***Managing Climate Risk in the US Financial System* was given on November 19, 2020 by Robert Litterman, Chairman of the Risk Committee and Founding Partner, Kepos Capital; and Stephen Moch, MBA and MPP candidate at HBS and HKS. It was given as part of M-RCBG's weekly webinar series.**

John Haigh:

Welcome everybody to the seminar today. My name is John Haigh. I am the Co-Director of the Mossavar-Rahmani Center for Business and Government. I will be very brief. We have a terrific program today. Bill Clark is going to moderate. Bill Clark is the Harvey Brooks Professor of International Science, Public Policy and Human Development here at the Kennedy School. He is also an author recently of a book Pursuing Sustainability: A Guide to the Science and Practice. I cannot think of anyone better to moderate the discussion we have today.

John Haigh:

We have Bob Litterman with us and Stephen Moch. And Bob was the chair of a committee that wrote a piece called Managing Climate Risk in the U.S. Financial System, for the Commodities Futures Trading Commission. It has gotten a lot of interest in publicity. I will leave it to them and to Bill to really manage the discussion. But thank you, I want to thank you all for joining us and being willing to go through the discussion with us. And thank you so much. Appreciate it. Bill, it is all yours.

Bill Clark:

Thank you very much, John. And thank you all for being here. This is an incredibly exciting topic to be addressing at this time. For those of us who've been working in the area of climate policy, sustainability policy for far too many years, there hasn't been a lot of excitement on terms of good news. What exciting good news there has been, has been largely associated with the rapid emergence into the climate policy debate of issues and initiatives grounded in the financial sector, and what role it can play complementing the fairly limpid government actions in this domain.

Bill Clark:

For many of us, this first came on our radar screens five years ago, when the task force on climate related financial disclosures which had been March launched by Mark Carney in the Financial Stability Board, came on the scene and began internal to the financial sector, scoping of how they could begin to incorporate risk in these issues. Since then, a number of actions by a multiplicity of firms, banks, investment funds, and whatever has jumped on board moving, influencing literally trillions of dollars worth of investment in directions that are more pro climate and sustainability than they otherwise would have been.

Bill Clark:

Most recently here at the Kennedy School, group of Kennedy School students, many of whom I see are with us for this seminar today brought to our virtual campus Alzbeta Klein, Director of the IFC for a great discussion about the role of international banks investments in advancing climate and sustainability goals.

Bill Clark:

An exciting addition to this growing buzz about finance and climate policy was the publication this last September of the report before us today, Managing Climate Risk in the U.S. Financial System carried out under the auspices of the U.S. Commodity Futures Trading Commission. I confess not a group that had been on my radar as a principal player in the climate policy debate, but now is. Our guest today served as two of the major architects of that report. As John said, Bob Litterman is with us today in his role as Chairman of the climate related market re subcommittee that wrote this report.

Bill Clark:

He brings to that work PhD in economics from the University of Minnesota, 23 years at Goldman Sachs, where he headed the Quantitative Resources group. After retiring from Goldman Sachs a decade ago, he sprung into a multiple leadership roles in the area of climate and sustainability policy, serving among other things as Director of the World Wildlife Fund Resources for the Future, Climate Central and others too numerous to mention. I've had the pleasure of occasional interactions with Bob, in our shared roles on the board of the Global Institute for Sustainability at ASU. And I'm delighted to have him here now with us.

Bill Clark:

Stephen Moch is with us today in his role as Associate Editor of the managing climate risk report, but he's also here pursuing a joint MBA and MPP at Harvard, where he is a Rubenstein Fellow and a George Leadership Fellow with CPL and a Switzer Fellow for the region as a whole. Prior to grad school, Stephen spent four years also with Goldman Sachs, there's a pattern here. Before that he had his BA from Princeton, which is forgivable where he was most saliently a member of the fencing team that won the NCAA Division 1 Championship. So don't ask him rude questions. With that introduction, I turn the proceedings over to message Litterman and Moch. I'm Looking forward to it.

Bob Litterman:

Well, thank you Bill. And let me perhaps start by saying that it was, first of all, a big surprise when I was approached over a year ago by the commissioner Ros Behnam, who said, that he had decided that the CFTC Market Risk Advisory Committee would create a subcommittee to focus on climate related market risk. And would I be interested and available to chair that subcommittee. As you can imagine, I wasn't expecting that. I wasn't expecting the then administration to be focused on climate. And indeed, the administration wasn't to be fair, but you had this CFTC with three Republican commissioners and two Democrats, who were working very well together.

Bob Litterman:

And one of those commissioners, Ros Behnam, decided that because no one else in the financial regulatory, areas seemed to be focusing on climate, he thought there was an opportunity to do so. And I was honored to be asked, and I said, "I'd be happy to do that." As you point out, though I've been focused on the risk from climate change for about a decade since I left Goldman Sachs. And as an economist and risk management professional, it seemed to me that this was a real serious problem.

