

Actual impact on banks' capital strength over the next 12-18 months will be subject to some degree of uncertainty

While the stress tests presented here capture plausibly adverse scenarios with some degree of conservatism, the actual impact of the pandemic on banks' solvency over the next 12-18 months will depend on multiple factors, including:

- **The pace and strength of the domestic economic recovery**, which in turn is contingent upon how the pandemic continues to evolve, labour market conditions and business and consumer behaviour in the new normal;
- **The pace of economic recovery within the region**, which could affect the asset quality and profitability of overseas operations of domestic banking groups;
- **Initiatives taken by financial institutions** to support viable borrowers, which could improve

debt servicing capacity and reduce potential impairments;

- **Bank management actions** to shore up buffers such as new capital issuances or capital injections from parent bank(s); and
- **Additional policy intervention** by the Bank, Government and/or other authorities to support economic recovery.

While banks can be expected to be more cautious given continued uncertainties and prospects of a more protracted recovery, it is in the collective interest of the banking industry to continue supporting viable businesses and households throughout this period. Capital buffers built up over the years are intended to support lending during times of stress and therefore can be used. Further, such buffers are vital for banks to remain resilient and reduce risk aversion. This will be critical to avert larger repercussions on economic growth and recovery prospects, which in turn will inflict much higher losses on banks.

Key Features of the Enhanced Macro Solvency Simulation for Banks

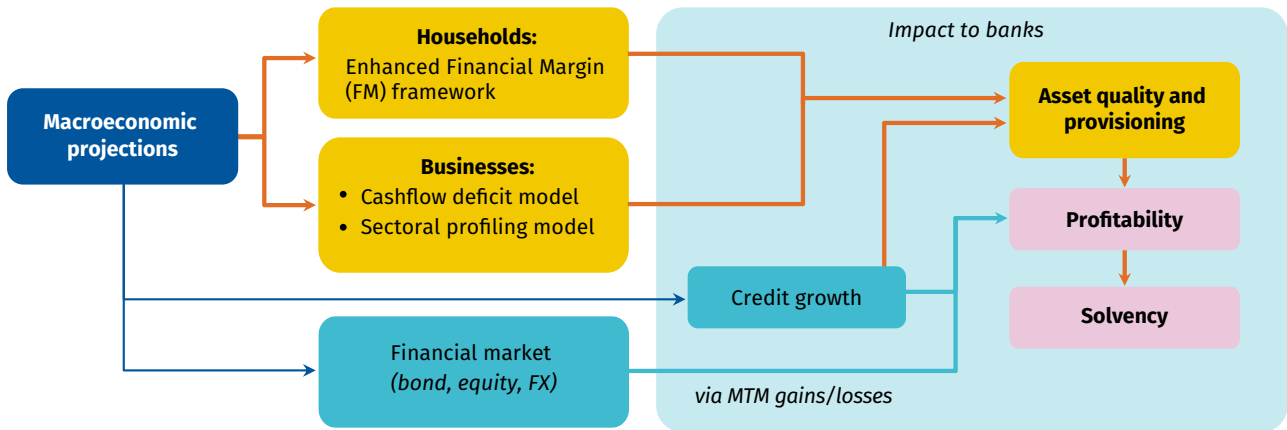
The scenario and assumptions used in the macro solvency simulation encompass a quarterly time horizon, with forward-looking projections up to end-2021. This aims to capture the effects of macroeconomic and financial shocks that could be transmitted much faster during a crisis, thus enabling the identification of emerging pockets of risk in interim periods.

Accordingly, the models and assumptions underpinning the macro simulation have been refined to improve the Bank's estimations and vulnerability assessments (Diagram 2.5 and Table 2.2):

- Enhanced versions of existing macro credit risk models for household and business borrowers were used to assess the impact of weaker macroeconomic conditions on credit risk arising from loan migrations and higher impairments.
- To estimate the impact on provisioning from the deterioration in asset quality, the simulation drew upon existing institution-specific loan loss coverage ratios¹⁹ for different loan purposes and stages of loan performance based on loan classification under MFRS 9. This aims to better represent banks' actual credit risk models (Diagram 2.6).
- Remaining parts of banks' income and expenses also takes into account the impact arising from financial market volatility, slower credit growth in 2020, modification losses and lower interest rates.

