension or illiquidity affecting the assets normalizes, and based on these assets’ updated market price, adjustments will be made in the number of units assigned to investors who subscribed or the amount paid to investors who redeemed during the period of partial subscriptions and redemptions.

Another simpler version of this mechanism consists in temporarily valuing at zero the illiquid assets. In this case, only partial redemptions is used, since the new investors will not have any right over the value recovered from the illiquid assets in the future.

<sup>38</sup> Further information on the CSSF’s approach at the time can be found under: [UKRAINE CRISIS: FAOS ON THE APPLICATION OF LMTS BY INVESTMENT FUNDS \(cssf.lu\)](#)

This procedure is especially useful when events that cause illiquidity are expected to be of short duration. The last one was the outbreak of the Russian-Ukrainian war. Three Spanish investment funds and two investment companies affected by the suspension of the trading of bonds, equities and investment funds in which they invested, applied this mechanism. The weight of these illiquid assets, and consequently partial subscriptions/redemptions, ranged from 4,2% to 16,3% of their NAV.

#### ***(vi) Redemptions in-kind***

In-kind redemptions (or sometimes referred to as in specie redemptions) are a mechanism by which OEFs can distribute the underlying assets, generally on a pro-rata basis to investors,<sup>39</sup> as opposed to paying cash, to honor redemptions.

In-kind redemptions aim to avoid the sale of a sizable block of securities by the fund to effect a redemption in cash, thereby avoiding significant transactions costs and market price impacts which may disadvantage remaining investors. In-kind redemptions may also allow the fund manager to deploy a greater portion of the portfolio into investments and hold less cash in reserve to fund potential redemptions, thereby matching the underlying investments and liquidity needs of the OEFs better.

However, there are a number of considerations when implementing such a tool:

- First, in-kind redemptions are not suitable for every investor category. Specifically, they are more appropriate for institutional investors rather than retail investors.
- Second, it is not a tool that lends itself to fund strategies that trade in less fungible securities. For example, a large S&P 500 equity fund could more easily give a redeeming investor a vertical slice of the portfolio than a fixed income fund or property fund given the nature of the fund's underlying assets. In such cases, responsible entities should adopt and implement appropriate procedures to ensure that honoring a redemption request by transferring underlying assets to the redeeming investor does not harm the best interests of remaining investors.
- Third, processing the delivery of physical assets to clients may come with large-scale operational challenges.
- Fourth, the practice can, in some circumstances, be considered discriminatory where thresholds are involved that trigger automatic in-kind redemptions.
- Finally, from a financial stability standpoint, such a tool does not necessarily deal with contagion issues. It merely transfers the securities, and the associated liquidity



problems, to an investor who may sell them into a falling market.

**Box 6: Example of other liquidity management measures: credit facilities and interfund lending**

In the U.S., borrowing or other funding arrangements could assist an open-end management investment company (referred to in this box as a “fund”) in meeting redemption requests in certain cases (for example, by bridging any timing mismatches between when a fund is required to pay redeeming shareholders and when any asset sales that the fund has executed in order to pay redemptions will settle). The U.S. Securities and Exchange Commission has, however, stated that, in some situations, borrowing arrangements may not be beneficial to a fund’s liquidity risk management to the extent that the fund’s use of borrowings to meet redemptions leverages the fund at the expense of non-redeeming investors.<sup>40</sup> In such a case, non-redeeming shareholders would effectively bear the costs of borrowing and the increased risk to the fund created by leverage.

Thus, the Commission stated that funds should consider the likely overall benefits and risks in including such borrowing or other funding arrangements within a liquidity risk management program. Potential considerations in this analysis include the extent to which a fund’s borrowing arrangements could help the fund manage its liquidity risk and any aspects of those arrangements that could limit the fund’s ability to borrow (e.g. the terms of the credit facility such as whether the credit facility is committed or uncommitted, the financial health of the institution(s) providing the facility, and whether a credit facility would be shared among multiple funds within a fund family).

