3. STRESS TESTS

The Bank applies a range of stress testing frameworks to assess the resilience of the banking sector in relation to both solvency and liquidity, as well as its ability to withstand a range of extreme yet plausible shocks. These frameworks are continuously refined to reflect the evolving risk landscape, emerging vulnerabilities, and updates in regulatory requirements. Furthermore, the frameworks are frequently updated to capture a broader spectrum of risk channels and profiles.

This chapter presents a six-monthly update on the outcomes of the stress tests conducted and reported in the FSR 2024, emphasising any notable developments observed during the first half of 2025. Overall, the results indicate that the banking system remains adequately capitalised, with banks holding sufficient capital buffers to withstand adverse shocks, as well as healthy liquidity buffers, although the impacts are heterogeneous across banks.

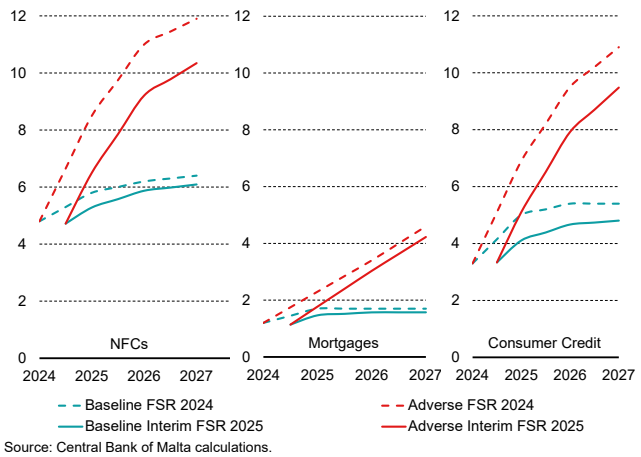
3.1 Scenario-based solvency stress tests

While the macro stress testing (MST) framework is an annual scenario-based exercise, the credit risk module of the framework is conducted to provide an update on the asset quality of the financial system under the baseline and adverse scenarios. More specifically, the Bank applies the Expected Credit Loss satellite module, which features a one-factor model known as the "Z-Factor". This model assesses transitions among credit risk stages (Stage 1, Stage 2, and Stage 3), specifically the extent to which loans evolve towards the non-performing status. The Z-Factor embodies the structure of the transition matrix, allowing for comparisons of how changes in risk factors, particularly macroeconomic conditions impact the probability of loans moving across the credit risk stages.

In the first half of 2025, the Bank conducted and published the stress testing results based on the baseline and adverse scenarios outlined in FSR 2024. Since these macroeconomic scenarios remain unchanged, the previously estimated transition matrices also remain valid. This interim FSR now uses these parameters and applies them to the banks' June 2025 loan portfolio figures to compare and assess the latest projections for NPL ratios.

In the first six months, the overall credit quality of NFCs and mortgages have shown a modest improvement (see Chart 3.1). The NPL ratio for NFCs decreased from 4.80% to 4.72%, while the NPL ratio for household mortgages decreased from 1.20% to 1.14%.[1] Meanwhile, the consumer credit portfolio experienced a slight deterioration in credit quality, with the NPL ratio rising from 3.30% to 3.34%. As of the second quarter of 2025, and when comparing to the stress test's previous results, the observed NPL ratios for all three loan segments are lower than the baseline projections estimated at the end of 2024. This comparison with stress test estimations suggests that the model produced results that are slightly more conservative.

Chart 3.1
PROJECTED SECTORAL RATIO OF STAGE 3 LOANS
(per cent)



Source: Central Bank of Malta calculations.

Using the baseline transition matrices on the June 2025 data indicates that the NPL ratio for NFCs would be expected to increase from 4.72% to 6.33% by the end of

[1] To note that the NPL ratio for the end of 2024 has changed due to revisions in the data.

