Addressing Structural Vulnerabilities from Liquidity Mismatch in Open-Ended Funds – Revisions to the FSB's 2017 Policy Recommendations

Consultation report

5 July 2023

The Financial Stability Board (FSB) coordinates at the international level the work of national financial authorities and international standard-setting bodies in order to develop and promote the implementation of effective regulatory, supervisory and other financial sector policies. Its mandate is set out in the FSB Charter, which governs the policymaking and related activities of the FSB. These activities, including any decisions reached in their context, shall not be binding or give rise to any legal rights or obligations.

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Questions for consultation

The Financial Stability Board (FSB) is seeking comments on its consultation report, which sets out proposed revisions to the FSB's 2017 Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities (the "2017 FSB Recommendations") in relation to liquidity mismatch in open-ended funds (OEFs).

Background

The revised draft Recommendations incorporate lessons learnt since 2017 and aim to enhance clarity and specificity on the intended policy outcomes to make the Recommendations more effective from a financial stability perspective. The FSB is proposing to amend 2017 FSB Recommendations 3, 4, 5 and 8 and make minor changes to Recommendation 2.

The FSB's consultation report should be read in conjunction with the International Organization of Securities Commissions' (IOSCO) consultation report on guidance on anti-dilution liquidity management tools (LMTs).[1]

The FSB invites comments on this consultation report and the questions set out below, including supporting evidence where available. Responses should be sent to fsb@fsb.org by 4 September 2023 with the title "Revised OEF Recommendations". Responses will be published on the FSB's website unless respondents expressly request otherwise.

Questions

Structural liquidity mismatch (Recommendation 3)

1. Should "normal" and "stressed" market conditions be further described to facilitate the application of the bucketing approach? If yes, how would you propose describing such conditions?

2. Are the examples of the factors that should be considered in determining whether assets are liquid, less liquid or illiquid appropriate? Are there other factors which should be considered and, if yes, which ones and why?

3. Is the use of specific thresholds an appropriate way to implement the bucketing approach? If yes, are the proposed thresholds for defining funds that invest mainly (i.e. more than 50%) in liquid or less liquid assets and funds that allocate a significant proportion (i.e. 30% or more) of their assets to illiquid assets appropriate? If not, which thresholds would be more appropriate and why?

4. Should the FSB consider recommending the use of a decreased redemption frequency (on a standalone basis), a longer notice period (on a standalone basis) or a longer

[1] IOSCO (2023), Consultation Report on Anti-dilution Liquidity Management Tools - Guidance for Effective Implementation of the Recommendations for Liquidity Risk Management for Collective Investment Schemes, July.

settlement period (on a standalone basis) for OEFs investing in less liquid assets that do not meet the expectation on the implementation of anti-dilution LMTs? Or should these measures be used in combination, considering the risk of redemptions crowding around certain dates?

5. Would additional guidance on factors to consider when setting the redemption frequency or notice or settlement period be helpful? If yes, in what respect?

Liquidity management tools (Recommendations 4, 5 and 8)

6. Do the proposed changes to Recommendations 4 and 5, when read together with the proposed IOSCO guidance on anti-dilution LMTs, help achieve greater use and a more consistent approach to the use of anti-dilution LMTs? If not, what changes should be proposed to the FSB Recommendations?

7. Are there any obstacles (either universal or jurisdiction specific) to the implementation of the revised FSB Recommendations on the use of anti-dilution LMTs? If yes, what additional recommendations or guidance would help address such obstacles?

8. Would additional recommendations or guidance be helpful in clarifying the expectation that OEF managers have internal systems, procedures and controls enabling them to use anti-dilution LMTs as part of the OEFs' day-to-day liquidity risk management?

9. Do you agree with applying anti-dilution LMTs to subscribing investors as well as to redeeming investors? If not, why?

10. Would additional international guidance on the availability and use of quantity-based LMTs be useful? If yes, what aspects should such guidance focus on? If not, why?

Other FSB Recommendations

11. Do the proposed changes to Recommendation 2, when read together with the proposed IOSCO guidance on disclosure to investors, help enhance disclosure to investors on the use of anti-dilution LMTs? If not, what changes should be proposed to the FSB Recommendations?

12. Should any other 2017 FSB Recommendations (Recommendations 1, 6, 7 or 9) be amended to enhance the clarity and specificity of the intended policy outcomes? If yes, which ones and why?

Additional considerations

13. Are there any other aspects that should be considered in the revised FSB Recommendations to ensure that they are effective from a financial stability perspective?

Executive summary

This consultation report sets out proposed changes to the FSB's 2017 Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities (the "2017 FSB Recommendations") in relation to liquidity mismatch in OEFs. The proposals form part of the FSB's work programme on non-bank financial intermediation (NBFI) and should be read in conjunction with the proposed IOSCO guidance on anti-dilution LMTs. The revised Recommendations are addressed to financial regulatory and supervisory authorities and set out the key objectives that an effective regulatory and supervisory framework should achieve to address the vulnerabilities arising from liquidity mismatch in OEFs, to the extent jurisdictions' liquidity regulations are not yet consistent with the revised Recommendations. The goal of the revised Recommendations, combined with the new IOSCO guidance on anti-dilution LMTs, is a significant strengthening of liquidity management by OEF managers compared to current practices.

The proposals build on the FSB's December 2022 report on the Assessment of the Effectiveness of the FSB's 2017 Recommendations on Liquidity Mismatch in Open-Ended Funds. While the assessment report suggested that the 2017 FSB Recommendations remain broadly appropriate, it noted that enhancing clarity and specificity on the policy outcomes the Recommendations seek to achieve would make them more effective from a financial stability perspective. The report also noted that there was material variation in how LMTs were used and suggested that there was room for greater use of LMTs, in particular anti-dilution tools that are intended to pass on the cost of liquidity to redeeming shareholders in both normal and stressed market conditions.

This consultation report incorporates the assessment report's proposal to revise the 2017 FSB Recommendation 3 to provide greater clarity on the redemption terms that OEFs could offer to investors, based on the liquidity of their asset holdings. This would be achieved through the proposed bucketing approach, where OEFs would be grouped into different categories depending on the liquidity (e.g. liquid, less liquid, illiquid or comparable categories) of their assets. OEFs in each category would then be subject to specific expectations in terms of their redemption terms and conditions. Authorities should set expectations for OEF managers to use a mixture of quantitative and qualitative factors when determining the liquidity of OEF assets in normal and stressed market conditions. All OEFs should also continue to enhance their liquidity management practices, including by implementing anti-dilution LMTs.

For funds that invest mainly (i.e. more than 50%) in liquid assets, daily dealing would remain appropriate. For funds that invest mainly in less liquid assets, offering daily dealing to fund investors (without notice or settlement periods) may remain appropriate, subject to OEF managers being able to demonstrate to the authorities (in line with the authorities' supervisory approaches) that they implement anti-dilution LMTs in line with the revised Recommendations. If funds in this category do not meet the expectation on the implementation of anti-dilution LMTs as described in Recommendation 5, funds should consider and use measures to reduce the liquidity offered to fund investors (e.g. by reducing redemption frequency and/or by implementing long notice or settlement periods). Funds that allocate a significant proportion (i.e. 30% or more) of their assets under management (AUM) to illiquid assets should create and redeem shares at lower frequency than daily and/or require long notice or settlement periods.

The proposal also suggests that in instances where a fund does not clearly fall into (only) one of the three main categories, the OEF manager should adopt a prudent approach in determining the category to which the fund should be classified.

Proposed changes to Recommendation 4 emphasise the need for authorities to ensure the availability of a broad set of anti-dilution and quantity-based LMTs for use by OEF managers in normal and stressed market conditions. Recommendation 5 is proposed to be amended to achieve (i) greater inclusion of anti-dilution LMTs in OEF constitutional documents and (ii) greater use of, and greater consistency in the use of, anti-dilution LMTs in both normal and stressed market conditions. The overall objective is to mitigate potential first-mover advantage arising from structural liquidity mismatch in OEFs by imposing on investors the costs of liquidity associated with fund redemptions and subscriptions. In this regard, anti-dilution LMTs should impose on redeeming and subscribing investors the explicit and implicit costs of redemptions and subscriptions, including any significant market impact of asset sales and purchases to meet those redemptions and subscriptions.

Recommendation 8 is proposed to be amended to replace references to exceptional LMTs with references to quantity-based LMTs and other liquidity management measures that are to be used particularly in stressed market conditions. Such tools and measures include suspensions, redemption gates, in-kind redemptions and side pockets. References to the work that IOSCO is expected to undertake have also been updated. In addition to its current work on guidance on the use of anti-dilution LMTs, IOSCO is expected to review and, as appropriate, enhance its 2018 Recommendations to provide guidance on the use of quantity-based LMTs and other liquidity management measures, particularly in stressed market conditions.

Some additional changes are proposed to be made to implement all the assessment report recommendations or refer to work conducted after 2017. This relates in particular to a proposed change to Recommendation 2 to require clearer public disclosures from OEF managers on the availability and use of LMTs in normal and stressed market conditions. This change aims to enhance investor awareness on the objectives and operation of anti-dilution LMTs. In addition, it is proposed not to apply the revised FSB Recommendations to exchange-traded funds (ETFs), whose structural features and liquidity management distinguish them from other OEFs.

1. Introduction

In 2017, the FSB published Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities (the "2017 FSB Recommendations").[2] As stated in the 2017 FSB Recommendations, a key structural vulnerability from asset management activities is a potential mismatch between the liquidity of fund investments and daily redemption of fund units in OEFs.

To address the vulnerabilities from liquidity mismatch, the 2017 FSB Recommendations aimed to strengthen regulatory reporting and public disclosure to facilitate assessment of liquidity risk in OEFs; promote liquidity management both at the fund design phase and on an ongoing basis; widen the availability of LMTs and use of LMTs in stressed market conditions; and promote fund-level and system-wide stress testing. IOSCO operationalised most of the FSB Recommendations related to liquidity mismatch by issuing the IOSCO Recommendations in 2018,[3] supplemented with a set of related good practices as a reference guide.[4]

In 2022, as part of its work programme to enhance the resilience of non-bank financial intermediation,[5] the FSB assessed the effectiveness of the 2017 FSB Recommendations from a financial stability perspective.[6] The assessment report concluded that authorities have made meaningful progress in implementing the 2017 FSB Recommendations but that lessons learnt since their publication, including during the March 2020 market turmoil, have produced new insights into liquidity management challenges in segments of the OEF sector. While the assessment suggested that the 2017 FSB Recommendations remain broadly appropriate, enhancing clarity and specificity on the policy outcomes the Recommendations seek to achieve would make them more effective from a financial stability perspective. Based on the findings of the assessment report, the FSB and IOSCO agreed to carry out follow-up analytical and policy work.[7]

This consultation report responds to some of the findings of the assessment report by proposing revisions to the relevant parts of the 2017 FSB Recommendations to address structural vulnerabilities related to liquidity mismatch in OEFs. In particular, the FSB is proposing to revise Section 2 of the 2017 FSB Recommendations, including Recommendations 1-9 in that section, as presented in this consultation report. The revised FSB Recommendations should be read in conjunction with the proposed IOSCO guidance on anti-dilution LMTs. IOSCO will also review its 2018 Recommendations to operationalise the revised FSB Recommendations.