¹⁹ Coverage ratios are defined as the ratio of provisions to loans of that stage defined under MFRS 9. For example, Stage 3 coverage ratio is the ratio of Stage 3 provisions to Stage 3 loans.

Diagram 2.5: Schematic of Macro Simulation Framework



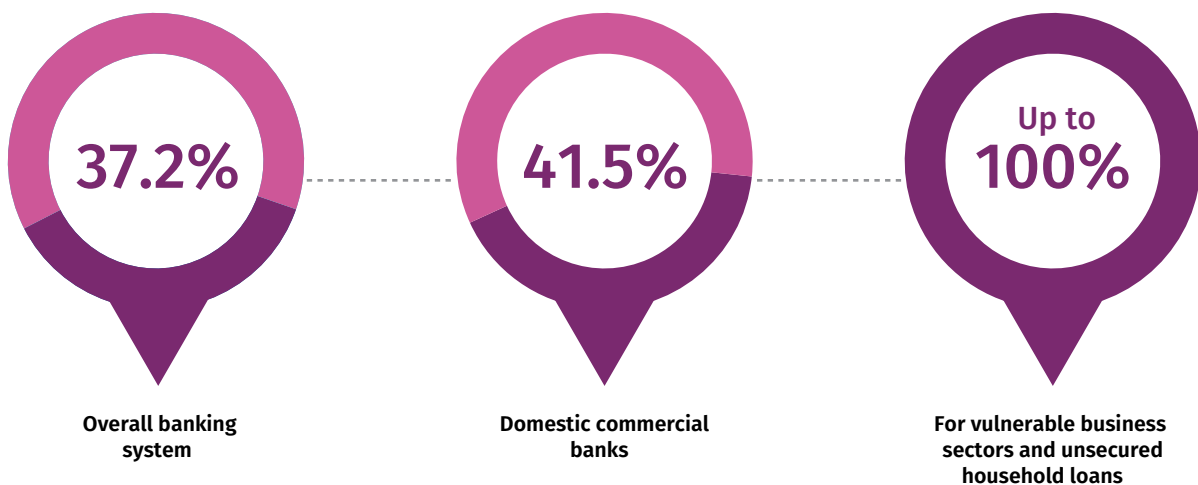
Source: Bank Negara Malaysia

Table 2.2: Key Assumptions

Section	Key Assumptions
Credit risk models	<ul style="list-style-type: none"> • Loan migration across stages under MFRS 9 are estimated using macro models linking macroeconomic conditions to borrowers' debt servicing capacity • New loans approved and disbursed during the simulation horizon are assumed to remain performing
Credit cost	<ul style="list-style-type: none"> • Coverage ratios are derived for each individual bank, by (i) stages under MFRS 9, and (ii) loan sector/ purpose, and adjusted upwards to account for additional provisions made due to management overlays • Banks are assumed to maintain coverage ratios throughout the simulation horizon
Net interest income	<ul style="list-style-type: none"> • Estimations incorporate the impact from lower interest rates (OPR declined by 125 bps year-to-date), slower loan growth and modification losses
Non-interest income	<ul style="list-style-type: none"> • Credit-related fee and commission income projected to grow in line with credit growth • Cost-to-income ratios are assumed to remain stable throughout the simulation horizon, i.e. operating costs to move in tandem with income
Capital	<ul style="list-style-type: none"> • Profits are recognised on a half-yearly basis. Dividend payment is assumed to be at 50% of half-year profits

