

## ASSESSING THE RESILIENCE OF FINANCIAL INSTITUTIONS

Every year, the Bank conducts multi-year, top-down macro and micro solvency stress test exercises to assess the possible impact of protracted financial and macroeconomic stresses on individual banks and insurers, as well as on the broader financial system.

The latest top-down macro solvency stress test was conducted in early 2023 and covers a three-year horizon up to end-2025. The exercise is premised upon two adverse scenarios to evaluate the resilience of financial institutions to distinct paths of contractions or slowdown in economic growth. The scenarios do not reflect the Bank's actual economic forecasts. Rather, they are designed to assess the ability of financial institutions to endure severe shocks.

The first adverse scenario (AS1) assesses the resilience of financial institutions to a temporary but severe disruption in the operating environment. AS1 assumes that the Malaysian economy contracts sharply in 2023 by a magnitude larger than that seen during the COVID-19 pandemic. Under this scenario, a sharp contraction in global growth and heightened geopolitical tensions are expected to adversely affect Malaysia's export and production levels. Most businesses will rationalise or downsize operations given their limited cash buffers and an absence of policy support to mitigate the sharp rise in costs. This subsequently leads to large job losses, with the unemployment rate peaking at 5.4%. Credit conditions are also tighter as financial institutions become increasingly risk averse in 2023. GDP growth subsequently makes a strong V-shaped recovery in 2024 and normalises thereafter. This is supported by the easing of global monetary policy as inflation falls and global economic recovery gains momentum.

The second adverse scenario (AS2) assumes a less severe but more prolonged economic contraction or slowdown than in AS1. It aims to assess the capacity of financial institutions to endure a difficult operating environment over a more extended period of time. In this scenario, GDP records negative growth in 2023 and 2024, before recovering mildly in 2025. Unemployment rate peaks at 6.0% in 2024 and remains high throughout the stress test horizon with severe scarring effects in the labour market from the weak economic conditions.

In the latest stress tests, heightened global risk aversion is assumed under both scenarios amid uncertain global growth prospects. This results in large and volatile portfolio outflows from emerging market economies. Persistent inflation and monetary policy tightening in advanced economies also lead to tighter global financial conditions in both scenarios, although the monetary policy stance under AS2 is less restrictive than in AS1. Bond yields rise further, with the rise more prolonged under AS2 due to persistently tight global financial conditions. The ringgit trends weaker, to levels beyond historical lows against the US dollar in both scenarios, with sharper adjustments in 2023 under AS1. The FBM KLCI experiences a sharper decline and subsequently a higher rebound under AS1, while the recovery remains sluggish under AS2 amid a tepid economic recovery and prolonged policy uncertainty.

Refinements made to selected key assumptions in the latest stress test are outlined in Table 2.1.<sup>17</sup> In some instances, the stress test prioritises conservatism over strict coherence with the broader macroeconomic scenario to capture potential additional downside risk impacts. For example, the stress test assumes the OPR being on a downward trend,<sup>18</sup> which adversely impacts the profits of banks. However, borrowing costs for businesses are assumed to be higher due to rising bond yields and a depreciating ringgit. It also assumes households' borrowing costs are not reduced despite the lower OPR assumptions. Where relevant, judgemental overlays are also applied to selected large non-SMEs to account for company-specific developments that are not captured within the model's parameters for assessing potential impairments. For banks' credit exposures, non-SME borrowers that fail the simulation are assumed to trigger cross-defaults across their entire business group, even though other subsidiaries may be financially strong. Defaulting household borrowers are also assumed to cross-default on all their

<sup>17</sup> For further details on the stress test methodology, please refer to the boxes on 'Key Features of the Enhanced Macro Solvency Simulation for Banks', 'Forecasting Business Impairments: Two-pronged Approach', and 'Forecasting Households' Time to Default' in the BNM Financial Stability Review for First Half 2020.

<sup>18</sup> OPR is assumed to be on a downward trend to be coherent with the weakness in economic growth and elevated unemployment, as well as declining inflationary pressure. Separately, the Bank had also conducted an earlier sensitivity analysis to assess banks' ability to withstand higher credit losses from a sharp rise in OPR. Results affirm that the banking system remains resilient under such an assumption. Refer to the Chapter on 'Financial Institution Soundness and Resilience - The Banking Sector' in the BNM Financial Stability Review for First Half 2022 for further details.

loans. Loans of defaulted borrowers are assumed to remain impaired throughout the stress horizon even if improvements in debt-servicing capacity are subsequently observed. Notably, the stress test continues to assume no further loan repayment assistance or policy support measures<sup>19</sup> are made available to households and businesses throughout the stress test horizon. The current exercise also incorporates loss and exposure estimations from large DBGs<sup>20</sup> overseas subsidiaries and branches in four jurisdictions. The combination of augmented and additional stress assumptions, on top of the higher impairment ratio at the start of the stress test horizon capturing COVID-19 impacts (MST 2023: 2.1%; MST 2022: 1.4%),<sup>21</sup> led to higher projected impairments under MST 2023 compared to the previous exercise.

