

ESMA GUIDELINES ON LIQUIDITY STRESS TESTING IN UCITS AND AIFS

KEY FINDING FOR FUND MANAGERS
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SUMMARY

The stress testing framework is essential for predicting the performances of companies. Identifying loopholes in different scenarios, regulations and strategies are beneficial to the company's sustainable development. Among the framework, the liquidity stress test is used to ensure whether fund managers can react against unexpected challenges and improve financial stability by analyzing the liquidity of their funds. To enhance the relevant standards and consistency, the European Securities and Markets Authority (ESMA) issued a new guideline¹ with an increased regulatory focus on liquidity stress testing (LST).

This white paper will demonstrate the principles in the new ESMA regulations and explain the meanings of the key concepts. Additionally, a plan of approach for fund managers to better comply with the new guidelines will be emphasized. Lastly, we will discuss the impact that the new ESMA regulations will cause on the fund managers.

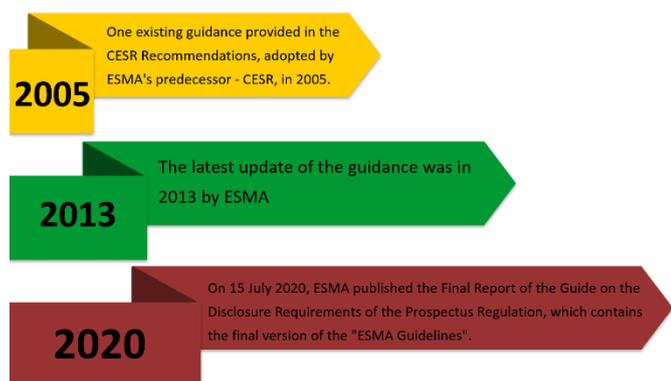
CONTEXT & REQUIREMENTS

1. Context

Liquidity stress testing is a risk analysis and management method based on quantitative analysis. It evaluates the vulnerability of the company's liquidity management system by testing the company's possible

¹ *Guidelines on liquidity stress testing in UCITS and AIFs* ([link](#))

losses in the occurrence of unexpected small-probability events and extreme situations and then takes necessary measures to reduce adverse effects. Before the outbreak of the global financial crisis, liquidity risk was not given enough attention because of the difficulty of liquidity stress testing, such as non-uniformed standards and limitations of data sources. However, with the development of the fund market, more and more attention on liquidity is reflected in the adoption of the LST guidelines in UCITS and AIFS by ESMA, which is followed by the recommendation by the European Systemic Risk Board (ESRB). The guidelines are sufficiently flexible, and consider the requirements of the relevant market, transaction, and investment influencing factors. In the new regulations implemented in 2020, some regulations are more specific than before. For instance, LST should adopt historical scenarios, such as the 2008-2010 global financial crisis.



Meanwhile, ESMA conducted a market-wide stress test on European high-yield bond funds in 2019 and found that if many investors withdraw in a short period, 40% of the funds may be short of liquidity, which is called pure redemption shock scenario². Based on the results of this test, ESMA plans to use the STRESI framework as a part of its risk monitoring to

monitor the risk in the fund industry and maintain financial stability.

2. Requirements

1) Introduction and goals of new ESMA regulations

In July 2020, after a series of consultations, ESMA published its final LST guidance, clearly outlining its expectations for LST assessment. The guidelines, applied to UCITS and AIFs, which come into force on September 30, 2020, are wide-ranging, top-down and principles-based.

² European Securities and Markets Authority, "ESMA Economic Report Stress simulation for investment funds 2019", September 2019. [\(link\)](#)

ESMA's overall goal is strengthening LSTs. That is to improve standards, promote consistency, and increase the frequency of current LST practices. In addition, on the basis of principles, minimize the risk of funds liquidity. And consultation and research are ongoing to assess industry compliance and standards.

2) Key Requirements³

ESMA's LST guidelines put forward important requirements, including:

- a) LST Models: in the process of building LST models, the following elements must be illustrated:
 - i. All the risk factors related to the fund's liquidity
 - ii. Types of scenarios used and their severity
 - iii. Monitoring of outputs and indicators
 - iv. Reporting of LST results, outputs and indicators to senior management
 - v. How the LST results are used by risk management, portfolio management and senior management.
- b) Expecting fund managers to conduct liquidity stress tests on the assets and liabilities of their funds. (This includes highlighting investors' expected redemption demands)
- c) EU-based funds will regularly test their ability to resist different types of market risks, including liquidity risk.
- d) Governance & Policy:
 - i. Full integration of LST into the fund's risk management framework should be ensured and the LST should also be subject to appropriate governance and oversight, including reporting and escalation procedures.