2027. For household mortgages, the NPL ratio is projected to rise from 1.14% to 1.72%, and for consumer loans, the model estimates an increase from 3.34% to 5.38%. Under the adverse scenario, the NPL ratio for NFCs is expected to reach 11.85%, for mortgages 4.57%, and for consumer loans 10.89% over the stress test horizon. The increase in NPLs under the baseline scenario primarily reflects a lower GDP growth compared to previous years, alongside the static balance sheet assumption applied in the stress test context. Nevertheless, banks' capital buffers are deemed adequate to absorb this increase in credit risk, highlighting the overall resilience of the banking system, as noted in the FSR 2024.

3.2 Liquidity

The following subsections provide an update on the June 2025 results derived from three distinct frameworks used to evaluate the liquidity position of banks. These frameworks are designed to complement one another, as each include specific targets, such as a specific time horizon and benchmark. The PDW framework applies a hypothetical four-week bank-run scenario to measure the impact on banks' counterbalancing capacity (CBC), which is calculated based on a predefined asset liquidation hierarchy. Meanwhile, the LCR and NSFR frameworks measure the extent to which liquidity requirements are met over the short term (within 30 days) and under a longer term (over one year), respectively, with both ratios required to remain above the 100% regulatory threshold.

3.2.1 Persistent deposit withdrawals

The PDW framework assesses the resilience of banks' liquidity buffers in response to deposit withdrawals in a bank-run scenario including an instantaneous 100% withdrawal of all credit lines and deposits with parents/subsidiaries, as well as those held with other credit institutions. The framework considers extreme outflows over a period of five days and a subsequent three weeks to assess the absorption ability of the bank's CBC to withstand these withdrawals. The targeted outflows also include outflows from deposits held with online deposit platforms (ODPs). The accelerated growth of ODPs is reshaping competition for retail deposits, with potential adverse implications for banks' CBC.[2]

Figure 3.1 illustrates the assumed CBC hierarchy, starting with cash, followed by the pledging of bonds that are eligible for standard monetary policy operations, and as a last resort, the fire-sale of unencumbered and ESCB ineligible bonds. The hierarchy is based on the associated cost of liquidating such assets, with cash being ranked as having the lowest cost, due to no remuneration being earned. In contrast, the sale of bonds is considered more costly, as they are typically sold at a discount and any future coupon payments are forfeited. Therefore, banks are assumed to fully use one asset class before liquidating the next. For more

Figure 3.1
ASSUMED HIERARCHY FOR CBC

Source: Central Bank of Malta.

[2] Although only a few banks have deposits on ODPs, these platforms are becoming more relevant among clients, particularly for non-core domestic banks and international banks, and to a lower extent, core domestic banks. As of June 2025, the ODP deposits represented 0.3%, 23% and 34% of total deposits for core domestic banks, non-core domestic banks and international banks, respectively

details on the framework's methodology and the associated costs considered in ranking asset classes in the assumed hierarchy for the CBC, refer to Section 3.2.1 of the FSR 2023.

The placements with the Central Bank of Malta are divided into two categories, depending on the associated costs of using them. Specifically, the excess on the minimum reserve requirement (MRR) is non-remunerated and ranks second after cash. Overnight deposits, on the other hand, earn interest at the DFR and are a source of income for banks, ranking fifth in the hierarchy.

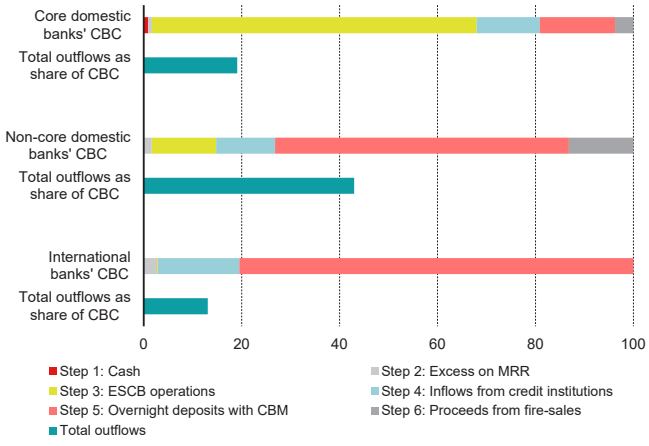
Moreover, banks can use bonds either in step 3 if these are unencumbered and eligible, or sell them in step 6 if they are unencumbered but not eligible for monetary policy operations.

