

## Economic Risks Of Climate Change An American Prospectus

How knowing the extreme risks of climate change can help us prepare for an uncertain future If you had a 10 percent chance of having a fatal car accident, you'd take necessary precautions. If your finances had a 10 percent chance of suffering a severe loss, you'd reevaluate your assets. So if we know the world is warming and there's a 10 percent chance this might eventually lead to a catastrophe beyond anything we could imagine, why aren't we doing more about climate change right now? We insure our lives against an uncertain future—why not our planet? In *Climate Shock*, Gernot Wagner and Martin Weitzman explore in lively, clear terms the likely repercussions of a hotter planet, drawing on and expanding from work previously unavailable to general audiences. They show that the longer we wait to act, the more likely an extreme event will happen. A city might go underwater. A rogue nation might shoot particles into the Earth's atmosphere, geoengineering cooler temperatures. Zeroing in on the unknown extreme risks that may yet dwarf all else, the authors look at how economic forces that make sensible climate policies difficult to enact, make radical would-

be fixes like geoengineering all the more probable. What we know about climate change is alarming enough. What we don't know about the extreme risks could be far more dangerous. Wagner and Weitzman help readers understand that we need to think about climate change in the same way that we think about insurance—as a risk management problem, only here on a global scale. With a new preface addressing recent developments Wagner and Weitzman demonstrate that climate change can and should be dealt with—and what could happen if we don't do so—tackling the defining environmental and public policy issue of our time.

Climate change poses many challenges that affect society and the natural world. With these challenges, however, come opportunities to respond. By taking steps to adapt to and mitigate climate change, the risks to society and the impacts of continued climate change can be lessened. The National Climate Assessment, coordinated by the U.S. Global Change Research Program, is a mandated report intended to inform response decisions. Required to be developed every four years, these reports provide the most comprehensive and up-to-date evaluation of climate change impacts available for the United States, making them a unique and important climate change document. The draft Fourth National Climate Assessment (NCA4) report reviewed here addresses a wide range of topics of

high importance to the United States and society more broadly, extending from human health and community well-being, to the built environment, to businesses and economies, to ecosystems and natural resources. This report evaluates the draft NCA4 to determine if it meets the requirements of the federal mandate, whether it provides accurate information grounded in the scientific literature, and whether it effectively communicates climate science, impacts, and responses for general audiences including the public, decision makers, and other stakeholders. An urgent case for climate change action that forcefully sets out, in economic, ethical, and political terms, the dangers of delay and the benefits of action. The risks of climate change are potentially immense. The benefits of taking action are also clear: we can see that economic development, reduced emissions, and creative adaptation go hand in hand. A committed and strong low-carbon transition could trigger a new wave of economic and technological transformation and investment, a new era of global and sustainable prosperity. Why, then, are we waiting? In this book, Nicholas Stern explains why, notwithstanding the great attractions of a new path, it has been so difficult to tackle climate change effectively. He makes a compelling case for climate action now and sets out the forms that action should take. Stern argues that the risks and costs of climate change are worse than estimated in the landmark Stern Review in 2006—and far

worse than implied by standard economic models. He reminds us that we have a choice. We can rely on past technologies, methods, and institutions—or we can embrace change, innovation, and international collaboration. The first might bring us some short-term growth but would lead eventually to chaos, conflict, and destruction. The second could bring about better lives for all and growth that is sustainable over the long term, and help win the battle against worldwide poverty. The science warns of the dangers of neglect; the economics and technology show what we can do and the great benefits that will follow; an examination of the ethics points strongly to a moral imperative for action. Why are we waiting? This book will help business executives to (1) rethink their perceptions of climate risk (2) evaluate whether their company is effectively positioned, and (3) make informed and prudent business decisions about climate change risk in an environment rife with policy uncertainty. Business risk associated with climate change is commonly assumed to be primarily policy driven. Many companies internalize the current stalemate over global climate policy into a perception that climate risk is no longer a critical issue. Business climate risks, however, include: Operational and Supply Chain (Physical) Risk, Brand Risk, Market-driven Structural Risk, Liability Risk. As national and global policy to materially reduce climate change is delayed, it is business-prudent to assume that the level of