Similarly, the Commission stated that with respect to interfund lending within a family of funds, the terms of an interfund lending arrangement and any conditions required under exemptive relief permitting the arrangement (including limitations on the circumstances in which interfund lending may be used) will shape the role that interfund lending has in a fund’s overall liquidity risk management.

**Questions for the Public Consultation**

5. Has the proposed guidance identified all of the quantity-based LMTs and other liquidity management measures commonly used by responsible entities? Are there any other LMTs that share the same objectives and that could be included in this guidance? If so, please describe them.
6. Are the identified quantity-based LMTs and other liquidity management measures described correctly? Do the features or characteristics of the different tools and

<sup>40</sup> See Adopting Release, *supra* note 11, at 85-6.

measures vary or do they generally operate as described?

7. What additional key elements should Proposed Guidance 7 take into consideration regarding the use of each quantity-based LMT and liquidity management measures identified? Are there any particular types of OEFs that are not suitable to use some of these tools and measures?
8. Do you have any practical examples on the use of these quantity-based LMTs and other liquidity management measures that could be included in the implementation guidance?

## 5.2. Element (v) - Appropriate Activation and deactivation of Quantity-based LMTs and Other Liquidity Management Measures

**Proposed Guidance 8: Responsible entities should have a clear decision-making process for the use of quantity-based LMTs and other liquidity management measures in the best interests of investors. In particular, the thresholds or criteria set (if any) for the activation of such tools and measures should be appropriate, objective and sufficiently prudent. Responsible entities should also regularly review the tools and measures currently in use and take all necessary steps to resume normal operations as soon as practicable.**

### **Relevant Proposed Revised Liquidity Recommendation(s)**

Recommendation 6: The responsible entity should consider and implement a broad set of liquidity management tools and measures to the extent allowed by local law and regulation for each OEF under its management, for both normal and stressed market conditions as part of robust liquidity management practices.

Recommendation 14: The responsible entity should put in place and periodically test contingency plans with an aim to ensure that any applicable liquidity management tools and liquidity management measures can be used where necessary, and if being activated, can be exercised in a prompt and orderly manner.

Generally, the use of quantity-based LMTs or other liquidity management measures, is to ensure equitable treatment of all investors in a fund and motivated by the need to act in the investors' best interests, particularly under exceptional circumstances such as market failures, exchange closures, unpredictable operational issues and liquidity issues of OEF assets.

Accordingly, these tools and measures are typically much less frequently used than anti-dilution LMTs and may result in more drastic outcomes or experience for investors, particularly for those that limit investors from accessing their invested capital as needed (e.g., redemption gates, suspension of redemptions, extended notice period and extended settlement periods). If the processes of triggering their use are not sufficiently transparent and well-communicated to investors, it may result in unintended consequences that undermine their effectiveness.

For example, for suspension of redemptions, there may be unintended effects as follows:

- direct impact on investors - the tool prevents access by investors to their assets, which may have serious consequences for investors if not prepared for such suspensions.
- impacting confidence - confidence is key to financial markets and their stability, so suspension leading to a loss of confidence in a single fund, or class of funds, may impact other markets.
- reputational issues - by raising questions about the operations of the asset manager, which may lead to a run on the fund once it resumes operations, or on other funds operated by the same asset manager.
- further market impacts - suspension of redemptions could also exacerbate market uncertainty and cause investors in other funds to redeem, fearing that more funds will suspend redemptions.

Therefore, responsible entities should provide greater clarity on the circumstances, fund governance process, communication plan to investors and authorities, under which funds may use quantity-based LMTs or other liquidity management measures. For example, in some instances, these tools or measures can be only invoked when the daily redemption requests of a fund exceed a predefined threshold as a percentage of AUM, or with prior approval from authorities.

