



BANK ĊENTRALI TA' MALTA
EUROSISTEMA
CENTRAL BANK OF MALTA

LIQUIDITY COVERAGE RATIO STRESS TEST

BOX 4: LIQUIDITY COVERAGE RATIO STRESS TEST¹

As part of the Basel III reforms to improve banks' resilience against liquidity shocks, the Basel Committee on Banking Supervision (BCBS) introduced the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) as two complementary measures. Whilst the LCR assesses the ability of banks to survive a period of significant liquidity stress lasting 30 calendar days through their reserves of high-quality liquid assets (HQLA), the NSFR analyses structural resilience in terms of maturity mismatches between assets and liabilities over a longer period.

Given these developments, the Central Bank of Malta recognised a need to upgrade its stress testing capabilities to be able to simulate similar shocks. A gradual approach is being adopted in this upgrade, with priority being given to the development of a framework that assesses the adequacy of the LCR under adverse liquidity conditions.² The introduction of the LCR framework complements the current deposit-run type scenario analysis which assesses the banks' liquidity position in terms of their counterbalancing capacity. Whilst the LCR framework benchmarks the banks' stressed LCR against the minimum regulatory requirement, the Persistent Deposit Withdrawals framework presents a binary output, indicating whether banks' stressed counterbalancing capacity is sufficient or otherwise to absorb persistent liquidity outflows under a one-month survival period. Both tests are run on core domestic, non-core domestic and international banks, the results of which are presented in Section 3.2.2.

The introduction of the LCR framework coincided also with the conclusion of the IMF 2018 MT FSAP. The main findings of the FSAP were published in the Financial System Stability Assessment (FSSA) and included a near-term recommendation for the Bank to “*strengthen the risk analysis by incorporating new dimensions in liquidity stress testing.*”³ The introduction of this framework therefore addresses, and goes beyond this IMF recommendation.

The LCR is calculated as the ratio of the liquidity buffer (HQLA) to net liquidity outflows (outflows less inflows over a 30-day period) and should be at a minimum of 100%, as follows:

$$\frac{\text{Liquidity buffer}}{\text{Net liquidity outflows}} \geq 100\%$$

The [Commission Delegated Regulation](#) (EU) 2015/61 (hereafter, LCR Delegated Regulation) lays down rules for the liquidity coverage requirement provided for in the Capital Requirements Regulation (EU) No 575/2013. Consequently, the EBA issued Implementing Technical Standards (ITS) amending the regulation for Supervisory Reporting (COREP and FINREP) to reflect the LCR Delegated Regulation. Specifically, data templates in COREP were updated for banks to report the necessary information for estimating the LCR.

The LCR Delegated Regulation specifies minimum requirements on the haircuts for HQLA, as well as outflow and inflow rates for various categories of assets and liabilities which are necessary for the computation of the LCR. Furthermore, Article 5 of the LCR Delegated Regulation makes reference to seven scenarios that may be considered for assessing the adequacy of the LCR under stressful conditions, as follows:

The following scenarios may be regarded as indicators of circumstances in which a credit institution may be considered as being subject to stress:

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² A stress test for the NSFR will be considered in future.

³ FSSA available online at: <https://www.imf.org/~media/Files/Publications/CR/2019/1MLTEA2019003.ashx>

- (a) *the run-off of a significant proportion of its retail deposits*
- (b) *a partial or total loss of unsecured wholesale funding capacity, including wholesale deposits and other sources of contingent funding such as received committed or uncommitted liquidity or credit lines*
- (c) *a partial or total loss of secured, short-term funding*
- (d) *additional liquidity outflows as a result of a credit rating downgrade of up to three notches*
- (e) *increased market volatility affecting the value of collateral or its quality or creating additional collateral needs*
- (f) *unscheduled draws on liquidity and credit facilities*
- (g) *potential obligation to buy-back debt or to honour non-contractual obligations.*

The framework developed by the Central Bank of Malta is run on a baseline and four adverse scenarios. Whilst the baseline scenario features the minimum haircuts/rates included in the LCR Delegated Act, the adverse scenarios draw both from the above list of scenarios and the IMF recommendation to assess whether the banks' LCR would fall short of the 100% minimum requirement. All scenarios target the denominator of the LCR by assuming higher liquidity outflow rates than those stipulated in the LCR Delegated Regulation. Table 1 describes the contemplated baseline and adverse scenarios.

