

Babak Abbaszadeh: Hello, everyone. Welcome to our session. I'm Babak Abbaszadeh, CEO of Toronto Centre for Global Leadership in Financial Supervision. We're talking again about how central bankers and supervisors support climate risk and green finance and manage these risks. Since our inception in 1998, as a nonprofit organization, Toronto Centre has trained more than 15,000 central bankers and supervisors from 190 countries and territories to build more stable, resilient, and inclusive financial systems.

In 2016, we began incorporating climate change in our capacity-building programming because of the substantial implications for global financial stability and the risk of crisis from climate change. Indeed, we were one of the very first organizations that looked at capacity building. To this extent, Toronto Centre congratulates FSP's roadmap that led to the establishment of the Climate Training Alliance for supervisors with the participation of standard setters, VIS, and a whole bunch of other positive actors. Naturally, Toronto Centre stands ready to contribute the lessons we have learned and support this alliance in every way possible.

In the aftermath of the devastating impact of the global pandemic on economies and people's livelihoods, this proactive crisis preparedness is essential for all countries to mitigate against the impact of climate shocks. This is the fourth webinar this year, since June 2021. So far, we have heard about the challenges and ongoing efforts on climate risk by national authorities, international standard setters, and networks, such as the Basel Committee and the network for Greening the Financial System. Speakers highlighted the importance of tackling climate risk, as well as the necessity of international coordination information sharing to learn from each other.

Now it is indeed a great honour and pleasure for me to welcome our distinguished speakers. They are leading their nation's supervisory efforts to tackle these challenges. And are great international influencers. His excellency, Alejandro Díaz de León, is the Governor of the Central Bank of Mexico. He was also chosen as the best Governor of The Year. Sabine Mauderer is the member of the executive board of Deutsche Bundesbank. Welcome, Sabine, Welcome Governor.

Toronto Centre's mission is generously supported by Global Affairs Canada, Swedish International Development Cooperation Agency, the IMF, Jersey Overseas Aid, Comic Relief, and the United States Agency for International

Development. We will have three rounds. I will pose three questions to each speaker, and then I will take questions from the audience. Please use the Q&A tab to submit your questions. I would appreciate it if the audience directed their questions in a very precise and concise way, rather than long statements. Also, I'm pleased to say that we have basically quite a lot of countries here. I think I've counted over 60 countries attending, representing all the letters of the alphabet, all the way from Argentina, Antigua to Zambia and Zimbabwe, and every letter in between. So welcome, everyone.

So, my first question is going to go to Sabine. Sabine, how can central banks integrate climate risks into their monetary policy frameworks? Thank you.

Sabine Mauderer: Yeah. Thank you, Babak. And thank you for inviting me to speak to this distinguished audience. Let me put your question in a little bit, a broader set. I think the first question is in which areas, in general, does climate change rule when you look at our mandates or other tasks. And there, I think it's clear, as you mentioned, monetary policy. Especially when we look at prices, price dynamics, you see the energy prices, also due to climate policies increase. You see food prices, as a result, are rising. And so, pricing as the outcome will play a role, and therefore, we have to reflect this in our models and in another way. Also, asset purchase programs will be affected. I might come to that later and in another regard. We also have the mandate of financial stability. There, it's clear that we have to look at climate change and the impact on the economy, on the financial stability.

What we there do, or intend to do, is to set up different scenarios. So as to have an understanding, what kind of, especially political decisions, will have, what kind of impact on the economy. Or missing timely actions, what will this mean for the economy? And the third pillar, which is very important as most of us also have the mandate for banking supervision, and there, of course, climate change will play a crucial role. And we use systems to established stress testing also with climate scenarios. And we will ask our financial institutions to mitigate the financial risks that come from climate risks.

Babak Abbaszadeh: Thank you, Sabine. If I may ask you a follow-up question, would it be reasonable for me to deduce from your answer that climate risk is no longer an exogenous risk but is really considered a mainstream risk for financial supervisors? Is that a fair assessment?

Sabine Mauderer: Yeah, definitely. So, you just mentioned the network for Greening the Financial System set up three and a half years ago by central bankers and supervisors. And the main reason why this was set up was that so many central banks and supervisors had seen climate risk as a financial risk. And we started with the Banco de Mexico, but also with Bundesbank and others to establish this network with only eight members having this idea that this is a major threat, financial threat, and now we have 95 members. So that shows a big acknowledgement of the recognition of climate risk as a financial risk.

Babak Abbaszadeh: Thank you. Governor, my next couple of questions are to you. Let me start by talking about the fact that there are three essential risks when it comes to climate change, especially in the financial sector, to talk about our physical and transition risks. So in your view, what is the relevance of physical and transition risks associated with climate change for emerging and less developed economies' financial systems? Thank you.