## Stress test results reaffirm the resilience of financial institutions even under severe simulated shocks

Results indicate that by the end of 2025, overall impairments are projected to increase to 6.9% and 7.7% (MST 2022: 6.1% and 6.6%) of total banking system loans under AS1 and AS2, respectively, driven largely by households (Chart 2.26). Most (65%) household borrowers projected to be at-risk of defaulting under both AS1 and AS2 are borrowers earning below RM5,000 per month given their thin financial buffers (Chart 2.27). Nevertheless, these borrowers account for a lower share (42%) of new

**Table 2.1: Macro Stress Test – Key Changes to Assumptions in Banking System Stress Test**

Section	Key Assumption Change
Credit risk models	
Credit costs	
FX exposures	
Capital and risk-weighted assets (RWA)	
Overseas operations	

**Note:**

<sup>(i)</sup> SMEs in all sectors are assumed to face similar difficulty repaying bullet loans under AS1 and AS2. Previous Macro Stress Test 2H 2021 assumed only SMEs in vulnerable sectors that were more affected by the pandemic had difficulty repaying bullet loans.

<sup>(ii)</sup> Higher interest payments for foreign currency borrowings and higher refinancing costs for maturing corporate bonds.

<sup>(iii)</sup> Coverage ratios are defined as the ratio of provisions to loans of the same stage defined under MFRS 9. For example, Stage 3 coverage ratio is the ratio of Stage 3 provisions to Stage 3 loans.

Source: Bank Negara Malaysia

<sup>19</sup> These may include flexibilities to withdraw from retirement savings, wage subsidy programmes, or cash transfers from the Government.

<sup>20</sup> The stress test covers DBGs with significant overseas operations.

<sup>21</sup> The figures refer to the actual impairment ratios that were used as the baseline for impairment ratio projections under both stress test exercises. MST 2023 refers to the current macro solvency stress test exercise while MST 2022 refers to the exercise which was published in the BNM Financial Stability Review for the Second Half 2021. The baseline impairment ratio for MST 2023 includes losses from overseas operations of selected domestic banking groups. Excluding the overseas operations losses, the MST 2023 baseline impairment ratio is 1.8%.

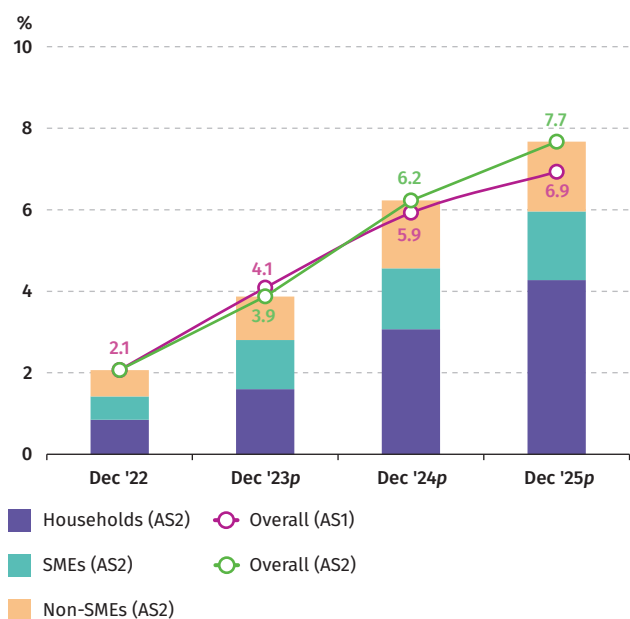
impairments by value, reflective of their smaller loan sizes relative to higher income groups. Borrowers earning between RM5,000 and RM10,000 monthly would also be susceptible to distress under severe economic shocks, forming 29% of total at-risk borrowers and a higher share of 43% of new impaired debt by value. For businesses, non-SMEs make up more than half of total business impairments,

## Financial Institution Soundness and Resilience

commensurate with their larger outstanding loan sizes and the conservative cross-default assumption. SME impairments are notably higher under AS2 (1.7%; AS1: 1.4% of total banking system loans) as their relatively smaller cash buffers are more severely eroded under a protracted economic downturn.

Credit risk continues to drive stress test losses to the banking system. Under AS1 and AS2, cumulative

**Chart 2.26: Macro Stress Test: Banking System – Impaired Loans Ratio Under Adverse Scenarios 1 and 2**

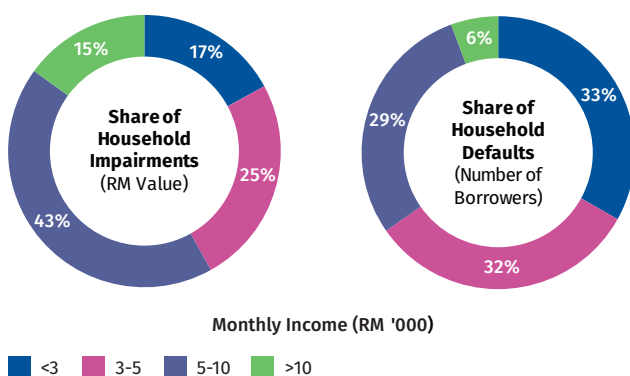


p Projected

Note: Impairment figures are inclusive of exposures from selected DBGs' overseas operations.

