

Andreas Dombret: Behind the curve? The role of climate risks in banks' risk management

Remarks by Dr Andreas Dombret, Member of the Executive Board of the Deutsche Bundesbank, at the National University of Singapore, Singapore, 2 October 2017.

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1. Introduction

Ladies and gentlemen

When I told one of my colleagues that I was going to Singapore to deliver a talk on climate change, he told me about his visit to Singapore Zoo a couple of years ago. Back then, he took part in the Zoo's famous Night Safari and attended one of the shows.

To his surprise, the show was not so much about nocturnal animals in their natural habitat. Instead, the star of the show was a very diligent little weasel that, on command, sorted waste into different containers. It distinguished between plastic bottles, aluminium cans and other items without making a single mistake.

Towards the end of the show, the presenter reportedly explained how plastic disposables are made from finite fossil fuels. He went on to note how burning plastic waste, instead of recycling it, releases greenhouse gases that contribute to climate change. And to the great surprise of my colleague, by the end of the show the whole crowd was chanting the slogan "reduce, reuse, recycle".

I took two things away from this report. First, I should probably pay a visit to the Night Safari to see this impressively well-trained weasel for myself. Second, it reminded me how far climate change has made inroads into our day-to-day life.

2. The many effects of climate change

There is good reason for this. Greenhouse gas emissions are arguably the single biggest negative externality of our time. Scientific consensus holds that emissions are excessive, and that concentration levels in the atmosphere lie above what our ecosystem can absorb. The result: climate change.

It's not new to us that climate change affects each and everything. Our standards of living. Migration flows. Technological developments. The economy.

But the discussion about how it affects the financial sector is relatively new. The year 2015 can be seen as a starting point. That was the year when the Chinese G20 presidency put "Green Finance" on the agenda. The German G20 presidency followed subsequently. Also in 2015, the Paris Climate Agreement was reached. I will come back to that topic later. Last, but by no means least, Mark Carney, Governor of the Bank of England, gave a speech in London that subsequently framed the discussion.

How far have we progressed since then in understanding how climate change affects the financial sector?

3. The discussion on Green Finance and climate risks

A key term in this discussion – yet one that is not always used coherently – is "Green Finance". Many aspects of how climate change ultimately affects the financial sector are discussed under its umbrella. In the narrower sense, Green Finance is about how the financial sector can, broadly

speaking, contribute to mitigating the effects of climate change and to promoting environmentally sustainable developments – for example, by steering funds towards green technologies.

A second aspect that is sometimes part of the discussion surrounding Green Finance are the risks that climate change might bring for the financial sector and the question of how financial institutions need to adapt if they are not to fall prey to these risks.

This second aspect is what I will be focusing on today. I will take the risk perspective. The question I am asking is this: are we underestimating the financial risks associated with climate change and the transition to a green economy?

My answer will be: we certainly do. But bear with me: I will try and say a little more than just that.

4. The characteristics of climate risks

So how does climate change potentially affect the financial sector? Once you start looking, you realise that there are plenty of possible effects. But the most important ones that I see can be categorised in two main channels.

4.1 The first channel: physical risks

The first channel is the most direct one and involves all physical risks related to extreme weather events or changing climate conditions. Floods and heavy storms can cause severe damage to physical assets, both private and public.

Take the Atlantic hurricane season we are currently witnessing. It is one of the worst in years, by various meteorological standards. The same holds for the expected costs. Preliminary estimates by rating agencies and reinsurers put it in the triple-digit billions of US dollars. Hurricane Harvey alone could require up to 180 billion, which would make it more costly than Hurricane Katrina in 2005 that cost 160 billion in today's US dollars, by official estimates.

Other events, such as droughts or other, more permanent regional changes in climate, can have a devastating impact on crop yields and impair the productivity of the agricultural sector and related industries.

Clearly, then, extreme weather events or changing climate conditions can result in significant losses for both the public and the private sector.

And the financial sector is exposed to these losses as well. If losses are insured, the insurance sector is exposed. If losses are uninsured, banks and other financial institutions are exposed. For example, households are more likely to default on their loans and mortgages, while the collateral they have provided is no longer available to cover these losses. Credit risk for banks can also rise vis-à-vis corporates who face a reduction in profitability and a deterioration in their balance sheets.