³ For more detailed principles of the new ESMA guidelines on LST, please refer to the checklist on the page 14

- ii. Fund managers should also regularly review and adjust the firm's policies, and they should have documented procedures as part of the liquidity stress test plan (LST should be properly documented in LST policy).

e) Frequency of LST:

Under the premise of ensuring that at least testing annually and employed at all stages in a fund's life-cycle, LST frequency can be flexibly set according to the fund's characteristics and the actual situation.

Although ESMA recommends quarterly tests, it also recognizes that in some cases higher or lower frequencies may be more suitable.

f) Adapting LST to different funds based on their characteristics and risk factors.

g) Scenarios & Data:

- i. Both hypothetical and historical scenarios should be employed and meanwhile low-possibility but high-impact scenarios should also be considered when relevant
- ii. Reserve Stress Testing (RST) ought to be carried out when appropriate since RST can be used to assess the consequence of an extreme market event for the liquidity profile and establish whether necessary measures should be taken to guarantee the fund's adequate liquidity.
- iii. Tailoring the scenarios to the specific characteristics of the funds is highly expected.
- iv. Regarding the limitations of data availability, it is recommended to overcome them with assistance from expert judgment and the avoidance of optimistic assumptions.

h) Aggregating LST across funds

Compared with the previous rules, they do not completely deviate from the rule that UCITS and AIFs funds have to perform LST every year. The biggest shift is the frequency of tests and reports that ESMA now recommends.

PLAN OF APPROACH

What Next for Fund Managers and Investment Companies?

After the guidelines taking effect on 30th September 2020, asset managers should consider some appropriate actions to achieve compliance with this new regulation and to develop an efficient LST. In other words, being successfully compliant with these new principles requires accurate and timely response measures and the overcoming of challenges from the guidelines.

1. Framework & Policy

To determine the difference between existing work on LST and the new requirements set in the ESMA guidelines, it is recommended to perform gap analysis on current framework including LST policy, LST models, governance, reporting and oversight procedures etc. to get an overview of what adaptations will be needed to ensure the compliance with new ESMA regulation. Based on the results above, investment companies are able to design liquidity and redemption risk management and integrate it into the risk management framework. To guarantee an efficient liquidity and redemption risk management framework, three elements must be contained:

- 1) Portfolio manager experience
- 2) Quantitative analysis
- 3) Qualitative elements such as market knowledge



Next, drafting or adapting the LST policy paper on the basis of the new ESMA principles is an inevitable step towards achieving compliance. A complete LST policy should cover 12 minimum requirements⁴ set by ESMA including the role of management team and governance board with their functions, creation of scenarios, assumptions for scenarios, etc.

⁴ For more detailed 12 requirements, please check the Article V.1.4 of the Guidelines on Liquidity Stress Testing in UCITS and AIFs by ESMA.

2. Design of the LST Models

1) Risk Drivers Analysis and Development of the Scenarios

To determine the risk factors that may impact the fund's liquidity, it is recommended to conduct risk driver mapping which consists of identifying the main liquidity vulnerabilities, such as the investor category and investor concentration, that impact funds' liquidity balance sheet. After the identifying, fund managers can map and analyze sensitivities of the fund's liquidity balance sheet to these risk factors. Based on the analysis results, fund managers should adequately focus on the key liquidity risk factors that the fund is most sensitive to. Besides, it is worth noting that ESMA recommends fund managers to consider "other liabilities"⁵ such as derivatives in LST to include items other than redemption risk. However, we believe that these liabilities need to be covered only if they have a material impact on the fund's liquidity to avoid unnecessary costs.

As an important step of LST, development of scenarios requires fund managers to review the existing scenarios and analyze the appropriateness of the number, the severity and the type of those scenarios. As regulated in the ESMA guidelines, both historical and hypothetical scenarios should be employed. More specifically, much more emphasis should be paid on forward-looking scenarios than historical data which plays a role in defining scenarios because the present market dynamics and economic environment are rather unique. If possible, the development of the scenario needs to be accompanied by a storyline which is based on the assumptions on all relevant factors such as liquidation rate of assets, alternative funding rate and impact of fund's reputation or credit rating, etc.

