Commission de Surveillance du Secteur Financier

Circular CSSF 20/752

ESMA Guidelines on Liquidity Stress Testing in UCITS and AIFs

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Re: ESMA Guidelines on Liquidity Stress Testing in UCITS and AIFs

Luxembourg, 29 September 2020

To all Luxembourg investment fund managers, to all Luxembourg undertakings for collective investment, to their depositaries, and to those involved in the operation and supervision of such undertakings.

Ladies and Gentlemen,

The purpose of this Circular is to inform you that the CSSF, as competent authority, applies the Guidelines of the European Securities and Market Authority (ESMA) on Liquidity Stress Testing in UCITS and AIFs (Ref. ESMA/34-39-897 EN)", initially published on 2 September 2019 (hereafter the "Guidelines"), and integrates those Guidelines into its administrative practice and regulatory approach with a view to promote supervisory convergence in this field at the European level.

The Guidelines aim in particular at increasing the standard, consistency and, in some cases, the frequency of Liquidity Stress Testing ("LST") already undertaken and promote convergent supervision of LST by national competent authorities (hereafter the "NCA") within the EU.

The Guidelines are attached to this Circular. The English version and the related French and German translations dated 16 July 2020 are available on ESMA's website http://www.esma.europa.eu.

I. Scope

The present Circular applies to the following investment fund managers ("IFMs") in respect of the undertakings for collective investment in transferable securities ("UCITS") and the alternative investment funds ("AIFs") they manage, including exchange traded funds ("ETFs"), whether these ETFs operate as UCITS or AIFs, as well as leveraged closed-ended AIFs:

- management companies incorporated under Luxembourg law and subject to Chapter 15 of the Law of 17 December 2010, as amended, relating to undertakings for collective investment (hereinafter "2010 Law");
- management companies incorporated under Luxembourg law and subject to article 125-2 of Chapter 16 of the 2010 Law;
- Luxembourg branches of IFMs subject to Chapter 17 of the 2010 Law authorized under the provisions of article 125-2 of the 2010 Law;
- UCITS investment companies which have not designated a management company within the meaning of article 27 of the 2010 Law;

- alternative investment fund managers authorised under Chapter 2 of the Law of 12 July 2013 on alternative investment fund managers (hereinafter "2013 Law"); as well as

- internally managed alternative investment funds within the meaning of point (b) of article 4(1) of the 2013 Law.

For Money Market Funds governed by the Money Market Fund Regulation 2017/1131 of 14 June 2017 (hereafter the "MMFR"), the Guidelines apply in part as further specified in point 6 of section I ("Scope") of the Guidelines in addition to the separate ESMA guidelines on stress test scenarios under article 28 of the MMFR as implemented initially into Luxembourg regulation by means of Circular CSSF 18/696 and updated subsequently by means of Circular CSSF 20/735.

In addition, this Circular applies to open-ended and leveraged closed-ended Specialised Investment Funds ("SIFs") not governed by Part II of the Law of 13 February 2007 (hereafter "2007 Law") and which are subject to the provisions of the CSSF Regulation N° 15-07 laying down detailed rules for the application of article 42a of the 2007 Law as regards the requirements in relation to risk management and conflicts of interest.

The CSSF also recommends that the following undertakings for collective investment consider the provisions of this Circular:

- open-ended and leveraged closed-ended UCIs subject to Part II of the 2010 Law which are managed by a registered alternative investment fund manager as defined in the 2013 Law;

- leveraged SICARs under the Law of 15 June 2004 relating to the investment company in risk capital (hereafter "2004 Law") which are AIFs managed by a registered alternative investment fund manager as defined in the 2013 Law, respectively that are not AIFs in accordance with the definition of article 1(39) of the 2013 Law.

Section V.2. of the Guidelines stipulates that they also apply to the depositaries of any fund managed by an IFM as referred to above as well as to depositaries of any investment fund as referred to above.

II. Summary of the main elements of the Guidelines

The Guidelines comprise 3 sections that relate to **IFMs** (section V.1.), **depositaries** (section V.2.) and the **interaction of IFMs with NCAs** (section V.3.).

In accordance with the definitions of the Guidelines, LST is a risk management tool within the overall liquidity risk management framework of an IFM which simulates a range of conditions, including normal and stressed (i.e. extreme, unlikely or unfavourable) plausible conditions, to assess their potential impact on the funding (liability), assets, overall liquidity of a fund and, the necessary follow-up action.

The Guidelines further specify that they should be adapted to the nature, scale and complexity of the respective fund(s) and that they are not intended to provide comprehensive guidance regarding liquidity management issues outside the scope of LST.

II.1. Guidelines applicable to IFMs

The Guidelines for IFMs contain the following **16 separate guidelines**, which cover various different topics from the design, governance, and implementation of LST, across frequency and concrete use (for assets and liabilities, scenarios, data) as well as the aggregation of LST across various different funds:

The design of the LST models

The provisions on the design of the LST models focus on the main parameters to be fixed by IFMs, such as risk factors, scenarios, monitored indicators, outputs generated / reported and the use of those outcomes while stressing, that the information provided by LST should enable follow-up action.

Understanding liquidity risks

The IFM should have a strong understanding of the liquidity risks arising from the assets and liabilities of each specific fund's balance sheet, and its overall liquidity profile in order to be able to tailor appropriate and focused LST for each fund including various different scenarios.

Governance principles for LST

LST should be properly integrated and embedded into the fund's overall risk management framework supporting liquidity management. It should be subject to appropriate governance and oversight, including appropriate reporting and escalation procedures. LST should be performed independently by the risk management staff and the governance structure should consider how the outcome of LST is taken into consideration by the portfolio management function. The organisational set-up should provide for an effective management of the conflicts of interest arising from the LST operationalisation.