Bob Litterman:

And in the essence of the problem was that we weren't pricing the risk. So I mentioned that to the commissioner, I said, "You know, this is really the root of the problem, but it's not something that the CFTC can address." And he said, "No, I understand that. But what we need is a high level roadmap for managing climate risk. And you know, your background in risk management and your focus on climate, we'd love to have you do this."

Bob Litterman:

So I agreed. And then we sat down with the commissioners, Chief of Staff, David Gillers, who was also an unsung hero here, he really dug in and helped manage this process. And we went through something like 90 volunteers to serve on the committee. I didn't realize this, but in fact a federal Advisory Committee normally gets maybe a dozen or more volunteers, and they're usually Washington insiders, government relations folks and so on.

Bob Litterman:

Here, we got 90 volunteers from diverse set of organizations, mostly outside of Washington. And maybe Stephen, if you could bring up that, we have a slide that shows some of the members of the committee that the organizations that they represented. I think it's the fourth, third slide. There we go.

Stephen Moch:

There we are.

Bob Litterman:

Yeah. And so you can see we had a long with a number of the big banks, we had some oil companies, some AG companies, some data companies, home set of environmental organizations, you see WRI, EDF, TNC. We had an Exchange CME we had the SASB, number of academics, you can see represented there in the box. So it was just a very diverse set of financial market participants.

Bob Litterman:

And the commissioner made sure that they understood that we were looking not just for them and their expertise, but to the underlying organizations. We wanted to have the expertise of all these organizations. And the commissioner also said what he'd like is a high level report. He suggested 50 pages. And he said, "I want it to be a consensus, see what you all can agree with and put that together."

Bob Litterman:

And so that's what we tried to do. I think we were very successful in all dimensions, other than keeping it to 50 pages. It turned out, we ended up over three times that and if we hadn't been brutal in the editing, it could have been much longer. We had a good time, we divided up into work streams, we had so much expertise. It was really the hardest part was to keep it to that the length that we did. The work streams were headed by incredibly expert groups. Yeah, this is a good slide to go through the process.

Bob Litterman:

And we had some really expert support from our editors, as well as the work stream leads. And we focused on consensus. We kept asking what can we agree on? And I remember very specifically at our first meeting, which you can see there was in July. No, the first meeting was in November. It was down in Washington at the CFTC headquarters. And we went around the table, introduced ourselves to each other and started talking about managing climate risk.

Bob Litterman:

And one of the first things that I said is, "It seems to me that the fundamental problem here is we don't have the right incentives to reduce emissions. Does anyone disagree with that?" No one disagreed. And as we went around the table, we talked about things like disclosure. And I remember one of the participants said, "I think we need mandatory disclosure." And I thought, "Oh, that could be interesting." Well, we went around the table, no one disagreed. Now, I would say that, over the course of discussing this, we came to a more nuanced perspective, which is to say, it is certainly true that material risk needs to be disclosed, and that's a mandatory requirement.

Bob Litterman:

The issue is when does climate risk raise to the level of being material? And that's something that is not easy to answer and I think the subcommittee dug in on that. And many of the work streams, the work stream on scenario analysis, the work stream on stress testing, on corporate risk management, and data and analytics. These are all at early stages of sophistication. And so the roadmap that we wrote really talks about how do we understand what is material when climate risk impacts valuations of securities and their future prospects and so it is a roadmap to go forward I don't know. Let me pause here and ask Stephen, if he'd like to comment at this point.

Stephen Moch:

Sure. So first of all, just wanted to say a big thank you to the Kennedy School. It's a pleasure having been on the other side of the table many times at many of these MRCBG lectures, and otherwise, it's fun to be on the other side of the table. And a special thanks to Bob as well, getting to work with him this past year was a true pleasure and obviously the CFTC. And happy to, I think Bob really did a great introduction of what this report meant. And this is an area that I had been following for many years doing some research on stranded assets back in 2013. And mapping this to the academic calendar. This was sort of the big chunk of my Kennedy School Business School experience over the past year.

Stephen Moch:

I definitely do think back to this question of, to Bob's comment of this first meeting where we were at the CFTC headquarters in DC and each person had maybe three minutes. And again, I think we all struggled with lanes and probably went to five or six minutes for talking about what we really were focused on from this perspective of climate risk. And each person talks about their views it and there really was a lot that we agreed on right off the bat. And Bob mentioned, risk and disclosure. And one of the things that I did want to bring up as well was with retrospective of the long term and time horizons.

Stephen Moch:

And I'm sure Bob will come back and talk a little bit more about how you take the risk management perspective of time and apply that to climate. But long termism is I think such a critical issue in markets and in climate change. And one of the things that I kept thinking on was the day that, I think two days after I had submitted this letter to the CFTC, about participating on the panel, the orientation for the business school had happened, and the business school auditorium is massive, and they put one number on the screen for everyone to look at, and it was 2046.