Source: Bank Negara Malaysia

**Chart 2.27: Macro Stress Test: Household Sector – Impairment Profile Under Adverse Scenario 2**



Note: Figures may not add up due to rounding.

Source: Bank Negara Malaysia

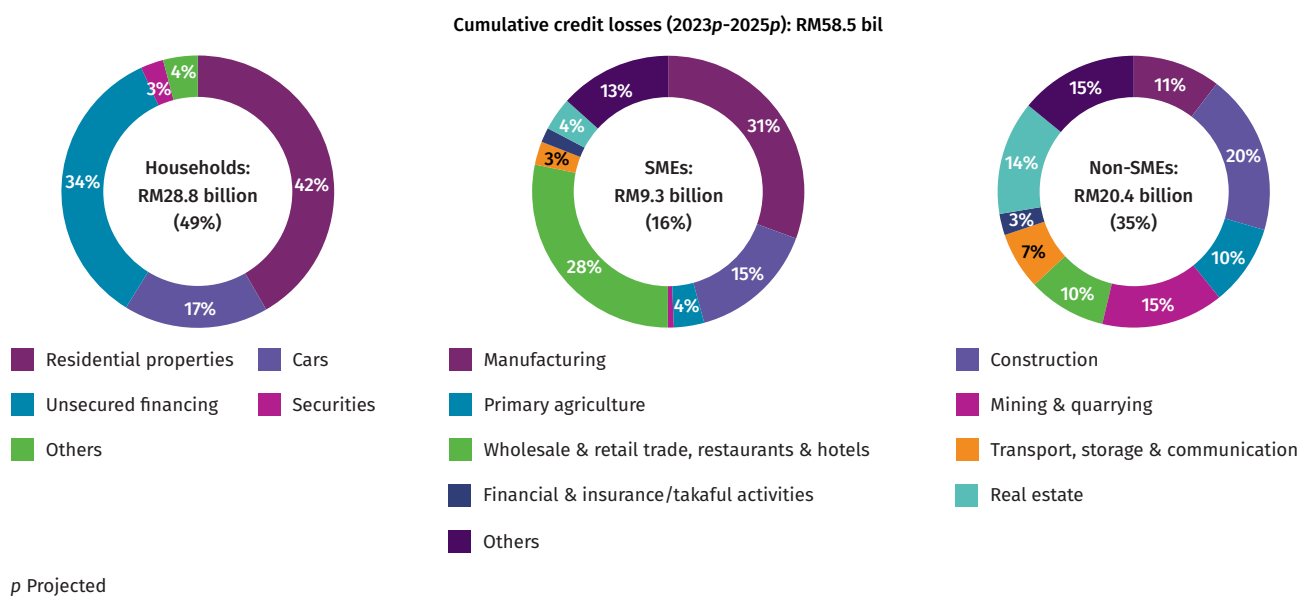
credit costs over the 3-year stress horizon are projected to amount to RM53.1 billion and RM58.5 billion, respectively (or 58% and 63% of total losses) (Chart 2.28).<sup>22</sup> About 20% of the cumulative credit costs originate from banks' overseas operations, the bulk of which were losses from defaults of large non-SMEs. Meanwhile, the projected increase in yields is expected to cause sizeable revaluation losses on bonds held in the fair value through other comprehensive income portfolio (FVOCI) (RM36 billion or 39% and RM33 billion or 36% of total losses under AS1 and AS2, respectively), directly reducing banks' capital buffers (Chart 2.29).

Overall banking system profitability may decline by 60% in the first year of stress as a result of higher credit costs and trading book losses. Losses from FX movements remain limited, comprising 0.9% and 0.5% of total losses under AS1 and AS2, respectively. A subsequent recovery in net interest income would improve profits slightly. While expected losses from overseas operations remain sizable for large DBGs, their impact on DBGs is substantially mitigated by healthy capital buffers maintained by the respective overseas entities.

The aggregate capital ratios of the banking system will remain comfortably above the regulatory minima (Chart 2.30). The vast majority (over 80%) of banks would be able to maintain capital ratios above their internal capital targets, although 24 out of 54 banks, with a cumulative share of 25% of total banking system assets, would report losses in at least one year throughout the stress horizon. Only two banks, which account for less than 1% of total banking system assets, are projected to breach the minimum regulatory capital requirements under these adverse scenarios. Overall, the results of the stress test affirm that banks can withstand significant macroeconomic and financial shocks and are well-positioned to sustain lending to businesses and households.

