

EBA/GL/2024/08

19 June 2024

Final Report

Guidelines

establishing the common reference parameters of the stress test scenarios for the liquidity stress tests referred in Article 45(4) Regulation (EU) 2023/1114

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1. Executive Summary

Article 45(4) of Regulation (EU) 2023/1114 of the European Parliament and the Council¹ requires issuers of significant assets referenced tokens to conduct liquidity stress testing on a regular basis.

The requirement of carrying out the said regular liquidity stress testing applies as well to electronic money (e-money) institutions issuing e-money tokens that are significant by virtue of Article 58(1), point (a), of Regulation (EU) 2023/1114 and can be expanded to issuers of assets referenced tokens that are not significant as well as to e-money institutions issuing e-money tokens that are not significant, if the competent authority of the home Member State requires it so following Article 35(4) and Article 58(2) of Regulation (EU) 2023/1114, respectively.

The supervisory authority, based on the outcome of the liquidity stress testing, may decide to strengthen the liquidity requirements related to the management of the reserve of assets and to the minimum content of the liquidity management policy and procedures, mainly.

With these Guidelines (GL) the EBA is complying with its mandate in Article 45(8) of Regulation (EU) 2023/1114 to establishing, in close cooperation with ESMA and the ECB, the common reference parameters of the stress test scenarios to be included in the liquidity stress testing. Regulation (EU) 2023/1114 requires to update the GL periodically taking into account the latest market developments.

In the development of the mandate the EBA has taken into account Regulation (EU) 2023/1114, and, particularly, the final draft reports on regulatory technical standards (RTSs) in accordance with Article 38(5), as regards the specification of the highly liquid financial instruments in the reserve of assets, Article 45(7)(b), as regards the specification of the minimum content of the liquidity management policy and procedures, and Article 36(4), as regards the further specification of the liquidity requirements of the reserve of assets. However, paragraph or section in these GLs inextricably linked to the mentioned RTSs which could not live without but just with provisions in Regulation (EU) 2023/1114 would only apply once those RTS are applicable following endorsement by Commission and publication in OJ.

¹ Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 (OJ L 150, 9.6.2023, p. 40–205)”.

Next steps

The guidelines will be translated into the official EU languages and published on the EBA website. The deadline for competent authorities to report whether they comply with the guidelines will be two months after the publication of the translations.

2. Background and rationale

1. Issuers of significant assets referenced tokens (ARTs) and e-money institutions issuing significant e-money tokens (EMTs) (as well as issuers of ARTs that are not significant and e-money institutions issuing EMTs that are not significant, both if required by the relevant competent authority of the home Member State)² are required in Regulation (EU) 2023/1114 to conduct liquidity stress testing on a regular basis.
2. The liquidity stress testing will help issuers of tokens to better manage their reserve of assets and generally their liquidity risk. Based on the outcome of the liquidity stress testing the EBA or, where applicable, the relevant competent authority/supervisor, may decide to strengthen the liquidity requirements of the issuer as indicated by Article 45(4) Regulation (EU) 2023/1114:
 - a. By ensuring an effective and prudent management of the reserve of assets, aimed to ultimately cover the amount of the assets referenced, such that the redemption of the tokens upon request of their holders at any time, including during stress, can be done with the reserve of assets, and to ensure that every issuance of tokens is accompanied by an increase of the reserve of assets.
 - b. By reinforcing the minimum content in the liquidity management policy and procedures of issuers as set out in Article 45(3) Regulation (EU) 2023/1114 and, as specified following Article 45(7)(b) Regulation (EU) 2023/1114, once the specification is applicable.
3. Article 45(8) Regulation (EU) 2023/1114 mandates the EBA to issue guidelines with a view to establishing the common reference parameters of the stress test scenarios to be included in the liquidity stress testing. The EBA shall update the guidelines periodically taking into account the latest market developments.
4. First, the EBA identifies in these guidelines the parameters that need to be analysed under the liquidity stress testing to cover the relevant risks. Second, following application of the guidelines, the supervisor may strengthen the liquidity requirements of the issuer to cover those risks based on the outcome of the liquidity stress testing. For example, by setting a higher amount of the reserve of assets, a higher diversification of its composition or a shorter maturity of the assets, that will ensure under different stress scenarios their rapid liquidation with minimal liquidity, credit, market and concentration risk and a prompt execution of any redemption request by token holders; or by strengthening the contingency policy of the issuer with reinforced early warning signals or mitigation tools upon potential stress scenarios.

² As envisaged in paragraph 4 of Article 45 (on significant ARTs) in conjunction with paragraph 1 of Article 58 (on significant EMTs issued by e-money institutions), paragraph 4 of Article 35 (on non-significant ARTs) and paragraph 2 of Article 58 (on non-significant EMTs issued by e-money institutions).

5. The next items in the background describe the risks that the EBA has identified to be covered in the liquidity stress testing and the methodology identifying the common reference parameters of the stress test scenarios to be included in the liquidity stress testing to be applied.
6. Taking into account Regulation (EU) 2023/1114, and, once they are applicable following endorsement by the Commission and publication in the OJ, the EBA final report on draft regulatory technical standards, published on 13 June 2024, [specifying the highly liquid financial instruments, under Article 38\(5\)](#), and the EBA final report on draft regulatory technical standards, published on 13 June 2024, [further specifying the liquidity requirements of the reserve of assets, under Article 36\(4\)](#), the reserve of assets may be composed of the following assets:
 - a. Deposits with credit institutions (they should amount to at least 30% of the assets referenced in each official currency – 60% if the token is significant – and to a minimum credit quality such that there is no reason to expect non-performance), commodities and other assets that are received upon the issuance of the token and are not invested. The deposits held with credit institutions are subject to the following maximum concentration limits by deposit counterparty:
 - i. 25% of the reserve of assets if the bank receiving the deposit is identified as either 'global systemically important institution' (G-SII) or other 'systemically important institution' (O-SII), 15% if the bank is a large institution but is not identified as G-SII or O-SII, and 5% for other than large institutions; and
 - ii. 1.5% of the total assets of the institution taking the deposits.
 - b. Highly liquid financial instruments at market value in which the issuer may invest are the following:
 - i. LCR Level 1(L1) assets subject to 0% haircut, as defined in Commission Delegated Regulation (EU) 2015/61³, mainly exposures to central government and central banks. Securities here are subject to a concentration limit by issuer/guarantor of 35% of the reserve of assets.
 - ii. L1 covered bonds, capped at 35% of the reserve of assets and subject to a concentration limit by issuer/guarantor of 10% of the reserve of assets.
 - iii. Financial instruments used as assets referenced subject to a concentration limit by securities issuer/guarantor of 5% of the reserve of assets. This limit applies to units in undertakings for collective investment in transferable securities (UCITS) by management company.