If responsible entities set thresholds or criteria for the activation of quantity-based LMTs or other liquidity management measures, those thresholds and criteria should be appropriate, objective and sufficiently prudent in the best interest of investors. For instance, in the case of redemption gates, a balance to calibrate the gates has to be struck: on one hand to ensure so that they are generally activated only in response to exceptional market conditions or instances of unusually high redemptions, and on the other hand, to ensure the gates can be activated before it's too late (i.e. a wave of redemptions below the activation threshold for a long period of time). They should not result in an unfair treatment between investors or in freeing the responsible entities from their duty to endeavour faithfully to meet redemption demands in an orderly fashion.

Once in use, responsible entities should consider how long the tools or measures should continue before taking other actions, considering the market and the expected liquidity of

respective instruments/assets held by the OEF in the foreseeable future, the length of the period since the tools or measures have been activated, the particular reasons for the activation and on the applicable regulations, and the best interest of investors.

Given the nature of OEFs, it is generally not expected to restrict investor's access to the invested capital for a long time when compared to the liquidity terms originally offered. If the temporary problems affecting the OEF have become more structural and persistent, it could be argued that the tools and measures should be in place for longer. That said, in such instances, increasing consideration should be given towards those who wish to access their money. Responsible entities should then consider alternatives, such as liquidation, or, if allowed, the changing of the OEF structure (e.g. to a closed end fund, or other changes to the redemption policy) or the setting-up of side pockets.

Lastly, the relevant authorities should be provided with all relevant information as soon as practicable, including the reasons for the use of such tools or measures as well as any information the authorities require. Some jurisdictions may require a prior authorisation of the use of such tools and measures. In any case, an early engagement with authorities is encouraged. Other relevant parties, e.g. intermediaries and distributors should also be informed as soon as practical.

#### **Questions for the Public Consultation**

9. Do you agree with Proposed Guidance [8] regarding the considerations on activating and deactivating quantitative LMTs and/or other liquidity management measures? Are there any additional key elements that responsible entities should consider in this regard?

## Section VI – Stress Testing

**Proposed Guidance 9:** Stress testing is an important component of a responsible entity's liquidity risk management process for an OEF. Responsible entity should appropriately design stress testing arrangements as set out in this section, taking into account the size, investment strategy, underlying assets, and investor profile of the OEF; the current and expected market conditions and other relevant market and regulatory factors.

### **Relevant Proposed Revised Liquidity Recommendation(s)**

Recommendation 12: The responsible entity should conduct ongoing liquidity assessments in different scenarios, which could include fund level stress testing, in line with regulatory guidance.

### 6.1. Design of scenarios

Appropriate liquidity assessments, which could include fund level stress testing, should be carried out on the liability side, the asset side as well as a combination of both, based on normal and stressed scenarios (for example, atypical redemption requests or a significant drop in asset value that gives rise to a margin call). Scenarios should include backward-looking historical scenarios and forward looking hypothetical scenarios, and could be based on parameters calculated using statistical techniques or concrete stress events where appropriate to do so. Some of the concrete methods that responsible entities employ to develop stress testing scenarios are set out below in Box 7.

#### **Box 7: Example – Stress testing method employed**

##### **Backward-looking scenarios**

Examples of methods for constructing backward-looking historical scenarios include:

##### *Statistical techniques*

Under this method, a stressed scenario is defined by quantitative parameters calibrated based on historical data.

The parameters that define a scenario are computed using statistical techniques. The key parameters may include market turnover, bid-ask spread and redemption rates, and they may be calibrated to be consistent with certain confidence intervals (e.g. one-tailed

99% and 95%) or the maximum or minimum values observed during the historical period.

The data used for calculating the parameters are typically based on a historical period that includes episodes of significant market stress.