The LST policy

LST should be documented in a LST policy within the UCITS and AIF risk management policy, providing for all aspects to be covered, such as e.g. governance, reporting, escalation, scope, scenarios, assumptions and validation, frequency and methods applied. The LST policy should require the IFM to periodically review and adapt, if necessary, the LST as appropriate.

Frequency of LST

Although permitting proportionality, LST should be carried out at least annually and, where appropriate, employed at all stages in a fund's lifecycle. However, it is recommended to employ quarterly or more frequent LST, with a higher or lower frequency being based on the fund's characteristics. Reasons for such different frequency should be recorded in the LST policy and possible factors for the determination of the proper frequency by the IFM are provided thereto in the Guidelines.

The use of LST outcomes

LST outcomes should be used to ensure a fund is sufficiently liquid, to facilitate a liquidity management in the best interest of investors, to help identify potential liquidity weaknesses and assist in risk monitoring and decision making. Finally, LST should assist an IFM in preparing a fund for a crisis, and in its broader contingency planning.

Adapting the LST to each fund

LST should be adapted appropriately to each fund, including by adjusting the frequency, the types and severity of scenarios taking into account both assets and liabilities, the assumptions regarding investor behaviour and asset liquidation as well as the complexity / specificities of the investment fund (investment strategy, portfolio composition, liquidity management tools, ETF structure, etc.).

LST scenarios

LST should employ hypothetical and historical scenarios and, where appropriate, reverse stress testing ("RST"). Over-reliance on historical data should be avoided. In case of RST, assets being liquidated should be simulated in a way that reflects how the IFM would liquidate assets during a period of exceptional market stress. Funds facing low-probability risks with a potentially high impact should pay particular regard to the use of RST. RST can also be used to assess whether a fund is adequately liquid or whether under exceptional circumstances additional action would be necessary, including suspensions by UCITS or implementation of special arrangements by AIFs.

Data availability

LST should demonstrate that an IFM is able to overcome limitations related to data availability, including by avoiding optimistic assumptions, justifying reliance on third parties' LST models, and exercising expert qualitative judgement. The approach should be adapted where data is limited and any assumptions used should be adequately reviewed. Appropriate reductions in asset liquidity should be simulated in times of both normal and stressed market conditions.

Product development

During product development, an IFM of a fund to be authorised by the CSSF, should be able to demonstrate to the CSSF that key elements (e.g. strategy, dealing frequency) of the fund enable it to remain sufficiently liquid during normal and stressed circumstances. Furthermore, an IFM should, where appropriate, already undertake at that stage LST on the asset as well as on the liability side. LST might also be used at fund launch to help identify factors material to the future risk management of the fund.

Stress testing fund assets to determine the effect on fund liquidity

LST should enable an IFM to assess not only the time and / or cost to liquidate assets in a portfolio, but also whether such an activity would be permissible while considering the objectives and investment policy of the fund, the obligation to manage the fund in the interests of investors, any applicable obligation to liquidate assets at limited costs as well as the obligation to maintain the risk profile of the fund following the sale of a portion of its assets.

The liquidation cost and time to liquidity approaches are emphasised, also highlighting that a significant number and variety of market stresses should be reflected in their estimation. The Guidelines also lay down necessary features of the specific method of liquidating assets when being used in an LST (e.g. asset liquidation during normal and stressed conditions, compliance with the fund's objectives and investment policy and fund rules, reflecting the interests of all investors, maintaining the fund's risk profile, reflection in the LST policy as well as potential negative effects on other investors / overall market integrity). The importance of low-probability, high impact scenarios, including the potential difficulty of reliably pricing less liquid assets during a period of market stress is also highlighted.

Stress testing fund liabilities to determine the effect on fund liquidity

Regarding liabilities of the fund, LST should incorporate scenarios including both redemptions and other potential sources of liquidity risk emanating from the liability side of the fund's balance sheet. Furthermore, LST should also incorporate risk factors related to investor type and concentration according to the nature, scale and complexity of the fund. It is emphasized that IFMs should understand the potential risks associated with the fund's investor base and that they play a material factor in the ongoing liquidity risk management of a fund. Examples of factors regarding investor behaviour based on the investor category, investor concentration, investor location, and investor strategy are additionally provided in the Guidelines.

LST on other types of liabilities

Where appropriate, all relevant items on the liability side of the fund's balance sheet, including items other than redemptions, should be addressed by the LST, in normal and stressed conditions. In the Guidelines, examples of factors that may affect liquidity risk in case of derivatives, committed capital, securities financing transactions / efficient portfolio management as well as interest / credit payments are provided.

Funds investing in less liquid assets

Risks arising from less liquid assets as well as their liabilities' risks should also be reflected in the LST. Low probability, but high impact scenarios, including the potential difficulty of reliably pricing as well as liquidating less liquid assets during a period of market stress, are highlighted. Liquidity for such assets in times of market stress might be very scarce and RST may be a particularly valuable tool in this context. Fair asset liquidation methods to ensure equal treatment of investors during stressed market conditions are considered important. Fund of funds (FoFs) are especially emphasised.

Combined asset and liability LST

After separately stress testing the assets and liabilities of the fund balance sheet, the IFM should combine the results of the LST appropriately to determine the overall effect on fund liquidity. This can assist in assessing which funds present the largest liquidity risk at a given moment, also having a material role in an IFM's contingency planning for a crisis. An outcome of combined asset and liability LST may be a comparable metric or score (for potential use between funds) which should be explained and documented in the LST policy.

Aggregating LST across funds

Where an IFM considers it to be appropriate, an IFM should aggregate LST across funds under its management. Such an aggregation involves the same LST on more than one fund with similar strategies or exposures. It may be particularly useful for less liquid assets in which funds of an IFM own a material proportion of the market.

