I am grateful to Alice Carr, Emma Dalhuijsen, Edd Denbee, Vishal Desai, Sini Matikainen and Jennifer Nemeth for their assistance in preparing these remarks.

All speeches are available online at www.bankofengland.co.uk/publications/Pages/speeches/default.aspx
I would like to thank His Royal Highness the Prince of Wales and Accounting for Sustainability for inviting me today. It is an honour to be able to mark his 70th birthday in this way.

We are gathered at St James’ Palace, but not for a lavish celebration. It is to HRH’s credit that this happy occasion is marked by a serious discussion of the risks and opportunities posed by climate change and the transition to a low carbon economy.

His Royal Highness has provided inspirational leadership on these critical issues for decades. Indeed if we had heeded his advice when it was first offered, we might have already solved the Tragedy of the Horizon! Examples of HRH’s leadership range:

- From domestic initiatives within The Prince’s Responsible Business Network to help ensure UK businesses and communities are resilient to the effects of climate change;
- To launching the ClimateWise Principles and encouraging the insurance industry to take a leading role in addressing risks posed by climate change;
- To support for our hosts Accounting for Sustainability, who have for many years given practical guidance to firms on how to embed sustainability considerations into business decision-making.

I have had the great pleasure of engaging with HRH on a number of occasions, and I can think of few people more knowledgeable about the sustainability agenda or as committed to it. Four years ago, he rightly put me on the spot, highlighting that climate-related risks will have serious financial impacts, and asking what regulators were doing about them.

HRH’s challenges are even more germane today as the impacts of climate change continue to mount and the time to act continues to shorten.

This year has seen blistering heatwaves in North America and Europe, hurricanes in North America and typhoons in South East Asia; droughts in Southern Africa and Australia; unprecedented rainfall causing deadly landslides in Japan; and now the devastating wildfires in California. The human costs of these events are immeasurable.

And the financial losses are significant. Last year set a record for weather-related insurance losses at around $140bn.¹ Losses in 2018 may again be among the worst in history. This is an extension of a worrying pattern that has seen the number of extreme weather events more than triple and inflation-adjusted insured losses rise five-fold in the past three decades.²

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¹ See Munich Reinsurance Company (2018), ‘A stormy year: Natural catastrophes 2017,’ Geo Risks Research, NatCatSERVICE
² Ibid.
The outlook is even more concerning. As noted by HRH, last month’s IPCC report shows that many land and ocean ecosystems have already changed due to global warming.\(^3\) It concludes that the **physical risks** of climate change will intensify even under 1.5 degrees of warming, including increased heatwaves, droughts, heavy rain, flooding, melting of sea ice, and species loss. In turn, this will have a marked impact on human health, livelihoods, food security, water supply, human security, and economic growth.

And that is very much the IPCC’s best case scenario. The impacts will be significantly worse under 2 degrees, and the Paris commitments – even if fully implemented – are consistent with more than 2.7 degrees of warming.\(^4\)

The longer meaningful adjustment is delayed, the more **transition risks** will rise. To deliver on the Paris Agreement commitments and limit temperatures to 1.5°C, carbon emissions would have to decline by about 45% from 2010 levels to 2030 to reach net zero around 2050.\(^5\) Even if this happens smoothly, it will have major implications for most sectors of our economies.

If the transition is delayed and then happens abruptly, financial stability risks will rise considerably.

Given this combination of immediate physical risks and prospective transition risks, the Bank of England has become increasingly active consistent with our financial stability and prudential mandates.

In 2015, we examined the impact of climate change on the UK insurance industry.\(^6\) General insurers and reinsurers are on the front line of managing the physical risks from climate change, and they have responded by developing their modelling and forecasting capabilities, improving exposure management, and then adapting coverage and pricing accordingly. One of the lessons they have taken on board is that yesterday’s tail risk is closer to today’s central scenario.

Sadly, with respect to climate, history repeats not as farce but as tragedy, with growing frequency.

Despite the sophistication of insurers, there are some gaps in their risk management. The Bank is increasingly focused on cognitive dissonance in some insurers whose careful management of climate risks on the liability side of their balance sheets is not always matched by similar considerations on the asset side. With that in mind, we expect firms to consider stress testing and scenario analysis as part of their assessment of the impact of climate risk on their balance sheet and broader business strategy. This will also be reflected in our own market-wide insurance stress test exercises.