#### *Concrete stress events*

Under this method, actual historical stress situations are used for stress testing. The historical situations may include:

- Market-wide or economy-wide events, such as the global financial crisis that began in 2007–2008, or the European sovereign debt crisis that began in 2009.
- Events that are relevant for specific types of funds, such as the 2013 “Taper Tantrum” for bond funds, or the summer 2015 China stock market correction for funds that primarily invest in the China A-share market.
- COVID-19 induced market stresses.
- Events that are specific to the responsible entity or the OEF, such as redemptions by the OEF’s largest investor.

#### *Forward-looking scenarios*

Responsible entities, when constructing forward-looking hypothetical scenarios, may seek to include extreme events that may plausibly happen given the latest and expected regulatory, market and technological developments.

As in the case of backward-looking historical scenarios, forward-looking hypothetical scenarios may include:

- Market-wide or economy-wide events, such as events resulting from changing behaviour of market participants (e.g. the increasing adoption of algorithmic trading) or the introduction of certain rules or regulations (e.g. the launch of circuit breaker in certain market that makes it possible for the suspension of the trading of all of a fund’s underlying assets);
- Events that are relevant for specific types of funds, such as larger-than-expected changes in interest rate that will likely cause major changes to the value and the widening of spread of the underlying assets of bond funds; and
- Events that are specific to the responsible entity or the OEF, such as expected change of redemption pattern as a result of change in OEF’s investor profile and/or responsible entity’s distribution strategies.

Some responsible entities may have difficulties in quantifying the impact of the above events. Responsible entities often extrapolate the historical relationships between these events and liquidity parameters, with necessary adjustments. They may also take into account the professional opinion of their traders or other market practitioners.

### ***Tailoring stress testing scenarios to the OEF***

Responsible entities should tailor stress testing scenarios to ensure that they are appropriate to the OEF. Examples of how responsible entities tailor stress testing scenarios include:

- Securities traded over-the-counter may not have reliable and transparent trading data. For OEF that invests in these securities, instead of applying statistical techniques to historical trading data to construct backward-looking scenarios concerning the OEF's assets, the responsible entities often place more reliance on forward-looking hypothetical scenarios and the professional opinion of the responsible entities' traders or other market practitioners.
- Nominee holding arrangements tend to reduce responsible entities' visibility over the investor profile of an OEF. For OEF that adopts a nominee holding arrangement, it may be impractical for responsible entity to construct certain forward-looking investor redemption scenarios that require granular investor profile information, such as scenarios that assume the redemption of the OEF's largest investors. In this situation a responsible entity should take all reasonable steps to obtain such information from nominees to facilitate stress testing. If this is not possible, as an alternative, the responsible entity may assume that the OEF faces redemption for all the units sold through a particular distributor or faces overall redemptions of a certain magnitude reflecting the possibility that a large share of its investor base will decide to redeem at the same time.
- Collateral posted by an OEF's counterparties in derivatives and securities lending transactions may affect an OEF's liquidity, such as when the counterparties are unable to meet their obligations under stressed market conditions, and that the responsible entity has to liquidate the collateral to meet the counterparties' outstanding obligations. For OEF of which collateral comprises a significant proportion of assets, stress testing should be useful to also cover the collateral.

Market stress may come from multiple sources and along different dimensions, and may affect more than one OEF or responsible entity. For example, investors may exhibit abnormal behaviour during a stressed market period, causing a simultaneous squeeze on both the asset and liability sides; factors such as changes in investment outlook or reputational issues may affect all OEF managed by the same responsible entity or all responsible entities specialising in a particular investment strategy. As such, responsible entities should take into account the following:

- incorporating in stress testing scenarios simultaneous deterioration in multiple liquidity parameters, such as a significant decline in the liquidity of the OEF's underlying assets coupled with a significant increase in the OEF's redemptions; and
- where practical and appropriate, when conducting stress testing, considering the actions of other market participants or at the very least, other OEF under the same responsible entity's management that employ the same or similar investment strategy or analytical framework, invest in similar underlying assets, or are exposed to similar risk factors.