³ Commission Delegated Regulation (EU) 2015/61 of 10 October 2014 to supplement Regulation (EU) No 575/2013 of the European Parliament and the Council with regard to liquidity coverage requirement for Credit Institutions Text with EEA relevance (OJ L 11, 17.1.2015, p. 1.).

- iv. Derivatives exposures, for the purposes of the valuation of other highly liquid financial instruments, with a concentration limit of 5% of the reserve of assets (or 10% if the counterparty is a credit institution).
- v. A general 30% of the reserve of assets concentration limit applies to all exposures against the same counterparty/issuer/guarantor.

2.1 Identified risks to be assessed in the liquidity stress testing

2.1.1 Redemption risk

- 7. The risk of redemption is mainly linked to the liability side of the issuer of tokens and the proneness to redemption requests by the token holders.
- 8. Issuers need to make sure that the amount of the reserve of assets is sufficient to meet any redemption request that can be made by token holders at any point in time. This should include cases of stress scenarios where massive redemption requests could arise triggered by different drivers as experience has evidenced, e.g. idiosyncratic events related to the issuer, to counterparties where the reserve of assets are materialized, market wide systemic events in the crypto ecosystem and financial system (reputational issues, solvency/liquidity issues, ...) and token holders' risk profile.
- 9. A massive redemption request might easily trigger fire sales or massive deposit withdrawals that can ultimately negatively impact the capacity of the issuer, the deposit counterparty and the general financial market and crypto ecosystem. If this is the case and a timely redemption is not met in a sound manner further redemption requests across tokens and issuers can take place aggravating the situation of the issuer, the financial system and crypto eco system and the general financial markets.

2.1.2 Risk related to deposits with credit institutions

- 10. This risk is related to the part of the reserve of assets in the form of deposits with credit institutions.
- 11. The possibility of non-performance in deposits with credit institutions needs to be considered under stress. Deposits with credit institutions are expected to be liquidity resources of the issuer for prompt use in case of redemption request by the token holders at any time, including during stress periods. The required amount of these assets by Regulation (EU) 2023/1114 is material in the case of tokens referenced to official currencies, 30% of the assets referenced, or 60% if the token is significant. Generally, also for other tokens, deposits with credit institutions are expected to reach a minimum value to still ensure prompt redemption in funds if needed.
- 12. Deposits with credit institutions are a link of interconnectedness between the banking system and the crypto ecosystem. Any potential distortion in the liquidation of the deposits may bring consequences in both; reputational risks might arise in the banking system if the credit institution is not able to repay the deposits in time and confidence in crypto assets could be damaged if redemption cannot be met in time. All this can bring massive redemption requests in the crypto system with

subsequent deposits run-off if full performance is not guaranteed in the deposits with credit institutions.

2.1.3 Market risk and volatility

13. This risk is mainly related to the part of the reserve of assets of token invested in securities or other assets not replicating the assets referenced.

14. Market risk in the reserve of assets might put their market value (after derivative hedges) at risk of not meeting the market value of the assets referenced, which represents the obligation of the issuer against the token holders. This might be the case in tokens referenced to official currencies but also to tokens with other assets referenced (e.g. commodities where the assets do not replicate the obligations).

15. In addition, different volatility and lack of correlation between the reserve of assets and the assets referenced could lead again to an insufficient amount of reserve of assets. This is the case where changes in the market value of the reserve assets are different to the market value changes of the assets referenced and this difference is not fully hedged with derivatives.

16. This risk might become exacerbated in times of stress and when the issuer might not timely meet redemption requests from token holders that may in turn trigger such request from other token holders and extend a liquidity distress situation to other issuers. The related shock transmission channel to be considered is due to reputational reasons and lack of confidence in crypto assets, and subsequently to the banking system if accompanied by massive deposit withdrawals and even financial markets in general with potential fire sales.

2.1.4 De-pegging risk

17. This is the risk that the token referenced to an official currency may lose its par value. This is the case where the market value of the token might become lower than the par value versus the official currency. De-pegging risk refers to the differences between the market value of the token and the market value of the asset referenced while market risk is referred to the market value of the reserve of assets for the purposes of assessing its effectiveness to redeem the token holders by the market value of the assets referenced.

18. A situation where the par value (redemption value) would be higher than the market value would trigger massive redemption requests by the token holders. This could trigger fire sales, massive withdrawals of deposits with the consequences already discussed where the reserve of assets might ultimately not be sufficient to meet the redemption requests.

19. This risk can be triggered, for example, by idiosyncratic reasons like solvency or reputational related ones. The liquidity stress testing should assess this risk and analyse if additional liquidity requirements are needed, like additional reserve of assets in order to mitigate potential consequences of the loss of the par value.

2.2 Liquidity stress testing methodology

20. These Guidelines identify the parameters that the liquidity stress testing needs to assess to cover the relevant risks. Based on them, the tokens' issuers should determine and calibrate the liquidity stress scenarios and stress factors/weights that should apply to the reserve of assets, in the asset side, and to the assets referenced by the assets referenced tokens, in the liability side.