Besides, the creation of a scenario is a long-term and iterative process. Occasionally, the shock estimated from the testing model may not be in line with user expectation. Hence, managers should continuously add additional risk drivers and factors to the scenario to make sure the wide enough range of the scenario.

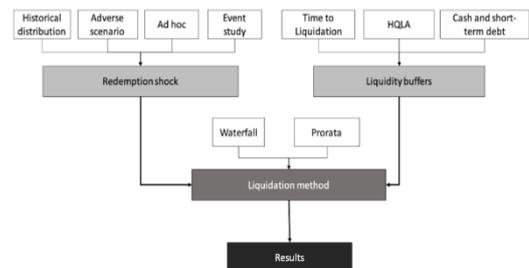
⁵ In the Article V.1.13 of the Guidelines, ESMA provides several examples and potential events.

2) Conduct the liquidity stress testing

To successfully conduct a liquidity stress test for funds, it is recommended for the fund managers to follow the IMF Practical Guide on LST for Investment Funds⁶. By following the working paper, the process of conducting a LST for funds includes:

- a) Setting “severe but plausible” stressed scenarios of redemption shocks.
- b) Comparing the redemption shock to the liquidity buffers based on different metrics.
- c) Choosing a liquidation method to react to redemption shocks.
- d) Testing whether the liquidity buffers can cover the redemption shocks.

As mentioned by ESMA, fund’s managers are required to conduct stress testing on both liability and asset sides. On the liability side, the redemption shock is generally measured as the net outflows of Total Net Assets (TNA), i.e. $Redemption\ Shock = (Inflows - Outflows)/TNA$. In addition, the calibration of the redemption shock is requested which can be usually conducted by two approaches:



(Source: IMF Working Paper/17/226)

- i. Historical approach
- ii. Macroeconomic approach

The second approach is more recommended because it allows LST results to be aggregated across funds required by the ESMA guidelines. In the macroeconomics approach, managers typically develop a baseline and an adverse scenario to provide that macro-financial elements used in the scenario can impact net flows of funds.

On the other hand, High-Quality Liquidity Assets (HQLA) approach is a recommended approach to measure liquidity buffers on the asset side. In this approach, securities in the portfolio are divided into asset

⁶ IMF Working Paper, WP/17/226, Liquidity Stress Tests for Investment Funds: A practical Guide ([link](#))

classes such as cash, government bonds, etc. and each class is given a liquidity weight. Then managers are able to determine a liquidity index by the product of the liquidity weights and the share of each class in the portfolio:

$$\text{Liquidity Index} = \text{Sum (Weights*Shares)}$$

After calibrating the redemption risk and liquidity buffers estimated, the result of LST can be expressed by Redemption Coverage Ratio (RCR) measuring the fund's liquidity ability to meet investors' redemption requirements in stressed scenarios.

RST - A Special LST

For the low probability risk event with a large impact, i.e. tail risk, ESMA requires fund managers to conduct a reverse stress testing (RST). Unlike the normal liquidity stress test using top-down modelling, RST should be addressed by using bottom-up modelling. It is suggested for funds managers to follow the process below to carry out a RST:

- a) Specifying the target gap between redemption requirement and liquidation ability.
- b) Identifying the macroeconomic shocks and tail risk factors driving this gap.
- c) Analyzing the connection with portfolio performance of portfolio, funds model weakness (such as timely liquidation for real estate) and strategic events (such as new portfolio composition) to find hidden vulnerabilities in the fund.

To be more specific, the table on the right side contains 6 stages which are suggested to include when performing an RST.



(Source: Moody's Analytics)

3) Use of Results of LST and Reporting

When LST is finished, the results should primarily contribute to pointing out the potential liquidity weaknesses to guarantee sufficient liquidity of funds. Secondly, those outcomes can provide support and assistance to the overall risk management oversight and decision-making process. From the managers'

standpoint, the results would facilitate the enhancement of their abilities to manage funds' liquidity, preparing funds for a crisis and planning in broader contingency.

When it comes to LST reporting, ESMA allows managers to conduct LST based on the characteristics of funds. Therefore, managers retain sufficient flexibility in LST design, resulting in the difficulty in capturing the variability of LST in a common reporting format. As a result, it would be helpful for the fund managers to establish a specialized department or risk management team responsible for developing a common framework of reporting LST to promote consistency across different funds.