Responsible entities should review and update stress testing scenarios periodically and when there are major changes, such as to the size, investment strategy, underlying assets and investor profile of an OEF, or to the market of the underlying assets. Feedback from any back-testing should also be used to improve the quality of output from future stress testing.

#### **Box 8: Example – Stress testing relating to potential redemption sizes**

Proposed Guidance 2 outlines a baseline framework to maintain consistency between portfolio liquidity and redemption terms, in order to mitigate material investor dilution and first mover advantage that may give rise to investor protection and financial stability concerns. To achieve the same objective, responsible entities should also consider, where appropriate, regularly conducting stress tests on the potential redemption sizes of an OEF to identify potential liquidity shortage ex-ante and take appropriate actions accordingly such as increasing liquid assets in the portfolio or extending the notice period.

From engagement with the industry, IOSCO noted two example ways of conducting such assessment – by looking at **historical redemption patterns and investor base information** (subject to availability of data).

Historical redemption patterns are useful inputs to stress testing estimates of average and extreme redemption sizes. Responsible entities may consider different time horizon such as 1 day, 1 week and 1 month. The average or median redemption size under each time horizon could serve as the base case scenario for responsible entities to assess potential liquidity shortage against the portfolio liquidity. Responsible entities should ensure that the time series is long enough to fairly reflect 'normal' conditions.

For potential redemptions under stressed scenarios, responsible entities may calculate metrics such as redemption at risk (similar to the concept of Value-at-Risk) based on historical flow of the OEF, which represents the potential outflow at tail-end at a given confidence interval (see table below for an example with **hypothetical figures**).

Alternatively, responsible entities may consider historical redemption sizes associated with historical stress events or estimate potential redemption sizes associated with hypothetical stress events, including the potential difficulty of reliably pricing less liquid



assets. Reverse stress testing may be a particularly valuable tool in this context, helping to identify scenarios which could lead to significant fund liquidity risk (e.g. identifying scenarios which would lead to the imposition of suspensions or other LMTs).

**Investor base information**, such as investor concentration, investor type(s) (i.e., retail or professional) and investor risk tolerance, can help responsible entities determine the impact of large investors withdrawing from OEFs (see table below for an example with **hypothetical figures**) or predict the circumstances under which they may wish to redeem. The more concentrated the investor base is, the more prudent the liquidity management practice of an OEF needs to be. Responsible entities may also maintain a close dialogue with large investors as appropriate such that they can be notified ahead of large redemption requests to be made by these investors.

Redemption risk may also vary by type of investor. For example, the likelihood of redeeming during stressed conditions could be categorised according to whether investors are wealth managers, pension schemes, direct retail investors, or other funds.

Lastly, considering other liquidity demands apart from redemption pressures, such as margin and collateral payment, is also important for an OEF, particularly under stressed conditions.

### **Forward looking approach**

Redemption risk can also be modelled by using a forward-looking approach. In this context, redemption shocks are estimated with an econometric model relating historical redemptions (or net flows) to a set of macro-financial variables.

Depending on the actual exposures of the fund's portfolio (asset types and asset classes), there may be redemption risks related to the evolution of certain macroeconomic and/or macro-financial variables such as short-term and/or long-term interest rates, market volatility indices (VIX), stock market indices, industrial production and/or GDP evolution. Therefore, a significant shock on any of these variables may trigger redemption requests for a set of investment funds, albeit probably with different levels of severity depending on the asset allocation in the fund (equity, bond, mixed).

For the implementation of such a macroeconomic approach, responsible entities can analyze the composition of the funds' portfolios and estimate the sensitivity of redemption requests to the most relevant risk factors/variables. A time series econometric model can then relate the percentage of net flows (in terms of total net assets) to the variations of equity prices (EuroStoxx600 or other indices), equity volatility (VIX), industrial production and/or GDP or interest rates.