II.2. Guidelines applicable to depositaries

The Guidelines do not require depositaries to assess the adequacy nor to replicate or challenge the LST undertaken by an IFM.

Depositaries should rather set up appropriate verification procedures to check that the IFM of a fund has in place documented procedures for its LST programme in order to ensure that each fund is acting in compliance with obligations under the UCITS and AIFM Directives.

In case the depositary is not satisfied that LST is in place, it should take action accordingly and in line with usual actions in case of any other evidence of a potential breach of rules by an IFM.

II.3. Interaction with NCAs

The Guidelines specify that the CSSF may at its discretion request submission of an IFM's LST to help demonstrate that a fund will be likely to comply with applicable rules, including its ability to meet redemption requests in normal and stressed conditions.

Furthermore, the Guidelines set forth that IFMs should notify the CSSF of material risks and actions taken to address them.

For the purpose of the implementation of these interactions, the CSSF requires more particularly the following from IFMs:

- IFMs that have to integrate, in accordance with section V.1.4. ("The LST policy") of the Guidelines, the LST policy and the related procedures in their overall risk management policy, have also to address them in the risk management procedure ("RMP") that they have to communicate to the CSSF for the UCITS and AIFs they manage in accordance with points 214 and 215 of sub-section 5.3.1.5. of Circular CSSF 18/698 ("Risk management procedure (RMP) to be communicated to the CSSF"). In particular, as regards point 214 of Circular CSSF 18/698 relating to UCITS, IFMs have to cover the LST policy in paragraphs 1.4 and 3.3 of the RMP as specified in the Annex of Circular CSSF 11/512. As regards point 215 of Circular CSSF 18/698 relating to AIFs, IFMs have to cover the LST policy in paragraphs 1.4 and 2.6 of the RMP as specified in Annex 1 of Circular CSSF 18/698.

  In accordance with point 217 of the Circular CSSF 18/698, new IFMs have to include a RMP, taking into account the LST policy as referred to above, in the authorization file to be submitted to the CSSF. Furthermore, for existing IFMs, the information on the LST policy has to be included in the next annual update of the RMP that these IFMs have to communicate to the CSSF. Finally, in case of an application for an extension of an AIFM's authorization to a new type of AIF investment strategy, a RMP which is adapted to this new type of strategy, including the information on the LST policy, has to be submitted to the CSSF in accordance with that same point 217 of the Circular CSSF 18/698.

- IFMs have, in case the performed LST reveals any material risks which are likely to crystallize for a fund and which might threaten its ongoing liquidity, to inform immediately the CSSF thereof, together with the related concrete actions to address these risks. The CSSF will in a separate communication inform IFMs about the modalities and related technical details for submitting this information to the CSSF.

  Additionally, the assessment of the adequacy and effectiveness of the actions taken in case of material risks revealed by the LST has also to be included in the report of the permanent risk management function to be submitted to the CSSF on an annual basis in accordance with point 212 of sub-section 5.3.1.4. of Circular CSSF 18/698.

Finally, the Guidelines provide that NCAs may at their discretion also request IFMs to notify them of other information relating to the LST (including models and results) which may be particularly the case during a period of large redemptions across the market. In this context, the CSSF specifies that, in case there is a need for having additional information on LST (e.g. particular market circumstances) in the context of its ongoing supervision, it will address these requests directly to the IFMs.

III. Entry into force

The Circular with the Guidelines enter into force on 30 September 2020.

Yours faithfully,

Claude WAMPACH Director	**Marco ZWICK** Director	**Jean-Pierre FABER** Director
Françoise KAUTHEN Director	**Claude MARX** Director General	

Annex: ESMA Guidelines on Liquidity Stress Testing in UCITS and AIFs (Ref. ESMA/34-39-897 EN)

European Securities and Markets Authority

Guidelines

On liquidity stress testing in UCITS and AIFs

16/07/2020 | ESMA34-39-897 EN

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I Scope

Who?

1. These Guidelines apply to managers, depositaries and NCAs.

What?

2. These Guidelines relate to liquidity stress testing in UCITS and AIFs.

3. In particular, in respect of managers they apply primarily in relation to Article 16(1) of the AIFMD, Articles 47 and 48 of the AIFMD Level 2 Regulation, Article 51 of the UCITS Directive, Article 40(3) of the UCITS Level 2 Directive and Article 28 of the MMFR.

4. In respect of depositaries, these guidelines apply primarily in relation to Article 21 of the AIFMD, Articles 92 of the AIFMD Level 2 Regulation, Article 22(3) of the UCITS Directive and Article 3 of the UCITS Level 2 Regulation.

5. These Guidelines apply in respect of UCITS and AIFs, including:

   a) ETFs, whether they operate as UCITS or AIFs[1];

   b) Leveraged closed ended AIFs.

6. The Guidelines in Sections V.1.1 (The design of LST models), V.1.2 (Understanding liquidity risk), V.1.3 (Governance principles for LST), V.1.4 (The LST policy), V.2 (Guidelines applicable to depositaries), and paragraphs 79 and 81 of Section V.3 (Interaction with National Competent Authorities) apply to MMFs, without prejudice to the MMFR and ESMA Guidelines exclusively applying to MMFs[2], which prevail in the event of any conflict.

7. These Guidelines should be adapted to the nature, scale and complexity of the fund. Furthermore, the topic of LST naturally overlaps with other aspects of liquidity management in funds, such as managing liquid and less liquid assets, diversification and implementing measures such as ex post a-LMT. These Guidelines are not intended to provide comprehensive guidance regarding liquidity management issues outside the scope of LST.

When?