21. The weighted market value (or weighted amount if not marketable, e.g. deposits) under stress of the reserve of assets is compared with the weighted market value of the assets referenced by the assets referenced tokens under stress. The outcome of this tests the capacity of the reserve of assets to meet the redemption requests of the to-ken holders under stress that supervisors should consider for potential strengthening liquidity requirements in terms of additional reserve of assets or reinforced qualitative liquidity management.

22. This methodology:

- a. meets the expectations of the mandate that refers to the issuance of guidelines "with a view to establishing the common reference parameters of the stress test scenarios ... ". There is no expectation that specific stress factors/weights should be established by the Guidelines necessarily. The common reference parameters should be established to serve as harmonised sources of information to be taken into account by the tokens' issuers for the determination of such stress factors.
- b. captures the nature and substance of the liquidity stress testing which is for the purposes of assessing the need of potential further liquidity requirements on an issuer-by-issuer basis. To be noted that Regulation (EU) 2023/1114 requires the liquidity stress testing to be under-taken for all the asset referenced tokens issued and crypto-services provided by the issuer in a holistic and comprehensive manner.
- c. is consistent with the fact that this is a new business activity and, therefore, there is lack of historical observations under normal and stress conditions, mainly after the introduction of Regulation (EU) 2023/1114, as to be able to estimate calibration factors to stress relevant as-sets and liabilities in a harmonized manner via Guidelines.
- d. provides harmonised stress testing elements as to the risks and parameters to be assessed and the approach to follow to assess potential strengthening liquidity requirements.

3. Guidelines

EBA/GL/2024/08

19 June 2024

Guidelines issued on the basis of Article 45(8) of Regulation (EU) 2023/1114

establishing the common reference
parameters of the stress test scenarios
for the liquidity stress tests referred in
Article 45(4) Regulation (EU) 2023/1114

1. Compliance and reporting obligations

Status of these guidelines

1. This document contains guidelines issued pursuant to Article 16 of Regulation (EU) No 1093/2010⁴. In accordance with Article 16(3) of Regulation (EU) No 1093/2010, competent authorities and financial institutions must make every effort to comply with the Guidelines.
2. Guidelines set the EBA view of appropriate supervisory practices within the European System of Financial Supervision or of how Union law should be applied in a particular area. Competent authorities as defined in Article 3(1), point (35) of Regulation (EU) 2023/1114⁵ to whom guidelines apply should comply by incorporating them into their practices as appropriate (e.g. by amending their legal framework or their supervisory processes).

Reporting requirements

3. According to Article 16(3) of Regulation (EU) No 1093/2010, competent authorities must notify the EBA as to whether they comply or intend to comply with these guidelines, or otherwise with reasons for non-compliance, by [dd.mm.yyyy]. In the absence of any notification by this deadline, competent authorities will be considered by the EBA to be non-compliant. Notifications should be sent by submitting the form available on the EBA website with the reference 'EBA/GL/2024/08'. Notifications should be submitted by persons with appropriate authority to report compliance on behalf of their competent authorities. Any change in the status of compliance must also be reported to EBA.
4. Notifications will be published on the EBA website, in line with Article 16(3).

⁴ Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/78/EC, (OJ L 331, 15.12.2010, p.12).

⁵ Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 (OJ L 150, 9.6.2023).

2. Subject matter, scope and definitions

Subject matter

5. These guidelines establish, in accordance with paragraph 8 of Article 45 of Regulation (EU) 2023/1114, the common reference parameters of the stress test scenarios to be included in the liquidity stress testing referred to in paragraph 4 of Article 45 that Regulation.

Scope of application

6. These guidelines apply to issuers of significant asset-referenced tokens and electronic money (e-money) institutions issuing e-money tokens (in accordance with Article 58(1), point a, of Regulation (EU) 2023/1114) as defined in points 6 and 7, respectively, of Article 3(1) of that Regulation, and non-significant when the competent authority of the home Member State requires it so in accordance with Article 35(4) and Article 58(2) of the same Regulation (hereinafter, for the purpose of these guidelines, jointly referred, as the “issuers of ARTs/EMTs”).

Addressees

7. These guidelines are addressed to competent authorities as defined in Article 3(1) point (35) of Regulation (EU) 2023/1114 to whom these guidelines apply.
8. These guidelines are also addressed to the issuers, as defined in point 10 of Article 3(1) of Regulation (EU) 2023/1114, to whom these guidelines apply, of:
 - a) asset-referenced tokens as defined in Article 3(1), point 6 of that Regulation (issuers of asset-referenced tokens -ARTs-); and
 - b) and e-money institutions issuing e-money tokens defined in Article 3(1), point 7 of that Regulation (issuers of e-money tokens -EMTs-).

3. Implementation

Date of application

9. These guidelines apply from two months after the date of publication on the EBA's website of the guidelines in all EU official languages.

4. Guidelines on the common reference parameters of the stress test scenarios in the liquidity stress testing

4.1 General provision

10. According with Article 45(4), 2nd subparagraph, Regulation (EU) 2023/1114, issuers of ARTs/EMTs should assess the risks under section 4.2, taking into account regulatory changes and market trends, as well as minimum macroeconomic conditions, and apply the methodology under section 4.3, including the parameters of the stress test scenarios, considering all the asset-referenced and e-money tokens offered and activities related to them.

4.2 Risks to be assessed

4.2.1 Redemption risk

11. Issuers of ARTs/EMTs should assess under stress the proneness to redemption requests at any time.
12. For the purpose of paragraph 11, issuers of ARTs/EMTs should consider all the following aspects: the profile of the token holders (including retail or wholesale); the type of token (including if it is significant or not); the type of asset referenced (such as, official currency or other); the characteristics of the issuer (such as, credit institution or other); historical experience of redemption requests; and, the maturity profile of the reserve of assets. Issuers may consider any other aspect they deemed relevant for the assessment.
13. Issuers of ARTs/EMTs should assess the need to complement the percentages of the reserve of assets with a residual maturity of up to one or five working days in accordance with Article 36(4) Regulation (EU) 2023/1114, once the relevant delegated regulation applies, by estimating a 99% confidence interval relative to the average redeemed amount in the worst cases observed of 1 and 5 days residual maturity in terms of gross outflows, based on their particular historical observations.