<sup>22</sup> In the previous stress test exercise, the projected credit cost over a three-year-horizon stood at RM38.4 billion and RM41.7 billion under AS1 and AS2, respectively. Refer to BNM Financial Stability Review for Second Half 2021 for details.

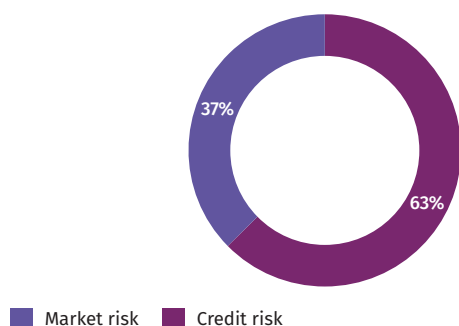
Chart 2.28: Macro Stress Test: Banking System – Drivers of Cumulative Credit Losses Under Adverse Scenario 2



Note: 1. (...) refers to % of overall cumulative credit costs.  
2. Figures may not add up due to rounding.

Source: Bank Negara Malaysia

Chart 2.29: Macro Stress Test: Banking System – Key Loss Drivers Under Adverse Scenario 2



Note: Market risk includes revaluation losses on bonds held in the fair value through other comprehensive income (FVOCI) portfolio.

Source: Bank Negara Malaysia

The macro solvency stress test for insurers also adopts identical AS1 and AS2 scenarios. In addition, key insurance-specific assumptions are included, such as (i) increased medical benefit payouts due to medical inflation and more elective procedures as the country moves to endemicity; (ii) conservative assumptions on the growth of life insurance liabilities and premiums; (iii) higher general insurance claims as motor parts become more expensive due to supply disruptions, and occurrence of sizeable flood events; (iv) lower premium rates following intensified competition in the motor and fire segments; and (v) the hardening of the reinsurance market due to lower global reinsurance capacity.

Under both AS1 and AS2, the insurance sector is assessed to maintain aggregate capital adequacy ratio (CAR) above the regulatory minimum (Chart 2.31). Market risk remains the largest loss driver for life insurers (Chart 2.32), with rising bond yields and the weak equity market performance affecting their significant holdings of financial assets. Nonetheless, underwriting income from new business premiums is expected to cushion the impact on CAR. Only one small life insurer, accounting for less than 3% of total life insurance assets, would breach the regulatory minimum post-shock. Meanwhile, general insurers' CAR is projected to be lower particularly under AS2, largely due to revaluation losses on their bond investments, higher claims from the motor and fire segments, and lower premiums amid intensified competition. The macro solvency stress test exercise is also supplemented with an assessment on the ability of insurers to meet short-term liquidity needs under stressed conditions, including higher policy benefit payouts due to surrenders, medical-related payouts and flood claims. The liquidity assessment affirms that insurers have sufficient liquid assets<sup>23</sup> to fulfil these obligations.

<sup>23</sup> Refers to cash and deposits, and MGS.

Chart 2.30: Macro Stress Test: Banking System – Capital Ratios Under Adverse Scenarios 1 and 2