8. These Guidelines apply from 30 September 2020.

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[1] For clarity, the existing guidelines on UCITS receiving collateral under the "ESMA ETF Guidelines of ETFs and other UCITS issues" (ESMA 2014/937) apply. Paragraph 45 of the "ESMA ETF Guidelines on ETFs and other UCITS issues" provides that "A UCITS receiving collateral for at least 30% of its assets should have an appropriate stress testing policy in place to ensure regular stress tests are carried out under normal and exceptional liquidity conditions to enable the UCITS to assess the liquidity risk attached to the collateral". This measure is specific to the circumstances involved for such UCITS whereas the LST Guidelines are intended to provide guidance on the application of liquidity stress testing for investment funds generally and should be taken into account by all UCITS.

[2] Such as those ESMA Guidelines establishing common reference parameters of the stress test scenarios to be included in MMF managers' stress tests (currently referred to as 'ESMA34-49-115')

II Legislative references, abbreviations and definitions

Legislative references

UCITS Directive	Directive 2009/65/EC on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS)[3].
UCITS Level 2 Directive	Commission Directive 2010/43/EU implementing Directive 2009/65/EC of the European Parliament and of the Council as regards organisational requirements, conflicts of interest, conduct of business, risk management and content of the agreement between a depositary and a management company.[4]
AIFMD	Directive 2011/61/EU on Alternative Investment Fund managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010[5].
AIFMD Level 2 Regulation	Commission Delegated Regulation (EU) No 231/2013 supplementing Directive 2011/61/EU of the European Parliament and of the Council with regard to exemptions, general operating conditions, depositaries, leverage, transparency and supervision.
CDR (EU) 2016/438	Commission Delegated Regulation (EU) 2016/438 supplementing Directive 2009/65/EC of the European Parliament and of the Council with regard to obligations of depositaries[6].
MMFR	Regulation (EU) 2017/1131 on money market funds[7].
ESMA Regulation	Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC[8].

[3] OJ L 302, 17.11.2009, p. 32–96
[4] OJ L 176, 10.7.2010, p. 42–61
[5] OJ L 174, 1.7.2011, p.1
[6] OJ L 78, 24.3.2016, p. 11–30
[7] OJ L 169, 30.6.2017, p. 46–127
[8] OJ L 331, 15.12.2010, p. 84.

Abbreviations

AIF	Alternative Investment Fund
AIF RMP	AIFM's Risk Management Policy
AIFM	Alternative Investment Fund Manager
a-LMT	Additional Liquidity Management Tool
ETF	Exchange Traded Fund
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
EU	European Union
FoF	Fund of Funds
FSB	Financial Stability Board
FX	Foreign Exchange
LST	Liquidity Stress Testing
MMF	Money Market Fund
NCA	National Competent Authority
RCR	Redemption Coverage Ratio
RST	Reverse Stress Testing
UCITS	Undertaking for Collective Investments in Transferable Securities
UCITS RMP	UCITS Risk Management Process

Definitions

closed ended AIF	an AIF other than an open ended AIF, which is an AIF meeting the criteria of Article 1 (2) of Commission Delegated Regulation (EU) No 694/2014[9]
depositary	depositary of a UCITS or an AIF
ex post a-LMT	tools/measures applied by managers in exceptional circumstances to control or limit dealing in fund units/shares in the interests of investors, including but not limited to suspension of dealing in units, deferral of dealing and side-pocketing
fire sale price	liquidation of an asset at a material discount to its fair value
fund	a UCITS or an AIF
liquidation cost	the cost paid by the seller of an asset for the execution of a given transaction in a timely manner for liquidity purposes
liquidity risk	the risk that a position in the fund cannot be sold, liquidated or closed at limited cost to comply at any time with obligations to redeem units/shares
liquidity stress testing	a risk management tool within the overall liquidity risk management framework of a manager which simulates a range of conditions, including: normal and stressed (i.e. extreme, unlikely or unfavourable) plausible conditions, to assess their potential impact on the funding (liability), assets, overall liquidity of a fund and, the necessary follow-up action
manager	(a) in relation to a UCITS, the UCITS management company or, in the case of a self-managed UCITS, the UCITS investment company; (b) in relation to an AIF, the AIFM or an internally-managed AIF; (c) in relation to an MMF, the manager of an MMF.

[9] OJ L 183, 24.06.2014, p. 18.

redemption coverage ratio	a measurement of the ability of a fund's assets to meet funding obligations arising from the liabilities side of the balance sheet, such as a redemption shock
reverse stress testing	a fund-level stress test which starts from the identification of the pre-defined outcome with regards to fund liquidity (e.g. the point at which the fund would no longer be liquid enough to honour requests to redeem units) and then explores scenarios and circumstances that might cause this to occur
special arrangements	specific types of ex-post a-LMT measures available to some AIFs and which impact investors' redemption rights, such as side pockets or gates
time to liquidity	an approach, whereby the manager can estimate the amount of assets which could be liquidated at an acceptable cost, for a given time horizon

III Purpose

9. These Guidelines are based on Article 16(1) of the ESMA Regulation. The purpose of these Guidelines is to establish consistent, efficient and effective supervisory practices within the European System of Financial Supervision and to ensure the common, uniform and consistent application of Union law. In particular, their purpose is to increase the standard, consistency and, in some cases, frequency of LST already undertaken and promote convergent supervision of LST by NCAs.

IV Compliance and reporting obligations

Status of these Guidelines

10. In accordance with Article 16(3) of the ESMA Regulation, NCAs and financial market participants must make every effort to comply with these Guidelines.

11. Competent authorities to which these Guidelines apply should comply by incorporating them into their national legal and/or supervisory frameworks as appropriate, including where particular Guidelines are directed primarily at financial market participants. In this case, competent authorities should ensure through their supervision that financial market participants comply with the Guidelines.

Reporting requirements

12. Within two months of the date of publication of the Guidelines on ESMA's website in all EU official languages, competent authorities to which these Guidelines apply must notify ESMA whether they (i) comply, (ii) do not comply, but intend to comply, or (iii) do not comply and do not intend to comply with the Guidelines.