4.2.2 Risk related to deposits with credit institutions

14. Issuers of ARTs/EMTs should assess under stress the possibility of failure to a prompt access to the amount of the deposits held in credit institutions as part of the reserve of assets.
15. For the purposes of paragraph 14, issuers of ARTs/EMTs should consider all of the following aspects: i) the credit quality and the liquidity profile of the deposit counterparty; ii) the concentration by counterparty and custodian; iii) the location of the deposit; iv) the maturity

of the deposit; v) the potential collateral (including volume, type or quality) lying under the deposit; and, vi) any risk factor not required following Article 36(4) Regulation (EU) 2023/1114 they may consider relevant for this risk.

4.2.3 Market risk and volatility

16. Issuers of ARTs/EMTs should assess under stress the need of additional liquidity requirements to cover the market risk of the reserve of assets as well as its currency denomination differences, volatility and correlation relative to the one of the assets referenced, taking into account related hedging derivatives and overcollateralization in place either imposed in accordance with the specification under Article 36(4) Regulation (EU) 2023/1114, once the relevant delegated regulation applies, or any other requested by the competent authority/supervisor or held on a voluntary basis.
17. Issuers of ARTs/EMTs should take into account the cases where a historical lookback approach is used for the determination of the overcollateralisation in place (referred in the preceding paragraph) and is based on an observation period where no stress event has taken place. In these cases, for example, longer periods including stress events should be considered or stress assumptions should be incorporated.

4.2.4 De-pegging risk

18. Issuers of ARTs/EMTs should assess the risk that the market value of the ARTs/EMTs differ from the market value of the asset referenced and whether additional liquidity requirements are necessary to mitigate that difference.

4.3 Methodology

4.3.1 The liquidity stress testing

19. Issuers of ARTs/EMTs should compare the total weighted amount of the reserve of assets with respect to the total weighted amount of the assets referenced by the ARTs/EMTs, under stress.
20. For the purposes of paragraph 19, issuers of ARTs/EMTs should calculate the total weighted amount of the reserve of assets as the result of multiplying the market value of each asset in the reserve of assets by the relevant stress factor (weight). In the case of assets that are not marketable (such as cash or deposits in credit institutions), issuers of ARTs/EMTs should take the amount multiplied by the relevant stress factor.
21. That total weighted amount of the assets referenced by the tokens is the result of multiplying the market value of the assets referenced by the relevant stress factor. In the case of ARTs/EMTs referenced to official currencies their monetary value should be taken as weighted amount of the assets referenced.

22. A shortfall of the reserve of assets in the liquidity stress testing arises where the total weighted amount of the reserve of assets is lower than the weighted amount of the assets referenced by the tokens, under stress.

4.3.2 Identification of the common referenced parameters of the stress test scenarios

23. Issuers of ARTs/EMTs should calibrate and determine the relevant stress factors for each asset of the reserve of assets and for the assets referenced by the ARTs/EMTs under various stress scenarios and time horizons, including 1 day, 5 days, 30 days and 1 year.
24. Issuers of ARTs/EMTs should base the calibration of the stress factors on historical observations (their own observations plus observations from market events) and expert judgment. Issuers of ARTs/EMTs should have a historical documentation of data series of observations and detailed rationale for any expert judgment proving the appropriateness of the calibration.
25. The stress factor for a specific asset class should be constructed considering the combination of risk factors and parameters relevant for the asset class under different stress events/scenarios from an idiosyncratic and market wide perspective. The severity of the shocks should be determined by the severity of the given stress scenario (including the time horizon). Therefore, different stress factors for the same asset class may be derived for each scenario.
26. The stress factor to be applied to each asset of the reserve of assets should be lower than 100%. The stress factor to be applied to the assets referenced should be higher than 100% if the tokens are not referenced to official currencies.
27. In the determination of the stress factors issuers of ARTs/EMTs should assess all the following parameters and take into account the risks envisaged in section 4.2 of these Guidelines. Issuers of ARTs/EMTs may also consider other relevant parameters and risks not already considered and which are not inconsistent with those in these guidelines.

a) Parameters related to the calibration of the stress factors of the reserve of assets

28. In the determination of the stress factors to the following assets in the reserve of assets, issuers ARTs/EMTs should take into account under stress all the following parameters:
- a. **Deposits with credit institutions:**
 - i. the credit quality of the deposit taking institution and expectations of non-performance;
 - ii. the credit and liquidity quality of the underlying collateral if the deposit is collateralised;
 - iii. the concentration by the deposit taking institution;

- iv. the tenor and early withdrawal options; and
 - v. the roll-over risk stemming from securities financing transactions, especially repos, where cash is received against non- liquid assets⁶.
- b. **Commodities:**
- i. the extent to which the reserve assets replicate the assets referenced by the tokens; and
 - ii. the potential delivery risk and costs associated if the redemption is in physical.
- c. **LCR level 1 liquid assets subject to 0% haircuts [in accordance with Commission Delegated Regulation (EU) 2015/61] and, once the relevant delegated regulation applies, as further specified as highly liquid financial instruments in accordance with Article 38(5) Regulation (EU) 2023/1114:**
- i. the weighted average residual maturity/duration to take into account their potential sensitivity to interest rate risk and related volatility;
 - ii. the country risk premium to take into account their related volatility;
 - iii. the concentration by issuer;
 - iv. the location of the security (custodian) to take into account any potential challenge for a prompt transfer; and
 - v. the evolution of the market value of the specific security, to assess their volatility and correlation with respect to the assets referenced.
- d. **LCR level 1 covered bonds [in accordance with Commission Delegated Regulation (EU) 2015/61] and, once the relevant delegated regulation applies, as further as specified as highly liquid financial instruments following Article 38(5) Regulation (EU) 2023/1114:**
- i. the required LCR haircuts;
 - ii. the weighted average residual maturity/duration to take into account their potential sensitivity to interest rate risk and related volatility,
 - iii. their percentage of the reserve of assets,

⁶ Liquid assets to be understood as those defined in Article 3 (1) and (2) as 'level 1 assets' or 'level 2 assets', respectively, of Commission Delegated Regulation (EU) 2015/61 of 10 October 2014, to supplement Regulation (EU) No 575/2013 of the European Parliament and the Council with regard to liquidity coverage requirement for Credit Institutions (OJ L 011 17.1.2015, p.1).