Stephen Moch:

2046 being the 25th reunion of my graduate school. That's 25th reunion is what we're all right in the middle of our careers and 2046 is... 2050 is this number that we talk about in very abstract sense when it comes to climate change of "Oh, we're going to get to net zero, we're going to do this massive industry wide transition." But that will be over the course of our careers, over the course of the next 25 years and to be an active participant in it really was a pleasure. So I think that's the opening view and perhaps now we can jump in give a bit of an overview of the report.

Stephen Moch:

To Bob's comment, we said a lot in there and tried to really provide a roadmap for how the risk management ecosystem can approach this to take this lens. There has been a lot of work, continues to be a lot of work, from the economics perspective, from the science perspective. And we tried to really focus on this perspective of financial risk management and the levels of government that can help drive a risk perspective to climate.

Stephen Moch:

So, an overview of the report, and I can do a quick go through this. And Bob, please jump in as you'd like on any part of this. But the executive summary, I know that in the chat, I believe is the full report. This is a key, really, the first line is absolutely critical. That climate change poses a major risk, the stability of the U.S. financial system and its ability to sustain the American economy.

Stephen Moch:

And that was a critical statement that floated the report. A number of components of policy and regulatory choices, flexible and open ended. A major piece was what we don't know, that this is still early stages and there's a huge amount of work that needs to be done. There's some of it happening at the Kennedy School and many other institutions, but we're still in early days. And the need to be iterative, and have these conversations. And again, we're at MRCVG, the dialogue between the public sector and the private sector as we develop these capabilities is absolutely critical.

Stephen Moch:

And then the last piece that we made sure to really consider throughout the report is this component around environmental justice and being sure that as we adjust the financial system, as we strive towards an orderly transition, that the burden does not fall on low and moderate income households or historically marginalized communities.

Stephen Moch:

So chapter, the way we structured it is across eight chapters. Chapters one through three, we're really laying the foundation. Chapter one talking about the policy and global contacts, what is happening, both from an admissions perspective, the Paris Agreement, global cooperation on climate change, and also the financial markets perspective of what happened with the financial crisis. And since then, in terms of deep and liquid capital markets and increased focus on appropriate regulation.

Stephen Moch:

Then recommendation number one, which I think we'll circle back to after this overview, but absolutely critical. And Bob, I really would love to have your talk about your views on this, just the need for a carbon price. And coming back to that, but chapter two, this concept of physical and transition risks. And Professor Clark mentioned at the beginning, the initial work that Mark Carney and the task force on climate related financial disclosures had done. One of the things that they really popularized, is this view of thinking about climate change in terms of physical risks, the physical manifestations of climate change, the heat waves, droughts, floods, and the impacts of that, and then the transition risks.

Stephen Moch:

So transition risk being the market policy, consumer changes and preferences in approaches that will lead to the transition to an economy. And what happens in terms of reduced uses of fossil fuels or more focus on vegetarian diets or things like that, that will shift the economy and how that will impact assets, is a critical piece. And that's what chapter three really gets into. So how do these physical transition risks manifest themselves through the economy? What are the potential implications in terms of systemic risk, which I mentioned briefly at the beginning and sub-systemic shocks in terms of the more localized impacts that may not necessarily propagate across the financial system, but could have major implications for regional ecosystems, whether it's the oil and gas, heavy economies, agricultural sectors of the economy, and everything associated with that.

Stephen Moch:

It also talks about the potential for liquidity disruptions, financial market utilities, and then in particular, this focus on financial institutions, investors that are holding assets, how those assets may be impacted, what shock absorbers there may be, and how that could play into this view of how we might approach systemic risk oversight and risk management. So I'll pause there on this slide. Bob, anything you want to add before we go to the second half of the report?

Bob Litterman:

Well, Steve, I think he did a great job of summarizing the important points of the first couple of chapters. The only thing I would add is just that the committee took very seriously the fact that we were a risk committee. There's many different dimensions to this problem, but we were focused on risk and risk tends to clarify some of what you focus on, but, let me put it this way. From the corporate perspective, you're worried about risk management and what it can mean to the corporation. When you're an asset owner, you're worried about not just one corporation, but an entire portfolio, including fixed income, private equity, and so on.

Bob Litterman:

And so the latter is very much more of a top down, kind of what are the broad factors that could affect the valuations of these securities, both physical and transition risks. Whereas from a individual corporate perspective, it's very localized. You know where are my assets? What are they exposed to? What's my business model? Is it going to be impacted by either positively or negatively a rapid transition to a low carbon economy? So those are the kinds of questions and I think, what we really dug into and this is really more in the second half, but is what kind of data and what kind of analysis and disclosure are decision useful, and particularly when it's bottoms up data being analyzed and then disclosed to a different organization or individual that's looking for a top down set of exposures. It's not always easy to aggregate all that information. So Stephen, maybe we can get into some of the details of that problem.

