

Speech

# Climate Change Risk in the Financial System



RESERVE BANK OF AUSTRALIA

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**Credit Law Conference 'Managing Financial Services Risks in an Age of Uncertainty'**

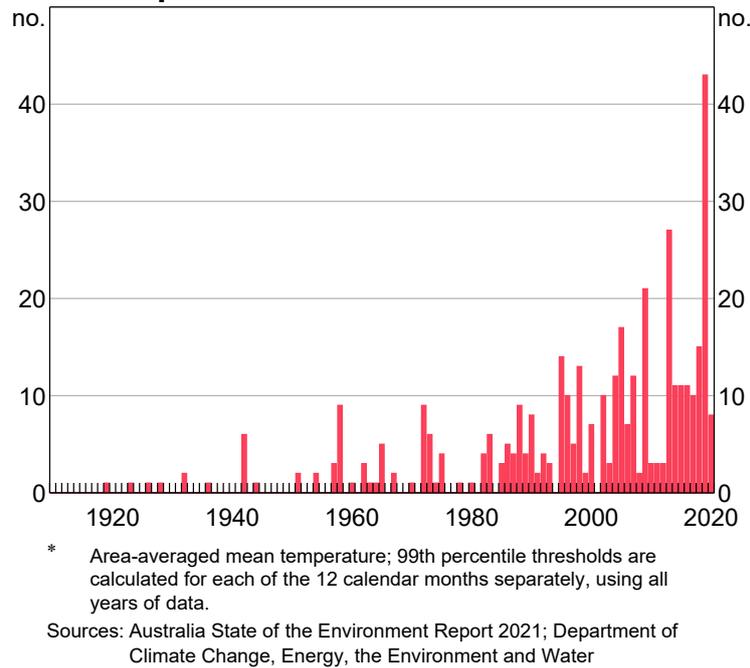
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## Introduction

Climate change is a significant issue with broad-ranging implications for the economy, the financial system and society more broadly. Average temperatures in Australia have risen 1.4 degrees since 1910, and climate scientists tell us that with current policies average temperatures will rise around 2.7 degrees above pre-industrial levels by 2100.<sup>[1]</sup> The frequency of extreme weather events has increased, with more days having excessive rainfall and high fire danger (Graph 1).<sup>[2]</sup> We have seen how climate change is already affecting people's lives in Australia and around the world, and it will keep doing so. The climate will continue to warm, with associated changes in the overall climate system over the next 20–30 years, largely irrespective of our emissions trajectory.<sup>[3]</sup> But our actions over coming years will obviously affect the ongoing path of climate change.

**Graph 1**  
**Days with Australian Mean Temperature Above 99th Percentile\***



Understanding the implications of climate change is hugely complex. There are a number of reasons for this, including:

- Technology is constantly evolving – for example, green hydrogen has gone from being a theoretical possibility to becoming commercially viable over the course of a decade.
- Climate change is both a local and a global issue – due to factors like geography and industry structure, the impacts of climate change will differ by community; however, facing these impacts will require collective action and coordination.

Fortunately, specialists in many fields are contributing to this research, including scientists, technologists and economists. The more we understand the insights of other disciplines, the better chance we have of managing the risks and finding the opportunities associated with climate change.

One thing that there is broad agreement on is that there are strong benefits to addressing issues related to climate change sooner rather than later. Delaying action will not only make climate change worse, it will make the implications for society, the economy and the financial system more severe.

Today I want to focus on one important aspect of climate change: the resulting risks in the financial system. I will first describe those risks, and then outline how they apply to different types of financial institutions. I will then talk a bit about what financial regulators are doing to create the framework that best enables participants in the financial system to manage climate change risks and opportunities, thereby assisting with the transition to a more sustainable future.