- iv. the concentration by issuer,
 - v. the location of the security (custodian) to take into account any potential challenge for a prompt transfer,
 - vi. the evolution of the market value of the specific security, to assess their volatility and correlation with respect to the assets referenced.
- e. **Other highly liquid financial instruments, once the relevant delegated regulation applies, as further specified following Article 38(5) Regulation (EU) 2023/1114:**
- i. the required LCR haircuts;
 - ii. the weighted average residual maturity/duration to take into account their potential sensitivity to interest rate risk and related volatility;
 - iii. their percentage of the reserve of assets;
 - iv. the concentration by issuer;
 - v. the location of the security (custodian) to take into account any potential challenge for a prompt transfer; and
 - vi. the evolution of the market value of the specific security, to assess their volatility and correlation with respect to the assets referenced.

b) Parameters related to the calibration of the stress factors of the assets referenced

29. In the determination of the stress factors to the assets referenced by the tokens, issuers of ARTs/EMTs should take into account under stress all the following parameters:

- i. volatility and distributional indicators of the market value of the reserve of assets (such as mean, quartiles and distribution of the market value of the reserve of assets);
- ii. volatility and distributional indicators with respect to the assets referenced (such as mean, quartiles and distribution of the market value of the assets referenced);
- iii. idiosyncratic stress factors (such as liquidity, solvency soundness of the issuer);
- iv. market wide stress factors (such as stress factors in the financial system or the crypto eco-system, number and magnitude of deviations between the token price and the market value of the asset referenced by the token).

5. Accompanying documents

5.1 Draft cost-benefit analysis / impact assessment

1. Article 16(2) of the EBA Regulation (Regulation (EU) No 1093/2010 of the European Parliament and of the Council) provides that, where appropriate, the EBA should analyse ‘the related potential costs and benefits’ of Guidelines issued by the EBA. Such analysis shall be proportionate in relation to the scope, nature and impact of the Guidelines. The following section provides an impact assessment of the Guidelines. It includes an overview of the findings regarding the problems to be dealt with, options available to tackle the problems, and cost-benefit analysis compared with the baseline scenario.
2. The following sections focus on the description of the elements that guided the choice of the policy options to be followed for the definition of the risk factors to be covered in the stress scenarios and for the calibration of the stress factors/weights. It is noteworthy that this is a qualitative assessment describing the pros and cons that informed the decision-making process.

5.1.1 Risk factors policy options

3. The EBA has assessed two policy options:
 - a. Policy option A: The GL identify the risks that need to be covered in the Liquidity Stress Testing.
 - b. Policy option B: The GL do not identify the risks that need to be covered in the Liquidity Stress Testing and the issuer would have full freedom and no constraints in the determination of the risks to cover.

	Advantages	Disadvantages
Policy option A	<p>Enhanced harmonization across the EU;</p> <p>General approach, still ensuring issuers an adequate degree of freedom when defining their liquidity risk management practices, and allowing to reflect their specific characteristics;</p> <p>Possibility to introduce proportionality rules to account</p>	<p>Possibility that the specific risk profile of the issuer is not fully reflected in a general approach.</p>

	Advantages	Disadvantages
	<p>for the scale, size and complexity of the token and the issuer;</p> <p>Comprehensive approach aimed at ensuring that systemic threads are properly addressed;</p> <p>High comparability of results.</p>	
Policy option B	<p>Issuer-specific approach, ensuring that the specific characteristics of the issuers are fully reflected in the liquidity risk management framework;</p> <p>The issuer can leverage its knowledge to identify risks that need to be tackled given the token and the holders characteristics (i.e., idiosyncratic risks);</p> <p>A virtuous risk management structure may create examples of good practices to be shared with the industry.</p>	<p>A not adequate risk management structure may introduce constraints on the ability of the issuer to identify risks to be tackled;</p> <p>Some of the key risks flagged, with potential systemic implications, might not be considered by issuers if not included in the guidelines. This would reduce the ability of issuers to tackle systemic risks;</p> <p>Low comparability of results across issuers;</p> <p>This approach would require non-negligible operational costs for issuers, as excessive communication between institutions, CAs and EBA would be needed to assess that the specific framework established by issuers is appropriate to address their risk (guidelines on ST).</p>

4. The EBA opted for policy option A to ensure a minimum harmonization of the risks that should be considered in the liquidity stress testing and that ultimately define the basis for the harmonized identification mandated in Article 45(8) MiCAR of the parameters of the stress scenarios. Still the specificities by issuer and token can be considered in the analysis of the specific risks.

5.1.2 Calibration approach

5. The EBA has assessed two policy options:

- Policy option 1: the specific calibration of the stress factors/weights to be provided in the GL.
- Policy option 2: the calibration of the stress factors/weights to be determined by the issuer.