In particular, the first adverse scenario targets all transactions due within 30 days by applying higher outflow rates across the board over and above the LCR Delegated Regulation outflow rates. The only exceptions are when the LCR Delegated Regulation already applies a 100% outflow rate given that these rates cannot be increased further. Table 2 summarises the range of outflow rates (excluding 100%) for four main groups of transactions which fall due within 30 days as classified in the respective reporting templates.

The outflow rates in the remaining three adverse scenarios were complemented with additional withdrawals of fixed-term deposits with a maturity of over 30 days for resident, non-resident and a combination of both. By means of these scenarios, one is able to test the reliance of banks' funding on

Table 1
DESCRIPTION OF BASELINE AND ADVERSE SCENARIOS

Scenario	Description
Baseline	Haircuts and outflow/inflow rates as prescribed by the LCR Delegated Regulation
Adverse:	
Scenario 1	Higher outflows compared to the LCR Delegated Regulation
Scenario 2	Scenario 1 with additional withdrawals of resident time deposits (>30 days)
Scenario 3	Scenario 1 with additional withdrawals of non-resident time deposits (>30 days)
Scenario 4	Scenario 1 with additional withdrawals from both resident and non-resident time deposits

Source: Central Bank of Malta.

Table 2
ADDITIONAL OUTFLOW RATES ON DEPOSITS

Scenario	LCR Delegated Regulation	CBM stress test for LCR
Retail deposits	3.0%-20.0%	6.0%-40.0%
Operational deposits	5.0%-25.0%	8.0%-40.0%
Non-operational deposits	20.0%-40.0%	30.0%-60.0%
Remaining categories	5.0%-40.0%	6.4%-51.0%

Source: Central Bank of Malta.

resident vis-à-vis non-resident deposits, and on short versus long-term deposits. These scenarios take into account that in times of bank liquidity shortage, depositors would be willing to forfeit any accumulated interest received on their fixed-term deposits in a bid to withdraw funds. Outflow rates for deposits within the 1-3 months maturity bucket are assumed to be the highest whereas depositors with longer contractual periods are assumed to be slower in their reactions and do not immediately forego any accumulated interest upon the first signs of concern. The maximum historical monthly changes observed between 2007 and 2018 were used as an indication for calibrating outflow rates. These stood at 30% and 31%, respectively for resident and non-resident deposits; however, the assumed outflow rate for the latter category in the 1-3 month time bucket was increased to 40%. Table 2 summarises the outflow rates applied to contractual maturities with a term greater than 30 days under adverse scenarios 2, 3 and 4.

Scenario 2 complements the outflow rates to the 'less than 30 days' maturity bucket applied under scenario 1, with additional outflow rates for resident fixed-term deposits. Scenario 3 also builds on scenario 1 but instead applies the respective additional outflow rates only to non-resident fixed-term deposits. Scenario 4 combines all three scenarios and applies the outflow rates as per Table 2 to the amounts due within 30 days, as well as, the applicable outflow rates to both resident and non-resident fixed-term deposits as shown in Table 3.

Table 3
ADDITIONAL OUTFLOW RATES ON CONTRACTUAL MATURITY DEPOSITS

Scenario	Resident deposits	Non-resident deposits
31 days to 3 months	30.0%	40.0%
3 to 6 months	20.0%	25.0%
6 to 12 months	8.0%	10.0%
12 to 24 months	3.5%	5.0%
More than 24 months	1.0%	1.0%

Source: Central Bank of Malta.