Wider economic repercussions, such as a disruption of local or global supply chains and reduced productivity, can cause significant additional costs and erode the value of investments held by financial institutions. Lastly, an impact on economic activity will tend to worsen the fiscal situation of sovereigns, and can ultimately drive up sovereign default risk.

Average weather-related losses per year worldwide have roughly tripled over the past 30 years, according to data gathered by the Bank of England. At the same time, the share of uninsured losses has increased. If, as expected, extreme climate events become more frequent and costly, the future insurability of such risks will be called into question, widening the protection gap.

This is a significant development. As we have just seen, risks that are not insurable are, by definition, always risks for financial stability. Banks and other financial institutions need to be

aware of this.

Awareness of the potentially devastating effects of extreme climate events – not only for the economy, but also for mankind and nature as a whole – has increased. And the global community has started taking action. To mitigate the effects of climate change, in December 2015 nearly 200 countries finalized the Paris Climate Agreement, which subsequently went into effect. They agreed, and I quote, to “holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C.”

Meeting this goal is of utmost importance and will require enormous efforts by all countries. That’s why the current stance of the United States administration towards the agreement worries me. But at the same time, governments across the globe have voiced their strong commitment to honouring the ambitious deal. If they succeed, this will – according to the best scientific evidence available – significantly reduce physical risks.

But it also gives rise to yet another kind of risk: transition risks. This is the second channel I will talk about.

4.2 The second channel: transition risks

It should be taken as a fact that the 2-degree goal under the Paris Agreement can only be reached if economies across the world are transformed into green, low-carbon economies. Achieving this transition will require potentially disruptive technological advances as well as far-reaching changes in climate policy.

Without a doubt, such a transition will prompt markets to reassess the value of a broad range of assets. Depending on how quickly and orderly the transition and the associated re-pricing occur, they could become highly relevant for the stability of financial institutions as well.

To illustrate one particular transition effect, let’s look at the concept of the “carbon budget”. Meeting the target of the Paris Agreement will require limiting global carbon emissions. The Intergovernmental Panel on Climate Change estimates that in order to reach the 2-degree target with a probability of just 50 per cent, the maximum amount of additional carbon emissions this century must roughly remain below 1,100 gigatonnes of CO₂. For higher probabilities of success, lower carbon budgets apply.

However, the total amount of carbon embedded in all known global fossil fuel reserves is estimated at roughly 2,800 gigatonnes. This means that, to reach the 2-degree target with a reasonably high probability, about two-thirds of all known coal, oil and gas reserves must remain in the ground. But the future exploitation of these reserves is what many companies base a significant share of their value on – especially, but not only, those engaged in extracting and refining them. According to the World Wide Fund for Nature, listed fossil fuel companies currently carry more than half of the total global fossil fuel reserves on their balance sheets as assets. If these reserves cannot be developed, the corresponding assets become worthless – they become what are known as “stranded assets”.

The decision to actually limit emissions would be made by governments, and their tool would be climate-related laws and regulations. And there is a clear trend towards more government intervention. The Global Climate Legislation Study found that, since 1997, the number of climate change laws and policies has doubled every 4-5 years. While the pace has been levelling off recently, the trend is clear.

We have already seen examples of sharp devaluations in the fossil fuel and energy sector. One oft-cited example are the top four US coal producers. Their combined market capitalisation has fallen by well over 90 per cent since 2010. Listed utility companies in Germany have also seen

sharp devaluations. These cases are exemplary of the transition risks I am talking about. And they prove that markets can respond well before the fact.

What is important to recognise is that transition risks are not confined to companies operating in the production of fossil fuels or in the energy sector. Other sectors, such as transportation, logistics, automotive, chemicals and heavy industry, which currently rely on fossil fuels or are energy-intensive, could be hit by transformation costs as well. But these second- and third-round effects are extremely complex and can currently only be quantified using equally complex assumptions.