Source: Bank Negara Malaysia

Diagram 2.6: Selected Stage 3 Coverage Ratios



Source: Bank Negara Malaysia

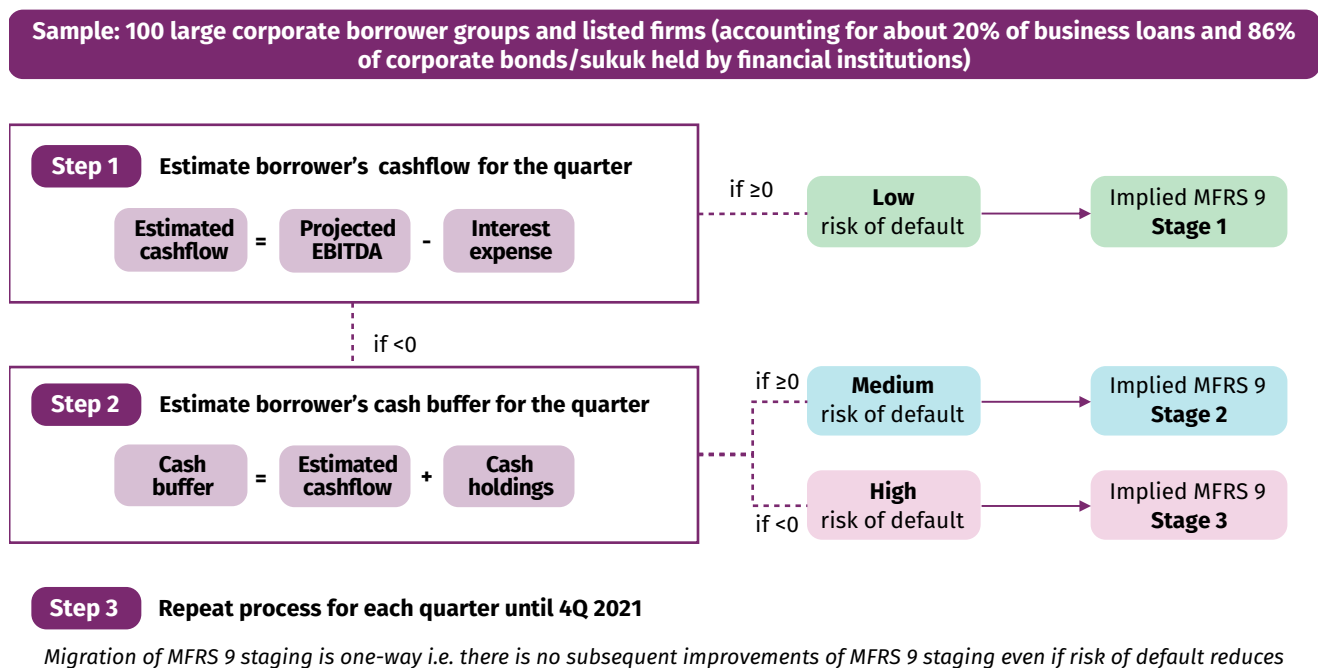
Forecasting Business Impairments: Two-pronged Approach

To simulate the potential trajectory of business sector impairments in the banking system for the macro simulation exercise, the Bank used two approaches, a cashflow deficit model for a sample of firms²⁰ with more accessible financial data and a sectoral profiling model for the remaining business exposures. This assessment also accounts for the risk profile of borrowers or borrower segments, repayment assistance extended by individual banks (based on experience during the early stages of the pandemic), and the effect of explicit government guarantees in mitigating losses.

(A) Cashflow Deficit Model

The cashflow deficit model determines a firm’s risk of default by estimating whether it has sufficient earnings or cash buffers to repay its interest obligations (Diagram 2.7). Quarterly earnings²¹ of a firm are projected up to end-2021 based on relationships established between sectoral GDP projections and firm-level financial data. These earnings are assumed to be used to service quarterly interest obligations during the period. In quarters where earnings are insufficient, the model assesses whether firms have sufficient cash buffers to draw on to honour interest obligations. Firms with sufficient earnings to service interest obligations are classified as “low risk of default” (MFRS 9 Stage 1), while firms that have to dip into their cash buffers are classified as “medium risk of default” (MFRS 9 Stage 2). This adds some degree of conservatism given that in practice, banks may continue to classify such exposures under Stage 1 if the borrowers have continued to service interest and coupon payments and there are no other evidence of a significant increase in credit risk. Finally, firms that have insufficient earnings and cash buffers are classified as high risk of default (MFRS 9 Stage 3). Stage 3 firms are assumed to default on all their exposures with financial institutions. Another layer of conservatism is applied to the model by assuming no reversion in the staging of firms, even if improvements in a firm’s earnings or cash buffers were observed in subsequent periods after it defaults.