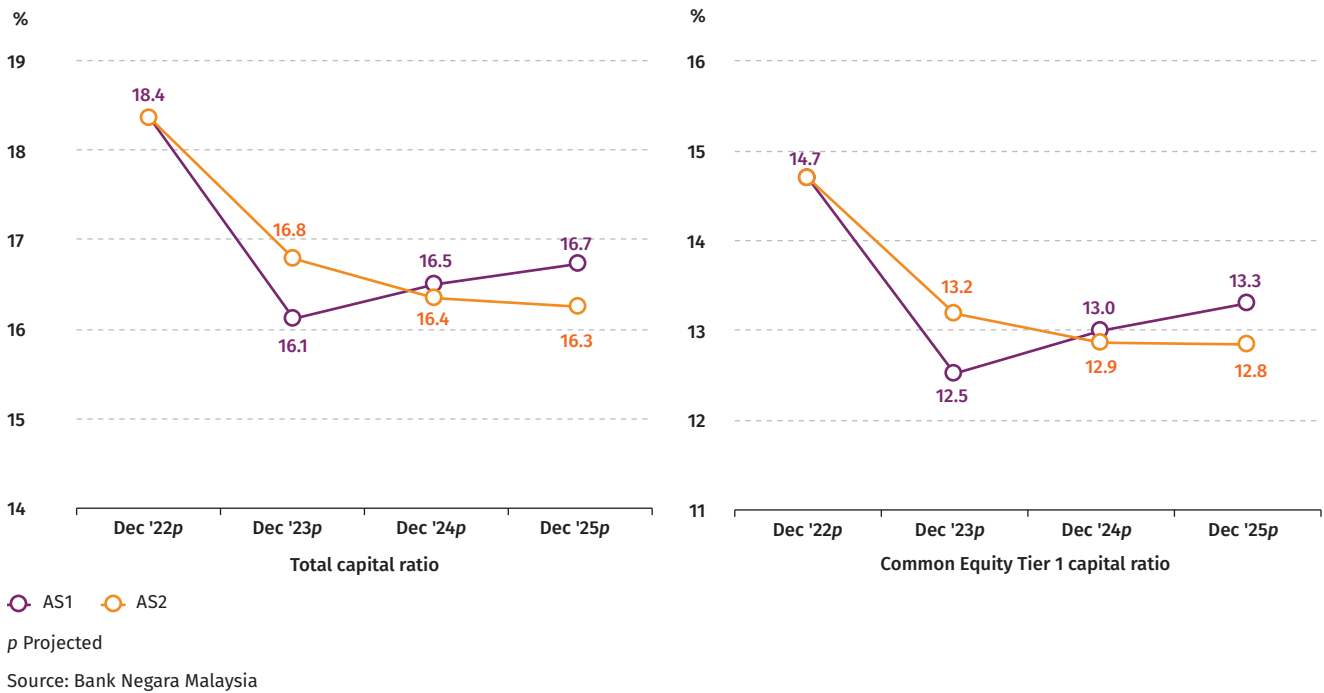


Chart 2.31: Macro Stress Test: Insurance Sector – Capital Adequacy Ratio (CAR) Under Adverse Scenario 1 and 2

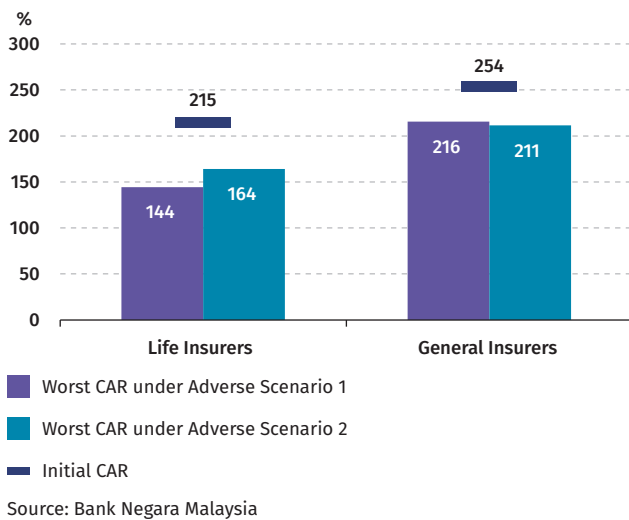
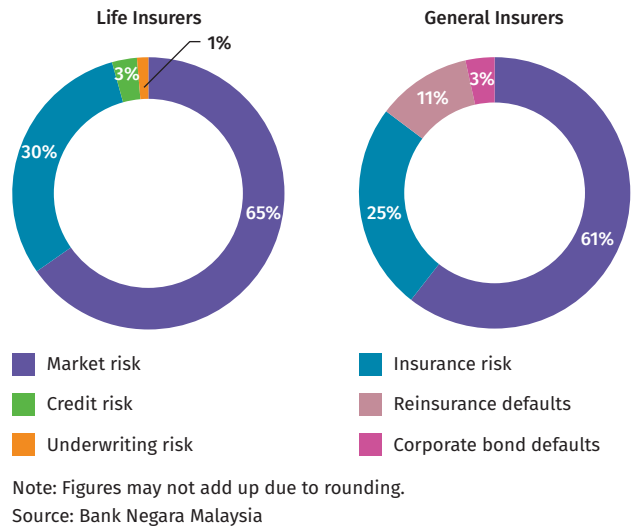


Chart 2.32: Macro Stress Test: Insurance Sector – Loss Drivers Under Adverse Scenario 2



It is important to note that the stress tests, by design, use extremely conservative assumptions to assess the resilience of banks and insurers to adverse shocks. Nonetheless, the actual impact of stress scenarios on financial institutions is likely to be less severe, on account of various factors, including:

- Pre-emptive actions by financial institutions to shore up capital buffers through capital retention strategies, new issuances or injections from parent institution(s);
- The strong operational and financial capacity of