The FSB and IOSCO will monitor the progress made by member jurisdictions in implementing their respective revised Recommendations. This monitoring will be followed up, once

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2 FSB (2017), *Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities*, January.

3 IOSCO (2018), *Recommendations for Liquidity Risk Management for Collective Investment Schemes: Final Report*, February.

4 IOSCO (2018), *Open-ended Fund Liquidity and Risk Management – Good Practices and Issues for Consideration*, February.

5 FSB (2022), *Enhancing the Resilience of Non-Bank Financial Intermediation: Progress report*, November.

6 FSB (2022), Assessment of the Effectiveness of the FSB's 2017 Recommendations on Liquidity Mismatch in Open-Ended Funds, December.

7 These include: revisions to the FSB and IOSCO Recommendations to address structural liquidity mismatch and promote greater inclusion and use of LMTs as well as to clarify the appropriate roles of OEF managers and authorities in implementing these Recommendations; development of detailed IOSCO guidance on the design and use of LMTs; work to enhance the availability of OEF-related data for financial stability monitoring; and steps to promote the use of stress testing.

implementation is sufficiently advanced, with an assessment of the effectiveness of jurisdictions' policy measures in addressing risks to financial stability from OEF liquidity mismatch.

This consultation report is structured as follows:

- Section 2 provides an overview of the proposed changes to the 2017 FSB Recommendations.
- Section 3 includes the full text of the revised FSB Recommendations, including the explanatory text for each Recommendation.
- Annex 1 includes a list of the proposed revised FSB Recommendations.
- Annex 2 compares the proposed revised FSB Recommendations to the original 2017 Recommendations.

2. Overview of proposed changes

2.1. Structural liquidity mismatch in open-ended funds

Structural liquidity mismatch can be summarised as the difference between the redemption terms that an OEF offers to investors and the amount of time it may take the OEF's manager to liquidate fund holdings in an orderly manner (e.g. without substantially increasing transaction costs and without substantially impacting prevailing market prices) to satisfy redemption requests. Unmitigated structural liquidity mismatch may amplify shocks by driving 'excess' redemptions that require managers to engage in asset sales larger than in the absence of liquidity mismatch, especially in times of stress. Shock amplification can occur through different channels:

- Liquidity mismatch may produce a first-mover advantage[8] at the fund level when redeeming investors do not bear the full cost of redemptions and these costs instead result in an externality imposed on investors that remain in the fund. A first-mover advantage can drive 'excess' redemptions, especially in times of stress, relative to what might have otherwise been the case.
- In the presence of liquidity mismatch, some investors may misunderstand the liquidity of the underlying assets held by OEFs and may not expect the additional cost or difficulty associated with funds exiting their positions, especially in a stressed environment. If – due to structural liquidity mismatch at a fund level – investors do not internalise the costs of selling portfolio assets, they may be more likely to seek to exit their positions through OEF redemptions than they might have been if they held the same assets directly.

'Excess' redemptions, and associated asset sales to meet those redemptions, could contribute to greater market volatility and additional pressure on asset prices in times of stress. In turn,

[8] The concept of first mover advantage is defined in section 3.1 Scope and terminology.

these dynamics can affect the functioning of core markets (including primary markets) in times of stress, depending on, among other things, the concentration and/or scale of asset holdings by OEFs in particular markets, the size of OEF trades, and the behaviour of other investors in those markets or asset classes. The FSB's work has concentrated on measures and tools to address potential vulnerabilities stemming from an OEF's structure. However, OEFs are only one part of a broader market eco-system, which supports a holistic and proportionate approach to addressing these vulnerabilities.

In its assessment report, the FSB sought to measure the development of structural liquidity mismatch in OEFs based on available data. This analysis was subject to a number of limitations and assumptions and therefore the results should be interpreted cautiously. Nevertheless, the FSB's analysis suggested that there had been no measurable reduction in the degree of structural liquidity mismatch across the OEF sector. Moreover, as the OEF sector has grown in absolute terms, reflecting the increased importance of market-based finance, the potential impact of vulnerabilities that can arise from OEFs' structural liquidity mismatch has also grown. These developments have occurred against a backdrop of lower liquidity supply in certain asset markets in stressed conditions, which may affect the ability of markets to meet increased liquidity demand from OEFs and other investors.

The assessment report concluded that a clearer and more specific articulation of the intended outcome of policies to reduce structural liquidity mismatch in OEFs would strengthen the FSB Recommendations' effectiveness. It noted that the 2017 FSB Recommendation 3 should be revised to provide greater clarity on the redemption terms that OEFs could offer to investors, based on the liquidity of their asset holdings. The report proposed a bucketing approach, where OEFs would be grouped into different categories depending on the liquidity (e.g. liquid, less liquid, illiquid or comparable categories) of their assets. OEFs in each category would then be subject to specific expectations in terms of their redemption terms and conditions. The assessment report also concluded that all funds should continue to enhance their liquidity management practices, including by implementing anti-dilution LMTs.

This consultation report incorporates the bucketing approach through proposed revisions to the 2017 FSB Recommendations. Proposed changes to the 2017 FSB Recommendation 3 relate firstly to emphasising the key underlying principle that the redemption terms that OEFs offer to investors should be based on the liquidity of the OEFs' asset holdings. The FSB is also proposing factors to consider when determining which assets are "liquid", "less liquid", and "illiquid". It is also proposing a means of identifying funds that "mainly invest" in an asset class versus those that allocate a "significant proportion" of assets under management (AUM) to assets that are illiquid even in normal market conditions, as well as instances where funds do not clearly fall into (only) one of the three main "buckets". The FSB is also proposing factors managers and authorities should take into account when considering the appropriateness of redemption terms (including notice and settlement periods) for OEFs.

2.2. Liquidity management tools

The assessment report concluded that while most jurisdictions enable OEF managers to implement a broad range of LMTs in normal and stressed market conditions, there remains room for greater use of LMTs. This applies in particular to anti-dilution tools that are intended to pass on the cost of liquidity to redeeming shareholders in both normal and stressed market conditions.

Once an authority has taken steps to make LMTs available to funds under its jurisdiction, managers may choose whether to enable the use of LMTs by incorporating them in the constitutional documents[9] of OEFs they manage. In the assessment report, the FSB relied on existing data and analysis to assess the extent to which the likelihood that managers choose to include LMTs had changed over time. Available information suggested that, since the publication of the FSB Recommendations, the inclusion of LMTs in constitutional documents had gradually increased across OEFs. The LMTs most frequently included were quantity-based LMTs, such as gates or suspensions.

The FSB also assessed whether managers – particularly of funds with greater structural liquidity mismatch – were more likely than before the publication of the 2017 FSB Recommendations to have made use of LMTs. However, with the exception of suspensions, data are not available on a consistent basis on the use of LMTs by managers in normal or stressed market conditions. Managers in various jurisdictions do not consistently have to disclose or inform regulators when they use an LMT (apart from suspensions). Lack of consistent data about the use of LMTs is more pronounced than lack of data about the inclusion of LMTs in OEFs' constitutional documents. However, based on the available data there appeared to be material variation in the calibration of anti-dilution LMTs that had been used.

The assessment report concluded that there is scope to strengthen the framework around LMTs at a global level. The objective would be to mitigate potential first-mover advantage arising from structural liquidity mismatch in OEFs, to ensure that investors bear the costs of liquidity associated with fund redemptions and subscriptions, and to arrive at a more consistent approach to the use of LMTs by OEF managers. The report also noted that, even when available, bid-ask spreads do not necessarily capture all explicit and implicit transaction costs.

The assessment report noted that the 2017 FSB Recommendations 4, 5 and 8 should be strengthened to achieve greater inclusion in funds' constitutional documents of anti-dilution LMTs designed to pass on to redeeming investors the explicit and implicit costs of redemptions, including any significant market impact of asset sales to meet those redemptions. The revisions to these Recommendations should also achieve greater use, and consistency in use, of anti-dilution LMTs in both normal and stressed market conditions. To implement these objectives, the FSB is proposing to amend these Recommendations as follows:

- Recommendation 4: Instead of the previous focus on the importance of meeting redemptions under stressed market conditions, it is proposed to emphasise the need for authorities to ensure the availability of a broad set of anti-dilution and quantity-based LMTs for use by OEF managers in normal and stressed market conditions.
- Recommendation 5 is proposed to be amended to achieve (i) greater inclusion of anti-dilution LMTs in OEF constitutional documents and (ii) greater use of, and greater consistency in the use of, anti-dilution LMTs in both normal and stressed market conditions. According to the proposed amendments, anti-dilution LMTs should impose on redeeming and subscribing investors the explicit and implicit costs of redemptions and subscriptions, including any significant market impact of asset sales and purchases

[9] These include fund prospectuses, other offering documents and other documents accessible to investors on an ex-ante basis before they make their investment decision.

to meet those redemptions and purchases.[10] The revised Recommendation 5 also refers to the expected content of the anti-dilution LMT guidance that IOSCO will concurrently publish.

- Recommendation 8 is proposed to be amended to replace references to exceptional LMTs with references to quantity-based LMTs and other liquidity management measures that are to be used particularly in stressed market conditions. Such tools and measures include suspensions, redemption gates, in-kind redemptions, side pockets and borrowing to accommodate suspensions. References to the work that IOSCO is expected to undertake have also been updated. In addition to its current work on guidance on the use of anti-dilution LMTs, IOSCO is expected to review and, as appropriate, enhance its 2018 Recommendations to provide guidance on the use of quantity-based LMTs and other liquidity management measures, particularly in stressed market conditions.