## The effects of climate change

While we know a lot about the broad effects of climate change, there is more uncertainty about specific aspects, such as how much it increases the frequency and severity of extreme weather events. There is also significant uncertainty about how people and governments will respond. Because of this uncertainty, we think about the

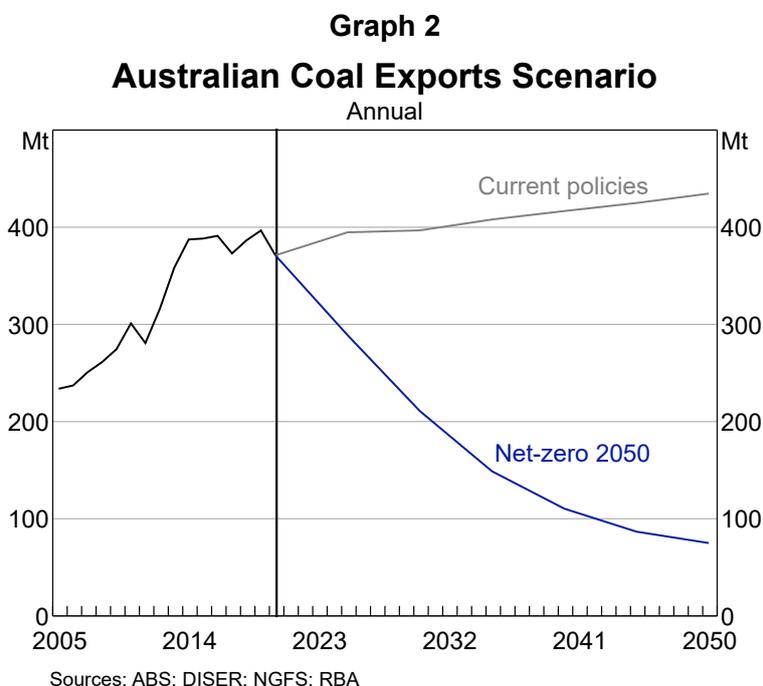
impact of climate change on the financial system in terms of 'risks' – in particular, physical risk and transition risk, and sometimes also liability risk.

**Physical risk** can be split into two parts:

- *Acute physical risk* is the risk of losses from severe weather events, such as flooding, storms or bush fires. While this type of risk is not new, the frequency and severity of extreme weather events is increasing with climate change. And the magnitude of losses depends on the location of physical assets – for example, more frequent and severe flooding will have even greater impact if dwellings continue to be built in low-lying flood-prone areas.
- *Chronic physical risk* represents the persistent effects of climate change that influence the value of assets because of changes in their productivity or desirability. For example, persistent increases in temperatures and sea levels, and permanent shifts in the incidence or reliability of rainfall, can reduce the productive capacity of some farmland or the value people place on housing in particular areas. Because these effects are ongoing, they will lead to changes in the structure of the economy, such as where different types of crops can be grown.

**Transition risk** refers to the risks resulting from changes to policies, technology and people's preferences that are brought about by climate change. For example, policies on the pricing of emissions will affect the return from emissions-intensive assets, and people's preferences for green energy can have separate yet similar effects.

Transition risk will almost certainly involve changes to the structure of the economy. An important aspect of transition risk is its strong international dimension. It is not only changes in domestic policy, preferences and technology that are relevant for the Australian economy – given the importance of international trade of goods, services and capital, global changes are also significant. For example, policy decisions or preference changes in other countries regarding their use of coal will affect Australia's coal exports, which is a scenario the Bank has considered for its impact on the economy (Graph 2).<sup>[4]</sup>



Finally, businesses are increasingly exposed to **liability risk** if they do not sufficiently respond to climate change, exposing the business, directors or trustees to litigation. This risk exists not only when they choose not to take appropriate actions but also if they are not informed to take appropriate actions. Information is key, an issue I will come back to later.

## Climate change and financial stability

Physical and transition risks from climate change have implications for financial stability. Climate change can significantly affect the prices of assets if it reduces future cash flows and makes them more volatile. Climate risks affect the value of assets used as security for loans and thereby the potential losses that lenders face if borrowers can't meet their repayments. Climate change can also affect the ability of households and businesses to meet their repayments because of the impact it can have on their incomes.