Lastly, during the interactions with National Competent Authorities, fund managers can also adopt the common framework of reporting LST to demonstrate their funds' ability to meet redemption requests under the stressed conditions.

3. Governance & Integration

From a governance perspective, the Board should firstly have a strong understanding of liquidity risk from assets and liabilities. Aside from the knowledge of general liquidity risk profile, the Board is also expected to assist and support, on an ongoing basis, the assessment and supervision of each fund's liquidity position. Based on the new principle that the LST is required to be performed at least annually, it should be reviewed and approved with the same frequency by the Board of Directors. Moreover, some governance activities are suggested to be established such as a liquidity reporting committee or some other supervisory staff and committees. Furthermore, investment companies can emulate the method under ILAAP⁷ situation, that is, establish a temporary project especially for new ESMA regulations and use it to deal with the challenges that the new regulations bring to the managers.

Although building an ideal enterprise-wide risk management framework is complex and costly, as mentioned by ESMA, it will be doable for fund managers of all sizes to integrate their liquidity stress testing framework into enterprise-wide risk management framework. There are several key aspects that should be considered by managers:

⁷ Internal Liquidity Adequacy Assessment Process, a recent risk report form dealing with the liquidity adequacy.

- 1) From a work structure and data management perspective, it is advised to develop centralized liquidity risk management infrastructure which takes the responsibility for integrating data, stress testing analysis and reporting.
- 2) From a LST compliance perspective, the liquidity metrics history for trend analysis, benchmarking and auditing are supposed to be maintained.
- 3) All information and data to manage, report, and monitor the LST metrics should be easily calculated and cost-effective.

Summarizing

1. The core of the liquidity risk management (LRM) framework is how to measure and manage the needs and usages of liquid funds, and strategies to deal with the liquidity risk should also be proposed. According to the new ESMA regulations, many influencing factors are required to be taken into account when designing LST. Meanwhile, those preliminary preparations are also beneficial to improve the accuracy of the outcomes analyzed.
2. The guidelines, to some extent, strengthen managers' understanding of liquidity risk and enhance their ability of managing liquidity. One step further, since a uniform and effective standard has been clarified, there will be fewer disagreements among the fund managers, greatly boosting the efficiency of managers' works and even the entire market.
3. Flexible adjustments allow managers to find a suitable implementation of frequency for the funds, helping to specifically determine the shortcomings regarding the liquidity risk.
4. The regulation required that LST should be supervised so strengthened monitoring of the business flexibility and risk management forces managers to concentrate on the liquidity stress test which increases the reliability.

In contrast, there are also some other considerations of the new guidelines.

1. ESMA requires fund managers to integrate the LST into the risk management framework. Therefore, managers need to balance the LST and the enterprise-wide risk management framework which might lead to an increase of workload. Plus, ESMA recommends managers to conduct an ad-hoc LST when appropriate, which result in extra effort.
2. The guideline requires managers to overcome data availability issues. However, some fund managers lack information regarding underlying investors from distributors and fund platforms. Hence, to collaborate with transfer agents and fund registrars to ensure the access to additional information, there will be an extra cost paid by managers.
3. According to Bloomberg Professional Services⁸, only 49% of companies have an independent LRM framework, and only half of the companies include the liquidity measures before the decision-making considerations. This situation indicates the problem of not enough managers concentrating on the LST. To prevent the company from such a problem, managers are suggested to contact suppliers and advisers and meanwhile establish the data sources for the LST model before the new ESMA guidelines are implemented.

Support

As a consultancy company, DRS can support you to better comply with the new ESMA regulations on the liquidity stress test with the following services:

1. Designing and performing the gap analysis of existing framework, LST policy, LST models, governance and oversight procedures etc. against the new principles set by the ESMA guidelines to make the differences visible and decide on which adaptations are necessary.
2. Defining, drafting and implementing the integrated liquidity risk framework covering LST policy papers, LST models, governance, redemption and liquidation strategies, etc.
3. Performing data quality assessment and remediation on existing data sets while offering more suitable data sources plus the data management services if needed.
4. Set up a plan of approach ensuring compliance

⁸ "Bloomberg - Top challenges from ESMA's Liquidity Stress Testing guidelines", 2021([link](#))