13. In case of non-compliance, competent authorities must also notify ESMA within two months of the date of publication of the Guidelines on ESMA's website in all EU official languages of their reasons for not complying with the Guidelines.

14. A template for notifications is available on ESMA's website. Once the template has been filled in, it shall be transmitted to ESMA.

15. Financial market participants are not required to report whether they comply with these Guidelines.

V Guidelines on Liquidity Stress Testing in UCITS and AIFs

V.1 Guidelines applicable to managers

V.1.1 The design of the LST models

16. **In building LST models managers should determine:**

    a. **the risk factors that may impact the fund's liquidity;**

    b. **the types of scenarios to use and their severity;**

    c. **different outputs and indicators to be monitored based on the results of the LST;**

    d. **the reporting of LST results, outputs and indicators to management; and**

    e. **how the results of the LST are used by risk management, portfolio management and by senior management.**

17. **A manager should ensure that LST provides information that enables follow-up action.**

V.1.2 Understanding liquidity risks

18. **A manager should have a strong understanding of the liquidity risks arising from the assets and liabilities of the fund's balance sheet, and its overall liquidity profile, in order to employ LST that is appropriate for the fund it manages.**

19. **A manager should strike a balance by employing LST that:**

    a. **is adequately focused, specific to the fund and highlights the key liquidity risk factors; and**

    b. **uses a wide enough range of scenarios to adequately represent the diversity of the fund's risks.**

V.1.3 Governance principles for LST

20. **LST should be properly integrated and embedded into the fund's risk management framework supporting liquidity management. It should be subject to appropriate governance and oversight, including appropriate reporting and escalation procedures.**

21. LST should be performed under similar conditions to other risk management operations that are subject to regulatory requirements on independence, including the requirement for risk management staff to act independently from other functions such as portfolio

management. Nevertheless, the governance structure should consider how the outcome of LST is taken into consideration by the portfolio management function while managing the fund.

22. Where the manager delegates portfolio management tasks to a third party, particular attention should be paid to the independence requirement, in order to avoid reliance on or influence by the third party's own LST.

23. Organisational requirements include the requirement to effectively manage conflicts of interest arising from operationalising LST. These conflicts of interest include:

    a. allowing other parties, such as portfolio management staff (including portfolio managers from separate legal entities), to exercise undue influence over the execution of LST, including reliance on judgements relating to asset liquidity; and

    b. management of information regarding results of stress tests. If information is shared with a client, it should be ensured that this would not be inconsistent with the manager's obligation to treat all investors fairly in the way it discloses information regarding the fund.

V.1.4 The LST policy

24. **LST should be documented in an LST policy within the UCITS and AIF RMP, which should require the manager to periodically review and adapt, if necessary, the LST as appropriate. The LST policy should at least include the following:**

    a. **a clear definition of the role of senior management in the process, including the governing body (e.g. Board of Directors or Trustees);**

    b. **its internal ownership and which management function(s) is/are responsible for its performance;**

    c. **its interaction with other liquidity risk management procedures, including the manager's contingency plans and the portfolio management function;**

    d. **a requirement for regular internal reporting of LST results specifying the frequency and recipients of the report;**

    e. **periodic review, documentation of the results and a procedure for amending the policy where required by the review;**

    f. **the circumstances requiring escalation, including when liquidity limits/thresholds are breached;**

    g. **the funds subject to LST;**

    h. **initial validation of the LST models and assumptions underpinning them, which should be performed independently from portfolio management, though not necessarily by an entity/person external to the manager;**

i. **the types and severity of stress test scenarios used and the reasons for selecting those scenarios;**

j. **the assumptions used relating to data availability for the scenarios, their rationale and how frequently they are revisited;**

k. **the frequency at which LST is carried out and the reasons for selecting that frequency; and**

l. **the methods for liquidating assets, including the limitations and assumptions used.**

V.1.5 Frequency of LST

25. **LST should be carried out at least annually and, where appropriate, employed at all stages in a fund's lifecycle. It is recommended to employ quarterly or more frequent LST. The determination of a higher or lower frequency should be based on the fund's characteristics and the reasons for such a determination should be recorded in the LST policy. Flexibility is allowed for on this issue depending on the fund's nature, scale and complexity and liquidity profile.**

26. When deciding on the appropriate frequency, managers should take into account the following:

    a. the liquidity of the fund determined by the manager and any change in the liquidity of assets;

    b. the frequency should be adapted to the fund rather than a 'one-size-fits-all' approach being taken to all funds operated by the manager; and

    c. the nature of the vehicle (closed versus open ended), the redemption policy and LMTs, such as gates or side pockets, may be additional factors to take into consideration when determining the appropriate frequency of LST.

27. Managers should take into account the factors described in the table below when determining the appropriate frequency of LST:

Recommended frequency of LST	• **Quarterly**, unless a higher or lower frequency is justified by the characteristics of the fund. The justification should be recorded in the LST policy.
Factors which may <u>increase</u> the frequency of regular LST	• Higher unit dealing frequency. • Increased risks emanating from liabilities, such as a concentrated investor base. • Complex investment strategy (e.g. extensive use of derivatives). • Less liquid asset base. • Forthcoming event which could negatively affect fund liquidity.

Factors which may <u>decrease</u> the frequency of regular LST	• A highly liquid asset base. • Less frequent dealing in the fund's units.
Recommended employment of ad-hoc LST	• Ad-hoc LST should be undertaken as soon as practicable if a material risk to fund liquidity is identified by the manager and requires being addressed in a timely manner.