Table 3.1 shows that both core domestic banks and international banks continue to hold a significant share of unencumbered and eligible bonds. These bonds are considered high-quality collateral for standard monetary policy operations, allowing banks to access liquidity assistance in the form of short-term loans under step 3 of the framework (see Figure 3.1). In contrast, non-core domestic banks hold a higher proportion of encumbered bonds, which constrains their ability to increase their liquidity under a stress scenario. However, these banks could still generate additional liquidity by selling their unencumbered but ineligible securities (step 6). Chart 3.2 illustrates the composition of the CBC across bank categories, both in terms of liquid assets and simulated outflows.

Compared to the previous FSR, banks maintain a similar ability to withstand the projected outflows assumed within this framework. The combined outflows under the bank-run scenario remained broadly unchanged over the last six months, accounting for 19%, 43% and 13% of the CBC available to core and non-core domestic banks and international banks, respectively.

At the individual bank level, only one non-core domestic bank would fully deplete its CBC under the extreme assumptions considered. The remaining banks would retain on average an excess of CBC of at least 30%, allowing them to withstand further withdrawals beyond the four-week horizon considered, for up to six months on average.

Chart 3.2
COMPOSITION OF CBC AND TOTAL OUTFLOWS AS SHARE OF CBC
(per cent)



Source: Central Bank of Malta calculations.

Table 3.1
ENCUMBRANCE AND ESCB ELIGIBILITY OF THE BOND
Per cent

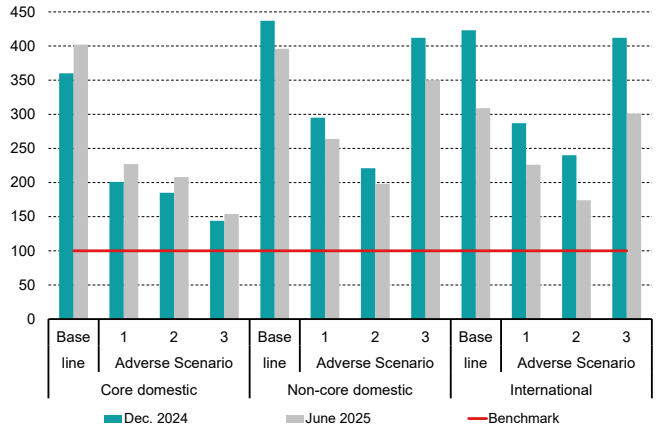
	Core domestic banks		Non-core domestic banks		International banks	
	Dec. 2024	June 2025	Dec. 2024	June 2025	Dec. 2024	June 2025
Unencumbered and eligible	80	82	25	23	78	78
Unencumbered and ineligible	8	5	31	35	22	22
Encumbered	11	13	45	42	0	0

Source: Central Bank of Malta.

3.2.2 Liquidity coverage ratio

The LCR framework measures a bank's ability to withstand short-term liquidity stress, requiring them to maintain sufficient high-quality liquid assets (HQLA) to cover net liquidity outflows occurring over a 30-day period. Chart 3.3 presents the results for June 2025 and December 2024 under the baseline and three adverse scenarios.[3]

Chart 3.3
STRESS TEST RESULTS – LCR RESULTS FOR ALL BANKS
(per cent)



Source: Central Bank of Malta calculations.