Stephen Moch:

Sure, absolutely. So chapter four, really focused on the existing authorities and recommendations for financial regulators. This was probably the heart of the report, of what financial regulators can and should be doing to look at emerging risks, and particularly climate risk. And chapters five, six, seven, eight, it doesn't mention here, but each one starts with a closer look at, and each of those chapters are really a snapshot of individual pieces that centered this overall focus on financial risk management around climate risk. So chapter four really has a couple of key pieces. Systemic risk oversight, risk management, disclosure and investor protection. And then financial market utilities, which is something that has little less of intention, but included in there as well.

Stephen Moch:

And exactly that to Bob's point. To be able to do this effective risk management, you need data. You need disclosure, you need the ability to use consistent, comparable reliable data to make decisions, and be able to understand what is happening and what are the interlocking linkages. And as much at the beginning, there's still a lot that we don't know, and a lot of work that needs to be done from financial institutions and regulators to reach that point. So a couple just key things on chapter four. The fact that they're existing authorities, the existing legislation provides a huge amount of leeway for financial regulators to act on this topic. And to date in the United States, there has not been a lot of action.

Stephen Moch:

But the abilities are there. And so systemic risk oversight involves things around Financial Stability Oversight Council, and the ability for financial regulators to undertake research and really understand a lot of these critical issues. Risk management, stress testing is a major thing. But there's been a lot of focus on around how do you use scenarios and look out multiple years, decades to understand how the economy may change, asset purchases insurance, credit rating agencies is another particular area where there's the utilization of climate risk analysis to try to understand what might happen in terms of the risk across issues, across companies, across investment portfolios.

Stephen Moch:

Chapter Five goes back into the last thing that Bob had mentioned of how do we generate this data. And so two of the key things that we really focused on were the availability of data, and standardization of data. And so on the availability component, there is a growing amount of both public data from governments. There's NOAA, NASA and many of these government institutions that have weather data, particularly its physical side. And then there's a growing number of proprietary analysis. Companies that are generating new information from satellites and all kinds of new technologies.

Stephen Moch:

And but the with the most important thing being how do we get to decision useful data? How do we get to something that investors can use to improve their processes and improve their risk management? Scenarios, there's a lot in there and a lot of work being done on that, particularly on the international realm around how do we look at these scenarios in terms of temperature pathways, in terms of policy pathways, and translate that into a way that risk managers and regulators can use to understand how that may impact portfolio.

Stephen Moch:

And on that point, there's a lot of talk of how do you construct the scenarios and how do you set the various components of the outputs to get to something that is helpful. Disclosures is a key piece that has been a lot of focus over the past five years and continues to be. Just last week, the UK made a major announcement about climate risk disclosure. And from the U.S perspective, we really tried to focus on how do you think about this in the scheme of existing disclosure law of the U.S approach to disclosure and recognize this need for a focus on materiality and in particular materiality on medium and long term risks.

Stephen Moch:

And this all comes back to the initial high level points of using the government authorities to get to something that's useful for investors and trying to make sure that material information is at its heart, something that investors can use to understand companies, understand investments and lead to better decision making processes. Now, a number of smaller components within disclosure that we also looked at in chapter seven.

Stephen Moch:

And then lastly, just a quick bit on the net zero transition and I can come back to this later. But the report certainly closes on an optimistic point of the economic opportunity in this transition, that there is a huge amount, there's a massive capital in the trillions of dollars. But there's also an ability to create new jobs, to create innovation in this as we pursue the transition. So what are the ways that government can support investment, support capital flows and can support innovation, to drive this forward across things like fiscal policy, catalytic financing, fiduciary duty and otherwise supporting the ecosystem? So again, I'll pause there and Bob, I'll turn it to you.

Bob Litterman:

Sure. Well maybe if we can go to the next page. What I'd like to do now is talk a little bit about the lessons from risk management, particularly financial risk management and how they apply to climate change. And the first lesson is rather obvious and very simple, which is that you have to look at the full distribution of outcomes. So we know that from financial risk management, and as it applies to climate change, well, historically, I would say we've looked at expected outcomes.

Bob Litterman:

And as the climate problem has gotten bigger over time, people have talked about how much damages do we expect from rising temperatures, sea level rise, wildfires and so on. And the answer is, it's very uncertain what those damages are going to be, when they're going to appear, and so on. So when you think about it from a risk management point of view, it's not the expected outcome you're worried about, it's kind of the worst case. When I went to Wall Street 25 years ago, well, no when I went was '86. It's a lot more than 25 years now. But when I went there, management wanted to know what's the worst case. And of course, in most contexts, there is no worst case.

Bob Litterman:

And so we came up with the statistical concepts like value at risk, that would say, you can expect to lose this much with a certain confident or a certain probability. Well, similarly, with respect to climate, we have to think about extremely bad, but plausible scenarios, which is the terminology that we often use now in the financial markets, extremely plausible. And so there's no exact probabilistic ability to quantify that. But we have a common sense idea of what we have to worry about.