climate risk is increasing. Even if policy risk might seem lower today than a few years ago, political will can change quickly. Should physical impacts of climate change manifest in dramatic ways, for example, draconian climate policy is likely to follow quickly. These conditions create a complex and shifting business risk environment, and most companies either overlook or substantially underestimate key climate risks. How many companies, for example, are positioned for material climate change outcomes, whether physical or regulatory? Companies with little climate change exposure may not face much downside risk from taking a wait-and-see approach. For those with greater exposure, being "too late" to respond will mean costs and competitive impacts that could have been avoided. Being "too early," however, can mean being penalized later for actions that reduce a company's emissions today, or competitive disadvantage from getting too far out in front of competitors.

If you had a 10 percent chance of having a fatal car accident, you'd take necessary precautions. If your finances had a 10 percent chance of suffering a severe loss, you'd reevaluate your assets. So if we know the world is warming and there's a 10 percent chance this might eventually lead to a catastrophe beyond anything we could imagine, why aren't we doing more about climate change right now? We insure our lives against an uncertain future--why not our

planet? In *Climate Shock*, Gernot Wagner and Martin Weitzman explore in lively, clear terms the likely repercussions of a hotter planet, drawing on and expanding from work previously unavailable to general audiences. They show that the longer we wait to act, the more likely an extreme event will happen. A city might go underwater. A rogue nation might shoot particles into the Earth's atmosphere, geoengineering cooler temperatures. Zeroing in on the unknown extreme risks that may yet dwarf all else, the authors look at how economic forces that make sensible climate policies difficult to enact, make radical would-be fixes like geoengineering all the more probable. What we know about climate change is alarming enough. What we don't know about the extreme risks could be far more dangerous. Wagner and Weitzman help readers understand that we need to think about climate change in the same way that we think about insurance--as a risk management problem, only here on a global scale. With a new preface addressing recent developments Wagner and Weitzman demonstrate that climate change can and should be dealt with--and what could happen if we don't do so--tackling the defining environmental and public policy issue of our time. Without significant reductions of greenhouse gas emissions, climate change will cause substantial damage to the environment and the economy. The scope of the threat demands a close look at the policies capable of reducing the harm.

Confronting the Climate Challenge presents a unique framework for evaluating the impacts of a range of U.S. climate-policy options, both for the economy overall and for particular household groups, industries, and regions. Lawrence Goulder and Marc Hafstead focus on four alternative approaches for reducing carbon dioxide emissions: a revenue-neutral carbon tax, a cap-and-trade program, a clean energy standard, and an increase in the federal gasoline tax. They demonstrate that these policies—if designed correctly—not only can achieve emissions reductions at low cost but also can avoid placing undesirable burdens on low-income household groups or especially vulnerable industries. Goulder and Hafstead apply a multiperiod, economy-wide general equilibrium model that is distinct in its attention to investment dynamics and to interactions between climate policy and the tax system. Exploiting the unique features of the model, they contrast the shorter- and longer-term policy impacts and focus on alternative ways of feeding back—or “recycling”—policy-generated revenues to the private sector. Their work shows how careful policy design, including the judicious use of policy-generated revenues, can achieve desired reductions in carbon dioxide emissions at low cost, avoid uneven impacts across household income groups, and prevent losses of profit in the most vulnerable U.S. industries. The urgency of the climate problem demands comprehensive action, and Confronting the

Climate Challenge offers important insights that can help elevate policy discussions and spur needed efforts on the climate front.

The 2nd edition of *An Introduction to Climate Change Economics and Policy* explains the key scientific, economic and policy issues related to climate change in a completely up-to-date introduction for anyone interested, and students at all levels in various related courses, including environmental economics, international development, geography, politics and international relations. FitzRoy and Papyrakis highlight how economists and policymakers often misunderstand the science of climate change, underestimate the growing threat to future civilization and survival and exaggerate the costs of radical measures needed to stabilize the climate. In contrast, they show how direct and indirect costs of fossil fuels – particularly the huge health costs of local pollution – actually exceed the investment needed for transition to an almost zero carbon economy in two or three decades using available technology.