Table 3.2 provides a summary of all the scenarios considered in the LCR framework.[4]

As of June 2025, core domestic banks recorded a significant improvement in their LCR, in the first six months of the year, increasing by 42 percentage points to 401%. This was primarily due to a 6.5% increase in HQLA, while net liquidity outflows declined by 2.9%. When running the tests, the most significant decline occurred under adverse scenario 3, which assumes the full withdrawal of committed facilities, resulting in a ratio of 154%.[5]

The LCR of non-core domestic banks also declined by 42 percentage points to 395%, reflecting reductions of 13.2% in HQLA and 4% in net liquidity outflows. This change in the starting point is reflected across all adverse scenarios, with the most severe deterioration observed under adverse scenario 2. The resulting LCR of 212% still remains significantly above the 100% regulatory minimum.

International banks registered a significant LCR drop of 114 percentage points to 308%. The deterioration is attributable to a notable 173% increase in net outflows, while HQLA remained stable. This increase in outflows is attributed to three banks, which contribute 94% of total HQLA and 99% of total net outflows. As with non-core banks, this category of banks is mainly affected by Scenario 2 with a decline of 37 percentage points to 203%.

Table 3.2
DESCRIPTION OF LCR FRAMEWORK'S BASELINE AND ADVERSE SCENARIOS

Scenario	Description
Baseline	Haircuts and outflow/inflow rates as prescribed by the (EU) 2015/61
Adverse:	
Scenario 1	Higher outflows compared to the (EU) 2015/61
Scenario 2	Scenario 1 with additional withdrawals from both resident and non-resident time deposits
Scenario 3	Baseline scenario with full withdrawal of committed facilities to NFCs and households

Source: Central Bank of Malta.

[3] For more detailed information, see Appendix A.
[4] The magnitude of the shocks for adverse scenarios 1 and 2 are outlined in Box 4 of the FSR 2018. In the original version of the Box, the impacts from the withdrawal of resident and non-resident term deposits were reported separately (under former scenarios 2 and 3). Accordingly, adverse scenario 2 now reflects the combined impact considered under former scenario 4. Finally, adverse scenario 3 retains the baseline shocks and targets committed facilities by adjusting only the outflow rate for this category of exposures to 100%.
[5] The available data doesn't allow a distinction between revokable and non-revokable committed facilities. For the sake of being conservative, all commitments are assumed to be withdrawn.

At the individual institution level, all banks manage to surpass the minimum requirement under the baseline, but similar vulnerabilities observed in December 2024, remain for a few banks under different scenarios. However, should such a scenario materialise, it is important to highlight that the regulatory framework permits banks to operate below the 100% requirement temporarily. Moreover, these results are consistent with the severity of shocks employed to assess systemic risks – i.e. shocks calibrated to such severity that they affect multiple banks.

3.2.3 NSFR

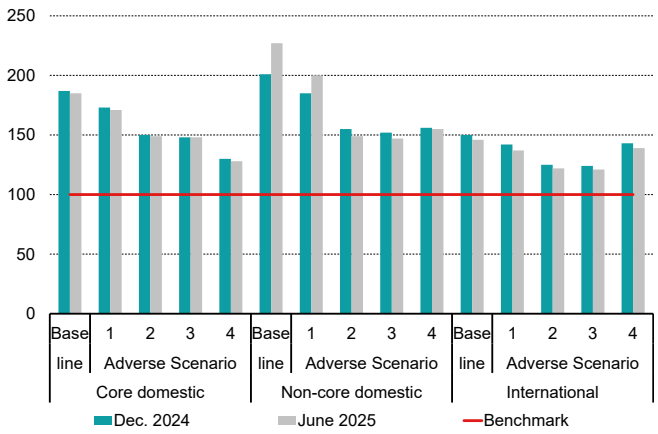
This framework extends the analyses of liquidity to focus on the longer-term funding resilience based on the NSFR. Chart 3.4 presents a comparison of the NSFR results across the baseline and four adverse scenarios for the three bank categories, as of June 2025 and December 2024.[6]

Table 3.3 provides a summary of all the scenarios considered in the NSFR framework.