Bob Litterman:

And in this context, it means that the damages could be worse, ecosystems could be more fragile, there could be interactions that we hadn't thought about ahead of time, there could be tipping points where responses become nonlinear. So these are all plausible. And in fact, if we continue to heat the planet, the only real issue is when will those occur in terms of either time or in terms of temperature. At what point, do those nonlinearities, those nasty outcomes that can lead to really existential declines in well being for future generations, where might those occur?

Bob Litterman:

And that's something we don't know. Which leads to another lesson from financial risk management which is that, when you're managing risk, time is a scarce resource. If we have enough time, we can manage almost any problem, we can solve it. But it's when we run out of time that a risk can become a catastrophe. I've seen that many times in Wall Street and in my own career, and it applies to climate change as well. We don't know when the emissions that we released into the atmosphere are going to create an inevitable warming that will cross that first catastrophic tipping point. So we have to be really careful about that.

Bob Litterman:

And then the third lesson from financial risk management that I want to highlight is that, the purpose of risk management is not to minimize risk. When at Goldman Sachs, they asked me to be the head of risk management back in 1994, it wasn't because they wanted to minimize the risk, we were making a lot of money taking risks, what they wanted to do was to identify the risks that we were taking, and to quantify them, and to make sure that the risks are risks that we're getting paid to take.

Bob Litterman:

And in the financial markets, when risks aren't priced appropriately, there's an opportunity, you can either sell them or you can buy them. And that's the fundamental flaw with respect to climate change right now, is that we don't have the appropriate incentives to reduce emissions. That is the most important recommendation, the entire subcommittee voted on it. And as we said in the report, it's the single most important step, and it's the most urgent. So that's how we got there.

Bob Litterman:

Now, one of the things that we recognize, and we say this right in the report is that, none of the participants in the financial markets can create these incentives on their own. And that's something where I think there's sometimes a bit of mistaken feeling that, "Gee, if we just had adequate disclosure, that would create the incentives for all these companies to reduce their emissions." That's not the way it works. These companies are trying to make profits, the capital that flows into the financial markets does so in order to make profits. And it flows in the directions of the incentives that it's given.

Bob Litterman:

Right now, those incentives do not include the externality of risks created by emissions. And so the flow is still in the wrong direction. And we continue to build an economy that is given the incentives that lead to use of fossil fuels for producing energy and other activities to create fossil fuels. And as long as those incentives go in the wrong way, that's going to continue. So we absolutely have to create those incentives.

Bob Litterman:

Now, there are incentives around the world, they're just too low. And so what we need are globally harmonized incentives at the level that will rapidly reduce the emissions. I think that's coming, it's probably coming soon. And one of the messages from this report is that, financial markets are really asset owners, businesses, investment managers, and so on have to be prepared for that rapid transition.

Bob Litterman:

Now, we also said that there's certain aspects of that carbon pricing and the transition that have to be addressed, such as environmental justice. One of the sad things about these environmental damages, that they fall most heavily on the historically low and moderate income communities, in the marginalized communities and communities of color. And that's not fair, that's not just. And there's been a lot of focus on that this year, and including by the committee. So we have to take into account the fact that, this does not fall equally on all of us.

Bob Litterman:

And finally, we have to worry about the transition itself and the risks that that can create. Now, one thing that's true is if financial markets are very forward looking. So the fact is, we haven't created appropriate incentives to reduce emissions, but certainly asset owners, investors and businesses, are looking forward to what might be those incentives in the future. And that's really, if you think about what drives investments, if you're building a power plant that's going to be in business for the next 30 or 40 years, you're going to take into account whether you think emissions might be priced early on or later on at a high level, at a low level.

Bob Litterman:

So those expectations are really very important. And they have been changing dramatically. So what you've already seen is a massive repricing of securities in anticipation of the changing incentives that are coming. And so the question of will this transition be orderly or not, is something that we looked at and we are I think it's a legitimate concern. But I think that what we've already seen is a significant revaluation of assets and anticipation of that carbon pricing. And so far, we haven't seen a lot of impact on the broad market. So I'm not as concerned about the nonlinear risk associated with a rapid transition, but it's certainly something that we have to keep in mind as we move forward.

Bill Clark:

Stephen, back over to you.

Stephen Moch:

Yeah. So there's certainly more we could do, but I think maybe I'll turn it over to Bill Clark now for questions. And we have a whole number of slides going through the rest of the report. And some of the chapter, I guess the one thing I'll quickly mention is that, I think chapter eight has some really important lessons to be taken for the next couple months. In particular, the first recommendation 8.1 talks about fiscal policy.