The exposure of the financial sector becomes apparent when, besides the direct investments in the industries in question, we take into account the tendency of insurers, pension funds and other investors to align their portfolios with capital market indices which often contain large portions of the industries that might be affected by the transition. And much like what we discussed in the case of physical risks, lenders are exposed due to reduced collateral values or the risk that their borrowers' once-profitable business models are not profitable anymore. To be fair, we also have to factor in the possibility that some green business models might not deliver the benefits and financial returns investors expect.

Transition risks will be less severe the sooner the transition begins and the more predictable it is. It's a simple matter of fact that the longer governments wait, the more they will have to act later on to meet their targets.

5. The way forward

We have identified two risk categories: physical risks that relate directly to climate change, and transition risks that relate to society's response to it.

At the beginning of my talk, I asked: are we currently underestimating these risks? I think we do. There is a difference between identifying risks, monitoring risks and managing risks. We may have identified the risks, but we don't know how material they are. This needs to change, and in the remainder of my talk today I want to discuss how that can be done.

For many reasons, understanding the risks I have talked about is inherently challenging. First, the developments we are facing stretch over the long term, and their outcome is uncertain; second, historical data are of little use to predict them; and, third, the whole process will be heavily influenced by policy decisions, which involves further uncertainty.

Another problem is that, typically, analysts don't look beyond a horizon of five years. They rely on past experience and on expectations for a rather short forecast period. This means that long-term, non-linear, non-cyclical risks that extend beyond that period are likely to be missed. In other words, the horizons of market players are compressed.

One of the obstacles to incorporating longer-term developments into the analysis is a lack of forward-looking data reported by issuers. Data on climate-related financial risks are scarce and often chaotic, since there is no framework that standardises their disclosure. As a first step to change this, an industry-led task force convened by the Financial Stability Board recently published recommendations for voluntary, consistent and comparable disclosures of such risks by corporates. This is an important first step, and its success will depend on whether a critical mass of corporates follows the recommendations. In parallel, the G20 is working on improving the availability of public environmental data.

The next step we need to take is to improve analytical tools. Many banks and institutional investors have yet to develop the capacity to identify and quantify the risks that arise when environmental aspects are factored into the valuation of their assets. Promoting the use of environmental risk analysis in the financial sector is one important topic of the current German

presidency of the G20. First and foremost, of course, it is a task for financial institutions. Banks need to incorporate climate risks into their risk management – in particular, but not exclusively, for long-term project financing.

The Bundesbank and other central banks are in the process of improving their analytical capacities for climate risks. But I believe that the role of central banks can go further. As supervisors who are in close contact with financial institutions, we can foster an awareness of physical and especially transition risks, and make sure that they are taken seriously. Where appropriate, we will also incorporate climate-related risks into our supervisory risk analyses. For example, the analysis of portfolio risks stemming from physical or transitional risks – a concept known as carbon stress testing – has been a niche topic so far. I believe that this will have to change.

Furthermore, central banks can help in generating knowledge. For example, the central bank of the Netherlands has established a Sustainable Finance Platform to promote and encourage dialogue on sustainable finance in the financial sector. I expect we will see more initiatives like that in the near future, and I think they can play an important role in promoting knowledge.

An important task for governments is to provide guidance to companies and financial markets on their policy path with respect to climate-related laws and regulations. If governments and authorities draw attention to the upcoming transition of the economy and act predictably, corporates and markets will have more time to understand and adapt. The sooner they start aligning their portfolios, the quicker misallocations will be corrected and transition risks become less relevant.

6. Conclusion

Ladies and gentlemen

Just like the CO₂ levels in the atmosphere, the CO₂ levels in this room are on the rise. Before they reach a critical level, let me summarise.

We have identified two categories of risks that climate change and our response to it can pose to the financial sector: physical risks and transition risks. And we have reached a basic understanding of how they work. What we have not sufficiently understood is how material these risks are, and whether financial institutions and markets are suitably taking them into account.

I have named a number of steps that I believe will bring us closer to this goal. Clearly, we have only begun to work on this.

The French poet Victor Hugo once said: "You cannot resist an idea whose time has come". I believe that the transition of the economy and the greening of the financial sector are just such ideas. So let's get started.