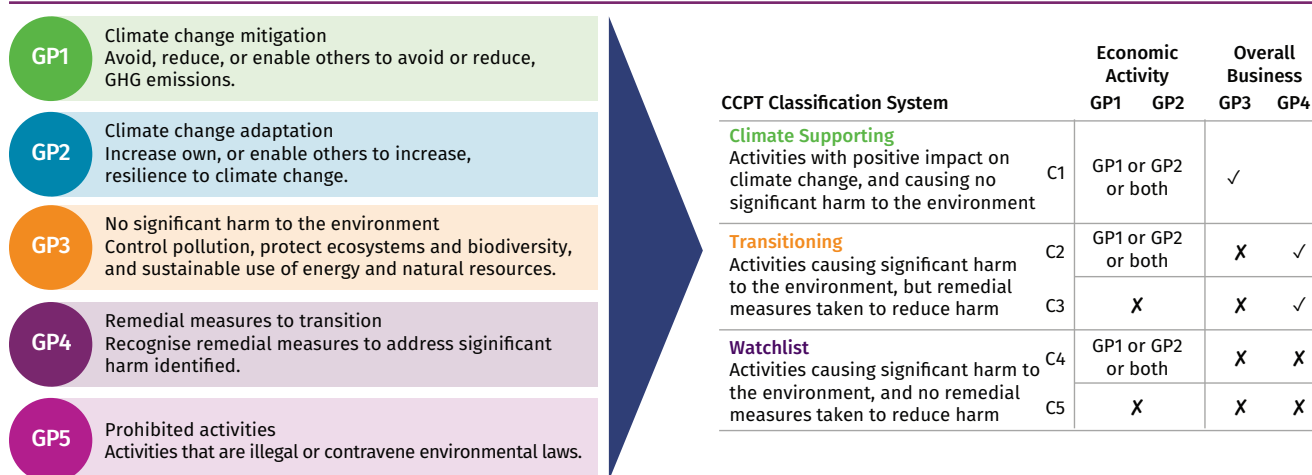
financial institutions to support households and businesses in financial distress before economic scarring occurs;

- Recovery actions for impaired loans would reduce the loss assumption used in this stress test;
- Substantial provisioning buffers built up that would cushion the impact of future credit costs; and
- Policy interventions likely to be taken by the Bank, Government and/or other authorities to alleviate the effects of severe financial and economic shocks.

## Implementation Progress of the Climate Change and Principle-based Taxonomy (CCPT) in the Financial Sector

The CCPT is a framework<sup>1</sup> to facilitate financial institutions in identifying and categorising economic activities that contribute to climate resilience. Beginning July 2022, financial institutions have started submitting half-yearly reports to the Bank on their exposures in line with the CCPT guiding principles and classification system (Diagram 1).

Diagram 1: CCPT Guiding Principles and Classification System



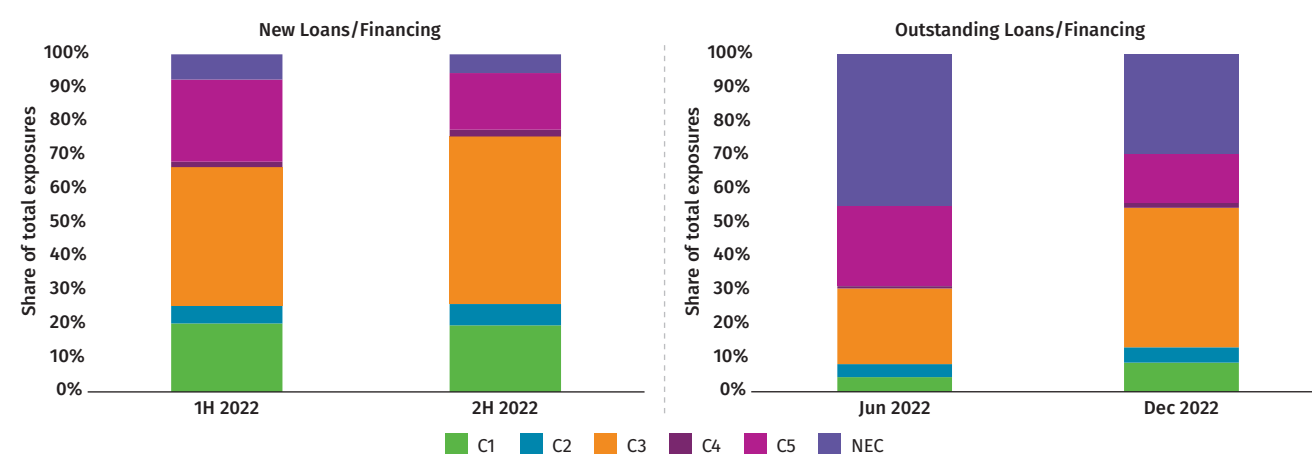
Note: There are five guiding principles (GP) in the CCPT.

Source: Document on Climate Change and Principle-based Taxonomy, 30 April 2021

## Encouraging progress observed in the classification of exposures

Although CCPT reporting is still in its early days, financial institutions are making progress in improving the quality and coverage of reporting. Financial institutions were able to classify 94.5% of total new loans/financing approved in 2H 2022, and 70.5% of outstanding loans/financing as at December 2022, up from 92.5% and 55.0% respectively for the period ending June 2022 (Chart 1). The improvement follows increased efforts by financial institutions to incorporate climate-related factors in the annual credit reviews of their customers.

Chart 1: CCPT Classification of New and Outstanding Loans/Financing



Note: Exposures to non-SME and SME segments. NEC refers to 'not elsewhere classified' due to exposures exempted from CCPT reporting and accounts pending review.