V.1.6 The use of LST outcomes

28. LST should provide outcomes which:

a. help ensure the fund is sufficiently liquid, as required by applicable rules and redemption terms stipulated in fund documentation;

b. strengthen the manager's ability to manage fund liquidity in the best interests of investors, including in planning for periods of heightened liquidity risk;

c. help identify potential liquidity weaknesses of an investment strategy and assist in investment decision-making; and

d. assist risk management monitoring and decision-making, including setting relevant internal limits by the manager regarding fund liquidity as an additional risk management tool. This may include ensuring the results of LST can be measured through a comparable metric, such as a key risk indicator.

29. LST should assist a manager in preparing a fund for a crisis, and in its broader contingency planning. This contingency planning may involve a manager's plans to operationalise applying ex post a-LMT to a fund.

V.1.7 Adapting the LST to each fund

30. LST should be adapted appropriately to each fund, including by adapting:

a. the frequency of LST;

b. the types and severity of scenarios to employ to create stressed conditions, which should always be sufficiently severe but plausible and should be based on the liquidity risks arising from the assets and liabilities of the fund's balance sheet as well as its overall liquidity profile;

c. the assumptions regarding investor behaviour (gross and net redemptions) and asset liquidation;

d. **the complexity of the LST model, which should account for the complexity of the fund's investment strategy, portfolio composition, LMT and use of efficient portfolio management techniques; and**

e. **in the case of an ETF, the specificities of ETFs, for example, by taking into account the role of authorised participants, redemption models and replication models.**

V.1.8 LST scenarios

31. **LST should employ hypothetical and historical scenarios and, where appropriate, RST. LST should not overly rely on historical data, particularly as future stresses may differ from previous ones.**

32. Historical scenarios for LST could include the global financial crisis 2008-2010 or the European debt crisis 2010-2012. Hypothetical scenarios could include rising interest rates, credit spread widening, or political events.

33. Managers using RST should simulate assets being liquidated in a way that reflects how the manager would liquidate assets during a period of exceptional market stress. RST should take into account the treatment of remaining, as well as redeeming, unitholders as well as the role of transaction costs and whether or not fire sale prices would be accepted.

34. Funds that engage in investment strategies exposing them to low-probability risks with a potentially high impact should pay particular regard to the use of RST to assess the consequences of an extreme market event for their liquidity profile.

35. RST can be used to establish whether action needs to be taken to ensure the fund is adequately liquid or whether such a circumstance would be exceptional enough to enable suspension to be imposed in compliance with applicable rules. In the case of UCITS, the 'exceptional circumstances' are those within the meaning of Article 84(2) of the UCITS Directive, applicable national rules and the fund's prospectus or fund rules.

36. An AIF may also use RST to simulate the level of assets that may be liquidated before implementing 'special arrangements' allowed by its redemption policy and national rules.[10]

V.1.9 Data availability

37. **LST should demonstrate a manager is able to overcome limitations related to the availability of data, including by:**

    a. **avoiding optimistic assumptions;**

[10] Recital 59 of AIFMD Level 2 Regulation (EU) No 231/2013.

b. **justifying reliance on third parties' LST models, including where the model is developed by a third party portfolio manager; and**

c. **exercising expert qualitative judgement.**

38. In particular, managers should adapt their approach where data is limited and any assumptions used should be adequately reviewed.

39. Appropriate reductions in asset liquidity should be simulated in times of both normal and stressed market conditions, particularly where historical data does not provide sufficiently severe examples of stressed conditions. It should not be assumed that the portfolio can be liquidated at the full average daily traded volume of an asset unless such an assumption can be justified based on empirical evidence.

V.1.10 Product development

40. **During product development, a manager of a fund which requires authorisation from an NCA should:**

    a. **be able to demonstrate to NCA that key elements of the fund, including its strategy and dealing frequency enable it to remain sufficiently liquid during normal and stressed circumstances; and**

    b. **where appropriate, undertake LST on the asset side (using a model portfolio) as well as on the liability side, incorporating the expected investor profile both from the early and late stages of the fund's existence.**

41. LST can also be used at fund launch to help identify factors material to the future risk management of the fund. For example: quantifying the sensitivity of the fund's liquidity risk; identifying factors impacting liquidity risk; identifying metrics/key risk indicators to monitor liquidity risk going forward; the frequency of risk management; and assessment of any potential ex post a-LMT or special arrangements to be included in the prospectus or fund rules.

V.1.11 Stress testing fund assets to determine the effect on fund liquidity

42. **LST should enable a manager to assess not only the time and/or cost to liquidate assets in a portfolio, but also whether such an activity would be permissible taking into account:**

    a. **the objectives and investment policy of the fund;**

    b. **the obligation to manage the fund in the interests of investors;**

    c. **any applicable obligation to liquidate assets at limited cost; and**

d. **the obligation to maintain the risk profile of the fund following liquidation of a portion of its assets.**

43. Liquidation cost and time to liquidity are the two principal approaches typically employed by managers to simulate asset liquidity under normal and stressed conditions. Managers should apply the appropriate method for the individual fund. Other approaches may be adopted to the fund.

44. Liquidation cost depends on asset type, liquidation horizon and the size of the trade/order. Managers should consider these three factors when assessing liquidation cost of their assets under normal and stressed conditions.

45. Managers should reflect a significant number and variety of market stresses in the estimation of the liquidation cost and time to liquidation under stressed conditions, which are typically characterised by higher volatility, lower liquidity (e.g. higher bid-ask spread) and longer time to liquidate (depending on asset class). In this context, managers should not only refer to historical observations of stressed markets.

46. A manager should choose the method of liquidating assets in LST taking into account the assets and liabilities, as well as the redemption terms of the fund. The manager should also be aware of the method's limitations and make conservative adjustments to its broader liquidity risk management to mitigate these limitations.