Compared to December 2024, the NSFR of core domestic and international banks decreased marginally, while NSFR for non-core domestic banks improved by 26 percentage points to 226%. Core domestic banks are more impacted by the full withdrawal of committed facilities to NFCs and HHs assessed under adverse scenario 4 compared to the baseline. However, these effects are marginal with the NSFR dropping by 2 percentage points from 130% to 128%. Non-core domestic and international banks exhibited similar results under adverse scenarios 2 and 3, with the latter experiencing the most significant declines from 151% to 146% and 124% to 121%, respectively.

At an individual bank level, results for baseline and adverse scenarios confirm that banks hold robust liquidity positions, maintaining NSFR levels above the regulatory threshold of 100%, except for three banks compared with two as reported in December 2024, which breach the minimum requirement under the extreme adverse scenario 4. Reverse stress tests show

Chart 3.4
STRESS TEST RESULTS – NSFR RESULTS FOR ALL BANKS
(per cent)



Source: Central Bank of Malta calculations.

Table 3.3
DESCRIPTION OF NSFR FRAMEWORK'S BASELINE AND ADVERSE SCENARIOS

Scenario	Description
Baseline	ASF and RSF factors as prescribed by the Regulation (EU) 2019/876
Adverse:	
Scenario 1	A higher run-off for retail and wholesale deposits impacting the ASF
Scenario 2	Adverse scenario 1 with some loans become non-performing requiring more stable funding to support them impacting the RSF
Scenario 3	Adverse scenario 2 with pressure in the market reducing the value of bonds and equities (Level 1, 2A and 2B HQLA and other securities) implying the need for further stable funding
Scenario 4	Baseline with full withdrawal of committed facilities to NFCs and households (similar to LCR adverse scenario 3)

Source: Central Bank of Malta.

[6] For more detailed information, see Appendix B.

that all three banks would sustain an NSFR above 100% if the scenario assumed withdrawals of commitments up to 70% instead of full withdrawal.

3.3 Interest rate risk in the banking book

The interest rate risk in the banking book (IRRBB) framework evaluates the effects of interest rate fluctuations through six predefined scenarios outlined in Annex 2 of the 2016 standards issued by the Basel Committee on Banking Supervision. The six scenarios include a parallel upward and downward shift of the yield curve as of the reference date, an increase and decrease in the short-term interest rate, and two combined shifts in short and long-term rates known as the steepener and flattener scenarios. Each scenario alters the yield curve's term structure and varies depending on the currency denomination of the instruments. The analysis is limited to EUR, GBP and USD, which are considered the more relevant and material currencies in the banking book. GBP and USD are the most significant non-EUR currencies across all three banking categories.

The framework measures the immediate impact of interest rate changes under these scenarios on bank profitability, focusing on NII and the fair value revaluation of bond holdings. Appendix C illustrates the resulting changes in Tier 1 capital ratios for the three banking categories, incorporating the effect of a 35% corporate tax rate applied to bank profits.[7]

The three scenarios featuring short-term increases in interest rates, yield positive results for all three bank categories. The most positive impact is experienced under the short rate up scenario for core domestic and international banks, under which the Tier 1 capital ratio increases by 2.18 and 1.99 percentage points, respectively. Non-core domestic banks attain the most positive impact under the parallel down scenario, whereby the revaluation of bonds offsets the negative impact of interest rates on NII. Conversely, the scenarios featuring drops in short-term interest rates would yield a drop in the capital ratio. The least positive impact is experienced under the short rate down scenario for core domestic and international banks, where the Tier 1 capital ratio drops by -1.62 and -1.84 percentage points, respectively. For non-core domestic banks, the most negative impact is experienced under the steepener scenario, with negative contributions from both NII and the revaluation of bonds. Nevertheless, the capital ratios remain well above the applicable capital requirements.

[7] Banks may apply a lower tax rate if in previous years they have accumulated deferred tax assets; however, for the scope of this stress test, deferred tax assets are not being considered. Revaluations for FVOCI are not subject to taxes but charged directly to capital.