For banks, the financial risks from climate change have tended to be beyond their planning horizons. The PRA’s recent survey of 90% of the UK banking sector found that these horizons averaged four years – in

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\(^4\) As estimated at the time of the Paris Accord. According to the UN Emissions Gap Report (2017), full implementation of the unconditional pledges of the Paris Agreement is consistent with a temperature increase of 3.2° by 2100, relative to pre-industrial levels. Implementation of the conditional NDCs would lower the projected warming by 0.2°.

\(^5\) IPCC (2018).

\(^6\) See PRA (2015), 'The Impact of Climate Change on the UK Insurance Sector', September 2015.
other words, before risks would be expected to be fully realised and prior to ambitious climate policies taking effect.\textsuperscript{7}

Our latest report finds that the majority of banks are starting to treat the risks from climate change like other financial risks – rather than viewing them simply as a corporate social responsibility issue. For some firms, oversight of the financial risks from climate change and overall responsibility for setting the strategy, targets and risk appetite relating to these risks is beginning to be considered at the board level.

Banks have begun considering the most immediate physical risks to their business models – from the exposure of mortgage books to flood risk, to the impact of extreme weather events on sovereign risk. And they have started to assess exposures to transition risks where government policy is already pulling forward the adjustment. This includes exposures to carbon-intensive sectors, consumer loans secured on diesel vehicles, and buy-to-let lending given new energy efficiency requirements.

But many banks have some way to go to identify and measure the financial risks from climate change comprehensively. This requires strategic board oversight and more dynamic scenario analysis so actions today can be considered in light of future impacts.

Informed by these findings, the PRA published in October a draft \textit{supervisory statement} for banks, insurers and investments firms which sets out expectations regarding firms’ approaches to managing the financial risks from climate change.\textsuperscript{8} The supervisory statement gives guidance in four key areas: governance, risk management, scenario analysis, and disclosure.

Recognising the need to build capacity and to develop best practice, the PRA is establishing a \textbf{Climate Financial Risk Forum}, jointly with the FCA, to work with firms from across the financial system to advance approaches to managing climate-related financial risks.

And the Bank of England is working in close collaboration with central banks and supervisors from around the world as one of the founding members of the \textbf{Network for Greening the Financial System (NGFS)}. The NGFS brings together authorities from jurisdictions responsible for almost half the world’s emissions to share analysis and develop policies to climate-related risks and green finance.

\textbf{A4S}

A4S has long recognised that the business community needs to consider the risks and opportunities presented by climate change. The private sector will drive the transition to a low carbon economy and contribute to countries meeting the commitments made in the 2015 Paris Agreement. Reducing emissions will require significant investments in new technologies and infrastructures.

\textsuperscript{8} See PRA (2018), ‘Enhancing banks’ and insurers’ approaches to managing the financial risks from climate change,’ Consultation Paper 23/18, October 2018.}
A4S’ Financing our Future report highlights the need for everyone in the investment chain to act: from individuals managing their savings, to financial intermediaries investing in the real economy, to regulators and policymakers creating the frameworks for action, to real economy firms investing in new processes, products and services.

TCFD

Doing so requires the right information. That’s why in 2015, in response to a call from G20 leaders, the Financial Stability Board (FSB) established the private sector Task Force on Climate-related Financial Disclosure (TCFD) under the leadership of Michael Bloomberg.

The TCFD delivered – to the Hamburg G20 Leaders’ Summit last year – final recommendations for voluntary disclosures of material, decision-useful climate-related financial risks. Suitable for use by all companies that raise capital, the recommendations:

- Include disclosure of governance, strategy and risk management;
- Establish consistent and comparable metrics and targets applicable across all sectors, as well as specific metrics for the most carbon-intense industries;
- Encourage use of scenario analysis in order to assess the potential impact of the risks and opportunities of the transition to a low carbon economy on strategy and financial planning.

The combination of the Paris Accord and the TCFD has led a clear transition in thinking and action about climate-related financial risks.

Consider the changes in demand, supply and impact of climate disclosure.

The demand for climate-related financial disclosure from the providers of capital has increased significantly. Current supporters of the TCFD include three-quarters of the world’s globally systemic banks, 8 of the top 10 global asset managers, the world’s leading pension funds and insurers, major credit rating agencies, the Big Four accounting firms, and the two dominant shareholder advisory service companies.

These financial firms are responsible for managing nearly US$100 trillion in assets (or 20% more than global GDP).

With climate-related shareholder resolutions tripling last year and litigation risks rising, the incentives for companies to disclose and manage climate-related risks have increased dramatically.