Stephen Moch:

And as we're having these conversations around economic stimulus, around how do we deal with COVID. And obviously, we're in a really critical economic situation with the need for government to be spending money. I think the words that keep getting echoed of build back better, apply to climate as well. That there is climate risk inherent in how government is spending its money and where things are being allocated.

Stephen Moch:

And so one of the key recommendation there is, as the government is allocating money through fiscal policy, A, using a climate risk lens will lead to a perspective on how to build for the future, or how to invest to challenge the structural barriers around climate change, at the same time delivering urgently needed stimulus. So that's just the one thing I wanted to mention. And certainly there are other pieces in chapter eight, some key things that I think will be enacted over the next couple months around retirement plans and fiduciary duty, something that's close to my heart, having tried for a long time to change my 401k to get fossil fuel out and failing at that.

Stephen Moch:

So we need some government reform on policy and otherwise, but a huge amount that needs to be done. We have 53 recommendations across the report. We're, to some extent one down the Federal Reserve has announced that they are going to join Network for Greening the Financial System. 52 more, so a lot of work to be done over the coming years, but certainly I'm feeling more and more optimistic.

Bob Litterman:

Yeah, I would add a couple of things. One is there was a theme in the report that the U.S regulators have to coordinate with global regulators, in particular the Europeans, The Network for Greening the Financial System, and the Bank of England have moved well ahead of the U.S regulators in terms of defining scenarios, thinking about disclosure. And so we have to work together. Also, in terms of pricing, we need Globally harmonized pricing. The Europeans are ahead of the U.S in terms of thinking about a border carbon adjustment, for instance. In terms of their taxonomy, and creating incentives to invest in the net-zero economy.

Bob Litterman:

So that was another theme. I think if you do a search, you'll find that we mentioned the NGFS over 50 times in the report just as an example. And then the other thing I would say is that, as Stephen mentioned, chapter eight is all about what can the financial markets do to increase the flow of capital in the direction of the net-zero economy. And there are a lot of things that need to be done. We're early on in terms of defining terms like what is a green bond? What is a sustainable investment fund?

Bob Litterman:

And although they have a taxonomy in Europe, it clearly won't be the same in the U.S. We have to develop our own terminology, our own standards, and that's something where we need a public private partnership to move forward. And there are definitely some, many actually efforts to move in that direction. But still, it's very early days, and there's a lot more work to be done. So with that, Bill, why don't we open it up for questions?

Bill Clark:

Okay. Let me encourage everybody who is listening here to put their questions up on the through the chat function. And I will [inaudible 00:39:30] as we move forward, look at those and draw from them. I was told that I should start, so I won't even apologize for doing this. So let's assume that all of your recommendations get implemented, what then happens to those assets that are not currently priced in the market? And that's everything from the obvious environmental ones that are not included in simply getting a price on carbon.

Bill Clark:

But all the way at the other extreme, things like investments in public knowledge, that is what our agricultural extension services, and now people are talking about climate extension services do. It's not transparently clear to me even having worked through almost all the 200 pages of your report, that you're not going to orphan the assets that are not regularly traded in markets. And that's obviously a topic both of you are well aware of. So how does your scheme deal with those?

Bob Litterman:

Well Bill, when you say not traded, I mean, I think of the price of carbon is not, we don't have those appropriate incentives. So it's the externality that's not being priced. Is that what you meant? And maybe you're focusing on things like other environmental services from nature, clean water, and so on. Definitely, this theme of sustainability, to me is really what's the overarching theme, and that's a theme to me, what sustainability is all about is the trade off between consumption today and well being in the future, and putting enough weight on the well being of those who will be living in the future and not degrading their well being by the actions that we take today.

Bob Litterman:

So to me, that's the essence of it. And it's a much broader topic than just climate. The climate today is really the threat to that well being that's a threat, not just about the climate, but about destroying the underlying services that we get from nature. And then more generally, we can talk about well being including things like health, national security, and all of those kinds of things that we take for granted are threatened by the changes that we're making to the climate. So I think it does impact all those broader issues.

Bill Clark:

It impact them, but so I take it from this, that what you're saying is to get us down a pathway towards sustainability, we do something like your recommendations to get the climate issue, beginning to be under control. But then we take all the other externalities that are central to this, and do something analogous to them.

Bob Litterman:

Exactly. You said that much better than I did, yes.

Bill Clark:

Okay. Then let's assume then that's business to be done for biodiversity and for public knowledge creation, whole set of things that we know don't get well covered in pricing. And we just have to do your commission for all of those.

Bob Litterman:

Right.

Bill Clark:

So let's say we do that. But you're off the blocks ahead of everyone else. So again, let's assume all your recommendations are put in place. And we're driving with a carbon price towards a zero carbon economy. How does one deal with the observation that I'm sure you've lived more than I have in the risk business, that you become what you measure. So if we start optimizing our firm's performance and most our economy's performance on climate risk, where do you set up the alarm flags or the special watches to make sure that that doesn't drive us into exacerbating certain other risks?