Diagram 2.7: Cashflow Deficit Model



Source: Bank Negara Malaysia

²⁰ 100 large non-financial corporate borrower groups and listed firms. Large non-financial corporate borrower groups represent corporations with aggregate credit exposures (include direct financing and holdings of corporate bonds and sukuk) exceeding RM1 billion with Malaysian financial institutions.

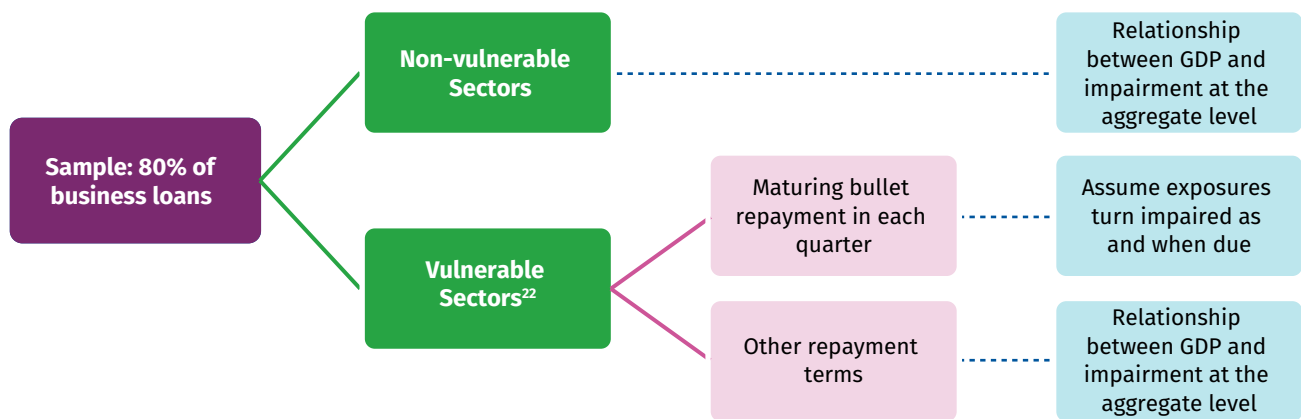
²¹ As measured by earnings before interest, tax, depreciation and amortisation (EBITDA).

(B) Sectoral Profiling Model

For businesses where firm-level financial data are not readily available, the sectoral profiling model is employed (Diagram 2.8). This model is premised on three key assumptions: (i) financing exposures of firms in the vulnerable sectors²² with bullet repayment terms will default²³ as and when they become due given the larger and immediate repayment obligations; (ii) impairments of other business exposures up to end-2021 are derived based on an established historical relationship between the annual growth of real GDP and business impairments at the aggregate level; and (iii) no SMEs are assumed to default before the end of the third quarter of 2020 due to the blanket loan moratorium in place between April and September 2020.

Reflecting a conservative approach taken in the estimations of business impairments, the model does not account for the effects of risk mitigants that could moderate the timing and magnitude of business impairments. These include (i) diversified revenue streams and available collateral for some of the larger borrowers; (ii) explicit credit guarantees by agencies such as Credit Guarantee Corporation Malaysia Berhad (CGC) and Syarikat Jaminan Pembiayaan Perniagaan Berhad (SJPP); and (iii) coordinated efforts by financial institutions, the Small Debt Resolution Scheme (SDRS) and the Corporate Debt Restructuring Committee (CDRC) to assist viable borrowers in restructuring and rescheduling loans.

Diagram 2.8: Sectoral Profiling Model



Source: Bank Negara Malaysia

²² Sectors that are deemed more vulnerable are those more exposed to the COVID-19 pandemic and those impacted by supply chain disruptions. These include the agriculture, mining & quarrying, manufacturing, construction, wholesale and retail trade, hotels and restaurants, transport and storage, and real estate sectors.

²³ Revolving credits are excluded as experience indicates that these exposures are typically rolled over.