Climate change risks can manifest in different ways for different types of financial entities. If financial entities mismanage their climate risks, they are also exposed to liability risk.

### Insurers

General insurers have a bit of a head start in managing the financial risks of climate change. First, because their policies make payments for damage from extreme weather events, insurers already have in place systems for assessing the likelihood and cost of these events. But, as I said earlier, the frequency and severity of these events is generally increasing, and so insurers need to plan accordingly, including for larger potential losses.

Second, premiums on general insurance policies are typically repriced annually, which provides a regular interval for insurers to reassess risks. So insurers can adjust their premiums, or even decide not to write policies in some locations, as climate change alters the payouts they may have to make. Such a reduction in insurance coverage could have significant implications for society, the economy and the financial system. Also, the fact that insurers can later decide not to provide cover means asset owners should not take comfort from being able to insure climate risks at this moment in time. Some other insurance policies, such as life insurance, have longer periods over which payouts might need to be made, but they generally have less direct exposure to climate change.

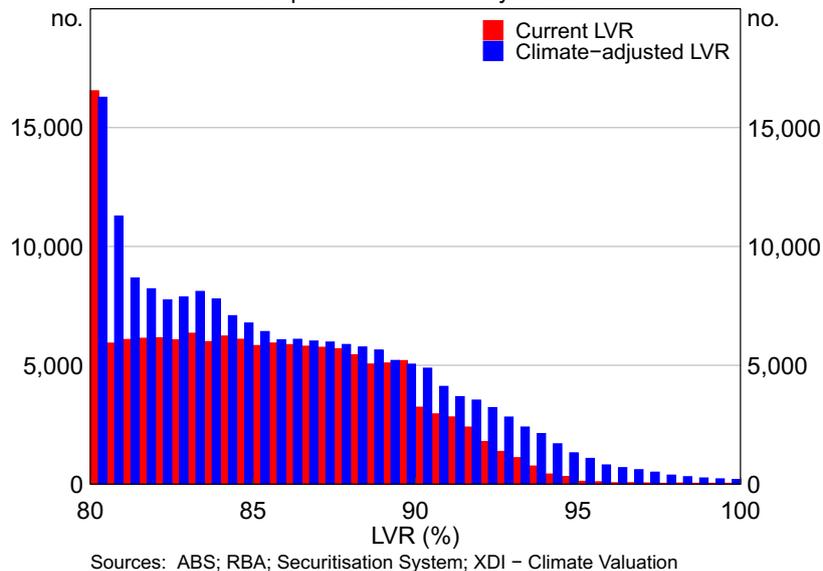
### Banks

Banks have less experience modelling the financial impacts of climate events, and so have more work to do to develop their management of these financial risks. Not only do they need to develop the systems and procedures to manage these risks, but they need to start by collecting and analysing the right data. Loan contracts are much longer than insurance contracts; new housing mortgages are typically for 25 years, while business loans are often for three to five years. Over these horizons, the effects of climate change are likely to be significant but are also very uncertain.

In practice, most mortgages have a shorter effective life because the borrower refinances, moves or pays the loan off early. But if climate change makes a home's location less desirable and significantly reduces its value, the borrower may have less opportunity to refinance or upgrade their property. The lender may then find that the loan on that property has a much longer realised maturity, and the collateral backing the loan has a lower value.

Another challenge for banks is that they require borrowers to insure their property; however, due to the effects of climate change, the borrower may not retain insurance, either because insurers won't cover it or the cost of insurance has increased significantly. If climate change means a home isn't insured, then lenders could find that damage from flood, storm or fire results in the collateral value being significantly lower, and so their expected loss-given-default on climate-impacted properties is much larger (Graph 3).<sup>[5]</sup> Because of the substantial uncertainty they face, banks use scenario analysis to consider how their exposure to climate change depends on various parameters and behaviours.