Bill Clark:

But because we aren't going to have done task forces like this on all of those others at the same time, you guys could push risks in directions that are very undesirable. And you've made an admirable start in signaling the standard piece, which is, it dumps risk on to poor or politically marginalized communities. And you got some really, I think, revolutionary proposals about how to do more than just saying that, but it's for the other displacements of risk. How should we be thinking about that?

Bob Litterman:

Yeah, I know, you raised a good point, which we often don't talk enough about. I would say, one aspect of that is to be very careful about the actions that we take to address climate risk. If we price the risk, that's a very direct action, and it shouldn't have a lot of unintended consequences. Now there there are things you have to think about. For example, if we create a carbon tax, a straightforward carbon tax, what do we do with the revenues? Do we give them back to people as a dividend? In which case it's very progressive strategy. But if we use it to pay for government spending, well, then it depends what we spend on. So there may be unintended consequences.

Bob Litterman:

If you think about, I don't know, people talk about planting trees, natural climate solutions. Well, okay, but if we plant eucalyptus trees, because they're the fastest growing and create the biggest draw on CO2, well, what do we do about biodiversity? So there definitely can be these unintended consequences, we absolutely have to think about them. I guess the way I think about it is that, it's all part of a broader concept of natural capital, what are the services that we get from nature and how do we value those?

Bob Litterman:

We don't value those services typically, and so the highest use of a forest becomes cut it down for agriculture, or cut it down for buildings or whatever, because we don't value the services from nature. So that's the broader perspective I think that we have to bring to the table over time. And again, sustainability is all about that broader perspective and thinking about those services. And not just today, but indefinitely into the future.

Stephen Moch:

And if I could jump in here on this. I think one of the things that's embedded throughout the report is that there's a lot of risk in sticking with the status quo. And certainly any change will impact a range of risks. And so I think we touch on ESG as a broader piece in somewhat limited ways. It's mentioned a little bit in the context of fiduciary duty, and disclosure, it certainly fits as well. And we very much we're a climate risk committee, and so our focus was on climate.

Stephen Moch:

But the idea of looking at materiality for medium and long term risks to society applies more broadly. And so I think a lot of the need of this report came about as COVID was happening, and a lot of discussion in ESG, centered more on the S, suddenly. The recognition that of the social components, how you treat employees, how you look at supply chains, the key came to the forefront and alongside environment.

Stephen Moch:

And so I do think that the fundamental approach of government should price externalities, understand that what are the public goods, public bads, and drive the economy to focus on generating more good. And thinking more long term, will apply across the board. And so there's a lot of talk on I think, on both sides of the river of business, on Kenny School about this idea of stakeholder capitalism, and it's a sort of nebulous concept.

Stephen Moch:

And this report tries to put in more concrete terms, how do you think about societal risk? How do you think about climate risk in this case? But how can you get a greater focus across the board on the implications of investment, implications of companies, the implications of actions on the societal issues, and how they will impact an investment portfolio in the medium term and in the long term?

Bob Litterman:

And if I could just add Stephen, we did talk about in ESG, the fact that there's attempts to put a extra burden, I think from the Labor Department. It says if you're fiduciary, we don't want you worrying about things other than risk and return. And our response to that was, if there's an environmental factor that affects risk and return, of course you have to take it into account, there's no extra burden.

Bob Litterman:

And that applies not just to climate risk, it applies to all these other social and governance issues. And I would also point out that throughout the report, in terms of addressing climate risk, we absolutely focus on the importance of governance. And that within corporations, climate risk should be part of the enterprise risk management, it should be overseen by the directors, that's a responsibility to the shareholders and as well as for disclosure. So it needs to be embedded throughout the organization. It's not simply green washing or part of the government relations organization.

Bill Clark:

Okay, thank you. So now we're beginning to get more questions than we will possibly get for, but I keep putting them in. So Aby, poses a question which is about your very appropriate emphasis on the long timescales of climate change. And poses, carbon in the atmosphere released today continues to be dangerous up for 1,000 years in the future. Times of the essence in reducing carbon emissions, how have you included this long term, and I would add to that for a company, a firm, a sector that is used to discounting at some cost of capital rate that turns the future 20 years out, much less 1,000 years out into valueless? So that's Aby's good question with a cheat by me.

Bob Litterman:

Okay. Let me try to answer that and Stephen can jump in as well. I think that the time horizon is really one of the difficult aspects of climate risk. And when we think about risk management in financial communities, we usually think about short term. When we think about disclosure, we often think about each quarter and even when the FED does its stress testing, it is the amount of capital being held, given the balance sheet today adequate for a shock of some size.

Bob Litterman:

Well, that's not the way risk works with respect to climate, it's going to be developing slowly over the next 50 years. And it's just going to be getting worse during that period. So it's an emerging risk, it's not a risk, where we can look back over the last 20 or 30 years and say, "okay, we see the distribution of outcomes, are you prepared for that?" It's going to be a changing distribution of outcomes, of which there's a lot of unknowns. So how do you decide what's material? Are you talking about material for the next quarter or you're talking about material for the next 30 years?