Alejandro Díaz de León: Well, first, it's an honour to be in this panel, Babak. Thank you very much for having me here. And let me say hi to Sabine. Let me start by saying that the world is exposed to risks, that even though we know that they are present and they could materialize, they are so infrequent that they tend to be poorly understood, underappreciated, and inadequately managed. For example, we cannot argue that the current pandemic was unforeseen, but still, we were not prepared to prevent it or even mitigate its costs. Climate change is a highly complex, infrequent, but very material risk that affects all our countries and sectors. We need to develop more detailed plans and a deeper understanding of its impact on the economy and the financial system. This is not, I think, hypothetical. Physical and transition risks are already occurring and are part of the financial authority's agenda.

We need to upgrade our economy's resilience and prepare the financial system to manage these risks. Although uncertainty remains about the exact severity on the time horizon of some of the climate change consequences, small changes in temperature could have severe non-linear consequences for our wellbeing, and delayed action is likely to significantly increase risks and costs. Climate change can have major effects on our economies and financial system. This involves directly central banks, as Sabine was mentioning. And especially if we consider that our mandates include price stability, output stability, and also financial stability mandate. In the emerging and less developed economies, climate change will be highly disruptive, at least in four dimensions.

First, it can induce a significant relocation of capital flows. The Net Zero Asset Managers Initiative, which was only launched last December, has \$43 trillion resources in signatories that represent almost half of the assets managed globally. This conveys a significant relocation capital risk for emerging markets.

Second, it can disturb trade, and supply chains, and also FDI. Mexico is a very open economy. We have more free trade agreements than any other country in the world; Twelve free trade agreements with 46 countries, including the USMCA, and free trade agreements with the European Union, the European free trade area, Japan, Israel, and ten countries in Latin America. We're among the ten largest recipients of foreign direct investment. Roughly 50% of FDI comes from North America, 40% from Europe, and 10% from the rest of the world. Misalignment in decarbonization pathways could affect demand for Mexican products and also the attractiveness of investing in the country. Being a very open and integrated economy, Mexico faces potentially significant transition risks.

Let me go to the third, which is higher carbon prices. Carbon prices are critical to incentivizing energy efficiency gains and the relocation of resources from high to low carbon activities. Estimates of the global shadow price to reduce emissions typically project the need for substantial increases in carbon prices. These can entail significant transition risks for carbon in intensive, emerging, and developing economies that lack domestic investment resources and fiscal policy space to cope with this challenge.

And finally, in terms of financial distress, I think physical, and transition risks can have significant direct, indirect, and contagion effects in our financial systems that we need to address promptly by financial supervisors and regulators, basically to mitigate these systemic impacts. Thank you.

Babak Abbaszadeh: Thank you, Governor. And as you were talking, I was thinking about the fact that there are some similarities between what you said and the situation in Canada, like Mexico. First of all, we are North American free-trade partners, but the name has changed now. It's a different name than you see. Whatever, I forgot, people were getting up.

Alejandro Díaz de León: USMCA.

Babak Abbaszadeh: Exactly, exactly. And also, like yourselves, we are very much of an export-oriented country, and it's in our interest to have a lot of export agreements with others. And what's interesting and striking is that as governments make significant strides in addressing physical risks right away, they're thrown into transition risk. It's just one of those things that is back-to-back. So very important.

So let me continue with you. So, your institution, Banco de Mexico, is a founding member of the NGFS, so congratulations on that. What do you think should be the approach of central banks in emerging and less developed economies for financial institutions and markets to price climate-related financial risks better?

Alejandro Díaz de León: Well, we had established a solid institutional framework to foster this agenda. Last year, the Mexican Financial System Stability Council established a sustainable finance committee to assess the risks that sustainability and climate change may pose to the financial stability in Mexico. And the company set up a roadmap and four working groups on sustainable taxonomy, capital mobilization, risk management, and disclosures and standards. The committee has also proven to be a useful platform to engage with the private sector. And the private sector associations are observers of the committee, which I think is very useful.

Also, our efforts have been concentrating on leading financial institutions in four areas. One is addressing data gaps, particularly regarding reliable financial data. Generating consistent, reliable, and comparable data first in climate-related risks, and then also sustainability more broadly. I think it is critical.

Second, promoting the adoption of relevant standards and metrics that help us understand and tackle these risks. I think the IFRS movement in developing a baseline for global reporting standards that build upon the TCFD framework and the work of sustainability standard setters is essential. And these will involve a wide range of stakeholders in the process, including emerging economies, which I think is very important.