A major objective of this volume is to create and share knowledge about the socio-economic, political and cultural dimensions of climate change. The authors analyze the effects of climate change on the social and environmental determinants of the health and well-being of communities (i.e. poverty, clean air, safe drinking water, food supplies) and on extreme events such as floods and



hurricanes. The book covers topics such as the social and political dimensions of the ebola response, inequalities in urban migrant communities, as well as water-related health effects of climate change. The contributors recommend political and social-cultural strategies for mitigate, adapt and prevent the impacts of climate change to human and environmental health. The book will be of interest to scholars and practitioners interested in new methods and tools to reduce risks and to increase health resilience to climate change.

We study the long-term impact of climate change on economic activity across countries, using a stochastic growth model where labor productivity is affected by country-specific climate variables—defined as deviations of temperature and precipitation from their historical norms. Using a panel data set of 174 countries over the years 1960 to 2014, we find that per-capita real output growth is adversely affected by persistent changes in the temperature above or below its historical norm, but we do not obtain any statistically significant effects for changes in precipitation. Our counterfactual analysis suggests that a persistent increase in average global temperature by  $0.04^{\circ}\text{C}$  per year, in the absence of mitigation policies, reduces world real GDP per capita by more than 7 percent by 2100. On the other hand, abiding by the Paris Agreement, thereby limiting the temperature increase to  $0.01^{\circ}\text{C}$  per annum, reduces the loss substantially to

about 1 percent. These effects vary significantly across countries depending on the pace of temperature increases and variability of climate conditions. We also provide supplementary evidence using data on a sample of 48 U.S. states between 1963 and 2016, and show that climate change has a long-lasting adverse impact on real output in various states and economic sectors, and on labor productivity and employment.

Too often amongst policy makers and thought leaders an assumption is made that we must make a choice between tackling climate change and having a strong economy; tackling climate change and allowing poorer nations to develop; tackling climate change and having a secure energy system. However, a decade of advanced modelling tested against historical data has provided wide evidence that well-chosen policies can be implemented that avoid these apparent either/or choices. This highly interdisciplinary book provides an overview of potential pathways for the decarbonisation of the global economy. By examining the entire global economy, we show policy-makers and thought-leaders that greatly reducing the risks of climate change can be consistent with energy security, economic development in poor nations, and vibrant economies in already developed nations. Advanced models of the relationships between the economy, energy and climate change pioneered at the Cambridge Centre for Climate

Change Mitigation Research (4CMR) over the past decade provides a sound evidence base for decisions. This book examines not only the impacts of policies, but also the feasibility of bringing them forward and the ways in which energy, climate and economic policies can and must be joined up if climate, energy and economic goals are to be met globally. Economists, physicists, engineers, policy analysts, environmental scientists, climate scientists, political analysts, lawyers and computational scientists are brought together for the first time to produce analyses that make up a unique approach to a global problem that must be addressed sooner rather than later. Contents: Introduction (Terry Barker) The Case for Decarbonisation (Douglas Crawford-Brown and Martin Sewell) Policies and Measures for Mitigating Climate Change (Paul Haynes and Yongfu Huang) Scenario Design for a Global Low-carbon Economy (Jun Li and Aleix Altimiras-Martin) Modelling Decarbonisation Scenarios (Annela Anger, Terry Barker and Mark Syddall) The Economic Feasibility of Policies for Decarbonisation (Terry Barker, Annela Anger and Hector Pollitt) Feasibility of Decarbonisation from a Technology Perspective (J-F Mercure and Pablo Salas) Feasibility of Reducing Emissions by End-use Sector (Scott Kelly, Andrew Skelton and Aleix Altimiras-Martin) From Theory to Practice: Climate Policy and Political Feasibility (Sonja Klinsky and Michael Grubb) Co-impacts of a

Decarbonised Economy (Douglas Crawford-Brown and Ann Thompson) Conclusions (Terry Barker) Readership: Academics and policy makers interested in forming policies that target energy, climate and economic issues. Key Features: Conclusions are based on a decade of developing some of the most advanced models of links between energy, economic and environmental issues Examines the entire global economy, showing how policies and actions in any one nation influence behaviours in other nations Highly interdisciplinary content, with analyses produced by economists, physicists, engineers, policy analysts, environmental scientists, climate scientists, political analysts, lawyers and computational scientists Keywords: Climate Change; Climate Policy; Economic Development; Environment; Energy Policy; Low Carbon Technology