Once the parameters relating redemptions to the different economic variables are estimated from the econometric model by using historical data, responsible entities can apply different scenarios with defined shocks (different adverse macro-financial scenarios) on the macroeconomic variables and estimate the resulting redemption shocks in each scenario. Hence, the model translates the adverse scenarios into net

capital flows (defined as subscriptions minus the redemptions, with negative figures referring to redemptions).

This is a forward-looking estimation of redemptions, and it can be used for a liquidity stress testing exercise at individual fund level or for groups of funds (with similar asset allocations)<sup>41</sup>.

#### **Box 9: Example – Redemption coverage ratio**

Where estimates of the potential redemption sizes of an OEF (e.g., based on the approaches as set out in Box 8 are available, some managers may calculate the redemption coverage ratio (liquid assets / potential liabilities, see table below for example with hypothetical figures) under different time horizon in both normal and stressed conditions, as a stress test on the consistency of the OEFs' liquidity against the potential liabilities.

<sup>41</sup> For an example of such a macroeconomic redemption modelling approach, please refer to the following CSSF working paper: [https://www.cssf.lu/wp-content/uploads/Liquidity\\_Stress\\_Test\\_for\\_LU\\_investment\\_funds\\_-\\_the\\_time\\_to\\_liquidation\\_approach.pdf](https://www.cssf.lu/wp-content/uploads/Liquidity_Stress_Test_for_LU_investment_funds_-_the_time_to_liquidation_approach.pdf)

	Base case scenario		
	1 day	1 week	1 month
Liquid assets readily convertible to cash (A)	30%	50%	95%
Potential redemptions (e.g., average redemption) (B)	0.50%	1.50%	4.00%
Redemption coverage ratio (A/B)	60x	33.3x	23.7x
	Stressed scenario		
	1 day	1 week	1 month
Liquid assets readily convertible to cash (A)	30%	50%	95%
Potential redemptions (e.g., redemption at risk) (B)	2.80%	8.50%	30%
Redemption coverage ratio (A/B)	10.7x	5.9x	3.2x

Responsible entities are best positioned to determine the optimal ratio for their funds in the best interests of all investors. Responsible entities could monitor the ratios and their changes to determine whether the portfolio needs to be adjusted to increase the OEF's liquidity in light of potential redemptions, as well as whether the use of liquidity management tools or measures is necessary to lengthen the redemptions.

### ***Use of stress testing results***

Stress testing results should be integrated into all stages of the OEF's product life cycle, including in the product design stage when determining the dealing and distribution arrangements and asset composition, and in performing investment and liquidity risk management on an ongoing basis. Some of the key ways that stress testing results could be used include:

- to determine and assess the appropriate dealing arrangements for each OEF in light of its investment strategy and underlying assets, even under stressed scenarios;
- to consider if any adjustments to the OEF's dealing arrangements, investment strategy and underlying assets (including the holdings of liquid assets) are necessary; and

- to formulate action and contingency plans to deal with plausible stressed market conditions by the use of different LMTs, liquidity management measures and contingency planning.

### ***Determining the appropriate follow-up actions***

When analysing stress testing results and determining appropriate follow-up actions in view of the stress testing results, examples of factors considered by responsible entities include:

- The risk and impact to the OEF under stressed scenarios:
  - Some responsible entities adopt the approach that, if stress testing indicates that the risk to the OEF is below a certain threshold or impact to the OEF under stressed scenario is “low,” no immediate actions will be required. If the risk is around the threshold or impact is “medium,” they may undertake further review to consider potential actions. If the risk is above the threshold or impact is “high,” actions such as adjustments to an OEF’s portfolio within specific time frame will be needed.
  - The risk and impact may be measured in terms of the size of the shortfall in liquid assets when measured against potential redemption, or the extent that the disposal of assets to meet redemption in stressed scenarios may affect the strategy and risk profile of the OEF.
- The likelihood of stress market scenarios materialising:
  - Stress testing results based on scenarios that are considered more likely to materialise are typically examined more closely and will more likely lead to immediate follow-up actions, such as portfolio adjustments.
  - Scenarios that are less likely to materialise are often dealt with through contingency planning or liquidity risk management tools.
- The availability and use of LMTs, liquidity management measures and contingency planning, and whether such tools, measures and plans are able to address the risks.