**Graph 3**  
**Mortgages with LVR**  
**Greater than 80 per cent**  
 Report month = 31 July 2022



## Superannuation and managed funds

For superannuation and managed funds in Australia, asset valuation risk is typically borne by the investor, not the trustee.<sup>[6]</sup> So while investment funds seeking to maximise the return for investors need to take into account the impact that climate change will have on asset prices, the trustee does not face the physical and transitional risks of climate change. But assessing the sensitivity of the return on particular investments to climate change is difficult, given the inconsistent and incomplete information available. That said, while super funds don't operate as direct channels of financial stability risks from climate change, they could become indirect channels if they were to contribute to rapid price falls through large sales.

There is also the third risk related to climate change, and that is liability risk. Insurers, banks and super fund trustees all face liability risk if they do not disclose, address and manage the effects of climate change sufficiently for their customers and owners. Ensuring they provide detailed information on their exposure to climate risk is important in managing liability risk.

## Financial regulators and climate change financial risk

Given financial regulatory agencies have mandates covering the efficiency and stability of the financial system, they have a strong interest in the effects of climate change. For this reason, the Council of Financial Regulators (CFR) – comprising the Australian Prudential Regulation Authority (APRA), the Australian Securities and Investments Commission (ASIC), the Reserve Bank and the Australian Treasury – created a Climate Working Group back in 2017.

To fulfil their mandates in the face of climate change, the CFR agencies seek to ensure that financial institutions and other firms produce and disclose high-quality, consistent information about the climate-related risks I described earlier and that they carefully manage those risks. These issues are also the focus of a substantial amount of work in international forums in which CFR agencies participate. Each CFR agency uses these connections to inform domestic policy and to consider the implications for Australian entities' participation in global financial markets.

## Current focus of the CFR Climate Working Group

The CFR Climate Working Group identified three priority areas over the past year, which I will briefly summarise:<sup>[7]</sup>

1. the Climate Vulnerability Assessment (CVA)
2. disclosures
3. taxonomies and sustainable finance.

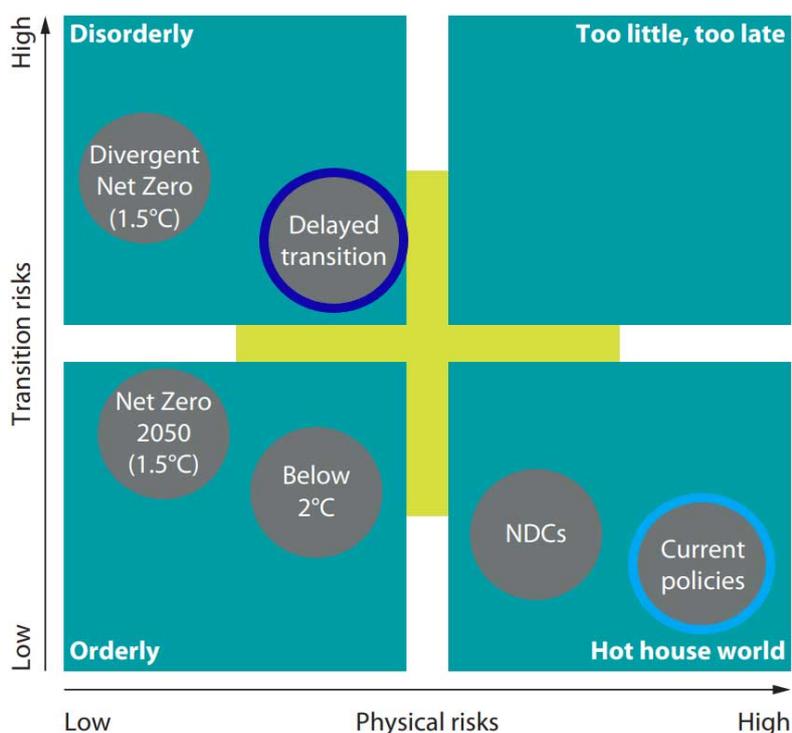
### The Climate Vulnerability Assessment