CHECKLIST FOR NEW ESMA GUIDELINES

ESMA 16 Guidelines on Liquidity Stress Testing (applicable for Fund Managers)			
(European Securities and Market Authority, 2019)			
Guideline No	Topic	Content	
1	The Design of the LST Models	A manager should determine:	the risk factors that might impact the fund's liquidity
			the types of scenarios to use and their severity
			monitoring of indicators
			reporting of LST outcomes and indicators to senior management
			how the results of the LST are to be used by risk management, portfolio management and by senior management
		And ensure that LST provides info that enables follow-up actions.	
2	Understanding Liquidity Risks	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;	
		And should also strike a balance by using liquidity stress testing (LST) that is focused, specific to the fund and highlights the key liquidity risk factors(at the same time, uses a range of scenarios sufficiently wide to adequately represent the diversity of the fund's risks).	
3	Governance Principles	The manager should ensure that LST is properly integrated within the fund's risk management framework and is subject to appropriate governance and oversight.	
4	The LST Policies	LST should be documented in an LST policy within the UCITS and AIF RMP, and this should require the manager to periodically review the LST and adapt, if necessary.	
5	Frequency of LST	LST should be done at least once a year and, as appropriate, at all stages of the life cycle of the Fund. Depending on the characteristics of the fund, the guidelines suggest carrying out LST quarterly or more frequently.	
6	The use of LST Results	LST Should: -help ensure the fund is sufficiently liquid, assist risk management monitoring and decision makings, help identify potential liquidity weaknesses, and strengthen the manager's ability to manage fund liquidity in the best interests of investors.	
		-assist a manager in preparing a fund for a crisis, and in its broader contingency planning	
7	Adapting the LST to diff. Funds	LST should be adapted appropriately to each fund in respect of:	the frequency of LST
			the types and severity of scenarios to employ to create stressed conditions
			the assumptions regarding investor behaviour and asset liquidation
			the complexity of the LST model
			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
8	LST Scenarios	LST should employ hypothetical and historical scenarios and, where appropriate, Reverse Stress Testing (RST). LST should not overly rely on historical data as future stresses may differ from previous ones.	
9	Data	LST should show that the manager is able to overcome limitations arising out of the availability of data.	
		Including: the manager avoiding optimistic assumptions, justifying reliance on third party LST models, and exercising expert qualitative judgement.	
10	Product Development	During product development, a manager of a fund which requires authorization from an NCA should:	be able to demonstrate that key elements of the fund - including its strategy and dealing frequency where appropriate, undertake LST on the asset, as well as the liability side.
11	Stress testing fund assets to determine the effect on fund liquidity	LST should enable a manager to assess the time and/or cost to liquidate assets in a portfolio, and whether liquidation would be permissible taking into account the fund's objectives and investment policy and the manager's obligation to manage the fund in the interests of investors.	
12	Stress testing fund liabilities to determine the effect on fund liquidity	LST incorporate scenarios should relating to the liabilities of the fund, including redemptions and other potential sources of liquidity arising from the liability side of the fund's balance sheet.	
		Risk factors related to investor type and concentration according to the fund's nature, scale and complexity should be incorporated into the LST.	
13	LST on other types of liabilities	A manager should include other types of liabilities in its LST in normal and stressed conditions. All relevant items on the liability side of the fund's balance sheet, including items other than redemptions, should be subject to LST.	Factors which might affect liquidity risk in respect of the following types of liability: Derivatives, Committed capital, Securities Financing Transactions / Efficient Portfolio Management, Interest/credit payments.
14	Funds investing in less liquid assets	The LST should reflect risks arising from less liquid assets and liabilities risks.	
		Managers should pay particular regard to the appropriateness of the frequency of LST for funds which invest in less liquid assets.	
15	Combined asset and liability LST	The manager should separately stress test the assets and the liabilities of the fund balance sheet, then combine these results to determine the overall effect on fund liquidity.	
		This can help assess which funds present the largest liquidity risk at a given moment, which can, in turn, have a material role in a manager's contingency planning for a crisis.	
16	Aggregating LST across Funds	A manager should aggregate LST in the funds they manage, where such activities are assessed to be appropriate for those funds.	

Reference:

European Securities and Market Authority. (2019). Final Report Guidelines on liquidity stress testing in UCITS and AIFs (pp. 33-44). Retrieved from <https://www.esma.europa.eu/press-news/esma-news/esma-publishes-stress-simulation-framework-investment-funds>

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