Climate change threatens the economy of the United States in myriad ways, including increased flooding and storm damage, altered crop yields, lost labor productivity, higher crime, reshaped public-health patterns, and strained energy systems, among many other effects. Combining the latest climate models, state-of-the-art econometric research on human responses to climate, and cutting-edge private-sector risk-assessment tools, *Economic Risks of Climate Change: An American Prospectus* crafts a game-changing profile of the economic risks of

climate change in the United States. This prospectus is based on a critically acclaimed independent assessment of the economic risks posed by climate change commissioned by the Risky Business Project. With new contributions from Karen Fisher-Vanden, Michael Greenstone, Geoffrey Heal, Michael Oppenheimer, and Nicholas Stern and Bob Ward, as well as a foreword from Risky Business cochairs Michael Bloomberg, Henry Paulson, and Thomas Steyer, the book speaks to scientists, researchers, scholars, activists, and policy makers. It depicts the distribution of escalating climate-change risk across the country and assesses its effects on aspects of the economy as varied as hurricane damages and violent crime. Beautifully illustrated and accessibly written, this book is an essential tool for helping businesses and governments prepare for the future.

Economic Risks of Climate Change An American Prospectus Columbia University Press

Climate change is one of the biggest challenges for mankind. Although there is increasing evidence that climate change is already occurring, there is neither sufficient knowledge as to what extent climate change poses risks to societies and companies, nor about adequate strategies to cope with these risks. Bringing together an international group of scholars from environmental economics,

political science and business, this book describes, analyses and evaluates climate change risks and responses of societies and companies. The book contributes to the question of how climate change can be mitigated by discussing efficient and effective design of mitigation measures, in particular emissions trading and clean development mechanism (CDM). Placing special emphasis on the impact of climate change risks on business, the book investigates in which way selected sectors of the economy are affected and what measures they can undertake to adapt to climate change risks.

This report provides a critical assessment of adaptation costs and benefits in key climate sensitive sectors, as well as at national and global levels.

Ending poverty and stabilizing climate change will be two unprecedented global achievements and two major steps toward sustainable development. But the two objectives cannot be considered in isolation: they need to be jointly tackled through an integrated strategy. This report brings together those two objectives and explores how they can more easily be achieved if considered together. It examines the potential impact of climate change and climate policies on poverty reduction. It also provides guidance on how to create a “win-win†? situation so that climate change policies contribute to poverty reduction and poverty-reduction policies contribute to climate change mitigation and resilience building. The key

finding of the report is that climate change represents a significant obstacle to the sustained eradication of poverty, but future impacts on poverty are determined by policy choices: rapid, inclusive, and climate-informed development can prevent most short-term impacts whereas immediate pro-poor, emissions-reduction policies can drastically limit long-term ones.

Global climate change is one of America's most significant long-term policy challenges. Human activity--especially the use of fossil fuels, industrial processes, livestock production, waste disposal, and land use change--is affecting global average temperatures, snow and ice cover, sea-level, ocean acidity, growing seasons and precipitation patterns, ecosystems, and human health. Climate-related decisions are being carried out by almost every agency of the federal government, as well as many state and local government leaders and agencies, businesses and individual citizens. Decision makers must contend with the availability and quality of information, the efficacy of proposed solutions, the unanticipated consequences resulting from decisions, the challenge of implementing chosen actions, and must consider how to sustain the action over time and respond to new information. Informing an Effective Response to Climate Change, a volume in the America's Climate Choices series, describes and assesses different activities, products, strategies, and tools for informing decision

makers about climate change and helping them plan and execute effective, integrated responses. It discusses who is making decisions (on the local, state, and national levels), who should be providing information to make decisions, and how that information should be provided. It covers all levels of decision making, including international, state, and individual decision making. While most existing research has focused on the physical aspect of climate change, *Informing an Effective Response to Climate Change* employs theory and case study to describe the efforts undertaken so far, and to guide the development of future decision-making resources. *Informing an Effective Response to Climate Change* offers much-needed guidance to those creating public policy and assists in implementing that policy. The information presented in this book will be invaluable to the research community, especially social scientists studying climate change; practitioners of decision-making assistance, including advocacy organizations, non-profits, and government agencies; and college-level teachers and students.

