

Briefing Note: APRA Climate Vulnerability Assessment

February 2023

Summary

The APRA Climate Vulnerability Assessment (CVA) was an essential first step towards robust and decision-useful climate risk assessments for banks and the broader financial sector. However, the limited scope and considerable methodological challenges mean that it is premature to make overarching statements about banks' ability to manage these risks. For investors, key takeaways from the assessment should include:

- Some regions are more vulnerable than others and may be significantly impacted by both physical and transition risks. Investors and policymakers will need to work together to ensure that these regions can continue to attract investment and avoid capital flight. In regions where adaptation is not possible, managed retreat needs to be proactively considered.
- There is limited understanding of indirect and systemic risks. Investors should build capability to consider these in their own assessments, as well as engage with banks, other corporates, and government on these risks.
- Transparency and comparability in climate risk assessments are essential, and investors should actively engage with government and other stakeholders to ensure the design and implementation of these assessments is robust and useful. This must include disclosure of key assumptions, methods, and limitations.

Introduction

In November 2022, the Australian Prudential Regulatory Authority (APRA) published an [information paper](#) on the results of their Climate Vulnerability Assessment (CVA). This briefing paper summarises these results, provides key recommendations for future assessments, and outlines what institutional investors should learn from the assessment.

Overview of results

Scope

The CVA was conducted with Australia's five largest banks: Commonwealth Bank of Australia (CBA), National Australia Bank (NAB), Australia and New Zealand Banking Group (ANZ), Westpac, and Macquarie Bank, and aimed to:

1. Measure potential financial risks to banks, the financial system, and the economy posed by physical and transition climate risk
2. Understand how banks may adjust their business models and implement management actions in response to different scenarios
3. Improve banks' climate risk management capabilities

The assessment focused primarily on credit risk and used two scenarios based on the Network for Greening the Financial System (NGFS) guidelines. These were a delayed transition scenario (policy ambition of 1.8°C) and a current policies scenario (3°C+). The scenarios covered both physical and transition risk to 2050.

Physical risk

The banks assessed the impacts of physical risks on lending losses for their residential mortgage portfolios (approximately 52% of total Australian lending) at postcode-level, and their agricultural business lending exposures (approximately 1%) at portfolio-level (for beef cattle, dairy, and grain) and counterparty-level. For other business lending (19%), physical risk assessment was optional and only one bank attempted quantitative assessment. However, all banks qualitatively cited physical risk as the most common risk driver across all counterparties.

Residential mortgage

For the residential mortgage assessment, the banks were provided with forward-looking index projections from Munich Re for tropical cyclone, precipitation stress, river flood, fire weather stress, drought stress, and heat stress at postcode resolution. Non-insurance data was also provided but it was not clear whether this was forward-looking or if current levels were assumed to 2050. Only the direct impacts of physical risk were included, and no assessment of the suitability of the provided data or indices was disclosed.

Projected losses due to physical risk varied significantly across the five banks, with one bank reporting no losses under either scenario and two banks modelling material losses triple the long-term historic average by 2050. APRA suggests these differences may be due to differences in lending portfolios and variations in modelling approaches. Additionally, two banks did not use the supplied Munich Re data. On average, losses were marginally higher under the current policies scenario compared to the delayed transition scenario.

Overall, APRA surmises that *"the modelled increases in lending losses arising from climate change would be unlikely to cause severe stress to the banks."* However, they acknowledge that losses in some regions did increase significantly. For example, at the state-level, Queensland is projected to have more than three times the increase in losses than South Australia under the current policies scenario.

While the banks indicated that they would continue their mortgage lending activities under either scenario, they noted that some form of policy intervention was assumed in highly impacted regions. Additionally, some banks projected that they may tighten loan-to-value ratios (LVR) limits in higher risk areas. There was no discussion of the consequences this may have on impacted regions.