Third enhancing disclosure of financial and non-financial firms in our jurisdictions. And I think we should foster three things, one, corporate

disclosure commitments. Second, having taxonomies that reflect differences in the needs and priorities of each country but also allows for international compatibility. And third, to promote broad adoption of ESG criteria and foster transparency on the methodologies of ESG rating service providers. And fourth, I think that we need to upgrade risk management practices to include climate-related risks.

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Alejandro Díaz de León: We need to upgrade risk management practices to include climate-related risks among financial institutions. I think we should carefully and continuously monitor traditional financial risks. Climate-related risks should become part of that routine risk management. I think the regulators need to understand those capital requirements, maybe not necessarily the best way to approach these new risks, and I think that we should double down on using stress tests and long-term scenario analysis for these climate-related risks. I think the NGFS scenarios provide a very good starting point in this respect to facilitate compatibility. And all financial intermediaries should be subject to a minimum disclosure and risk management practice related to climate risks.

And also, be aware that applying climate-related regulation only to banks and certain financial institutions could have significant unintended consequences, including disintermediation and risk shifting. So, we think it is very important that it applies to all and not just to the ones that we can regulate more closely.

Babak Abbaszadeh: Yeah. And one of the points that you talked about is disclosure, and I think you probably have been encouraged that the G7 backed the mandatory disclosure. There seems to be a lot of momentum being built up right now in these general areas that we have talked about. Sabine, let's come back to you and your areas in Europe and elsewhere. What is the role of data and disclosure in addressing climate risks, and what can central banks and supervisors do to improve the availability of data? So, I guess that's sort of related to that disclosure thing we were talking about. Go ahead.

Sabine Mauderer: Yeah, sure. So, data is the new gold, and this is also true for when you want to analyze the threat of climate change, right? And actually, data are crucial to really either identify the scenario or to prepare the scenario analysis. We have

done this in the NGFS. It was on the European level. And we will continue to do so because, of course, the lack of data also means that we have a lot of uncertainty. So, what we need is better data, more data. And so, the question is, how do we get this data? Right? Your question is very crucial. What can central banks actually do to enhance the availability of data?

What we do in the Euro system is that we just last week decided that we will require from 2023, for our asset purchase programs and also for our collateral, a kind of transparency when it comes to climate risk. The question is, at central banks, we could set up our own requirements, but we decided to ask, rather, the government, the European Union, to set up decent disclosure so we can rely on that. I think that in doing so, in requiring, as a central bank, data where disclosure from either the issuers or from the banks that bring in collaterals, or what we also do is we do ask in the future, the credit rating agencies for transparency.

So, to tell us, we ask them to tell us in the future, how did you integrate climate risk into your credit rating? So, this all shows that data is crucial. They've become more and more important. That we need more data. Therefore, disclosure regimes are crucial. Let me just put a point on one thing. What I think is very important is that we do have comparable data, and therefore it is also very important that we have on a global level a certain understanding of what kind of data do we want to have and how do we manage to let them be a little bit, at least, the minimum comparable.

Babak Abbaszadeh: Sabine, thank you. I think it's actually a very important point. It not only has systemic stability considerations but also, I think, for consumer protection. Just to give an example, if you go in and look into any fund that talks about ESG, probably to European situation's the same, there's such a massive hunger from the public to go into these trials, but when you look at ETFs, mutual funds, you really don't know what is what, right? Sometimes the same bank or institution that they beat up in another area is on this fund but at a much higher management expense ratio. That's just one example. So, the work that you're doing is so critical to clarify and bring those standards and create a sense of uniformity, so that we, as investors, as the public, at least know what are we getting into when we invest in our retirement or education plans for our children and all that. So, yeah, it's very important.

Sabine Mauderer: Maybe just to add one point, I think disclosure and we as central banks, forcing disclosure is so crucial because so far, the climate risk as a financial is not reflected as it could be in the market. This has to do with transparency, and therefore, I think it's also up to us, at least to the extent we can do this, to force disclosure and transparency.

Babak Abbaszadeh: Yeah. And it also connects back to an earlier point that the Governor made about ESG. So, Governor, let me turn it back to you now. To ask you to please elaborate on how we can generate capital mobilization and investment in climate mitigation and adaptation in Mexico and basically the emerging market countries in general. Thank you. And do you see any challenges there?

Alejandro Díaz de León: Yes [Tom 00:21:14]. The agenda for the mobilization of climate-related finance is very much, I think, focused on advanced economies. In emerging economies and less developed countries, issues and strategies that are needed to advance the agenda in the region are not necessarily adequately being identified. I'm going to put one example of a high concentration of green investments in advanced economies that can be seen in capital markets by the issuance of green and sustainable related bonds and loans from 2015 to 2020. Excluding China, the share of emerging markets represented only 11% of the total volume globally and including China, that number rate increases to 18%. So clearly, we are lagging behind in terms of financing deployment in this space.