47. The method of liquidating assets in an LST should:

    a. reflect how a manager would liquidate assets during normal and stressed conditions in accordance with applicable rules, either legal requirements (according to the UCITS Directive), or limitations specific to the fund that are imposed in the prospectus or fund rules;

    b. ensure the model used for the fund is and stays in compliance with its objectives and investment policy and fund rules;

    c. reflect the fund being managed in the interests of all investors, both those redeeming and remaining;

    d. comply with applicable obligations for the fund to maintain the risk profile envisaged by fund documentation;

    e. be reflected in the LST policy;

    f. take into account, where relevant, the potential negative effects on other investors or on overall market integrity.

48. Managers should pay particular regard to low probability, high impact scenarios, including the potential difficulty of reliably pricing less liquid assets during a period of market stress.

V.1.12 Stress testing fund liabilities to determine the effect on fund liquidity

49. LST should incorporate scenarios relating to the liabilities of the fund, including both redemptions and other potential sources of risk to liquidity emanating from the liability side of the fund balance sheet.

50. LST should incorporate risk factors related to investor type and concentration according to the nature, scale and complexity of the fund.

51. Redemption requests are the most common and typically most important source of liquidity risk for investment funds. Additionally, different types of liabilities on a fund's balance sheet and their potential impact on fund liquidity varies according to the fund. Special arrangements or a-LMTs could also be considered when managing liability risk.

52. For normal conditions, managers could monitor the historical outflows (average and trends over time), average redemptions of peer funds and information from any distribution network regarding forecast redemptions. Managers should ensure that the time series is long enough to fairly reflect 'normal' conditions.

53. For stressed conditions, example scenarios are historical trends, historical events, contemporary trends in peer funds, hypothetical/event-driven scenarios and reverse stress testing.

54. Depending on the availability of granular historical data covering redemptions for each investor type and other information relative to a fund's specific distribution, managers could also simulate redemption requests for different types of investors.

55. The manager should take into account the extent to which variables arising from additional factors such as investor behaviour can or should be incorporated into their scenarios in the LST model. The decision on the granularity, depth of analysis and use of data is subject to necessity and proportionality. Managers should understand the potential risks associated with the fund's investor base and be able to demonstrate that those risks play a material factor in the ongoing liquidity risk management of a fund.

56. The table below provides examples of factors regarding investor behaviour which may be incorporated into the LST model:

Factor	Examples of potential liquidity risk	Examples of potential incorporation into LST
Investor category	Redemption risk may vary by type of investor. For example, the likelihood of redeeming during stressed conditions could be categorised according to whether investors are wealth managers,	Based on the manager's knowledge and experience of their clients, the LST model may simulate, for example, funds of funds posing more redemption risk than other

	pension schemes, direct retail investors, or other UCITS or AIFs.	types of investors, and simulate their withdrawal from the fund first
Investor concentration	One or more investors may own a materially larger proportion of the fund than others, leading to a particular risk to fund liquidity from the investor(s) redeeming.	The manager may model one or a number of the largest investors redeeming simultaneously from the fund over a given period of time[11].
Investor location	Investors located in different regions or countries may pose distinct redemption risk due to idiosyncratic factors linked to the political, economic or other factors relating to their location. For example, investors in a region subject to different monetary policy may pose distinct redemption risks during periods of changes in FX and/or interest rates. Political and/or economic risks may also lead investors in other regions or countries to redeem.	The manager may simulate a material proportion of investors located in a specific country redeeming over a given time period first.
Investor strategy	Whilst many investors' strategies are long-term and, in any case, challenging to unpick, some investors follow formulaic or pre-defined strategies that may pose particular redemption risk in changing market conditions. For example, some funds explicitly seek to target a level of risk, as measured by volatility, and are identifiable as such via their fund names and stated investment objectives. Such funds often seek to de-risk during volatile periods and may pose heightened redemption risk during periods of volatility in given asset classes. Where funds with formulaic or pre-defined strategies are investors, the manager may need to pay due regard to the liquidity risk such funds	The manager may simulate redemptions from investors following similar strategies in stressed and normal market conditions.

[11] This exercise may have limited utility where the fund has only one institutional investor that cooperates with the manager concerning intentions to subscribe and redeem units.

	pose during stressed and normal market conditions.	

V.1.13 LST on other types of liabilities

57. A manager should include other types of liabilities in its LST in normal and stressed conditions, where appropriate. All relevant items on the liability side of the fund's balance sheet, including items other than redemptions, should be subject to LST.

58. Net redemptions may not be the only relevant risk to liquidity coming from the liability side of a fund's balance sheet and which therefore should be subject to LST. In some cases, LST should determine the circumstances in which liquidity risk cannot be mitigated, for example a level of margin calls the fund would not be able to fund. Contingency planning should adequately reflect this and help to mitigate the liquidity risk in such circumstances.

59. The table below provides examples of factors which may affect liquidity risk:

Liability type	Examples of factors which may affect liquidity risk	Potential events which may be simulated
Derivatives	Changes in the value of the underlying may lead to derivative margin calls, affecting the available liquidity of the fund	Simulation of a change in the value of the underlying of the derivative leading to a larger than anticipated margin call
Committed capital	Funds investing in real or immovable assets are often required to commit capital to service the investment, such as maintenance or refurbishment costs	Simulation of unexpected event causing new/higher outlay of capital to a real estate investment
Securities Financing Transactions / Efficient Portfolio Management	Funds lending out assets are exposed to the counterparty risk of the borrower and the associated liquidity risk arising from potential default. Whilst this can be mitigated by the collateral posted, liquidity risk is not eliminated (bearing in mind the liquidity of the collateral).	Simulation of default of the counterparty to a securities lending operation. Simulation of cash collateral reinvestment risk

Interest/credit payments	Funds which incorporate leverage into their investment strategy are subject to liquidity risk arising from factors such as interest rate sensitivity	Simulation of increased interest rates on the payment obligations of the fund

V.1.14 Funds investing in less liquid assets

60. **Risks arising from less liquid assets and liabilities risks should be reflected in the LST.**

61. Many funds invested in less liquid assets have distinct risks emanating from both assets and liabilities, compared to funds investing in more liquid securities. For example, many AIFs investing in real estate have less frequent dealing periods and notice periods which reduce liabilities risk from redemptions. However, such funds are also exposed to distinct liabilities risk arising from servicing and maintaining real estate assets (including hard to simulate risks such as legal risks).