Agriculture business lending

For agriculture business lending at the portfolio-level, there were significant differences in lending losses between the two scenarios, with minimal impact under the delayed action scenario compared to 2.5 times larger losses in 2050 than in 2025 under the current policies scenario. Despite this, banks indicated they would continue to support agricultural lending activities.

The agricultural counterparty assessment focused on productivity losses from chronic physical risks (e.g., average temperature, rainfall, humidity). Broadly, the banks concluded that the counterparties would be able to adapt to these changes, resulting in milder financial impacts. There was no information provided on how the counterparties would adapt, or barriers to adaption (e.g., technological developments, investment requirements). For both assessments, the banks note challenges in assessing the impacts of extreme and acute events on these exposures.

Non-agriculture business lending

Despite a lack of quantitative assessment, most banks assumed that non-agricultural counterparties could mitigate physical risk impacts through business insurance or operational resilience measures. No evidence for this was supplied in the report. The banks also identified a range of indirect impacts from physical risk, including outdoor labour productivity, public infrastructure, and wider supply chain dependencies.

Transition risk

For transition risk, the banks were provided with Australia-focused economic modelling at state-level across 43 sectors. This information was produced using the G-Cubed model by McKibbin Software Group and was informed by the NGFS scenario guidelines.

The banks used this information, as well as some macroeconomic data provided by APRA (e.g., unemployment and house price assumptions), to model the impact of transition risks on their mortgage lending exposures at SA4 region. SA4 regions are lower resolution than postcodes, with 108 SA4 regions compared to 2,644 postcodes across Australia. Overall, the participating banks modelled eight SA4 regions in common, accounting for approximately 2% of the total lending exposures of the banks. For business lending, the impact of transition risks was assessed at the sector-level (ANZSIC division) and at counterparty-level.

Residential mortgage

In comparison to the physical risk losses, which resulted in only marginal differences between scenarios, the transition risk losses for the banks' residential mortgage portfolio are nine times greater under the delayed transition scenario compared to the current policies scenario by 2050. There were significant differences in losses between banks, driven by how the banks modelled the impacts of transition risks on individual portfolios.

Regional differences were also identified, with two of the three Queensland SA4 regions showing more than triple the losses than the other SA4 regions assessed. Some banks indicated they may stop originating mortgages within some SA4 regions that experienced heightened transition risks in their modelling by, for example, reducing exposure to higher loan-to-value ratio (LVR) loans.

Business lending

Business lending losses were also observed to rise under both scenarios but were higher under the delayed transition scenario. The losses were concentrated in the mining, manufacturing, and transport sectors. No geographical disaggregation was provided and the exact scope of the assessment (i.e., whether banks' whole portfolio was included) was not clear.

The banks projected that they may respond by changing the composition of their business lending portfolios, particularly through reducing their exposures within the mining sector. However, there was no discussion on the impact this could have on workers or communities dependent on the mining sector. Overall lending was not projected to decrease as the banks would reallocate lending to sectors less impacted by transition risk.

Counterparty assessments revealed negative credit rating impacts under both scenarios, however impacts were more prominent under the delayed transition scenario. Counterparties from emissions intensive sectors showed the greatest decrease in credit quality. Approximately 6% of counterparties were assessed to be in default by 2050 under the delayed transition scenario, all from fossil fuel dependent industries.

The banks identified charging an additional credit spread (to reflect increased risk), reducing leverage limits (e.g., loan-to-asset ratios), limiting loan amounts and/or tenors, and exiting counterparty relationships as potential management actions.

Reflections

The CVA was an essential first step towards robust and decision-useful climate risk assessments for both APRA and the banking sector. The assessment improved the banks' climate risk management capabilities and identified regions and sectors that may experience increased credit risk and lending losses. However, the limited scope and methodological challenges mean it is important to not draw overarching conclusions from the assessment. In particular, APRA's statement that banks are likely to be able to absorb the impacts of climate risks is premature and may disincentivise banks from actively considering and managing these risks.