2.3. Other revisions

The FSB is not proposing to make any other significant changes to the 2017 FSB Recommendations on liquidity mismatch. However, some additional changes are proposed to be made to implement all the assessment report recommendations and to refer to work conducted after 2017:

- The revised FSB Recommendations are proposed not to be applicable to ETFs, whose structural features and liquidity management distinguish them from other OEFs.
- Recommendation 2 is proposed to be amended to require clearer public disclosures from OEF managers on the availability and use of LMTs in normal and stressed market conditions. This is based on the assessment report recommendation to enhance investor awareness on the objectives and operation of anti-dilution LMTs.
- Recommendation 7 is proposed to be amended to align the language with the changes made to Recommendation 8.
- Recommendations 1 and 6 are proposed to be amended to reflect the further work on data availability that will be done by the FSB, in consultation with IOSCO, and work that has been done by IOSCO on fund-level stress testing.
- Recommendation 9 is not proposed to be amended at this stage.

To complement the changes to the text of the FSB Recommendations, the FSB is also proposing to define the key terms used in the revised Recommendations. Such definitions have been included in the new section on scope and terminology (see Section 3.1).

[10] For further details on determining the estimation of liquidity costs, including significant market impact, see Element (ii) – Calibration of Liquidity Costs of the IOSCO Consultation Report on Anti-dilution Liquidity Management Tools - Guidance for Effective Implementation of the Recommendations for Liquidity Risk Management for Collective Investment Schemes.

3. Revised FSB Recommendations

3.1. Scope and terminology

The revised FSB Recommendations are intended to address the risks associated with OEF liquidity mismatch. They do not imply a 'one-size-fits-all' approach across all OEFs or all jurisdictions. There is significant variation in the types of assets that OEFs invest in and investment strategies that OEFs adopt. The FSB believes that managers of OEFs have the primary responsibility and are best placed to manage the liquidity of their portfolios. To achieve consistent outcomes across fund types, managers of OEFs should exercise this responsibility within an overall regulatory framework set and supervised by authorities. Therefore, the FSB Recommendations are addressed to financial regulatory and supervisory authorities. They set out the key objectives that an effective regulatory and supervisory framework should achieve but are high-level and flexible so that they can be incorporated into a wide variety of regulatory frameworks, to the extent jurisdictions' liquidity regulations are not yet consistent with the revised Recommendations.

The revised FSB Recommendations do not apply to money market funds (MMFs) on which the FSB has issued separate policy proposals.[11]

Liquidity transformation may also be present in ETFs involving less liquid underlying assets. However, the structural features and liquidity management of ETFs distinguish them from other OEFs and the revised FSB Recommendations are therefore not applicable to ETFs. The specific features and vulnerabilities associated with ETFs have been examined in other fora.[12]

Within a wider liquidity management framework, a wide range of liquidity management measures and tools should be available for use by managers of OEFs in normal and stressed market conditions. Such measures and tools can be broadly categorised as follows:

- *Measures to reduce structural liquidity mismatch* through liquidity risk management and by increasing the liquidity of funds' assets and/or by reducing the liquidity funds offer to their investors (e.g., by lowering redemption frequency and/or lengthening notice/settlement periods). These are ex ante measures that reduce vulnerabilities from structural liquidity mismatch and hence the likelihood of 'excess' redemptions/'excess' asset sales.

- *Measures and tools that reduce shock amplification and transmission arising from structural liquidity mismatch in OEFs* through:

  - *Use of anti-dilution/price-based LMTs,* which operate by imposing the cost of liquidity to redeeming investors, i.e. via a price channel (such as swing pricing[13] or

[11] See FSB (2021), *Policy proposals to enhance money market fund resilience: Final report*, October.

[12] For example, see IOSCO (2021), *Exchange Traded Funds Thematic Note - Findings and Observations during COVID-19 induced market stresses*, August. See, also, IOSCO (2023), *Final Report on Good Practices Relating to the Implementation of the IOSCO Principles for Exchange Traded Funds*, May.

[13] Swing pricing is the process of adjusting a fund's price, derived from its NAV to pass on to redeeming or subscribing investors the costs associated with their trading activity.

anti-dilution levies). Anti-dilution LMTs, if operationalised effectively, can strengthen OEF resilience by reducing redemptions arising from potential first-mover advantage[14] and, through that channel, associated 'excess' asset sales. Moreover, if investors understand how these tools operate and expect them to be used, they may be more likely to incorporate the cost of liquidity into their investment decisions.

- *Use of quantity-based LMTs,* which operate by limiting the amount of liquidity available to redeeming investors, i.e. via a quantity channel. Such tools have typically been activated in stressed market conditions in response to increased redemptions. Exclusive reliance on quantity-based LMTs can entail 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. However, quantity-based LMTs continue to have a role to play in certain circumstances. For example, operationalisation of anti-dilution LMTs can be particularly challenging when there is very limited market liquidity or when pricing information is not available. So, quantity-based LMTs are complementary to anti-dilution LMTs, especially in stressed market conditions when OEF assets cannot be valued at an appropriate level of precision. Quantity-based LMTs include suspensions and redemption gates.

- *Use of other liquidity management measures, particularly in stressed market conditions.* Such measures include in-kind redemptions and side pockets.[15] Where a credit facility is available, a fund may also borrow to accommodate redemptions. However, the use of credit facilities to meet redemptions introduces leverage to a fund that is already under stress, which may exacerbate strains if redemptions do not abate. Credit facilities, if provided by banks and other financial institutions, also increase interconnectedness and potential for contagion to the wider financial system.

3.2. Adequacy of information and transparency

Recommendation 1: Authorities should collect information on the liquidity profile of open ended funds in their jurisdiction proportionate to the risks they may pose from a financial stability perspective. They should review existing reporting requirements and enhance them as appropriate to ensure that they are adequate, and that required reporting is sufficiently granular and frequent.

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14 First-mover advantage occurs when, under certain circumstances, investors who redeem their shares first do so on more favourable terms than investors in the same fund who redeem late. It can occur if, for example, the transaction costs for assets sold to meet redemptions are not properly allocated to redeeming investors. Another example of the first-mover advantage occurs if in a scenario of declining values of a fund's assets, investors can redeem before the fund's NAV adjusts to fully reflect those declines in value. An investor who redeems solely in anticipation of further market deterioration is not considered as benefiting from a first-mover advantage. First mover advantage may lead to pre-emptive runs.

15 A side pocket is created when specific assets in the investment fund portfolio are segregated and ring-fenced from the rest of the investment fund portfolio. Side pockets are used by an investment fund to separate illiquid assets from more liquid assets in an investment fund portfolio. Only investors in the investment fund at the time the illiquid assets are transferred to the side pocket are entitled to share in any proceeds generated from the realisation of the sale of the assets at some future stage. See IOSCO (2017), *Good Practices for the Termination of Investment Funds, Final Report*

Any additional reporting requirements should be proportionate to the benefits they bring to authorities to assess potential financial stability risks and/or take needed actions for financial stability purposes. Such additional data reporting should enable authorities to more closely monitor and assess the extent of liquidity transformation across OEFs. To achieve this, existing data reporting to the relevant authorities should be carefully assessed, so that reporting requirements are enhanced where data gaps could result in insufficient information relating to funds' liquidity risk that may affect financial stability. Items to be considered include: funds' liquidity risk and management (e.g. assessment of liquidity risk, asset manager's approach to liquidity risk management); portfolio liquidity and liquidity of individual portfolio holdings; valuation procedures and impact on liquidity risk management; and contingent sources of funding (e.g. availability and use of external sources of finance, including inter-fund lending where available, and committed and uncommitted lines of credit). The relevant authorities should consider the frequency of reporting and revise it, as appropriate in light of evolution in market and investor behaviour, so that it is sufficient for financial stability purposes.

Closing identified data gaps would improve authorities' ability to monitor liquidity mismatch and its management from a financial stability perspective. Progressing this work will include a voluntary pilot programme among FSB member jurisdictions for examining how to improve data availability, including the cost and effort needed to expand data coverage and reporting; and prioritising data gaps to close in order to improve the ability of both central banks and securities regulators to monitor key OEF vulnerabilities related to liquidity mismatch.

When reviewing their requirements, authorities are encouraged to give due consideration to reporting requirements in other jurisdictions and, where appropriate, to seek to have consistent requirements in order to facilitate effective monitoring across jurisdictions for financial stability purposes and reduce unnecessary reporting burdens. Where possible, efforts should build on existing data gathering.

Recommendation 2: Authorities should review existing investor disclosure requirements and determine the degree to which additional disclosures should be provided by open-ended funds to investors regarding fund liquidity risk and the availability and use of liquidity management tools, proportionate to the liquidity risks funds may pose from a financial stability perspective. Authorities should enhance existing investor disclosure requirements as appropriate to ensure that the required disclosures are of sufficient quality and frequency. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

Any additional disclosure requirements should be proportionate to the benefits they bring to investors about liquidity transformation in OEFs individually and in the aggregate. They should be written and presented in a clear and effective manner so as to inform investors' decisions. For investors and the market, additional disclosures should reduce the perception that daily redemption of fund units equates to liquidity of fund assets and promote market discipline to encourage better liquidity risk management practices, especially among funds that engage in considerable liquidity transformation. To achieve this, the adequacy of existing disclosures to investors should be carefully assessed and enhanced where lack of information may impede sufficient transparency relating to funds' liquidity risk.

Additional disclosure items may include: fund liquidity risk profiles and information about the relationship between liquidity and valuation, such as the potential for rapid declines in asset prices when liquidity is impaired and the challenge around providing daily redemptions when accurate fair valuation is difficult (for example, in case of severe market dislocations). These disclosures should help investors clearly differentiate between different types of funds and their liquidity risks. Additional disclosures should also address the availability and use of LMTs and their potential impact on investors in normal and stressed market conditions (see also Recommendation 7). Better communication to fund investors on the objectives and operation of anti-dilution LMTs would also enable investors to better incorporate the cost of liquidity into their investment decisions.

Asset managers should disclose the relevant information to investors with sufficient frequency and on a consistent basis as appropriate for financial stability purposes.[16] In determining the content and frequency of disclosure to investors, it is important to consider the potential for unanticipated consequences from public disclosure of detailed information (e.g. the potential for predatory trading and/or herding behaviour by funds and other market participants). Bearing this in mind, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

3.3. Adequacy of liquidity management both at the design phase and on an ongoing basis

Recommendation 3: In order to reduce material structural liquidity mismatches in open-ended funds, authorities should have requirements or guidance on funds' liquidity risk management. Such requirements or guidance should state that funds' investment strategies and the liquidity[17] of their assets should be consistent with the terms and conditions governing fund unit redemptions both at the time of designing a fund and on an ongoing basis. The redemption terms that open-ended funds offer to investors should be based on the liquidity of their asset holdings in normal and stressed market conditions. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

Authorities should have requirements or guidance on OEFs' liquidity risk management in normal and stressed market conditions. Recognising that market liquidity is affected by multiple factors and varies across different assets and jurisdictions, authorities should set out detailed liquidity frameworks within which managers of OEFs are expected to operate. Such requirements or guidance should state that:

(i) At the time of designing an OEF, the terms and conditions governing redemption of fund units should be consistent with the fund's investment strategy and the liquidity (e.g. liquid, less liquid and illiquid or comparable categories) of the fund's projected asset holdings;

(ii) On an ongoing basis, the liquidity of the OEF's portfolio and assets in normal and stressed market conditions should be managed to remain consistent with the fund's redemption terms; and

16 Asset managers' concerns related to disclosure of strategies and positions could potentially be mitigated if the data are released on a sufficiently delayed basis so that other market players could not otherwise benefit from this information to the funds' disadvantage.