62. Furthermore, funds investing in less liquid assets have inherently less flexibility to improve overall liquidity by selling assets at a limited discount during periods of stressed market conditions. Therefore, the outputs from LST by managers of less liquid assets may have some distinctive features.

63. Low probability, but high impact scenarios, including the potential difficulty of reliably pricing less liquid assets during a period of market stress, will be important in respect of less liquid assets. Those assets may be particularly vulnerable to an absence of liquidity in times of market stress, affecting time to liquidity, liquidation cost, and also whether or not assets would be liquidated at all when taking investors' best interests into consideration. RST may be a particularly valuable tool in this context, helping to identify scenarios which could lead to significant fund liquidity risk (e.g. identifying scenarios which would lead to the imposition of special arrangements or suspensions).

64. The nature of a less liquid asset base can place even more emphasis on the importance of managers ensuring that investors are treated impartially during stressed market conditions. LST could therefore help a manager to establish a governance framework seeking to support fair outcomes for all investors, by helping to model a fair method of liquidating assets.

65. One way in which a manager could consider the liquidity of the fund is to prioritise undertaking ad-hoc LST on funds investing in less liquid assets where a forthcoming event has been identified which could negatively impact fund liquidity. Thus, managers should pay particular regard to the appropriateness of the frequency of LST in funds investing in less liquid assets.

66. FoFs which gain indirect exposure to less liquid assets via their target funds should pay due regard to considerations relating to less liquid assets. This is because the

underlying exposure of those target funds may lead to the suspension of the target investment vehicle or other measures. This may have an impact on the FoFs so its LST model should take this risk into account.

V.1.15 Combined asset and liability LST

67. After separately stress testing the assets and the liabilities of the fund balance sheet, the manager should combine the results of the LST appropriately to determine the overall effect on fund liquidity.

68. Combined asset and liability LST can assist in the assessment of which funds present the largest liquidity risk at a given moment, considering liquidity risk on both the assets and liabilities sides. This can have a material role in a manager's contingency planning for a crisis, such as in the planning for the impact of crystallised liquidity risk in one or more funds at firm-level.[12]

69. Managers should incorporate risk scoring into the LST where it enables an enhanced view of liquidity across the funds they manage, including in contingency planning and the operational preparation for a liquidity crisis.

70. An outcome of combined asset and liability LST may be a comparable metric or score, for example based on the RCR. The manager's chosen approach should be explained and documented in the LST policy, particularly if it does not require the assessment of the time and/or cost to liquidate assets in a portfolio as outlined in paragraph 42. Where one fund operated by the manager can be compared to another using such a metric, it can be a meaningful risk indicator for senior management.[13]

71. In cases where fund scores/metrics change materially in a given timeframe, combined asset and liability LST can assist in the set-up of an alert system to assess whether action on a fund's liquidity is required.

V.1.16 Aggregating LST across funds

72. A manager should aggregate LST across funds under its management where it assesses such an activity to be appropriate for those funds.

73. Aggregating LST across funds involves utilising the same liquidity stress test on more than one fund with similar strategies or exposures. It may be useful when considering the ability of a less liquid market to absorb asset sales were they to occur concurrently in funds operated by the manager. This may be particularly pertinent when funds operated by the manager own a material level of assets in a given market. Aggregation of LST may allow the manager to better ascertain the liquidation cost or time to liquidity

[12] ESRB/2017/6 page 31
[13] For more information, see Guide to the use of stress tests as part of risk management within asset management companies, AMF, page 18 and Liquidity stress testing in German asset management companies, BaFin, pages 29-31.

of each security, by considering the trade size, stressed market conditions and counterparty risk.

V.2 Guidelines applicable to depositaries

74. A depositary should set up appropriate verification procedures to check that the manager of a fund has in place documented procedures for its LST programme.

75. The verification does not require the depositary to assess the adequacy of the LST. For example, one way of verifying that LST is in place and carried out is to confirm that the UCITS RMP or AIF RMP provides for the manager to carry out LST on the fund.

76. Under both the UCITS Directive and the AIFMD, depositaries are required to implement procedures to verify that the fund is acting in compliance with obligations under those Directives.[14]

77. Where the depositary is not satisfied that LST is in place, it should take action as per any other evidence of a potential breach of rules by a manager. Depending on the national regime, this may require a depositary to inform (or require a manager to inform) the applicable NCA of the manager's failure to comply with applicable rules.

78. The depositary does not need to replicate or challenge the LST undertaken by a manager.

V.3 Interaction with National Competent Authorities

79. NCAs may at their discretion request submission of a manager's LST to help demonstrate that a fund will be likely to comply with applicable rules, including regarding the ability of the fund to meet redemption requests in normal and stressed conditions.

80. Furthermore, managers should notify NCAs of material risks and actions taken to address them.

81. NCAs may at their discretion request managers to notify them of other information relating to the LST, including liquidity stress test models and their results. This may be particularly the case during a period of large redemptions across the market.

[14] In the case of UCITS, under Article 3(2) of Commission Delegated Regulation (EU) 2016/438. In the case of AIFMD, under Article 95 of Commission Delegated Regulation (EU) 231/2013

Commission de Surveillance du Secteur Financier
283, route d'Arlon
L-2991 Luxembourg (+352) 26 25 1-1
direction@cssf.lu
www.cssf.lu