Not surprisingly, the supply of climate disclosure is responding. Over 500 organisations have endorsed the TCFD recommendations, with a total market capitalisation of US$8 trillion.

The implementation report issued by the Task Force in September 2018\textsuperscript{10} – a year after the recommendations were first published – assessed some 1800 companies (that made some reference to climate in their reporting) using artificial intelligence, and analysed in more detail an additional 200 of the largest companies, drawn from eight representative sectors.

Across both, it found that a majority of companies already disclose information in their 2017 filings that aligned with one or more of the TCFD’s recommendations. Reporting by the largest companies appears to have been more sophisticated – with a higher share of the firms reporting against more of the TCFD recommendations.

This is remarkable given companies only had about six months to respond to the final TCFD recommendations in their 2017 filings.

That said, compared to both the recommendations and user expectations, more progress is needed. In particular,

- Financial implications are often not yet disclosed
- Disclosures are often in multiple reports making comparisons harder
- Disclosure varies by industry and region, with higher percentages of European firms, as well as higher shares of those on the climate frontline – such as the energy sector – disclosing information aligned with the recommendations; and
- Disclosure is weakest with respect to strategic resilience which is the topic of greatest interest to most capital providers.

As they look to enhance their disclosures, TCFD members are supported by various TCFD Preparers’ Forums, which have been established to help firms prepare disclosures, for example the Oil and Gas industry group convened by the World Business Council on Sustainable Development and the Institute of International Finance for banks.

A4S’ implementation workshops are exactly the sort of collaborative processes which will help ensure that the TCFD recommendations are implemented in a consistent manner.

This is particularly important for more complex parts of the TCFD framework like scenario analysis and its interpretation. As A4S has identified, managing climate-related risks will require firms to assess the resilience of their business strategies: where they are now, where they are going and how they will get there.

Scenario analysis will be part of this over time (and there are already some good examples) but most important at this stage will be for companies to demonstrate that they have the governance processes and strategic flexibility to consider and manage the opportunities associated with different climate pathways.

Adoption can be expected to widen and improve as the private sector refines emerging good practice in efficient, decision-useful climate-related disclosure. To continue the momentum behind the Task Force’s recommendations, the TCFD will provide a major implementation report to the Japanese G20 Presidency.

Impact

The impacts of these developments could be enormous.

TCFD’s voluntary disclosure is creating a virtuous circle by encouraging learning by doing: as companies apply the recommendations, investors are increasingly differentiating between firms based on the information they receive. As good practice emerges, adoption will continue to spread, disclosure will become more decision-useful and efficient, and its impact will grow.

As climate disclosure moves into the mainstream, it is increasingly seen as necessary in and of itself, and as informative about which companies are focused on long-term value creation.

Moreover, as a ‘market’ in the transition to a 2 degree world is built, it can pull forward adjustment by the private sector – particularly if the policy responses of governments and the prospects for private sector innovation are credible.

Finally, as stressed by HRH, the transition to a low-carbon economy will bring unparalleled opportunities for companies minded to seize them.

For example, the IEA estimates that the transition could require $3.5trn in energy sector investments a year for decades – twice the rate at present.11 By 2050 we will need nearly 95% of electricity supply to be low carbon, 70% of new cars electric, retrofitting of the entire building stock, and an 80% fall in the CO2 intensity of the building sector.12

With an estimated US$90 trillion of infrastructure investment expected between 2015 and 2030, smart decisions now can make sure that investment is both financially sound and environmentally sustainable.13

Investing in more sustainable agriculture could deliver an estimated US$2 trillion in economic benefits per year and generate millions of jobs, while also improving food security and reducing GHG emissions.14 Reducing air pollution could not only prevent millions of premature deaths per year, but avoid over

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12 Ibid.
$350 billion in lost productivity and health impacts.\textsuperscript{15}

Getting climate disclosure right will mean that investment flows to firms which are managing the risks and seizing the opportunities. Ensuring our banks and insurers are resilient to climate-related risks will reinforce this process while keeping the financial system open for UK households and businesses in all types of weather.

Let me close by thanking again HRH The Prince of Wales for his vision and leadership, and wishing him and our planet many happy returns.

\textsuperscript{14} Ibid, citing the Business and Sustainable Development Commission (2016), ‘Valuing the SDG Prize in Food and Agriculture: Unlocking Business Opportunities to Accelerate Sustainable and Inclusive Growth.’

\textsuperscript{15} Ibid.