Bob Litterman:

And when you're a corporation thinking about material risks, it's very different than when you're a pension fund, and you're buying assets to pay off liabilities for the next 30 years. And you're worried about what is climate impact going to have on the valuation of the securities in my portfolio. So, if your question is, how do we square that circle? The answer is, we're at early stages, and we don't have an answer. We say that we need leadership from financial regulators, we need coordination globally from financial regulators, and we need an iterative process where the individual corporations and issuers of securities provide decision useful data. Now, what data that is, we don't have an answer to that there's so much data.

Bob Litterman:

I would say a lot of folks in this space are understandably focusing on emissions. Scope 1, scope 2, scope 3 emissions. But what we identified early on and many people understand is that, the factors that are going to affect the valuations vary across different sectors. So it may or may not be emissions. If you have a utility that has a very dirty coal fired power plant, it's got a lot of emissions. But in terms of the financial risk, it depends a little bit on what the regulators of that utility. Do they allow it to pass on the costs of that to their rate payers or not?

Bob Litterman:

In the fossil fuel sector, do they create the emissions or is it the people who drive the automobiles that burn gasoline that are creating the emissions? And is it the total emissions that affect the risk of a particular fossil fuel company or is it the price of oil? And the duration of their reserves and the cost of extraction and their breakeven and the amount of leverage that they have.

Bob Litterman:

So I would say to summarize, when you're an individual corporation, you're thinking about it from a very bottoms up perspective, kind of fundamental analysis, and emissions may or may not have much bearing on the climate related risks that you have. So then when you're an asset owner, looking at it from a top down perspective, how do you aggregate all of that those different factors that are going to affect the different sectors of the economy. It's a very complex problem and over a long horizon. So short horizon versus long horizon.

Bill Clark:

Okay. Let me be conscious of the time and post just one more question. This is from David O'Leary. What are the next steps for this report and the recommendations? Who owns moving forward with these things? Who's working to sell these recommendations to decision makers in general, and in the incoming Biden administration in particular? And you can do that in two minutes.

Bob Litterman:

Yeah. Well, it's been very well received. I would say that the members of the commission including myself, Stephen, especially Commissioner Behnam, I said members of commission, I meant the subcommittee. But anyway, and Commissioner Behnam, we were out talking about this report and socializing it within the financial community. But as Stephen mentioned, you've already seen the FED and others react to this report. And we've had terrific response from regulators around the world.

Bob Litterman:

And the fact that the report was really unanimous, to me means that it's very unlikely that these recommendations won't be implemented. Everyone in the financial markets agrees these are the things that we need to do. And I haven't heard anyone pushing back very much at all. So I'm pretty optimistic.

Stephen Moch:

Yeah, I fully agree. I think there's been widespread. First of all, it's a thanks. Kudos to Bob and Commissioner Behnam, really being sure to talk to everyone and make sure that this report is widely received. But the response has been incredibly positive. And just looking more recently about the commentary around what can happen in the Biden administration. This is a core focus. And the concept of taking a whole of government approach to climate change really means embeddedness within the financial components of government, of the financial regulators, of treasury of every part of government to drive this forward.

Stephen Moch:

And so it's exciting to know that this will be a core focus for the U.S federal government, and the ability to take up these recommendations and drive them forward. The other question is Congress, and that's a bigger, open question. And as we noted, carbon pricing falls into Congress and there's a need for them to act there. But definitely there is a lot that can be done. And that I think both and Bob and I really, truly believe will be done in the next couple years to act on this.

Bill Clark:

Well on that hopeful note, let me close off my part of this by thanking both of you, not only for your role in producing the report, which having followed this stuff for a long time, having just written a big review on the problems of adaptation and single dimensions of response to climate change, this is just so far out in front of almost anything else out there.

Bill Clark:

I just commend it to everybody, as a study guide to not just what the U.S should be doing on carbon and commodities, but rather how we ought to treat this much broader agenda that Bob laid out for sustainability, other unaccounted for externalities, and so forth. How we can intervene in a core market economy, but be smart about what we add into that market system to make it work for us rather than sometimes against us. So thank you folks, it has been a delight. And with that, I will turn it back to Scott who owns the show.

Scott Leland:

Thank you Bill, and Bob and Stephen as well. I would simply echo what you just said, Bill, this has been a wonderful conversation. We're indebted to you for having the conversation with us and more importantly, for writing this report and getting it out there. And I know I join you and so many others in hoping that your recommendations are accepted and acted upon, especially that carbon tax, that would be huge. So again, thank you. And with that, we'll draw to a close. Okay.

Bob Litterman:

Thank you.

Stephen Moch:

Thank you. Thank you so much.