With the right incentive and policies, emerging markets could make a substantial contribution to mitigation efforts. Also, given the current initial conditions, any amount invested in climate change mitigation in emerging markets and lower-income countries can have a larger decarbonization impact. And those allow a larger, positive externality than in developed countries. A dollar invested in emerging markets can have a higher mitigation potential.

Does it make sense to create the conditions for such investments to be made? It will be, I think, unfortunate that we under-invest in this area. And according to an IMF recent paper, many of the world's lowest-cost mitigation opportunities exist in emerging and developing countries. Thus, I think it's in the global best interest to put in place the mechanisms to channel the resources this way. And to revert from a bad equilibrium with high financing costs and insufficient green investment in emerging and developed economies to climate-friendly funding resources at scale for these countries at generally low financial costs.

I think we need to acknowledge that emerging countries and less developed countries have less space to spend on climate-friendly projects than even they had before the COVID-19 pandemic. So the policy space is shrinking. The need is larger. And we need to look into ways to unlock attractive international funding from advanced economies at low-interest rates, I think, in exchange for credible decarbonization efforts. These will, I think, will increase the resilience and move the agenda forward. And now, which type of resources and which type of instruments can be put into play?

I think that we can develop a blended finance structure that can allow private sector financing to transition to a low carbon economy. I think that we could use loan guarantees schemes as a way to de-risk some of these solutions. You can even say that [inaudible 00:24:13] banks in advanced economies could design new programs to unlock some of these green investments. And also, that multilateral development banks could play a role in putting some of these loan guarantees in order to leverage some of these opportunities. So, I think we need to be very flexible. I think we need to be mindful of the opportunity and channel more resources into the region.

Babak Abbaszadeh: Governor, I have to tell you, you get the Toronto Centre Oscars for really compacting such a vast area of information in a very, very concise way. Thank you. And you've touched on a few important things. I mean, there almost seems like a geographical climate justice issue here. You have climate change-makers; many of them are in the advanced developed countries, not exclusively, but there. And climate change takers, many of them in emerging market countries, but not exclusively, but then what is the role of each? And you know, the pandemic ... so thank you for connecting those dots. I think that's going to come in very handy in our Q&A session as well.

Sabine, let me turn to you for the last structured question. I already see a number of questions, so I'll be very eager to get there, but obviously, take your time on this one. Which measures can central banks state to help to scale up green finance? So how do we actually create some scale here? Thank you.

Sabine Mauderer: Well, the question, first of all, is this a task of central banking to scale up green finance? I think we have to distinguish between our [inaudible 00:25:50] and, as I explained here, our areas where climate change matters, and we have to mitigate the risk. This whole our task when it comes to a monetary policy is a risky approach. So, it's a reactive tool or tools we are doing. On the other hand,

we do have a task, and some central banks have mandates where there is room for scaling up green finance. Let me take you now, third-party portfolios own or pension funds and all stuff. There, I think it's clearly up to us to take over responsibility and also invest sustainably. What I think is very important, and I think one of the questions that were also raised is, how can we raise the awareness of this urgency? The urgency of acting towards the government or the political decision-makers.

And this, I think, relates to our massive analytical capacity, right? We do have credibility, and we do have data, a lot of data. And we do have the analytical powers. So let me take just the scenario analysis. They clearly show that you have to act now and to avoid too little too late. So, showing this to the governments really means something, right? And I think your question, how can we scale up green finance? I think this is really crucial that we use our capacities and competencies and our credibility to show, or to prove the urgency towards, especially, the political side.

Babak Abbaszadeh: Great. Thank you. Thank you. That was very good. For these questions from the audience, Governor, I think I'm going to try to see the first one. You have addressed some of it, but it's an opportunity for you to see if there is anything else that you wanted to add. What are some of the challenges of emerging and less developed economies may face in managing or assessing climate change risk? So is there anything you would like to expand on what you said already?

Alejandro Díaz de León: Well, probably I would highlight one of the key things that were discussed this weekend in Venice. [inaudible 00:28:22] climate change was a key issue throughout the meetings. But the IMF suggested the introduction of a minimum carbon price system. And then, here the question is, how can we generate traction for this? The adoption of a one-size-fits-all approach can face, I would think, several challenges. In this regard, adjusting this potential minimum price for income per capita on carbon intensity could improve policy coordination and convergence. And I think the challenge we're going to see is, how with different levels of development, we can have these minimum carbon prices that it is much needed to really set the price signal to reduce carbon usage and carbon emissions. I think it's critical.