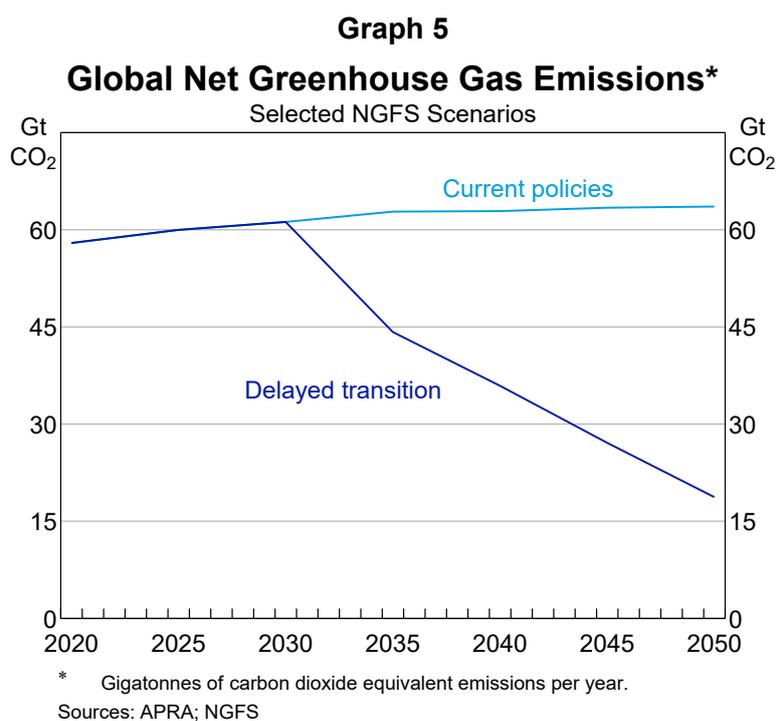
The CVA is a climate scenario analysis being conducted by the five largest banks under the guidance of APRA. Australian banks had already been engaging in some analysis of their climate risks, but this is the first time in Australia that it is being done in a comprehensive and coordinated manner across institutions. The climate scenarios being used by the CVA take into account anticipated physical and transition risks through to 2050. The CVA seeks to assess the potential exposure banks have to climate risk, understand how banks are likely to adjust their business models in response to those risks and foster an improvement in banks' management of climate risks.

The CVA is based on two scenarios developed by the Network of Central Banks and Supervisors for Greening of the Financial System (NGFS) (Graph 4). APRA and the Reserve Bank, in conjunction with the Australian Banking Association and the participating banks, worked together to customise these scenarios to be suitable for the Australian economic industrial structure. The two scenarios used are (Graph 5):

1. Delayed transition: a delayed, but then rapid reduction in emissions.
2. Current policies: a continuation of current global policies that are insufficient to meet Paris targets.

**Graph 4**  
**NGFS Scenarios**





The banks used these scenarios to assess the implications for their credit risk models and the structure of their balance sheets. Individual bank results were provided to APRA in late-May 2022, and APRA is looking to publish information on the outcomes and insights later this year after analysing these submissions. It is not only the banks that will learn from the CVA but regulators will also learn how to better assess climate risk in the Australian financial system.

## Disclosures

The CVA exercise should also assist the second CFR climate focus area, which is facilitating the development of climate-related disclosures. High-quality and comparable disclosures are important to allow investors and counterparties to have confidence in how firms are managing their climate-related financial risks. Given firms and investors operate internationally, there is a strong global dimension to the need for disclosures. Currently, the most widely recognised standards for disclosing climate-related risks are the principles created by the Taskforce on Climate-related Financial Disclosures (TCFD). The CFR has endorsed the TCFD framework for effective disclosures, which recommends using scenario analysis to assess the risks and opportunities associated with climate change.