17 The references to "liquidity" in this recommendation encompass both current and expected liquidity, i.e. the assessment of portfolio and asset liquidity should consider not only current liquidity but also expected changes to it.

(iii) Reviews of redemption terms should be carried out at appropriate intervals to achieve this.

Authorities' requirements or guidance should expect that managers of OEFs classify the funds they manage based on the liquidity of the funds' assets in normal and stressed market conditions. Such classification should be based on portfolio and asset level liquidity and apply a prudent approach in determining the categories to which the funds would be classified. Managers should consider the liquidity profile of the OEF's entire portfolio, the liquidity distribution of the assets (i.e. the proportions of the OEF's assets under management allocated to assets falling in different liquidity buckets)[18] and individual asset liquidity in normal and stressed market conditions. This would include regular analysis of portfolio-level liquidity measures as well as analysis of the distribution of asset-level liquidity measures for the holdings of an OEF. The assessment of asset liquidity should be adjusted in light of the funds' stress testing results.

Managers should be able to demonstrate to authorities how they met the parameters of the overall framework. Authorities should conduct regular assessments of how managers have classified the funds based on their jurisdiction's liquidity framework and in line with their supervisory approach with a view to promoting consistent classification.

Each jurisdiction will need to determine its overall liquidity framework and an overall approach to defining assets as liquid, illiquid or less liquid (or comparable categories). There are a number of factors of market liquidity that authorities may wish to consider as part of their framework, such as: market depth and turnover; days to trade; the efficiency and effectiveness of the pricing mechanism; the price impact of large transactions; operational features and potential frictions; and valuation certainty. In general, there should be a mixture of quantitative and qualitative factors and the approach should also consider both normal and stressed market conditions.

Based on such 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.

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[18] In general, OEF managers are well positioned to determine the appropriate level of liquid asset holdings for each OEF they manage. While a requirement to hold a minimum level of liquid assets could complement other elements of a regulatory framework to reduce the need for OEFs to rely on less liquid assets to meet liquidity demands in stressed market conditions, in some settings, it 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 stressed market conditions 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. Therefore, the FSB is not including minimum regulatory requirements for liquid asset holdings across the OEF sector this time. Authorities can explore whether such requirements could be designed to be countercyclical and avoid encouraging pre-emptive runs.

When determining portfolio and asset liquidity, managers should take into account the extent to which (i) the liquidity characteristics of portfolio assets are more difficult to assess, contingent on market conditions, or portfolio assets are difficult to value in stressed market conditions; and (ii) the liquidity characteristics of the portfolio can create a potential incentive for investors to redeem early to the disadvantage of other investors.

Based on the above liquidity determination, the funds can be categorised into the following three main categories.

Category 1: Funds that invest mainly (i.e. more than 50%) in "liquid" assets

For such funds, daily dealing would remain appropriate. The managers of those funds should continue to enhance their liquidity management practices where appropriate, including by implementing anti-dilution LMTs as described in Recommendation 5.

Category 2: Funds that allocate a significant proportion (i.e. 30% or more) of their assets under management to "illiquid" assets

Such funds should create and redeem shares at lower frequency than daily and/or require long notice or settlement periods.[19] The relevant authorities could also consider requiring that such funds be structured as closed-ended funds.

Category 3: Funds that invest mainly (i.e. more than 50%) in "less liquid" assets

Offering daily dealing to fund investors (without notice or settlement periods) may remain appropriate, subject to OEF managers being able to demonstrate to the authorities (in line with the authorities' supervisory approaches) that they implement anti-dilution LMTs as described in Recommendation 5.

If funds in this category do not meet the expectation on the implementation of anti-dilution LMTs as described in Recommendation 5, funds should consider and use measures to reduce the liquidity offered to fund investors (e.g. by reducing redemption frequency and/or by implementing long notice or settlement periods), as considered appropriate by authorities.

When considering the appropriateness of the redemption frequency and the length of a notice or settlement period for funds in Categories 2 and 3, managers should take a holistic approach having due regard to both qualitative and quantitative factors, such as: portfolio composition; alignment between asset liquidity and redemption frequency or length of notice/settlement period; characteristics of the investor base; potential incentives for early redemptions based on portfolio characteristics; and the outcome of liquidity stress tests by the funds.

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[19] In an OEF that implements a notice period, redeeming investors receive the value of shares sold based on the fund's NAV at the end of the notice period. By contrast, in an OEF that implements a settlement period, redeeming investors receive the value of shares sold based on the fund's NAV on the redemption date but payment is deferred until the end of the settlement period. Notice (settlement) periods expose redeeming (remaining) investors to the market risk of shares to be redeemed.

Funds that do not clearly fall into (only) one of the three main categories

Funds that do not clearly fall into (only) one of the three main categories (i.e. funds that do not meet the criteria for any of the above three categories or meet the criteria for more than one of the above three categories) should take a prudent approach when determining which of the treatments applicable to the above three categories to apply. Managers of such funds should be able to demonstrate to authorities (in line with the authorities' supervisory approaches) that the determinations are appropriate. If a fund is mainly invested in liquid assets, but also has a significant proportion of the assets under management in illiquid assets, the fund should generally be considered as having invested a significant proportion of its assets in "illiquid" assets.

In regard to this Recommendation, IOSCO should review its 2018 recommendations and, as appropriate, enhance them to introduce more detailed guidance on the application of this Recommendation.

Recommendation 4: Authorities should ensure that a broad set of liquidity management tools and measures is available for use by managers of open-ended funds in normal and stressed market conditions as part of robust liquidity management practices. Authorities should also reduce operational and other barriers that prevent the use of such tools and measures. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

Authorities should ensure that a broad set of LMTs and measures is available to managers of OEFs. Such tools should include anti-dilution and quantity-based LMTs and other liquidity management measures to reduce shock amplification and transmission. Where certain jurisdictions have relatively few tools available, authorities should augment the range of available tools to encourage robust liquidity risk management practices and foster resilience in normal and stressed market conditions.

In considering the set of LMTs available in their jurisdictions, authorities should aim at achieving a balance between anti-dilution and quantity-based LMTs. From that perspective:

- If anti-dilution LMTs are operationalised effectively, they can strengthen resilience by reducing redemptions arising from potential first-mover advantage and, through that channel, associated 'excess' asset sales. If investors understand how these tools operate and expect them to be used, they may be more likely to incorporate the cost of liquidity into their investment decisions. However, anti-dilution LMTs might not reduce redemptions driven by other factors such as 'dash-for-cash' or 'flight-to-safety'.

- Exclusive reliance on quantity-based LMTs designed to target the effects of 'excess' redemptions and 'excess' asset sales could entail unintended consequences. For example, investor expectations that an OEF will use quantity-based LMTs may add to 'excess' redemptions in times of stress, if investors seek to anticipate potential restrictions on redemptions.

IOSCO should review its 2018 recommendations and, as appropriate, enhance them to introduce more detailed guidance on the application of this recommendation. The revised recommendations should determine the expected framework for the use and oversight of LMTs by fund boards, managers' boards or depositories rather than a specific calibration of these tools.

Recommendation 5: Authorities should ensure that anti-dilution liquidity management tools are available to managers of open-ended funds. Authorities should also ensure that managers of open-ended funds consider and use such tools to mitigate potential first-mover advantage arising from structural liquidity mismatch in open-ended funds they manage, to ensure that investors bear the costs of liquidity associated with fund redemptions and subscriptions, and to arrive at a more consistent approach to the use of liquidity management tools. Such tools should impose on redeeming and subscribing investors the explicit and implicit costs of redemptions and subscriptions, including any significant market impact of asset sales and purchases to meet those redemptions and subscriptions. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them as well as to prepare guidance on the design of anti-dilution liquidity management tools.

Authorities should ensure that anti-dilution LMTs are available to managers of OEFs. They should also ensure that OEFs consider and use such tools to mitigate potential first-mover advantage arising from structural liquidity mismatch in OEFs in ways that would also maintain investor protection. The objectives are to ensure relevant investors bear the costs of liquidity associated with fund redemptions and subscriptions and to arrive at a more consistent approach to the use of LMTs by managers. Such tools should not only be included in OEF constitutional documents,[20] but they should also (i) 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 (ii) account for both the explicit and implicit costs of redemptions and subscriptions, including any significant market impact of asset sales and purchases. In this regard, authorities' requirements or guidance should expect that OEF managers 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.

Anti-dilution LMTs should impose on redeeming and subscribing investors the explicit and implicit costs of redemptions and subscriptions by adjusting the NAV received or paid by investors (e.g. swing pricing) or by charging a fee on redemptions and subscriptions (e.g. anti-dilution levies). This would put fund unitholders in a similar economic position to investors that opt to invest directly in portfolio securities. When implementing such tools, managers of OEFs should have measures in place to estimate and allocate the explicit and implicit costs of redemptions and subscriptions, including any significant market impact of asset sales and purchases[21], to redeeming and subscribing investors.

IOSCO should develop guidance on the design and use of anti-dilution LMTs, which should identify the factors for managers to consider in employing such tools so that they would impose on redeeming investors the explicit and implicit costs of redemptions, including any significant market impact of asset sales. Guidance on the use of such tools should encourage greater use of, and greater consistency in the use of, anti-dilution LMTs by managers in both normal and stressed market conditions, including to avoid threshold effects. Such guidance should also

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[20] These include fund prospectuses, other offering documents and other documents accessible to investors on an ex-ante basis before they make their investment decision.

[21] For further details on the estimation of liquidity costs, including significant market impact, see Element (ii) – Calibration of Liquidity Costs of the IOSCO Consultation Report on Anti-dilution Liquidity Management Tools - Guidance for Effective Implementation of the Recommendations for Liquidity Risk Management for Collective Investment Schemes.,

emphasise the importance of robust valuation practices to support estimation of costs of liquidity and calibration of anti-dilution LMTs. Such guidance should ensure that the tools are robust to different operational scenarios in normal and stressed market conditions. The guidance should also ensure that the tools are adequately governed and informed by appropriate data and expertise.