Recommendations for future assessments

This assessment, and any that follow it, is immensely valuable to assist banks and other businesses within the Australian economy to understand and manage their climate risk. Additionally, any assessment of this type should form a key part of a company's climate disclosure. To improve the utility and robustness of future assessments, APRA should consider:

1. Including a low overshoot 1.5°C scenario, in line with the recommendations of Paris Agreement, and a "worst case" scenario beyond the current policies scenario.

2. Increasing the scope of the assessment, both in terms of proportion of banks' portfolios assessed and the risks considered. While some methods still need to be developed, a clear roadmap of how the scope of the assessment will increase over time will enable banks and other stakeholders to develop necessary capabilities. Some key areas to be included are:
 - a. Physical risk impacts on business lending
 - b. Compound, complex risks, including the intersection of transition and physical risks
 - c. Indirect impacts of physical and transition risks, both in Australia and in international supply chains
3. Improving the transparency, quality, relevance, and resolution of data used. While data for climate risk assessments will continue to be developed and improved, ensuring the data used is fit-for-purpose is essential. This should include:
 - a. Assessment of the quality and suitability of the data, compared to other data available, should be undertaken and disclosed. Key assumptions, limitations and characteristics of data being used should also be disclosed.
 - b. External levers that may significantly alter the impacts of climate risks (e.g., policy intervention, insurance, technological developments, offsets) should be disclosed and the consequences of these not being available (and/or affordable) should be considered in risk assessments.
 - c. For physical risk:
 - i. Address-level data is necessary to capture the impacts of acute climate risks (e.g., floods and bushfires). Aggregating extreme values can lead to an underestimation of risk.
 - ii. Using indices that sufficiently represent the risk and disclosing the details of these indices. For example, fire weather stress does not represent the risk from bushfires, and it is unclear whether tropical cyclone risk refers to wind speeds, related flooding, storm surge, or a combination of these impacts.
 - iii. Using indices that incorporate both frequency and severity of the risk e.g., flood depth (severity) and return period (frequency).
 - iv. Including vulnerability and resilience at the asset (e.g., raised floor heights) and community-level (e.g., levees).
 - v. Including all material risks, e.g., storm surge, overland flood, sea level rise etc.
 - d. For transition risk:
 - i. Including non-CO₂ greenhouse gases.
 - ii. Increasing the resolution of data, with particular focus on intersection between regions and sectors.
4. Extending the assessment period beyond 2050. Despite challenges, it is essential to look beyond 2050 where the physical risk impacts of scenarios will begin to diverge significantly.
5. Ensuring alignment with other climate risk assessments being undertaken within government and in other sectors of the economy.
6. Including the risk associated with banks' management strategies to avoid maladaptation, stranded assets, and capital flight. Just transition and managed retreat should be central to this.

Learnings for investors

While the CVA focused on banks, institutional investors will soon have to assess their own exposure to physical and transition risks due to mandatory climate disclosure. Therefore, key takeaways should include:

1. Capability building is essential. Climate risk assessments require a multidisciplinary approach, bringing together stress testing, ESG, risk management, finance, and front-line business. Investors should consider how these functions may best collaborate and identify key areas to upskill in internally or use external consultants.
2. Physical and transition risk need to be considered jointly in investors' climate risk assessments, especially for regions that are likely to see significant impacts from both (e.g., Queensland).
3. The banks identified policy intervention as a key requirement for continued lending to some regions with high physical risk. Investors should engage with government to ensure these interventions are sufficient to allow continued investment.
4. While the media response to the CVA was varied, there was a clear focus on the banks' suggestion to reduce lending in some regions. Insurers have similarly experienced criticism around availability and affordability of insurance in high-risk areas. Investors should prepare to face pressure if their risk management approach includes divestment from high-risk areas without consideration of community impacts.
5. It is not sufficient for counterparties to be able to adapt to climate risk, they must also demonstrate that they are actively considering these risks in their business strategy and capital expenditures. Investors should engage with companies they are invested in on these risks, including banks.

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