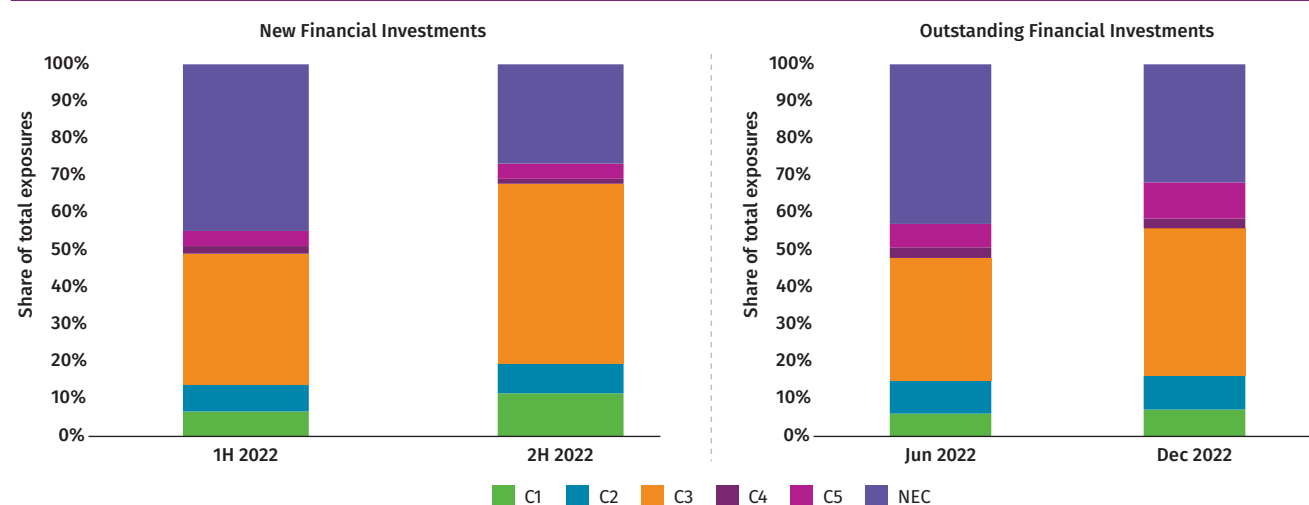
Source: CCPT Reporting, June and December 2022

<sup>1</sup> Refer to the box article titled 'Implementation of the CCPT in the Financial Sector' in the BNM Financial Stability Review Second Half 2021.

In 2H 2022, a higher share of new loans/financing was classified by financial institutions in the climate transitioning categories, namely C2 and C3 (55.9%; 1H 2022: 46.3%). This was also observed for outstanding loans/financing (December 2022: 45.9%; June 2022: 26.3%). The larger share reflects financial institutions' continued support for businesses undertaking initiatives to transition to lower-carbon activities and operations, alongside better visibility into their customers' climate strategies, as engagements with customers in this area continue to improve.

Financial institutions are also demonstrating progress in classifying financial investment<sup>2</sup> exposures. Financial institutions were able to classify 73.3% and 68.3% of new and outstanding investments respectively in 2H 2022, up from 55.2% and 57.1% in 1H 2022 (Chart 2). Financial institutions have cited limited climate-related disclosures made by issuers of financial instruments as a key factor contributing to the challenge in classifying these exposures.

**Chart 2: CCPT Classification of New and Outstanding Financial Investments**



Note: NEC refers to 'not elsewhere classified' due to exposures exempted from CCPT reporting and accounts pending review.

Source: CCPT Reporting, June and December 2022

The reported CCPT classification still reflects considerable variance across financial institutions, in part driven by the quality of data available to financial institutions and differences in the criteria used to assess the CCPT guiding principles. In this regard, the Bank and financial institutions are taking active steps to improve consistency in assessments and address climate-related data gaps. In December 2022, the Joint Committee on Climate Change<sup>3</sup> (JC3) published the Climate Data Catalogue<sup>4</sup> as a starting point to address the critical data needs of the financial sector (Diagram 2). Following this publication, the JC3 will now focus on working with relevant data providers to resolve data accessibility issues, and improve the quality, comparability and consistency of climate-related data from identified data sources. The JC3 is also collaborating with the Value-based Intermediation Community of Practitioners to expand the CCPT use cases through the sector/project-specific use cases covered in the VBIAF<sup>5</sup> Sectoral Guides. These actions to improve the quality of classification for CCPT reporting will continue to be a key priority to mitigate risks of greenwashing.<sup>6</sup>

<sup>2</sup> Includes equities and bonds.