I think this is one of the challenges that we're going to face. How do we put in place the right incentives for all countries in a way that we all move in the right direction at the right speed at the speed that it is attainable for each of the

different range of countries, and in a way that it is inclusive, and I would say comprehensive?

Sabine Mauderer: Yeah. Maybe I just would be like to add, because I fully agree. First of all, I think it's major progress that at least at the [G-27 00:29:50] it is accepted that implementing a decent climate CO2 tax or carbon tax is the most efficient way of cope with climate risk. But everybody is aware-

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Sabine Mauderer: ... of cope with the climate risk. But everybody is aware of these political difficulties, especially in developing and emerging markets, but also in the developed world. So, the social tensions that will go in line or might go in line with rising energy prices are, for me, the most important thing to tackle.

And that was also one of the major points that were discussed at least at the climate conference of the G20 is how to implement a social net globally to allow the transition and the adjustment and to convince people. And therefore, I think the social aspect is crucial.

Alejandro Díaz de León: Mm-hmm (affirmative).

Babak Abbaszadeh: Absolutely. And remember, we were talking yesterday in preparation for this, and central bankers are under a lot of pressure by civil society, by governments. And then there's another question here for you. Let me ask the question and give the context behind it that I think is useful for our audience is how can central banks support broader climate action by the government?

So, if you can, pause on that one for a second. The way I look at it is governments have the key leavers of the decision here and key issues that can really affect the change and speed off the change. So, carbon pricing is an example. In one form or another, each government is doing whatever they can, maybe they're dragging their feet, whatever, but then it is the role of the central bankers to kind of help understand the impact, the stresses.

So how do you think central bankers can help governments in trying to achieve their overall objectives and international consensus that's emerging?

Sorry, you're muted, you're muted.

Sabine Mauderer: I thought I addressed it already, but I think, and maybe my personal experience, is that pointing out the different scenarios, what happens if they do not act, really shows them that they need to act.

And then, of course, with the different scenarios, we raise awareness of what do they have to do by when. And the second thing, as you know, is about carbon taxation. We clearly can use our analytical capacities there when it comes to the disclosure regime.

And the third point, I think, is also about sustainable finance, because I think there's a lot of in the market going on. And the question, at least here in Europe, is how can we avoid greenwashing? How, nevertheless, can we allow the transition?

Because what we now see is a tendency to only focus on green products, and for us, and I think that's globally the same, it is about the transformation of the whole economy. Otherwise, if we do not manage to transform the whole economies, especially the traditional ones where our wealth focuses on or relies on, we do not manage because then we do have social tensions.

And therefore, I think, also from the central bank perspective, what I usually do is also to give some advice regarding sustainable finance.

Babak Abbaszadeh: Very good. That's a good elaboration on your earlier points; that actually helped round it out better. Thank you so much.

Alejandro Díaz de León: I don't know if I can add something quickly, Babak?

Babak Abbaszadeh: Of course.

Alejandro Díaz de León: I think that there are always these two speeds. One is the political movement towards moving in this direction, and the other is the financial sector and financial sector authorities.

And I think sometimes the political support can have its ups and downs. I think what is very important is that we make these part of the standard risk management challenge that financial systems need to address.

I think we need to advance through the financial regulation, making this part of the ongoing way to manage risks. I think we need to align incentives in the right direction. We know that politically we may have, as I said, ups and downs in terms of support for this agenda and for the internalization of these risks because it includes costs.

But nonetheless, I think we central banks who have a long-term horizon on things, stability is literally defined in a long horizon, either price stability, output stability, or financial stability. So, we have to focus on our long-term horizon and try to put the right incentives so that we increase the costs to deviate from the right policies in the right time horizon.

Babak Abbaszadeh: Very good. Thank you. Governor, there's another question from the courageous anonymous, "In your opinion, what role could be played by the IMF and other multilateral development institutions to foster the green agenda?" You did talk about, you alluded to IMF earlier on, so I'm wondering if that would be a good point for you to elaborate a little?

Alejandro Díaz de León: I think not only the IMF, MDBs, or other international bodies like the G20, and so on, and I think they have a huge role to play. When externalities are involved, countries and national agendas are insufficient to get to the right solution and get to the right outcomes.

So, I do believe that climate change is almost, together with this pandemic, and the challenge as we go forward. Those are two critical examples of how international coordination and international bodies can be of utmost importance to coordinate us in the right direction and also to force the speed.

I think we are behind the curve in terms of what we need to be doing. And Sabine was mentioning how we need to move forward and in a very decisive way. And I think for that to take place, for that to happen, we need all the positive and negative incentives to move in that direction.