Achieving increased use of anti-dilution LMTs may require reducing operational or other barriers that prevent the use of such tools. The guidance to be developed by IOSCO should address any barriers presented by operational challenges, market structure and practice and, to the extent relevant, any legal or regulatory hurdles. It should also explore how to mitigate the disincentives (e.g. costs, reputational and competitive concerns) that may affect inclusion and use of LMTs by OEF managers.

Recommendation 6: Authorities should require and/or provide guidance on stress testing at the level of individual open-ended funds to support liquidity risk management to mitigate financial stability risk. The requirements and/or guidance should address the need for stress testing and how it could be done.

Authorities should require and/or provide guidance on OEFs stress testing, to the extent necessary to support liquidity risk management with a view to mitigate financial stability risk. Stress testing should support asset managers' assessment of the impact of changes in asset liquidity and redemptions under stressed market conditions, taking into account to the extent possible the expected behaviour of other market participants (e.g. other funds managed by the same manager) under similarly stressed market conditions. Such stress testing should take into account any known inter-fund relationships, such as inter-fund lending arrangements. In this manner, the use of robust stress testing should strengthen funds' overall liquidity risk management as well as the available fund liquidity under periods of market stress, which would serve as an important component to address potential financial stability risks.

Stress test results should be used by the asset manager to assess the liquidity characteristics of the fund's assets relative to the fund's anticipated redemption flows under stressed market conditions and to tailor the fund's asset composition, liquidity risk management, and contingency planning accordingly. The relevant authorities could also monitor the extent to which stress testing results are being considered as a key input to calibrate holdings of liquid assets, the use of the fund's LMTs, and contingency plans. Where reported to authorities, stress test results may further provide the relevant authorities with an overview of asset managers' perspective of market conditions under various circumstances, and therefore enhance their ability to detect inconsistencies across funds and asset classes.[22]

[22] Authorities may consider reporting of stress test results to be provided in a standardised format to facilitate data aggregation and analysis.

3.4. Adequacy of liquidity risk management tools and measures to deal with stressed market conditions

Recommendation 7: Authorities should promote (through regulatory requirements or guidance) clear decision-making processes for open-ended funds' use of quantity-based liquidity management tools and other liquidity management measures, particularly in stressed market conditions. The processes should be made transparent to investors and the relevant authorities. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

Greater clarity on the circumstances under which funds may use quantity-based LMTs or other liquidity management measures (e.g. suspensions of redemptions, gates, in-kind redemptions, side pockets) would help investors understand how and when such tools and measures might be used. It may also help reduce stigma related to these tools and measures and increase awareness that their use, while infrequent, is a possibility. Spillover effects to other funds may also be mitigated if investors are able to understand the specific reasons why certain funds have to use such tools and measures.

While removal of practical obstacles to using such tools and measures under stressed market conditions is recommended, their use should be carefully considered in light of the potential spillover effects that may arise from their use. The relevant authorities have an important role to play in setting expectations on how these decisions could be made with respect to fund governance, for example through involvement by the fund board of directors (where relevant) and communication to unitholders and the relevant authorities (see also Recommendation 8). The more prepared asset managers and fund investors are with respect to the use of quantity-based LMTs and other liquidity management measures in stressed market conditions, the more effective such tools and measures are likely to be when used.

Additional assessments may be needed to understand the effectiveness of these tools and measures, the extent to which asset managers are prepared to implement and operationalise them, and consequences such as spillover effects across funds and reputational or other barriers to using them. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

Recommendation 8: While asset managers have the primary responsibility to consider and use quantity-based liquidity management tools and other liquidity management measures, authorities should provide guidance on their use particularly in stressed market conditions. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them. Where jurisdictions consider it appropriate, authorities should also provide direction in stressed market conditions regarding open-ended funds' use of such tools and measures, taking into account the costs and benefits of such action from a financial stability perspective.

Having the relevant authorities provide general guidance regarding the use of quantity-based LMTs and other liquidity management measures, particularly in stressed market conditions, will help clarify how such tools and measures can be deployed while recognising and minimising potential spillover effects. This can also assist asset managers in overcoming any reputational or competitive reluctance to use such tools and measures, where appropriate. At the same time, this approach acknowledges that the decision to use such tools and measures should generally remain with the asset manager because the manager is responsible for evaluating what is appropriate for a particular fund, in light of its investment strategies, the liquidity of its portfolio, current market conditions, and other relevant circumstances.

In exceptional cases, such as when there is a market dislocation or overall market stress or when an asset manager faces operational difficulties in taking appropriate actions, the asset manager may not be best placed to make such determinations. The relevant authorities should, in such cases, consider also providing guidance that is specific to the circumstance concerned to facilitate the application of such tools or measures. Moreover, enhanced regulatory guidance may improve the ability of managers to engage in advance planning regarding the use of quantity-based LMTs and other liquidity management measures in stressed market conditions. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them. In particular, it could consider establishing standards with respect to how and under what conditions such tools and measures might be used.

As an option of last resort, a number of authorities have the ability to require, in specific circumstances, a fund to suspend redemptions Where jurisdictions consider it appropriate for authorities to have the power to direct the use of such quantity-based LMTs and other liquidity management measures in stressed market conditions, consideration should be given to the conditions which would warrant such action, as well as to the costs and benefits of taking such action from a financial stability perspective. To the extent possible, authorities should thus seek to assess the potential costs and benefits of different policy options before stressed market conditions occur.

3.5. Additional market liquidity considerations

Recommendation 9: Where relevant, authorities should give consideration to system-wide stress testing that could potentially capture effects of collective selling by funds and other investors on the resilience of financial markets and the financial system more generally.

Currently, a number of authorities with financial stability mandates, as well as the International Monetary Fund, are conducting, or are seeking to conduct, system-wide stress tests that include the potential impact of the activities of investment funds and other investors. The extent to which the potential impact of different types of investors (e.g. investment funds, pension funds, insurance companies) is included in such stress testing may vary across jurisdictions depending on the relative systemic importance of these participants in each jurisdiction and data availability. Against this background, where authorities believe that the potential impact of the activities of funds and other investors amounts to a level of systemic relevance, it is recommended that they consider whether and how to incorporate such potential impact in system-wide stress testing to better understand collective behaviour dynamics as well as the impact on financial markets and on the financial system more generally. Although such system-wide stress testing exercises are still in an exploratory stage, over time they may provide useful insights that could help inform both regulatory actions and funds' liquidity risk management practices. In addition, when seeking to conduct such system-wide stress tests, it is expected that macroprudential authorities and securities regulators would coordinate among themselves as appropriate.

Annex 1: List of revised FSB policy recommendations to address vulnerabilities from liquidity mismatch in open-ended funds

Recommendation 1: Authorities should collect information on the liquidity profile of open-ended funds in their jurisdiction proportionate to the risks they may pose from a financial stability perspective. They should review existing reporting requirements and enhance them as appropriate to ensure that they are adequate, and that required reporting is sufficiently granular and frequent.

Recommendation 2: Authorities should review existing investor disclosure requirements and determine the degree to which additional disclosures should be provided by open-ended funds to investors regarding fund liquidity risk and the availability and use of liquidity management tools, proportionate to the liquidity risks funds may pose from a financial stability perspective. Authorities should enhance existing investor disclosure requirements as appropriate to ensure that the required disclosures are of sufficient quality and frequency. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

Recommendation 3: In order to reduce material structural liquidity mismatches in open-ended funds, authorities should have requirements or guidance on funds' liquidity risk management. Such requirements or guidance should state that funds' investment strategies and the liquidity of their assets should be consistent with the terms and conditions governing fund unit redemptions both at the time of designing a fund and on an ongoing basis. The redemption terms that open-ended funds offer to investors should be based on the liquidity of their asset holdings in normal and stressed market conditions. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

Recommendation 4: Authorities should ensure that a broad set of liquidity management tools and measures is available for use by managers of open-ended funds in normal and stressed market conditions as part of robust liquidity management practices. Authorities should also reduce operational and other barriers that prevent the use of such tools and measures. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

Recommendation 5: Authorities should ensure that anti-dilution liquidity management tools are available to managers of open-ended funds. Authorities should also ensure that managers of open-ended funds consider and use such tools to mitigate potential first-mover advantage arising from structural liquidity mismatch in open-ended funds they manage, to ensure that investors bear the costs of liquidity associated with fund redemptions and subscriptions, and to arrive at a more consistent approach to the use of liquidity management tools. Such tools should impose on redeeming and subscribing investors the explicit and implicit costs of redemptions and subscriptions, including any significant market impact of asset sales and purchases to meet those redemptions and subscriptions. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them as well as to prepare guidance on the design of anti-dilution liquidity management tools.

Recommendation 6: Authorities should require and/or provide guidance on stress testing at the level of individual open-ended funds to support liquidity risk management to mitigate financial stability risk. The requirements and/or guidance should address the need for stress testing and how it could be done.

Recommendation 7: Authorities should promote (through regulatory requirements or guidance) clear decision-making processes for open-ended funds' use of quantity-based liquidity management tools and other liquidity management measures, particularly in stressed market conditions. The processes should be made transparent to investors and the relevant authorities. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

Recommendation 8: While asset managers have the primary responsibility to consider and use quantity-based liquidity management tools and other liquidity management measures, authorities should provide guidance on their use particularly in stressed market conditions. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them. Where jurisdictions consider it appropriate, authorities should also provide direction in stressed market conditions regarding open-ended funds' use of such tools and measures, taking into account the costs and benefits of such action from a financial stability perspective.

Recommendation 9: Where relevant, authorities should give consideration to system-wide stress testing that could potentially capture effects of collective selling by funds and other investors on the resilience of financial markets and the financial system more generally.

Annex 2: Comparison of the revised FSB policy recommendations to address vulnerabilities from liquidity mismatch in open-ended funds to the 2017 Recommendations

The following compares the proposed revised FSB policy recommendations to address vulnerabilities from liquidity mismatch in open-ended funds to the 2017 FSB Recommendations.

3.2 ~~Lack~~ Adequacy of information and transparency

Recommendation 1: Authorities should collect information on the liquidity profile of open-ended funds in their jurisdiction proportionate to the risks they may pose from a financial stability perspective. They should review existing reporting requirements and enhance them as appropriate to ensure that they are adequate, and that required reporting is sufficiently granular and frequent.