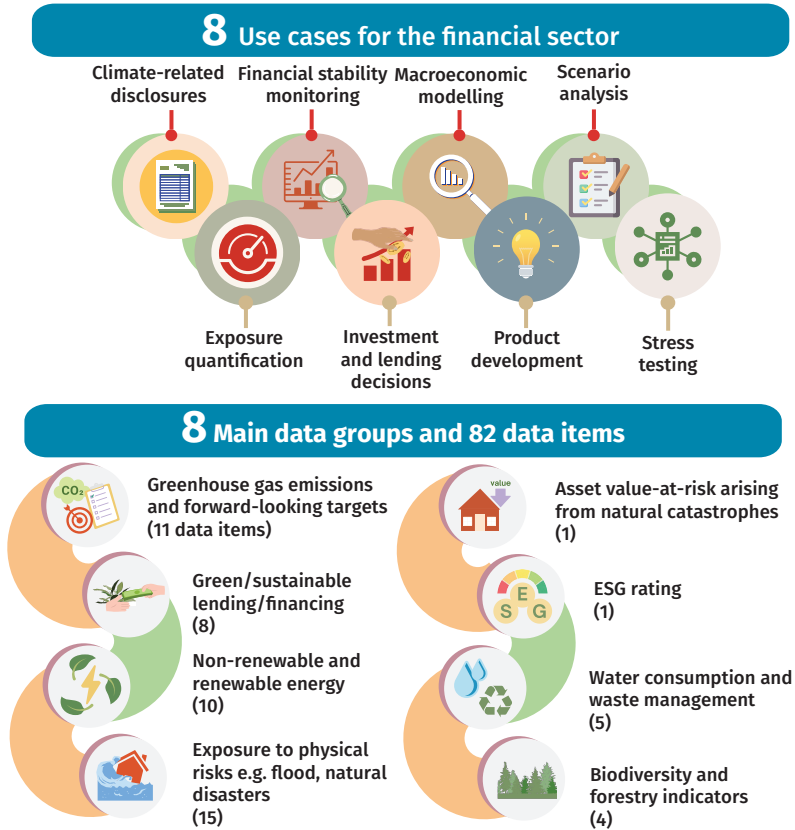
<sup>3</sup> The JC3 is a platform established in September 2019 to pursue collaborative actions for building climate resilience in the financial sector. The JC3's initiatives are undertaken by five sub-committees: Risk Management, Governance and Disclosure, Product and Innovation, Engagement and Capacity Building, and Bridging Data Gaps.

<sup>4</sup> The Climate Data Catalogue serves as a common source of reference on the availability and accessibility of climate and environmental data based on a priority list of financial sector use cases. Refer to Chapter 2.2 titled 'Towards a Greener Financial System' in the BNM Annual Report 2022.

<sup>5</sup> Value-based Intermediation Financing and Investment Impact Assessment Framework.

<sup>6</sup> Greenwashing refers to practices where companies make false or misleading claims about their climate change mitigation and adaptation efforts or overstate extent of their impact.

Diagram 2: Climate Data Catalogue

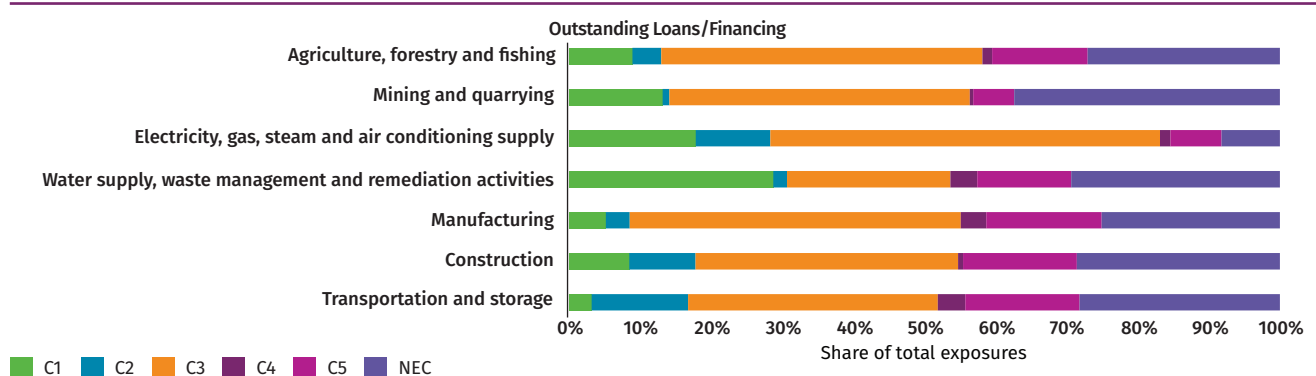


Note: The Climate Data Catalogue has 82 data items, of which 55 items are in the 8 main data groups and 27 items are under others.  
 Source: Bank Negara Malaysia

## Growing new innovative forms of financing to support transition

The high share of exposures observed in the transitioning and watchlist categories, namely C2 to C5 (including NEC), across most sectors (Chart 3) point to the critical need of significant green investments and transition finance to support climate mitigation and adaptation measures by businesses, particularly SMEs. Meeting this need requires new financing approaches to scale up financial flows towards climate transition activities. This includes utilising a diverse array of financing instruments, such as alternative finance solutions featuring public-private partnerships, and blended finance options with risk-sharing arrangements.

Chart 3: CCPT Classification for Selected Sectors



Note: Exposures to non-SME and SME segments. NEC refers to 'not elsewhere classified' due to exposures exempted from CCPT reporting and accounts pending review.

Source: CCPT Reporting, December 2022