Babak Abbaszadeh: Thank you. There's a question here addressing both of you. So, Sabine, I'm wondering if I can start with you? Does Europe have plans to make TCFD disclosures? If the governments don't do it, can central banks and other financial supervisors make this disclosure by supervised entities mandatory?

And we talked about earlier, the G7 backed the mandatory disclosures, backed making them mandatory. If this does not happen, in that case, will we have adequate data? Because you talked about that as well. I'm wondering, what's your take on this question?

Sabine Mauderer: Well, in Europe, we actually review our disclosure rules, and it's clear that the rules are not sufficient so far because we left out a lot of sectors or even corporates.

And the second limit is that usually, either you can comply or explain. And the third restriction is that it is not really quantitative but rather qualitative. And as long as you do not get the right data or comparable data by disclosure regimes, it's of no use. Because we all know if there is in a report on page 322, footnote six, saying, "Well, everything is okay," that's useless. So, we have to get there.

In Europe, we do have a review in place. And furthermore, the IFS is planning to set up global standards based on TCFD as well. So, I think this would also be very helpful if we see there on a global level comparable extra data in this regard.

I do not believe that we will see no progress, but still, since the question is what can central banks do, that's what I mentioned earlier. It's like if we have data requirements, if we take collaterals in or buy assets, or to accept credit ratings, we also ask for disclosure; I think we have a lot of market power. And therefore, I think we do a lot in this regard.

Babak Abbaszadeh: Yeah, thank you. That was a bit useful connecting of the treads, the way you did that, and I really like your example of what did you say? Footnote three on page 300. If you remember, it's not about the quantity of disclosure, it's the quality, right?

Sabine Mauderer: Exactly.

Babak Abbaszadeh: We all know that Enron did not collapse because they did not disclose; it's just that there were thousands and thousands of pages. So, thank you for putting that in perspective.

Governor, I want to turn the same question to you. Does Mexico have plans to make TCFD disclosures? If governments don't do it, can you in the central bank have an influence in that? And also, what happens if these are not made mandatory in terms of the data [inaudible 00:39:42]?

Alejandro Díaz de León: Well, as I mentioned before, Mexico is very integrated in terms of trade and financial flows. And I would say Mexico's development in the last decades has relied significantly on being, I would say an agile and an attractive destination for capital.

And we need to set our standards in harmony with international determinations. And in that regard, I think it will do us more good than harm to move forward in this direction and try to adopt these standards the sooner, the better.

And I think we need to find the right incentives to try to lead in these efforts, and try to receive additional investment, greener investment. I think we have a CapEx challenge. I mean, we need a lower carbon infrastructure and production throughout the world; that is a CapEx challenge. So, I think we need to set the right incentives in order to move earlier.

Babak Abbaszadeh: Thank you. Governor, I want to ask you about, there's a couple of questions here on stakeholders. And I know Sabine, you have brought it up, but there's a lot of interest in this area. So, I want to spend just a little bit of time on this

because it's a pretty complicated topic, and sometimes some things are worth repeating over and over.

So Sabine, what level of collaboration should be there among various stakeholders, private, public sector, governments, central banks, on climate-related risks? How can we all sort of getting along, rather than screaming at each other from the cross and then protesting? Like it looks like there's a lot of mobilization. So, what do you find is a more constructive approach to this?

Sabine Mauderer: Well, this is actually, you cannot talk often enough about that because we only manage this major global threat if we work hand-in-hand. And public and the private sector have to work hand-in-hand.

So, we need the government to set the right framework. We have our tasks of central banks, we have discussed. We do have the real economy that needs to manage the transition. We do have consumers who have to adjust their behaviour. We do have the academia who really has to come up with a lot of studies. And part of the real economy, but we really need a lot of innovation.

And that's what we are, especially in Germany, focusing on is how decreasing CO2 emissions. Of course, we established a CO2 price, but it's not only by avoiding something, but we need technology that allows us to get to net-zero by 2050.

And in countries like Germany, where we rely on really traditional and rather brown industries, for us innovation, innovation, innovation is key. So, what we have to do is the government has to enhance the public-private partnerships. What we do is we set up funds where we trigger private money, so it's a public-private partnership via financing projects and innovation.

And there are so many other things. So, what we really have to do is to work hand in hand. Maybe one thing, especially for the developed world, is crucial, but I think there's a big chance also for the emerging markets and the developing countries are what we would like to do, and do already, is to force the startups, to force the innovation by the upcoming generation. Because this is something where we really see, "Okay, they might help us."

And I just listened at the G20 conference to a lady from NEC company who said, "Well, listen, the most important companies we see today have not been on our radar and didn't even exist 30 years ago." So, the companies which we will rely on within the next two decades, we probably do not know today, or maybe they even do not exist.