Last year, at COP26, the International Sustainability Standards Board (ISSB) was created to work with the TCFD and other sustainability-related standard-setting bodies to deliver a comprehensive set of reporting standards that are integrated with existing global accounting standards. You can think of this as being a more specific and prescriptive version of the TCFD principles. The ISSB released Exposure Drafts in April of this year. ASIC considered the views of industry participants and worked with other CFR agencies in developing a joint submission to the ISSB on these draft standards. The ISSB is hoping to finalise key decisions by the end of this year, before broadening out to other areas concerning sustainability.

## Taxonomies

The third area of focus of the CFR Climate Working Group has been taxonomies, which in essence is about providing scientifically based definitions for what could be considered as 'green' or 'sustainable'. Having widely

recognised and utilised definitions increases the quality and consistency of information available to financial market participants and so contributes to greater efficiency and improved management of climate risks.

While we want consistency, the definitions need to be appropriate for the structure of an economy, noting countries have different starting points for the transition to net zero. For example, for a country that has relatively high carbon intensity, like Australia, the early stages of the path to net zero may involve investments that reduce total carbon emissions, but are not purely 'green'. There is also a risk that jurisdictions without a taxonomy will see international investors apply definitions they are familiar with, such as the proposed European Union taxonomy, whether they are suitable to that economy or not. For example, the EU taxonomy may label LNG as not being a green investment unless it meets stringent requirements that are not applied in Australia; however, in the near-term, increased use of LNG in Australia may assist a transition away from coal while renewables infrastructure is developed.

Having a taxonomy that is well-developed and widely accepted is important for a number of reasons. A taxonomy will assist those making, and interpreting, disclosures. It will also assist investors to make informed investment decisions that will drive the adaptation and mitigation actions needed to manage the risks of climate change.

The CFR agencies held a roundtable with industry in November 2021 to discuss potential Australian approaches to these issues. The development of an Australian taxonomy is a key priority for Australian Sustainable Finance Initiative's (ASFI) 2022 work program. The CFR agencies are supportive of ASFI's work and have joined the Technical Advisory Group as observers.

## Summary

Summing up, climate change can have a significant impact on the structure of the economy, and the pricing and return on assets. This means climate change has implications for the efficiency and stability of the financial system. As such, it is critical for central banks and financial regulators to carefully analyse and respond to climate-related risks. In Australia, the CFR agencies work closely with each other, international peers and financial institutions to improve the quality and consistency of the information available for managing the financial risks associated with climate change. These are complex issues and our understanding of how best to respond will evolve over time. But it is critical that financial market participants and regulators act now to best manage the financial risks and facilitate the associated opportunities.

## Endnotes

- [\*] Thanks to Alex Heath and members of the Reserve Bank climate group and CFR Climate Working Group for assistance and comments.
- [1] See Climate Action Tracker (2021), 'Temperatures', 9 November. Available at <<https://climateactiontracker.org/global/temperatures/>>.
- [2] See Trewin B, D Morgan-Bulled and S Cooper (2021), 'Climate – Extreme Events', in I Creswell, T Janke and EL Johnston, *Australia: State of the Environment*, Australian Government.
- [3] See Trewin B, D Morgan-Bulled and S Cooper (2021), 'Climate – Outlook and Impacts', in I Creswell, T Janke and EL Johnston, *Australia: State of the Environment*, Australian Government.
- [4] See Kemp J, M McCowage and F Wang (2021), '[Towards Net Zero: Implications for Australia of Energy Policies in East Asia](#)', *RBA Bulletin*, September.
- [5] See Bellrose K, D Norman and M Royters (2021), '[Climate Change Risks to Australian Banks](#)', *RBA Bulletin*, September.
- [6] This is because most superannuation in Australia has a defined contribution rather than a defined benefit basis.
- [7] See CFR Working Group on Financial Implications of Climate Change (2021), '[Council of Financial Regulators Climate Change Activity Stocktake 2021](#)', September.