Even if a responsible entity decides that no immediate actions are warranted in view of the stress testing results, it should still put in place action plans regarding how it will meet an OEF’s liquidity needs should any of the stressed scenarios materialise.

### ***Stress testing frequency***

When determining the stress testing frequency, responsible entities should take into account factors including the size, investment strategy, underlying assets and investor profile of the OEF; and the nature, complexity and resources required of the stress testing

and reasonably foreseeable stressed market conditions to which the OEF would be sensitive. Examples of how responsible entities determine stress testing frequency include:

- Stress testing based on backward-looking scenarios constructed using statistical methods can often be refreshed by including new data and updating the stress testing parameters (e.g. correlations, redemption level, underlying asset liquidation time frame) in an existing model. This is often a mechanical process and should thus be performed more frequently.
- The liquidity profile and risk of a fund will likely be more volatile if it has a more rapidly changing portfolio or investor base, or if the market of its underlying assets is more volatile. Stress testing should be performed more frequently for such funds.
- On the other hand, stress testing based on forward-looking hypothetical scenarios may require the assessment of the specific regulatory, market and technological factors affecting an OEF. This may require more extensive analysis, as well as inputs from multiple business functions and senior management. Such stress testing may thus be performed less frequently.

### ***Governance and documentation***

The performance and oversight of stress testing should be sufficiently independent from the portfolio management function. In general, stress testing should be performed by the risk management function of the responsible entity, with inputs from other relevant functions such as portfolio management and trading, and that stress testing results should be reviewed by the fund board, committee or senior management responsible for liquidity risk management.

Responsible entities should maintain appropriate documentation of stress testing, particularly regarding whether any actions are taken in light of the stress testing results, and should be able to provide the relevant information to authorities upon request.

### **Questions for the Public Consultation**

10. Do you agree with the stress testing elements identified? Are there any additional considerations or good practices that should be covered by this section?

## Section VII – Overcoming barriers and disincentives to implementation of priced-based liquidity management tools, quantitative liquidity management tools and other liquidity management measures

Responsible entities should put in place measures to enable LMTs and other liquidity management measures that are permitted under applicable laws and regulations to be used promptly and in an orderly manner. However, there are some challenges and disincentives associated with the use of LMTs. These can be grouped into two types: negative perceptions regarding their use and market-wide structural or operational barriers to their use.

### ***Negative Perceptions***

There may be ‘stigma’ / reputational / commercial concerns as the design and implementation of anti-dilution and quantitative LMTs could impact negatively the relationship between managers and their investors. Under normal market conditions, it has been raised that OEFs implementing such tools could face difficulties in attracting new investors for two main reasons<sup>42</sup>:

- First, some investors fear that they might be penalised more than warranted by the imposition of existing liquidation costs. To some extent, certain investors, particularly retail investors, may also perceive liquidation costs as extra costs and therefore prefer not to invest in funds implementing anti-dilution LMTs.
- Second, dilution adjustment in fund prices can increase an OEF’s tracking error (when compared to a benchmark / index) and make the fund prices more volatile. Thus, such ‘stigma effect’ may discourage an OEF from implementing anti-dilution LMTs if its peers do not.
- Third, investors do not want to see their redemption rights reduced.

Thus, such ‘stigma effect’ may discourage an OEF from implementing LMTs if its peers do not.