So, therefore, because we are facing such a major change, and therefore I think we all have to foster this innovation and to work hand-in-hand.

Babak Abbaszadeh: Yeah, Sabine, you're forcing us to think here because we need fewer people to stand on the sidelines and throw stones, and more people to create tools. In fact, if you look at some of the scientist's predictions, some are saying that all the efforts in reducing carbon emissions are great and should continue, but we're almost reaching a point where we actually need to have technology that goes and extracts carbon from the atmosphere. And so that means that a lot of people have to...

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Babak Abbaszadeh: ... from the atmosphere, right? And so that means that a lot of people have to contribute in this area, right? And it is a big effort, and the Governor made a reference to the pandemic and an analogy that was explained to me, I think by Governor Carney is its climate change is like a pandemic moving slower, but there are no benefits to self-isolate or to inoculate ourselves in vaccination, right? So, we're really, as a species, we're marching towards this.

Sabine Mauderer: Maybe one. May I just add one point because I saw that was about the discussion in the chat about capital requirements? And I fully agree that I think banks anyhow are already struggling, but the way the question is, how do we finance this transition? Because bank-based financing will have its limits because it's very risky. Innovation means or startup scene means 1 out of 20 will have success, right? So, it's very risky. And so, the banking industry will have its limitations. So, what is crucial is the capital markets to develop the capital market. So, I mean, in the U.S., it's clear for you what's underdeveloped. It's not that mature like in the U.S., and so what for Europe and us is crucial to develop

and to deepen the capital markets to allow to finance the transition and the innovation.

Babak Abbaszadeh: Thank you. Governor Leon is the question here, it's a two-part question. I think the second part is a fairly important one. Both are important, but this one is efforts to incentivize green planning in CMU result in an increase of credit risks and consequently credit costs to financial institutions. Some of those risks need to be borne by the relevant stakeholders, including governments responsible. How would you address the issue of such credit risk passed through to financial institutions, which may potentially affect financial stability? Thank you.

Alejandro Díaz de León: Well, if I can some thoughts on the previous reflection which I think it's important. In terms of how can we create a better dynamic to move forward and get away from this finger-pointing of who is to blame for where we are and who is to blame for not moving to where we should be. I think we need to acknowledge that there is shared responsibility, and it's not only even at the international level, at the national level, it's not only politicians. At the end of the day, it's also the companies that are polluting. At the end of the day, even us as consumers have been paying lower prices than we should because we have been using more carbon than we should. So, we are all part of the problem. We need to be all part of the solution.

And so, number one, we need to share the responsibility of the problem broadly. Number two, which is related to the question, I think there is a huge opportunity. The so-called global savings glut that has depressed interest rates, especially in advanced economies throughout the yield curve, even into negative territory, something that was unexpected years ago. I think it creates an opportunity that we should be creative in terms of how to mitigate sovereign risks and the creative risk of different counterparts in order to have these resources mobilized in the right direction for the right investment for the right reason. And this I think, is where we're still not there. I'm seeing a lot of the agenda that takes place more into some countries that have moved a lot and made a lot of progress on this front but not necessarily in a way that it is orchestrated at the global sphere and that includes everyone.

And I truly think that with the flexibility to devise the right financial vehicles, to mitigate risk, to have some risk-sharing, either with large pools. And we all know this example, in all of our countries, we financed small and medium companies, and we know that you can provide loan guarantees and pool them, and you reduce the risk and you can reduce the cost of funding for small and medium

companies. The same thing could happen globally for green investments. And if we do that, I think we could fast forward into a better place.

Babak Abbaszadeh: Excellent. Thank you so much for that. One question I want to pose to both of you is it's interesting to get your perspective on this. Both of you are the forefront of thinking about these issues, international conversations, and have a very progressive mindset, but there are still folks in the supervisory central banking community and also in the Parliaments that you respond to that are very skeptical, not so much about climate change, but skeptical about the role of supervisors and central bankers in that area. Why are you taking your eyes off the credit risk and all the other things that are happening and spending time on climate? Can I ask you to respond to those skeptics? Sabine, let's start with you, and then we go to the Governor. Thank you.

Sabine Mauderer: That's an easy one because climate risk is also part of the credit risk. It has become one. So, we do not even need to implement new risks in banking supervision. One can do that, but those categories of risk are already existing, and this is just one part of it, right? A new one. And so, the question is not, well, what are you doing there? Those risks, unfortunately, metrics, are all kinds of things we do or we are responsible for. Be it price stability, or be it supervision of [inaudible 00:51:05] financial stability, right?