Any additional reporting requirements should be proportionate to the benefits they bring to authorities to assess potential financial stability risks and/or take needed actions for financial stability purposes. Such additional data reporting should enable authorities to more closely monitor and assess the extent of liquidity transformation across ~~open-ended funds.~~ OEFs. To achieve this, existing data reporting to the relevant authorities should be carefully assessed, so that reporting requirements are enhanced where data gaps could result in insufficient information relating to funds' liquidity risk that may affect financial stability. Items to be considered include: funds' liquidity risk and management (e.g. assessment of liquidity risk, asset manager's approach to liquidity risk management); portfolio liquidity and liquidity of individual portfolio holdings; valuation procedures and impact on liquidity risk management; and contingent sources of funding (e.g. availability and use of external sources of finance, including inter-fund lending where available, and committed and uncommitted lines of credit). The relevant authorities should consider the frequency of reporting and revise it, as appropriate in light of evolution in market and investor behaviour, so that it is sufficient for financial stability purposes.

~~IOSCO is currently engaged in an initiative to address data gaps related to funds.[23] To the extent that this initiative addresses data gaps in relation to liquidity risk of funds, authorities may consider referring to this work as appropriate. IOSCO is also encouraged to develop a set of relevant data points by the end of 2017 that can serve to provide transparency to the relevant authorities with respect to funds' liquidity risk.~~ Closing identified data gaps would improve authorities' ability to monitor liquidity mismatch and its management from a financial stability perspective. Progressing this work will include a voluntary pilot programme among FSB member jurisdictions for examining how to improve data availability, including the cost and effort needed to expand data coverage and reporting; and prioritising data gaps to close in order to improve the ability of both central banks and securities regulators to monitor key OEF vulnerabilities related to liquidity mismatch.

When reviewing their requirements, authorities are encouraged to give due consideration to reporting requirements in other jurisdictions and, where appropriate, to seek to have consistent

[23] ~~https://www.iosco.org/library/pubdocs/pdf/IOSCOPD533.pdf~~

requirements in order to facilitate effective monitoring across jurisdictions for financial stability purposes and reduce unnecessary reporting burdens. Where possible, efforts should build on existing data gathering.

Recommendation 2: Authorities should review existing investor disclosure requirements and determine the degree to which additional disclosures should be provided by open-ended funds to investors regarding fund liquidity risk and the availability and use of liquidity management tools, proportionate to the liquidity risks funds may pose from a financial stability perspective. Authorities should enhance existing investor disclosure requirements as appropriate to ensure that the required disclosures are of sufficient quality and frequency. In this regard, IOSCO should review its ~~existing guidance~~2018 recommendations and, as appropriate, enhance ~~it~~them.

Any additional disclosure requirements should be proportionate to the benefits they bring to investors about liquidity transformation in ~~open-ended funds~~OEFs individually and in the aggregate. They should be written and presented in a clear and effective manner so as to inform investors' decisions. For investors and the market, additional disclosures should reduce the perception that daily redemption of fund units equates to liquidity of fund assets and promote market discipline to encourage better liquidity risk management practices, especially among funds that engage in considerable liquidity transformation. To achieve this, the adequacy of existing disclosures to investors should be carefully assessed and enhanced where lack of information may impede sufficient transparency relating to funds' liquidity risk.

Additional disclosure items may include: fund liquidity risk profiles and information about the relationship between liquidity and valuation, such as the potential for rapid declines in asset prices when liquidity is impaired and the challenge around providing daily redemptions when accurate fair valuation is difficult (for example, in case of severe market dislocations). ~~Additional disclosures could also address the availability of liquidity management tools and their potential impact on investors, for example the activation of redemption gates or suspension of redemptions and their potential impact on an investor's ability to redeem.~~ These disclosures should help investors clearly differentiate between different types of funds and their liquidity risks. Additional disclosures should also address the availability and use of LMTs and their potential impact on investors in normal and stressed market conditions (see also Recommendation 7). Better communication to fund investors on the objectives and operation of anti-dilution LMTs would also enable investors to better incorporate the cost of liquidity into their investment decisions.

Asset managers should disclose the relevant information to investors with sufficient frequency and on a consistent basis as appropriate for financial stability purposes.[24] In determining the content and frequency of disclosure to investors, it is important to consider the potential for unanticipated consequences from public disclosure of detailed information (e.g. the potential for predatory trading and/or herding behaviour by funds and other market participants). Bearing this in mind, IOSCO should review its ~~existing guidance~~2018 recommendations and, as appropriate, enhance ~~it by the end of 2017~~them.

[24] Asset managers' concerns related to disclosure of strategies and positions could potentially be mitigated if the data are released on a sufficiently delayed basis so that other market players could not otherwise benefit from this information to the funds' disadvantage.

3.3 ~~*Gaps in*~~Adequacy of liquidity management both at the design phase and on an ongoing basis

Recommendation 3: In order to reduce ~~the likelihood of~~ material structural liquidity mismatches ~~arising from an~~ in open-ended ~~fund's structure~~funds, authorities should have requirements or guidance ~~stating that~~on funds' ~~assets and investment~~ liquidity risk management. Such requirements or guidance should state that funds' investment strategies and the liquidity[25] of their assets should be consistent with the terms and conditions governing fund unit redemptions both at the time of designing a fund ~~inception~~ and on an ongoing basis ~~(for new and existing funds), taking into account the expected liquidity of~~. The redemption terms that open-ended funds offer to investors should be based on the ~~assets and investor behaviour during~~ liquidity of their asset holdings in normal and stressed market conditions. In this regard, IOSCO should review its ~~existing guidance~~2018 recommendations and, as appropriate, enhance ~~it~~them.

Authorities should have requirements or guidance ~~stating that funds' investment strategy and portfolio composition be consistent with the~~ on OEFs' liquidity risk management in normal and stressed market conditions. Recognising that market liquidity is affected by multiple factors and varies across different assets and jurisdictions, authorities should set out detailed liquidity frameworks within which managers of OEFs are expected to operate. Such requirements or guidance should state that:

(iv) At the time of designing an OEF, the terms and conditions governing redemption of fund units ~~for both new and existing funds. At the time of design of a fund, the redemption features~~ should be ~~designed and calibrated to be~~ consistent with the fund's ~~intended~~investment strategy and the liquidity (e.g. liquid, less liquid and illiquid or comparable categories) of the fund's projected asset holdings;

(v) On an ongoing basis, the liquidity of the OEF's portfolio and assets in normal and stressed market conditions should be managed to remain consistent with the fund's redemption terms; and

(vi) Reviews of redemption terms should be carried out at appropriate intervals to achieve this.

Authorities' requirements or guidance should expect that managers of OEFs classify the funds they manage based on the liquidity of the funds' assets in normal and stressed market conditions. Such classification should be based on portfolio and asset level liquidity and apply a prudent approach in determining the categories to which the funds would be classified. Managers should consider the liquidity profile of the OEF's entire portfolio, the liquidity distribution of the assets (i.e. the proportions of the OEF's assets under management allocated to assets falling in different liquidity buckets)[26] and individual asset liquidity in normal and

[25] The references to "liquidity" in this recommendation encompass both current and expected liquidity, i.e. the assessment of portfolio and asset liquidity should consider not only current liquidity but also expected changes to it.

[26] In general, OEF managers are well positioned to determine the appropriate level of liquid asset holdings for each OEF they manage. While a requirement to hold a minimum level of liquid assets could complement other elements of a regulatory

stressed market conditions. This would include regular analysis of portfolio-level liquidity measures as well as analysis of the distribution of asset-level liquidity measures for the holdings of an OEF. The assessment of asset liquidity should be adjusted in light of the funds' stress testing results.

Managers should be able to demonstrate to authorities how they met the parameters of the overall framework. Authorities should conduct regular assessments of how managers have classified the funds based on their jurisdiction's liquidity framework and in line with their supervisory approach with a view to promoting consistent classification.

Each jurisdiction will need to determine its overall liquidity framework and an overall approach to defining assets as liquid, illiquid or less liquid (or comparable categories). There are a number of factors of market liquidity that authorities may wish to consider as part of their framework, such as: market depth and turnover; days to trade; the efficiency and effectiveness of the pricing mechanism; the price impact of large transactions; operational features and potential frictions; and valuation certainty. In general, there should be a mixture of quantitative and qualitative factors and the approach should also consider both normal and stressed market conditions.

Based on such 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.

When determining portfolio and asset liquidity, managers should take into account the extent to which (i) the liquidity characteristics of portfolio assets are more difficult to assess, contingent on market conditions, or portfolio assets are difficult to value in stressed market conditions; and (ii) the liquidity characteristics of the portfolio can create a potential incentive for investors to redeem early to the disadvantage of other investors.

Based on the above liquidity determination, the funds can be categorised into the following three main categories.

framework to reduce the need for OEFs to rely on less liquid assets to meet liquidity demands in stressed market conditions, in some settings, it 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 stressed market conditions 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. Therefore, the FSB is not including minimum regulatory requirements for liquid asset holdings across the OEF sector this time. Authorities can explore whether such requirements could be designed to be countercyclical and avoid encouraging pre-emptive runs.

Category 1: Funds that invest mainly (i.e. more than 50%) in "liquid" assets

For such funds, daily dealing would remain appropriate. The managers of those funds should continue to enhance their liquidity management practices where appropriate, including by implementing anti-dilution LMTs as described in Recommendation 5.

Category 2: Funds that allocate a significant proportion (i.e. 30% or more) of their assets under management to "illiquid" assets

Such funds should create and redeem shares at lower frequency than daily and/or require long notice or settlement periods.[27] The relevant authorities could also consider requiring that such funds be structured as closed-ended funds.

Category 3: Funds that invest mainly (i.e. more than 50%) in "less liquid" assets

Offering daily dealing to fund investors (without notice or settlement periods) may remain appropriate, subject to OEF managers being able to demonstrate to the authorities (in line with the authorities' supervisory approaches) that they implement anti-dilution LMTs as described in Recommendation 5.

If funds in this category do not meet the expectation on the implementation of anti-dilution LMTs as described in Recommendation 5, funds should consider and use measures to reduce the liquidity offered to fund investors (e.g. by reducing redemption frequency and/or by implementing long notice or settlement periods), as considered appropriate by authorities.

When considering the appropriateness of the redemption frequency and the length of a notice or settlement period for funds in Categories 2 and 3, managers should take a holistic approach having due regard to both qualitative and quantitative factors, such as: portfolio composition; alignment between asset liquidity and redemption frequency or length of notice/settlement period; characteristics of the investor base; potential incentives for early redemptions based on portfolio characteristics; and the outcome of liquidity stress tests by the funds.