<sup>42</sup> See the Financial Conduct Authority Occasional Paper 48, May 2019. Available at: <https://www.fca.org.uk/publication/occasional-papers/occasional-paper-48.pdf>

## ***Market-wide Structural and Operational Barriers***

The second type of barrier relates to costs and operational challenges in the employment of LMTs:

- Fund managers are likely to face costs to implement LMTs, especially during the initial design and preparation phase. Besides some ongoing fixed costs, for instance those charged by fund administrators, auditors or data providers, fund managers may face upfront costs related to the development systems to implement certain of LMTs (model development costs, internal and third-party IT costs to develop and automate processes, costs associated with revisions to contractual arrangements and existing policies and procedures).
- The use of certain LMTs may require the cooperation of third parties, such as fund administrators, distributors, accountants and other intermediaries. These parties may not have the expertise or the resources enabling a proper implementation of the LMTs. This may also result in an increase in operational risks, attached to the activation of LMTs: while these risks could be reduced by automation of managers' processes, they may still occur from the activities performed by third-party entities they engage.
- In some jurisdictions, the inclusion and use of certain anti-dilution LMTs, despite their availability, may face market-wide operational barriers such as the need for substantial reconfiguration of current distribution and order-processing practices in order to have reliable net fund flow data as an input to the calculation of liquidity cost. Due to various factors in the fund industry ecosystem, intermediaries may not be able to communicate fund flows to the fund managers until after the responsible entity has calculated the NAV of the OEF, meaning that the fund managers may have to determine the NAV (including whether to apply swing pricing) before knowing the inflows and outflows with reasonable certainty. There may also be several levels of intermediaries making it difficult to ascertain exact information on end-investor concentrations. The current processes of intermediaries therefore introduce delay or complexities in implementing anti-dilution LMTs in these jurisdictions.
- Apart from a lack or delay of fund flow data, there may also be a lack of relevant data (e.g., reliable bid-ask spread information). These barriers make the calculation of dilution adjustment factors particularly challenging.
- Operational issues are more likely to surface under stressed market conditions, as fund managers may face the need to recalibrate their anti-dilution LMTs at a more sustained pace (for instance, recalculating the dilution adjustment factors and sharing it with fund administrators).

## ***Potential Solutions***

With greater use and greater consistency in use of LMTs by OEFs in accordance with this proposed guidance, together with enhanced investor disclosures, the above-mentioned negative perceptions could be alleviated. Some managers are of the view that proper use of LMTs has potential benefits on the OEF's performance. It is expected that the use of LMTs will become market practice in many jurisdictions, which will result, with time, in increased standardisation and automatised processes.<sup>43</sup> This could also reduce some of the operational barriers such as operational costs and operational risk associated with manual processes.

In addition, responsible entities could adopt other measures to facilitate the greater use of LMTs, for example:

- further investor education to raise awareness about the role of LMTs and the rationale in favour of their appropriate use;
- closer communication with intermediaries and service providers such as administrators in designing LMTs to enable effective implementation of such tools; and
- ongoing review of the use of LMTs to inform possible improvements to their effectiveness over time.

Close communication and engagement between responsible entities and authorities may also help to identify any potential issues (e.g., regulatory hurdles) that may prevent effective use of LMTs, and facilitate formulation of solutions to such issues.

Nevertheless, market-wide barriers such as certain market structures or lack of appropriate systems of fund service providers would be more difficult for individual fund managers to overcome. These would require complex solutions to be implemented by parties other than fund managers.

### **Questions for the Public Consultation**

11. Please provide practical examples regarding governance arrangement and disclosure about the use of LMTs and/or other liquidity management measures that could be included in the implementation guidance?

<sup>43</sup> For example, over the years Luxembourg's industry body, ALFI, has attempted to standardise swing practices, enabling its consistent application and leading to a relatively high adoption rate. The 2022 survey is available at [https://www.alfi.lu/getattachment/8417bf51-4871-41da-a892-f4670ed63265/app\\_data-import-alfi-alfi-swingpricing-survey-2022.pdf](https://www.alfi.lu/getattachment/8417bf51-4871-41da-a892-f4670ed63265/app_data-import-alfi-alfi-swingpricing-survey-2022.pdf)