So, but you are absolutely right. Where I have also been hearing at Parliament, and those questions arise always. It's about mission creep, right? It's about what is your stake in that, right? And what I must admit is that we really have to distinguish between being proactive, promoting certain kinds of policies. That's not our task because we have to keep stick to our mandate. But at the same time, we really have to address the climate risk the economy is facing.

Babak Abbaszadeh: Thank you. I think next time someone challenges me on that, I'm going to say Sabine told me the answer was very easy. No, but actually, you've produced a very interesting way of looking at it. I mean, we have to move on from this, but there are people who think that, they don't take your eyes off the ball. There's going to be another, I mean, they're always fighting the last war, right? So, it's important to look at.

Governor, from where you sit, what's your perspective on this issue? Because I'm sure, you've dealt with having to, on the one hand, promote these things and defending them at the same time?

Alejandro Díaz de León: Well, first of all, as Sabine mentioned, I think climate change will manifest as a credit risk. If not, you can ask PG&E in California about one of the biggest Chapter 11 that we saw a few years ago. And I think there's no argument in that. So even if it's in your blind spot, that doesn't mean that there's something there. So, it will materialize a significant credit risk. So, we need to be mindful of it. And the second is let's imagine that for any reason, there is still some uncertainty in how bad this could look. And there's a good scenario and a bad scenario. I think these are clear risk asymmetries in a type one or type two error that economists usually tend to mention. If we get this wrong and we don't do anything, and the bad scenario materializes, it's going to be terrible. It's going to be a disaster.

I mean, if we, for some reason, do the right things that we think are the right things and there is not so much need for that well, we're not going to be in that in such a bad place anyway. So just in a very crude way of trying to literally ensure our wellbeing in a multi horizon format, it is very clear that we have to move in that direction. Even if there are some people that think that there is no definite proof about X or Y, I think just the symmetries of the potential shocks and so dramatic the contrast of the scenarios is sufficient enough for us to be moving in this direction.

Babak Abbaszadeh: Very correct. And also, not only that, but I mean, think of it this way, connecting to an earlier point that I made, which is central banker supervisors, as powerful and influential as they are, they don't have the ultimate policy lever that a government has in terms of setting a price or whatever. You are by definition in a proactive, reactive way, if you will, right? Getting your systems ready. So, in any disaster, the finger of blame will be pointed to you, Sabine and your colleagues. And when in fact, the problem may have emerged somewhere. So, it's very good for you to be right on top of that. So, we're coming to the end of this, and I'm wondering, Governor and Sabine, is there any point that you would like to leave with our audience before I close the session? Your explanations were excellent. Is there anything that you were not able to communicate? Please go ahead. Sabine, let's start with you.

Sabine Mauderer: Yeah. First of all, thank you especially to the audience that you kept all the time, but just having looked at the numbers and I'm impressed. This is all.

Babak Abbaszadeh: Actually, there is more of them than you see. So just to let you know.

Sabine Mauderer: Yeah. And I would love to hand out to every country that is not part of the MGFS of the network for greening the financial system. We do still lack a lot of emerging or developing countries in our network. And I really urge you to think about it, and you can reach out to me. Why is that so important? Because you will suffer the most, most probably and some of your countries already facing climate change and the effects of that. And for us, that is very important because this is an experience we would integrate into our work. So therefore, if you have a chance to think of it, I would be very grateful. Thank you.

Babak Abbaszadeh: Sure. And we'll be very happy to promote that message through the network of our contacts and courses that we have in [inaudible 00:55:42] but thank you for that.

Governor yourself, you made very eloquent points here. Is there anything, advice, cautions, fear, hope that you want to leave with us?

Alejandro Díaz de León: Well, I would just say that we know that sometimes the political winds on this agenda can be erratic, and I think we have to make the most out of the opportunities when they are aligned. And try to safeguard the agenda in a way that can ensure that it moves in the right direction, the carrot and stick incentives so that we can ensure that we move in the right direction. So, taking advantage of the good times and preparing for less favourable episodes, I think it will ensure meeting the targets on time. And I think we all share responsibility and we all need to have or take ownership of the problem. And I think that will help us all move along in a more coordinated way.

Babak Abbaszadeh: Governor and Sabine, I really would like to thank you for your time, but also more than that, you bring a degree of passion expertise, anything although your classy people, you have battle scars that you're able to show without shame to the participants. So, we really benefited from this, and we will make this useful discussion available to the supervisory community. We will incorporate as part of our training programs, and you really have our gratitude. Thanks for taking time from your very busy time during this very difficult time in the global economy. So, thank you. And gracias, danke, and also namaste, right? So, take care and we'll see you again. You kicked ass. Take care. Bye.

Alejandro Díaz de León: Thank you.

Sabine Mauderer: Bye-bye. Thank you.

Alejandro Díaz de León: Bye-bye.

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