	Advantages	Disadvantages
Policy option 1	<p>Harmonised practice across the EU;</p> <p>Enhanced results comparability.</p> <p>Lower operational burden for issuers.</p>	<p>Lack of historical observations under stress conditions to calibrate stress factors for all issuers and tokens. Only in the future this could be a potential option based on supervisory experience.</p> <p>The specificities of the issuers are not considered and idiosyncratic risk drivers are disregarded which is key in the determination of liquidity requirements based on the outcome of the liquidity stress testing as envisaged in Article 45(4) of MiCAR;</p> <p>Update of the calibration of the stress factors subject to regulatory changes calendars.</p>
Policy option 2	<p>Enhanced risk sensitivity, in that weights calibrated leveraging internally developed procedures can prove to be more sensitive to the idiosyncratic drivers of risk (BCBS on IRB).</p> <p>An issuer-by-issuer analysis is consistent with the purposes of the liquidity stress testing in MiCAR, i.e. to assess potential strengthening of the liquidity requirements by the supervisor</p>	<p>Black box risks (i.e., not transparent estimation techniques), however the EBA report on draft RTS to specify the minimum content of the liquidity management policy and procedures under Article 45(7)(b) requires that all the information related to the calibration of the stress factors will be included therein;</p> <p>Lack of historical data needed to perform the calibration;</p> <p>Risk that, given the novelty of the topic, the issuers will move in</p>

	Advantages	Disadvantages
	<p>based on the outcome of the liquidity stress testing.</p> <p>A virtuous risk management structure may create examples of good practices to be adopted by the rest of the industry;</p> <p>The identification of the risk factor and parameters of the stress scenarios ensure a minimum harmonisation for the calibration of the stress factors/weights.</p> <p>Ongoing update of the calibration of the stress factors.</p>	<p>significantly different directions, lowering the compatibility of results.</p>

- The EBA opted for policy option 2. The EBA prevails the implementation of the idiosyncratic risk drivers in the calibration of the stress factors/weights to ensure consistency with the expectation in Article 45(4) MiCAR for supervisor to strengthen liquidity requirements if needed for issuers based on the outcome of the liquidity stress testing that need to take into account their own specificities.

5.2 Feedback on the public consultation and on the opinion of the BSG

The EBA publicly consulted on the draft proposal contained in this paper.

The consultation period lasted for three months and ended on 8 February 2024. 7 responses were received, of which 3 were published on the EBA website.

This paper presents a summary of the key points and other comments arising from the consultation, the analysis and discussion triggered by these comments and the actions taken to address them if deemed necessary.

In many cases several industry bodies made similar comments or the same body repeated its comments in the response to different questions. In such cases, the comments, and EBA analysis are included in the section of this paper where EBA considers them most appropriate.

Changes to the draft Guidelines have been incorporated as a result of the responses received during the public consultation.

Summary of key issues and the EBA's response

Generally, respondents support the Guidelines on liquidity stress testing under MiCAR. Some comments and concerns are raised though that are addressed in this feedback table. Some comments and concerns are raised though that are addressed in the concrete related questions below. The EBA has taken into account and assessed the comments received.

The EBA is providing clarification to various aspects raised during the consultation. For example, as regards the parameters and risks to consider or proportionality, among others.

Furthermore, some specific questions/comments raised in the context of the EBA/CP/2023/26 as regards the draft RTS to specify the minimum content of the liquidity management policy, under Article 45(7)(b) of Regulation (EU) 2023/1114, have been addressed here since they are considered to be more directly related to these Guidelines. For example, these are the cases of further clarification requested to consider regulatory changes, market trends and macroeconomic conditions in the risks covered in the liquidity stress testing; or regarding the requests to clarify on the historical data to use for the calibration of the stress factors or on whether there is any prevailing risk to be covered in the liquidity stress tests.

Summary of responses to the consultation and the EBA's analysis

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
General comments			
One respondent argues that the final reports for the MiCAR mandates could be published in a consolidated document to ease the reading by EBA Stakeholders.			
Responses to questions in Consultation Paper EBA/CP/2023/27			
Question 1. Do respondents have any comment with respect to the proposed non-restrictive list of parameters of the stress test scenarios that need to be considered for the calibration of the stress factors?			
Clarification on stress factor to apply	One respondent requested some clarification regarding the risk it is meant to cover with the stress factor mentioned in paragraph 26 of the GL in the CP.	Paragraph 26 sets caps and floors for the calibration of the reserve of assets and assets referenced, respectively. For prudent purposes reserve of assets under stress should not be valued above their market value in the baseline, i.e. some stress haircut should apply. Similarly, assets referenced market value should be higher than in the baseline. To be noted that a lower value of the weighted amount of the reserve of assets under stress versus the weighted value of the assets referenced does not trigger automatic supervisory measures to strengthen liquidity requirements. The outcome of the liquidity stress testing serves to inform the final supervisor's decision.	No changes made.
Non-restrictive list of parameters of stress test scenarios	Most respondents acknowledged that the parameters listed in the guidelines are clear enough. They consider that the proposed parameters cover all types of assets in the reserve of assets. Moreover, they deem the parameters comprehensive for the purposes of compliance with the	Paragraph 23 of the Guidelines in the CP indicates that issuers of ARTs/EMTs should calibrate and determine the relevant stress factors for each asset of the reserve of assets. Paragraph 28 provides the non-restrictive list of parameters that should be taken into	No changes made.