Funds that do not clearly fall into (only) one of the three main categories

Funds that do not clearly fall into (only) one of the three main categories (i.e. funds that do not meet the criteria for any of the above three categories or meet the criteria for more than one of the above three categories) should take a prudent approach when determining which of the treatments applicable to the above three categories to apply. Managers of such funds should be able to demonstrate to authorities (in line with the authorities' supervisory approaches) that the determinations are appropriate. If a fund is mainly invested in liquid assets, but also has a significant proportion of the assets under management in illiquid assets, the fund should

[27] In an OEF that implements a notice period, redeeming investors receive the value of shares sold based on the fund's NAV at the end of the notice period. By contrast, in an OEF that implements a settlement period, redeeming investors receive the value of shares sold based on the fund's NAV on the redemption date but payment is deferred until the end of the settlement period. Notice (settlement) periods expose redeeming (remaining) investors to the market risk of shares to be redeemed.

generally be considered as having invested a significant proportion of its assets in “illiquid” assets.

In regard to this Recommendation, IOSCO should review its 2018 recommendations and, as appropriate, enhance them to introduce more detailed guidance on the application of this Recommendation.

Recommendation 4: Authorities should ensure that a broad set of liquidity management tools and measures is available for use by managers of open-ended funds in normal and stressed market conditions as part of robust liquidity management practices. Authorities should also reduce operational and other barriers that prevent the use of such tools and measures. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them.

Authorities should ensure that a broad set of LMTs and measures is available to managers of OEFs. Such tools should include anti-dilution and quantity-based LMTs and other liquidity management measures to reduce shock amplification and transmission. Where certain jurisdictions have relatively few tools available, authorities should augment the range of available tools to encourage robust liquidity risk management practices and foster resilience in normal and stressed market conditions.

In considering the set of LMTs available in their jurisdictions, authorities should aim at achieving a balance between anti-dilution and quantity-based LMTs. From that perspective:

- If anti-dilution LMTs are operationalised effectively, they can strengthen resilience by reducing redemptions arising from potential first-mover advantage and, through that channel, associated ‘excess’ asset sales. If investors understand how these tools operate and expect them to be used, they may be more likely to incorporate the cost of liquidity into their investment ~~strategy and scope of investable assets.~~decisions. However, anti-dilution LMTs might not reduce redemptions driven by other factors such as ‘dash-for-cash’ or ‘flight-to-safety’.

~~This could be achieved in various ways. Funds that offer daily liquidity should invest mainly in liquid assets and have strict limits on their investment in illiquid assets (based on clear guidelines regarding the characteristics of such assets). If a fund’s investment strategy involves holding a substantial amount of illiquid assets, the relevant authorities could consider requiring that the fund impose restrictions on redemptions, offer less frequent redemptions or be organised as a closed-ended fund.~~

~~Consistency of a fund’s redemption terms with its investment strategy and expected overall liquidity of its assets will lessen the risks from liquidity transformation. Setting appropriate parameters on the liquidity of funds’ assets holdings, including more explicit and enforceable limits on illiquid assets, may be considered. When assessing the appropriateness of the liquidity of various asset classes relative to redemption terms and conditions, the assessment should take into account expected liquidity in normal and stressed market conditions.~~

~~A fund’s liquidity profile should be managed and adjusted on an ongoing basis to ensure that its portfolio composition remains suitable in light of redemption terms and conditions, the evolution of the market environment, and investor behaviour. Measures could include modifying~~

~~redemption features, such as increasing the notice period for redeeming from a fund, and/or increasing the liquidity of a fund's asset holdings. Authorities should require or have guidance that funds have robust liquidity risk management procedures in place so that asset holdings remain consistent with the terms and conditions governing fund unit redemptions.~~

~~In addition, minimum standards for funds' internal risk management policies could be explored to include the appropriate use of liquidity buffers or targets, and ongoing assessment of asset liquidity through categorising fund assets based on their relative liquidity, i.e. so-called liquidity tiering or bucketing. Liquidity buffers and targets, asset tiering, and limits on illiquid assets should be considered holistically to determine the overall liquidity profile of a fund. A fund's liquidity risk profile should also be adjusted where appropriate in light of the fund's stress testing results to better ensure that the investment profile remains in line with the fund's commitment to its investors.~~

~~IOSCO should review its existing guidance (e.g. Principles of liquidity risk management for collective investment schemes)[28] and enhance it as appropriate by the end of 2017. In particular, IOSCO should further consider whether certain asset classes and investment strategies may not be suitable for an open-ended fund structure.~~

~~Recommendation 4: Where appropriate, authorities should widen the availability of liquidity risk management tools to open-ended funds, and reduce barriers to the use of those tools, to increase the likelihood that redemptions are met even under stressed market conditions. In this regard, IOSCO should review its existing guidance and, as appropriate, enhance it.~~

~~Authorities should, where appropriate, make available a wide range of liquidity risk management tools to open-ended funds to increase the likelihood that redemptions can be met under stressed market conditions.[29] These should include both pre-emptive and post-event measures. Where certain jurisdictions have relatively few tools available, authorities may wish to consider augmenting the range of available tools to encourage liquidity risk management practices that are able both to anticipate, and foster resilience under, stressed market conditions. In that context, consideration should be given to potential spillover effects associated with post-event measures.~~

~~There are many different tools that can be used to manage liquidity and redemption risks in order to reduce potential risks to financial stability. These include pre-emptive measures described earlier, such as appropriate liquidity constraints, monitoring fund liquidity, stress testing, and appropriate portfolio composition and diversification. Authorities may also allow funds to make use of notice periods (i.e. requirements that advance notice be provided for a specified time before a redemption will be effected) for redeeming from a fund whose assets, or a material portion of assets, are deemed to be less liquid. Settlement periods (i.e. the time periods after a redemption request within which proceeds must be paid to redeeming investors) could also be altered. Asset managers could also use post-event measures, such as activating different types of gates (or suspension of dealings). For example, investors seeking on-demand withdrawal~~

~~[28] https://www.iosco.org/library/pubdocs/pdf/IOSCOPD405.pdf~~

~~[29] https://www.iosco.org/library/pubdocs/pdf/IOSCOPD517.pdf~~

~~might only be allowed to withdraw a certain percentage immediately, and would receive the remainder over a pre-defined period. Consideration should be given to how to better inform investors of the various tools that may be invoked by funds and the circumstances in which such tools could be invoked, as well as the implications for investors should the tools be invoked.~~

~~In considering the relative merits of different tools, authorities should take into account the effectiveness of each in slowing redemptions from funds that use them. In addition, authorities should consider potential spillover effects on other funds if the use of a post-event liquidity risk management tool in one fund is interpreted by investors as a signal of broader stress and thus may lead to more widespread redemptions from other funds. They should also consider, as appropriate, any operational difficulties to implementing various liquidity risk management tools and make efforts to reduce these difficulties.~~

~~The results of the recent IOSCO survey on funds' liquidity management tools,[30] as well as the stocktaking of policy tools through the FSB shadow banking information-sharing exercises in 2014 and 2015,[31] could serve as a useful starting point for IOSCO to complement its principles with guidance on the use of tools under stressed market conditions to address financial stability concerns by the end of 2017.~~

~~Recommendation 5: Authorities should make liquidity risk management tools available to open-ended funds to reduce first-mover advantage, where it may exist. Such tools may include swing pricing, redemption fees and other anti-dilution methods. In this regard, IOSCO should review its existing guidance and, as appropriate, enhance it.~~

~~Liquidity risk management tools to address first-mover advantage could include swing pricing, redemption fees and other anti-dilution methods. For example, the use of swing pricing or similar mechanisms would impose transaction costs and other costs associated with redemptions on investors who are redeeming from the fund rather than on investors who remain invested. This should help reduce first-mover advantage where it exists, and can be calibrated appropriately depending on the extent of such an advantage.~~

~~Authorities should assess which of these tools could be effective in deterring first-mover advantage, and how tools can be designed to mitigate financial stability risks and spillover effects. Implementing some of these tools may result in significant operational challenges. Authorities should consider and work to reduce, as appropriate, any such operational challenges and difficulties in implementing these liquidity risk management tools. Authorities may then consider how these tools would be made available, and communicated to investors, in jurisdictions where such tools do not exist.~~

~~IOSCO is encouraged to develop a toolkit of policy tools that may be effective to deter first-mover advantage, where it may exist, and to incorporate the toolkit into its principles of liquidity risk management by the end of 2017.~~

- Exclusive reliance on quantity-based LMTs designed to target the effects of 'excess' redemptions and 'excess' asset sales could entail unintended consequences. For

~~[30] https://www.iosco.org/library/pubdocs/pdf/IOSCOPD517.pdf~~

~~[31] See http://www.fsb.org/wp-content/uploads/shadow_banking_overview_of_progress_2015.pdf.~~

example, investor expectations that an OEF will use quantity-based LMTs may add to 'excess' redemptions in times of stress, if investors seek to anticipate potential restrictions on redemptions.

IOSCO should review its 2018 recommendations and, as appropriate, enhance them to introduce more detailed guidance on the application of this recommendation. The revised recommendations should determine the expected framework for the use and oversight of LMTs by fund boards, managers' boards or depositories rather than a specific calibration of these tools.

Recommendation 5: Authorities should ensure that anti-dilution liquidity management tools are available to managers of open-ended funds. Authorities should also ensure that managers of open-ended funds consider and use such tools to mitigate potential first-mover advantage arising from structural liquidity mismatch in open-ended funds they manage, to ensure that investors bear the costs of liquidity associated with fund redemptions and subscriptions, and to arrive at a more consistent approach to the use of liquidity management tools. Such tools should impose on redeeming and subscribing investors the explicit and implicit costs of redemptions and subscriptions, including any significant market impact of asset sales and purchases to meet those redemptions and subscriptions. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them as well as to prepare guidance on the design of anti-dilution liquidity management tools.

Authorities should ensure that anti-dilution LMTs are available to managers of OEFs. They should also ensure that OEFs consider and use such tools to mitigate potential first-mover advantage arising from structural liquidity mismatch in OEFs in ways that would also maintain investor protection. The objectives are to ensure relevant investors bear the costs of liquidity associated with fund redemptions and subscriptions and to arrive at a more consistent approach to the use of LMTs by managers. Such tools should not only be included in OEF constitutional documents,[32] but they should also (i) 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 (ii) account for both the explicit and implicit costs of redemptions and subscriptions, including any significant market impact of asset sales and purchases. In this regard, authorities' requirements or guidance should expect that OEF managers 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.

