Remarks to the CFTC Market Risk Advisory Committee
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December 11, 2019

Let me start my remarks by expressing my deep appreciation to Commissioner Behnam, the CFTC's Market Risk Advisory Committee, and the Commission for creating the Climate-related market risk subcommittee and asking me to chair it. I hope, and expect, that the proposed June 2020 report from the subcommittee can play an important role in guiding the climate response of the U.S. financial community, and I am honored and excited to chair this very esteemed group. For me it was an unexpected, but timely opportunity to help work with an incredibly talented group of risk management experts in the financial markets on a topic, climate risk, that I have been focused on for the past decade.

Having spent a 23-year career in risk management and investing roles at Goldman Sachs I have deep respect for the critical role that the financial markets have in facilitating the efficient allocation of capital in our market economy, and the importance of appropriate regulation and oversight.

I have an unusually eclectic background that I think makes this assignment an excellent fit. I grew up in Phoenix, Arizona, and did my undergraduate studies at Stanford where I majored in Human Biology with a concentration in psychology. I initially thought I was going to be a journalist, and my first job was as a general assignment reporter for the San Diego Union. After a year, though, I decided to go back to school and got a Ph.D. in economics from the University of Minnesota. I taught economics at MIT for two years, followed by five years in the Federal Reserve Bank of Minneapolis working as a staff economist in charge of economic forecasting. In 1986 Goldman Sachs made me an offer I couldn't refuse, and I began my career on Wall Street as one of its early quants. I started in fixed income research, followed by a promotion to Partner in 1994 when I became the first firmwide head of risk management. In 1998 I moved to the asset management division and headed the quantitative group. In 2009 I left Goldman and helped to create Kepos Capital, a New York based investment management firm where I am currently a partner and Chairman of the risk committee.

I am well known in the financial community as the co-developer, along with Fischer Black, of the Black-Litterman asset allocation model, which we created 30 years ago and which is still widely used in the investment industry to build portfolios that optimally balance risk and return.

My focus on climate risk began when I left Goldman and joined the board of the World Wildlife Fund. Like many people I was concerned that society is not adequately addressing the risks created by climate change. The increase in greenhouse gases that humans have put into the atmosphere is the root cause of climate change, and thus as an economist and risk professional it was obvious to me that the risks created by climate change must be addressed. There is tremendous uncertainty about the precise levers and tools to appropriately mitigate climate risk, and we have to proceed with caution, but today the incentives around the world go in the wrong direction, and this has to change.

I currently spend much of my time trying to focus attention on the risks created by climate change. This year I have two publications in scientific journals on this subject. In March I and a group of other scientists published, "Natural Solutions are Not

Enough," in the journal *Science*, and just this past October, two colleagues and I published an article in the *Proceedings of the National Academy of Sciences* with the title, "Declining CO_2 Price Paths." In this article we focus on how quickly the risk of climate change is increasing, and extremely high costs of delay in addressing it. Rather than a slow approach to taking action, we find that when you appropriately take risk into account the optimal policy is to act as swiftly as possible so that we can be confident that society will avoid potential worst case outcomes.

Recently many investors and other financial professionals have recognized these risks and are trying to understand how best to incorporate them into their decision-making processes. Thus, the climate risk subcommittee is a timely regulatory response. Moreover, the experts who make up this committee are a diverse and exceptionally talented group. They come from financial, energy and agricultural markets, the banking and insurance sectors, data and intelligence service providers, the public interest sector and academia. We are extremely fortunate that they have volunteered to serve.

Our assignment is to write a report by June of 2020 that focuses on climate-related financial and market risks and makes recommendations to the Commission. We have an appropriately broad mandate including assessing and managing these risks. We will focus on ways in which market participants can improve the integration of scenario analysis and climate stress testing into their risk management function and financial reporting.

We will address both the short-term financial risks that may be associated with the transition to a low-carbon economy, as well as the current and future market and financial risks associated with the physical risks that will arise from a warming climate.

Those latter risks include more frequent or extreme weather events such as floods, droughts, heat waves, and hurricanes; as well as other direct impacts such as increasing wildfires, sea-level rise, and ecosystem degradation; and indirect impacts, for example on human health and national security.

I anticipate that the heart of the report will be a section on the implications for market oversight policies, including disclosures, governance, strategy, risk management, and conduct. We will also try to identify and make recommendations with respect to the types of scenarios and stress tests, as well as data and analytics that need to be developed and used.

We intend to recommend additional market and derivatives products that may improve the identification and hedging of climate related financial risks, and recommend policies designed to facilitate capital flows required to finance the transition to a low-carbon economy.

I hope that our report can provide a high-level consensus from the financial community about where and how we need to focus our efforts to address climate related financial market risk.

The committee met for the first time in November, and what impressed me was that as we went around the table and heard from the members there seemed to be a strong consensus that the appropriate role of the public sector is to not to direct investments, but rather to provide incentives and the appropriate regulatory framework, and let the market freely allocate capital.

We will meet again this Friday and plan to further discuss the matters I have mentioned to you this morning and consider others related topic areas before finalizing an outline and developing work streams. We anticipate members to volunteer to lead the various topics this week, and we will continue to hold monthly conference calls throughout the next six months as we do our work.

Again, I want to thank the Commission for giving us the opportunity to take on this important assignment and I would be happy to take questions.