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>MiCA framework on liquidity stress testing. One respondent is concerned that additional specifications or requirements in the Guidelines might have given rise to overcomplications of the stress scenario assessment process.</p> <p>Another respondent believes that the non-restrictive list of parameters is a good indication of the minimum necessary risk mitigation measures through stress testing and considers that additional parameters may be necessary after additional research.</p> <p>Another respondent proposes amending paragraph 28 of the Guidelines in the CP in order to require that the determination of the stress test factors by ART/EMT issuer should take account the non-exhaustive list of parameters only where relevant, since there might be assets classes that are not part of the reserve of assets when the stress test is performed.</p> <p>Another respondent seeks for the introduction of proportionality for issuers on non-significant ART/EMT to reflect the inherently lower risk that such issuers carry.</p>	<p>account in the determination of the stress factors for each asset in the reserve of assets. The EBA considers that the Guidelines are clear that the issuers of ARTs/EMTs should take into account the parameters regarding the assets in the reserve of assets of the issuer only.</p>	
<p>Question 2. Do respondents have any comment about the risks identified that need to be covered by the parameters of the stress test scenarios? Do respondents think that any other risk should be included?</p>			
<p>Risk to be covered by stress test parameters</p>	<p>Some respondents acknowledge that the EBA sufficiently identified all the necessary risks and parameters that need to be covered in stress testing.</p> <p>One respondent suggests adding a specification in the Guidelines to allow issuers to propose to supervisors possible alternative approaches to liquidity stress testing if</p>	<p>The EBA would like to clarify that the Guidelines seek for a minimum harmonised implementation of the liquidity stress testing. The Guidelines specifically provide discretion to issuers to consider other risks and parameters than those specified therein for the calibration of the stress factors. Specifically, paragraph 27 of the Guidelines states “<i>Issuers of ARTs/EMTs may also consider other relevant</i></p>	<p>Paragraph 10 is amended as follows for clarification: “<i>10. According with Article 45(4), 2nd subparagraph, Regulation (EU) 2023/1114, issuers</i></p>

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>such approaches would better reflect an issuer's specific risk profile.</p> <p>One respondent to the consultation paper recommends highlighting in the liquidity management policy, together with the historical data and assumptions, the external factors considered such as macroeconomic conditions, regulatory changes, and market trends in liquidity stress testing.</p>	<p><i>parameters and risks not already considered and which are not inconsistent with those in these guidelines."</i></p> <p>The EBA considers that elements related to macroeconomics conditions (at least some minimum considerations around them), regulatory changes and market trends should be understood to be implicit in the description of the risks covered in the liquidity stress testing and, as such, to be included in the minimum content of the liquidity management policy. For further clarification, these elements will be highlighted more explicitly in paragraph 10 of the Guidelines.</p>	<p><i>of ARTs/EMTs should assess the risks under section 4.2, taking into account regulatory changes and market trends, as well as minimum macroeconomic conditions, and apply the methodology under section 4.3, including the parameters of the stress test scenarios, considering all the asset-referenced and e-money tokens offered and activities related to them."</i></p>
De-pegging risk	<p>One respondent highlights that paragraph 18 of the GL in the CP requires issuers to assess the risk that the market value of the issued ART or EMT differs from the market value of the asset referenced, as also envisaged in the GL on recovery plans. Furthermore, in the EBA CP on the draft RTS to specify the minimum contents of the liquidity management policy and procedures under Article 45(7)(b) a basis-risk test is introduced. Thus, clarification on whether the focus and primary concern in the EBA RTS and GLs is related to the basis-risk or the de-pegging risk would be welcome.</p>	<p>The Guidelines reference to at least four risks to be considered in the liquidity stress testing. The Guidelines do not set any hierarchy across them. The liquidity management policy refers to some minimum early warning signals, one related to the de-pegging risk (market value of the token versus the value of the assets referenced) and also one related to the market and volatility risk (market value of the reserve of assets versus the value of the assets referenced). The risk related to deposits with credit institutions is also addressed in the draft RTS further specifying the</p>	No changes made.

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
		<p>liquidity requirements of the reserve of assets under Article 36(4) MiCAR, by setting minimum creditworthiness requirements or concentration limits. The redemption risk is also addressed for example via the mandatory overcollateralization in the same RTS. Therefore, all the four risks should be covered in the liquidity stress testing to inform, as established in Article 45(4) of MiCAR if still there the need should be to strengthen the liquidity requirements, as envisaged in MiCAR or the RTSs.</p> <p>The EBA does not see a material difference between de-pegging risk and basis risk. The guidelines refer to de-pegging risk as the risk arising where the market value of the token might become lower than the par value versus the official currency. Basis risk⁷ refers to the risk that the holder of a crypto asset cannot sell it in the market for an amount that closely tracks the peg value.</p>	
Question 3. Do respondents find operational challenges in the implementation of the guidelines?			
Operational challenges	<p>Some respondents acknowledge that they do not foresee clear operational challenges.</p> <p>One respondent highlight that as long as the proposed parameters are relevant to the reserve of assets held and requirements do not go beyond the list of parameters set out in the Draft Guidelines, no significant operational challenges in implementation are foreseen.</p>	<p>The EBA would like to point out that the feedback related to the minimum number of eligible bank deposit counterparties is addressed under the relevant consultation paper on the draft RTS further specifying the liquidity requirements of the reserve of assets Article 36(4) MiCAR.</p> <p>The EBA would like to recall that Article 45(3) of MiCAR introduces proportionality in the scope of</p>	No changes made.

⁷ BCBS Second Consultation on the prudential treatment of crypto asset exposures ([link](#)).