Anti-dilution LMTs should impose on redeeming and subscribing investors the explicit and implicit costs of redemptions and subscriptions by adjusting the NAV received or paid by investors (e.g. swing pricing) or by charging a fee on redemptions and subscriptions (e.g. anti-dilution levies). This would put fund unitholders in a similar economic position to investors that opt to invest directly in portfolio securities. When implementing such tools, managers of OEFs should have measures in place to estimate and allocate the explicit and implicit costs of

[32] These include fund prospectuses, other offering documents and other documents accessible to investors on an ex-ante basis before they make their investment decision.

redemptions and subscriptions, including any significant market impact of asset sales and purchases[33], to redeeming and subscribing investors.

IOSCO should develop guidance on the design and use of anti-dilution LMTs, which should identify the factors for managers to consider in employing such tools so that they would impose on redeeming investors the explicit and implicit costs of redemptions, including any significant market impact of asset sales. Guidance on the use of such tools should encourage greater use of, and greater consistency in the use of, anti-dilution LMTs by managers in both normal and stressed market conditions, including to avoid threshold effects. Such guidance should also emphasise the importance of robust valuation practices to support estimation of costs of liquidity and calibration of anti-dilution LMTs. Such guidance should ensure that the tools are robust to different operational scenarios in normal and stressed market conditions. The guidance should also ensure that the tools are adequately governed and informed by appropriate data and expertise.

Achieving increased use of anti-dilution LMTs may require reducing operational or other barriers that prevent the use of such tools. The guidance to be developed by IOSCO should address any barriers presented by operational challenges, market structure and practice and, to the extent relevant, any legal or regulatory hurdles. It should also explore how to mitigate the disincentives (e.g. costs, reputational and competitive concerns) that may affect inclusion and use of LMTs by OEF managers.

Recommendation 6: Authorities should require and/or provide guidance on stress testing at the level of individual open-ended funds to support liquidity risk management to mitigate financial stability risk. The requirements and/or guidance should address the need for stress testing and how it could be done. ~~**In this regard, IOSCO should review its existing guidance and, as appropriate, enhance it.**~~

Authorities should require and/or provide guidance on ~~open-ended funds~~OEFs stress testing, to the extent necessary to support liquidity risk management with a view to mitigate financial stability risk. Stress testing should support asset managers' assessment of the impact of changes in asset liquidity and redemptions under stressed market conditions, taking into account to the extent possible the expected behaviour of other market participants (e.g. other funds managed by the same manager) under similarly stressed market conditions. Such stress testing should take into account any known inter-fund relationships, such as inter-fund lending arrangements. In this manner, the use of robust stress testing should strengthen funds' overall liquidity risk management as well as the available fund liquidity under periods of market stress, which would serve as an important component to address potential financial stability risks.

Stress test results should be used by the asset manager to assess the liquidity characteristics of the fund's assets relative to the fund's anticipated redemption flows under stressed market conditions and to tailor the fund's asset composition, liquidity risk management, and contingency planning accordingly. The relevant authorities could also monitor the extent to which stress testing results are being considered as a key input to calibrate holdings of liquid assets, the use

[33] For further details on the estimation of liquidity costs, including significant market impact, see Element (ii) – Calibration of Liquidity Costs of the IOSCO Consultation Report on Anti-dilution Liquidity Management Tools - Guidance for Effective Implementation of the Recommendations for Liquidity Risk Management for Collective Investment Schemes.,

of the fund's ~~liquidity risk management tools~~LMTs, and contingency plans. Where reported to authorities, stress test results may further provide the relevant authorities with an overview of asset managers' perspective of market conditions under various circumstances, and therefore enhance their ability to detect inconsistencies across funds and asset classes.[34]

~~IOSCO should review its existing guidance on how stress testing should be conducted and enhance it as appropriate by the end of 2017. To this end, IOSCO should consider proportionality from a financial stability perspective, such that stress testing requirements may vary depending on the relative size of individual funds, their investment strategies, and particular asset class holdings. IOSCO should also consider the role of authorities. Items that authorities should consider clarifying include the objective of fund-level stress testing, governance of testing arrangements (e.g. who oversees the stress testing), frequency of stress tests, and related reporting obligations.~~

3.4 Adequacy of liquidity risk management tools and measures to deal with ~~***exceptional circumstances***~~stressed market conditions

Recommendation 7: Authorities should promote (through regulatory requirements or guidance) clear decision-making processes for open-ended funds' use of ~~exceptional~~quantity-based liquidity ~~risk~~ management tools~~,~~ and ~~the~~other liquidity management measures, particularly in stressed market conditions. The processes should be made transparent to investors and the relevant authorities. In this regard, IOSCO should review its ~~existing guidance~~2018 recommendations and, as appropriate, enhance ~~it~~them.

Greater clarity ~~by funds~~ on the circumstances under which ~~they~~funds may use ~~exceptional~~quantity-based LMTs or other liquidity ~~risk~~ management ~~tools~~measures (e.g. suspensions of redemptions, gates, in-kind redemptions, side pockets~~), and how these tools may be employed,~~) would help investors ~~appreciate~~understand how and when such tools and measures might be used. It may also help reduce stigma related to these tools and measures and increase awareness that their use, while infrequent, is a possibility. Spillover effects to other funds may also be mitigated if investors are able to understand the specific reasons why certain funds have to use ~~exceptional~~such tools and measures.

While removal of practical obstacles to using such tools and measures under stressed ~~circumstances~~market conditions is recommended, their use ~~of such exceptional liquidity risk management tools~~ should be carefully considered in light of the potential spillover effects that may arise from their use. The relevant authorities have an important role to play in setting expectations on how these decisions could be made with respect to fund governance, for example through involvement by the fund board of directors (where relevant~~),~~) and communication to ~~shareholders~~unitholders and the relevant authorities (see also Recommendation 8). The more prepared asset managers and ~~their~~fund investors are with respect to the use of ~~exceptional tools~~quantity-based LMTs and other liquidity management

[34] Authorities may consider reporting of stress test results to be provided in a standardised format to facilitate data aggregation and analysis.

measures in stressed market conditions, the more effective such tools and measures are likely to be when used.

Additional assessments may be needed to understand the effectiveness of these tools and measures, the extent to which asset managers are prepared to implement and operationalise ~~these tools~~them, and consequences such as spillover effects across funds and reputational or other barriers to using them. In this regard, IOSCO should review its ~~existing guidance~~2018 recommendations and ~~enhance it~~, as appropriate ~~by the end of 2017~~, enhance them.

Recommendation 8: While asset managers have the primary responsibility to ~~exercise exceptional~~consider and use quantity-based liquidity ~~risk~~ management tools ~~regarding the open-ended funds they manage~~and other liquidity management measures, authorities should provide guidance on their use particularly in stressed market conditions. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them. Where jurisdictions consider it appropriate, authorities should also provide direction in ~~extraordinary circumstances~~stressed market conditions regarding open-ended funds' use of such ~~liquidity risk management~~ tools and measures, taking into account the costs and benefits of such action from a financial stability perspective. ~~In this regard, IOSCO should review its existing guidance and, as appropriate, enhance it.~~

Having the relevant authorities provide general guidance regarding the use of ~~exceptional~~quantity-based LMTs and other liquidity ~~risk~~ management ~~tools~~measures, particularly in stressed market conditions, will help clarify how such tools and measures can be deployed while recognising and minimising potential spillover effects~~, and enabling~~. This can also assist asset managers ~~to overcome~~in overcoming any reputational or competitive reluctance to use such tools and measures, where appropriate. At the same time, this approach acknowledges that the decision to use such tools and measures should generally remain with the asset manager because the manager is responsible for evaluating what is appropriate for a particular fund, in light of its investment strategies, the liquidity of its portfolio, current market conditions, and other relevant circumstances.

In exceptional cases, such as when there is a market dislocation or overall market stress or when an asset manager faces operational difficulties in taking appropriate actions, the asset manager may not be best placed to make such ~~determination.~~determinations. The relevant authorities should, in such cases, consider also providing guidance that is specific to the circumstance concerned to facilitate the application of such tools or measures. Moreover, enhanced regulatory guidance may improve the ability of ~~both authorities and~~ managers to engage in advance planning regarding the use of ~~exceptional tools~~ quantity-based LMTs and other liquidity management measures in stressed market conditions. In this regard, IOSCO should review its 2018 recommendations and, as appropriate, enhance them. In particular, it could consider establishing standards with respect to how and under what conditions such tools and measures might be used.

As an option of last resort, a number of authorities have the ability to require, in specific circumstances, a fund to suspend redemptions.~~[35]~~ Where jurisdictions consider it appropriate for

~~[35] https://www.iosco.org/library/pubdocs/pdf/IOSCOPD517.pdf~~

authorities to have the power to direct the use of ~~exceptional~~such quantity-based LMTs and other liquidity ~~risk~~ management ~~tools (e.g. suspension of redemptions)~~measures in ~~extraordinary circumstances~~stressed market conditions, consideration should be given to the ~~extraordinary circumstances~~conditions which would warrant such action, as well as to the costs and benefits of taking such action from a financial stability perspective. ~~Authorities~~To the extent possible, authorities should thus seek to assess the potential costs and benefits of different policy options before stressed market conditions occur ~~to the extent possible~~.

~~IOSCO is encouraged to review its existing guidance (e.g. principles for the suspension of redemptions in collective investment schemes[36]), including the scope of direction, and enhance it as appropriate by the end of 2017. In particular, it could consider establishing standards with respect to how and under what conditions exceptional liquidity risk management tools might be used.~~

3.5 Additional market liquidity considerations

Recommendation 9: Where relevant, authorities should give consideration to system-wide stress testing that could potentially capture effects of collective selling by funds and other investors on the resilience of financial markets and the financial system more generally.

Currently, a number of authorities with financial stability mandates, as well as the International Monetary Fund, are conducting, or are seeking to conduct, system-wide stress tests that include the potential impact of the activities of investment funds and other investors. The extent to which the potential impact of different types of investors (e.g. investment funds, pension funds, insurance companies) is included in such stress testing may vary across jurisdictions depending on the relative systemic importance of these participants in each jurisdiction and data availability. Against this background, where authorities believe that the potential impact of the activities of funds and other investors amounts to a level of systemic relevance, it is recommended that they consider whether and how to incorporate such potential impact in system-wide stress testing to better understand collective behaviour dynamics as well as the impact on financial markets and on the financial system more generally. Although such system-wide stress testing exercises are still in an exploratory stage, over time they may provide useful insights that could help inform both regulatory actions and funds' liquidity risk management practices. In addition, when seeking to conduct such system-wide stress tests, it is expected that macroprudential authorities and securities regulators would coordinate among themselves as appropriate.

[36] ~~https://www.iosco.org/library/pubdocs/pdf/IOSCOPD367.pdf~~