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>One respondent argues that the most relevant stress event that issuers of tokens will be facing is related to finding and keeping a sufficient number of eligible credit institutions willing to provide banking services. The respondent considers that this will trigger considerable operational challenges.</p> <p>Another respondent considers substantial burdens on smaller and less significant issuers, since developing scenarios that accurately reflect potential liquidity risk requires significant human and technological resources that might be burdensome for small issuers.</p>	<p>application of the liquidity stress testing. As explained in the Background of the consultation paper, issuers of significant assets referenced tokens and e-money institutions issuing significant emoney tokens are required in Regulation (EU) 2023/1114 to conduct liquidity stress testing on a regular basis. However, issuers of ARTs that are not significant and e-money institutions issuing EMTs that are not significant, are required to conduct it only if the relevant competent authority of the home Member State decides it so.</p>	
Question 4. Do respondents find any piece of the guidelines confusing or difficult to understand?			
Historical data used in the calibration of the liquidity stress testing	<p>One respondent to the CP related to the draft RTS to specify the minimum content of the liquidity management policy Article 45(7)(b) MiCAR, argues that point (c) of Article 4 of the draft RTS, that refers to the liquidity stress testing under Article 45(4) of MiCAR, is not clear as to what historical data it is referred. The question is raised as to whether it is referring to historical data regarding the constitution of the reserve of assets or to historical data regarding creations and redemptions of the e-money token. It is argued that if creations and redemption are meant, the data is not available in the beginning of operations and only reliable after some years of operations. Therefore, it is added that if creations and redemptions are meant, this needs to be taken into account.</p> <p>Another respondent highlights that issuers are likely to place significant reliance on intermediaries such as CASPs (crypto assets service providers) – including the data that will be</p>	<p>The EBA considers more appropriate to address this comment in the context the Guidelines since it is directly related to the historical data to be used in the calibration of the parameters and stress factors. As stated in paragraph 24 historical observations should be understood relative to own data and market data related to the parameters considered. Historical data, together with expert judgment, should be used for the calibration of the stress factors ultimately.</p> <p>The EBA takes note of the necessary interaction between custodians and issuers for the availability of such data and would like to refer to paragraphs 4, 7 and 8 of Article 37 of MiCAR, respectively as regards the due review of custodians by the issuer, the contractual arrangements between the issuer and the custodian establishing the flow of information</p>	No changes made.

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	required to be reported to them under MiCAR – for historical and current data analysis such as the profile of ART and EMT holders.	between them and the obligation of custodians to act in the interest of the issuers.	
Highly liquid financial instruments at market value in which the issuer may invest:	<p>One respondent argues that the list of "Highly liquid financial instruments at market value in which the issuer may invest" might be inconsistent with the true spirit of capital preservation and liquidity. In particular:</p> <ul style="list-style-type: none"> i. There should not be a maximum exposure threshold on short-dated HLFIs issued by Government entities, which guarantee the obligation. ii. Covered bonds shall not be included in this list. iii. Unsecured products representing direct obligation to non-Government entities are subject to credit risk and could compromise the capital preservation in the event of market stress. iv. Derivatives might be inappropriate for stablecoin products that seek to maintain 1:1 peg. 	<p>Article 45(3) refers liquidity stress testing and points out to its outcome for the purposes of the supervisor to strengthen the liquidity requirements for the issuer if necessary.</p> <p>Therefore, the liquidity stress testing is expected to be very much referenced to an assessment of the capacity of the current required liquidity resources, where the market value of the reserve of assets needs to be at least equal to the value of the claims from the token holders including under scenarios of liquidity stress.</p> <p>For these reasons the regulatory liquidity stress testing needs to look at the legal definition of the components of the reserve of assets.</p> <p>The final report on the draft RTS to specify the highly liquid financial instruments under Article 38(5) of MiCAR provides a feedback table to the responses received during the consultation period where specific EBA analysis is provided to comments raised on caps on derivatives, the 35% concentration limit by issuer of government bonds and other highly liquid financial instruments.</p>	No changes made.
Mandatory and discretionary overcollateralization	One respondent argues that paragraph 17 of the GL in the CP seems to suggest the need for additional overcollateralization beyond the mandatory level established in the RTS further specifying the liquidity	The EBA would like to clarify that paragraph 16 of the Guidelines does not necessarily suggest additional overcollateralization beyond the mandatory level proposed in the report on the draft RTS further	No changes made.

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
	<p>requirements of the reserve of assets under Article 36(4). This additional overcollateralization to the mandatory one may well give rise e.g. in the case of a redemption of ARTs or EMTs to not engage, as required according to Article 36 (6), in a corresponding decrease in the reserve of assets fully matching the redemption. Thus, this respondent would welcome clarification confirming that what issuers do or refrain from doing in order to ensure compliance with mandatory or any required additional overcollateralization does not infringe the requirements according to Article 36 (6).</p>	<p>specifying the liquidity requirements of the reserve of assets under Article 36(4). When issuers of tokens conduct the liquidity stress testing, in stressing the reserve of assets to confront with the liabilities against token holders, they should include any existing overcollateralization in the reserve of assets. This is stated in paragraph 16 but all in all should be understood in the context of the definition of reserve assets.</p> <p>Moreover it should be understood that if strengthening the liquidity requirements is the general decision of the supervisor following the outcome of the liquidity stress testing, it does not mean that additional reserve assets will be required necessarily; other measures could be implemented following Article 45(4) of MiCAR as further clarified in the Background of this final report, by ensuring an effective and prudent management of the reserve of assets or/and by reinforcing the minimum content in the liquidity policy management and procedures.</p> <p>Having said this, the EBA considers that the potential decision that a supervisor might make to require, based on the outcome of the liquidity stress testing, additional overcollateralization, beyond the potential mandatory one as proposed in the Report on draft RTS further specifying the liquidity requirements of the reserve of assets under Article 36(4), does not interfere with Article 36(6) of MiCAR. The reduction of the reserve assets upon redemption should be read in absolute terms. Article 36(6) ensures that every</p>	

Comments	Summary of responses received	EBA analysis	Amendments to the proposals
		<p>redemption is paid via reserve assets and that any issuance provides additional reserves to the issuer.</p> <p>Let's take an example where the market value of the reserve of assets is equal to 130 and the value of the assets referenced is 100. Overcollateralisation by 30 (30%) might include the mandatory one as proposed in the Report on the draft RTS further specifying the liquidity requirements of the reserve of assets under Article 36(4) plus additional reserve assets required following the liquidity stress testing. In the case of a theoretical redemption of the tokens by 10, the reserve of assets would be reduced by 10. After that, the value of the reserve of assets would be 120 and the value of the assets referenced would be 90, meaning that the existing overcollateralization would be come 33%. The redemption of tokens would carry a reduction of the reserve of assets by 10 that would be paid, which is required by Article 36(6) despite becoming at 133% level of the assets referenced, higher than the minimum required 130%.</p>	