Climate change presents perhaps the most profound challenge ever confronted by human society. This volume is a definitive analysis drawing on the best thinking on questions of how climate change affects human systems, and how societies can, do, and should respond. Key topics covered include the history of the issues, social and political reception of climate



science, the denial of that science by individuals and organized interests, the nature of the social disruptions caused by climate change, the economics of those disruptions and possible responses to them, questions of human security and social justice, obligations to future generations, policy instruments for reducing greenhouse gas emissions, and governance at local, regional, national, international, and global levels.

Climate change will lead to many changes in global development and security especially energy, water, food, society, job, diplomacy, culture, economy and trade. The Intergovernmental Panel on Climate Change (IPCC) defines climate change as: "Any change in climate over time, whether due to natural variability or as a result of human activity." Global climate change has emerged as a key issue in both political and economic arenas. It is an increasingly questioned phenomenon, and progressive national governments around the world have started taking action to respond to these environmental concerns. This book discusses the issue of food and water security in India under the context of climate change. It provides information to scientists and local government to help them better understand the particularities of the local climate. It offers insight into the changes to natural ecosystems which have affected the local Indian population. Climate change is one of the biggest challenges to Indian society. It can lead to serious impacts on production, life and the environment. Higher temperatures and sea level rise can lead to flooding and cause water salinity problems which bring about negative effects on agriculture and high risks to industry and socio-economic systems in the future.

This document sets out the context for Alberta's policy on climate change, presents the position & principles of Alberta's position on addressing climate change issues, and outlines

objectives and actions of the provincial strategy to address those issues. Appendices include an assessment of the economic impacts of implementing the Kyoto Protocol and a summary of actions to date that Alberta is taking to reduce greenhouse gas emissions.

Some climate change is now inevitable and strategies to adapt to these changes are quickly developing. The question is particularly paramount for low-income countries, which are likely to be most affected. This timely and unique book takes an integrated look at the twin challenges of climate change and development. The book treats adaptation to climate change as an issue of climate-resilient development, rather than as a bespoke set of activities (flood defences, drought plans, and so on), combining climate and development challenges into a single strategy. It asks how the standard approaches to development need to change, and what socio-economic trends and urbanisation mean for the vulnerability of developing countries to climate risks. Combining conceptual thinking with practical policy prescriptions and experience the contributors argue that, to address these questions, climate risk has to be embedded fully into wider development strategies

One of the world's leading urban and environmental economists tells us what our lives will be like when climate change arrives

Climate change is profoundly altering our world in ways that pose major risks to human societies and natural systems. We have entered the Climate Casino and are rolling the global-warming dice, warns economist William Nordhaus. But there is still time to turn around and walk back out of the casino, and in this essential book the author explains how. *div*  
*/DIV* Bringing together all the important issues surrounding the climate debate, Nordhaus describes the science, economics, and politics involved—and the steps necessary to reduce the

perils of global warming. Using language accessible to any concerned citizen and taking care to present different points of view fairly, he discusses the problem from start to finish: from the beginning, where warming originates in our personal energy use, to the end, where societies employ regulations or taxes or subsidies to slow the emissions of gases responsible for climate change. Nordhaus offers a new analysis of why earlier policies, such as the Kyoto Protocol, failed to slow carbon dioxide emissions, how new approaches can succeed, and which policy tools will most effectively reduce emissions. In short, he clarifies a defining problem of our times and lays out the next critical steps for slowing the trajectory of global warming.

Building on the experience of OECD countries, this report sets out how the latest economic evidence and tools can enable better policy making for adaptation.

In the face of a rapidly-changing geopolitical landscape, contemporary perspectives on security have drastically changed in reaction to new conflict factors that have arisen out of, and are related to, unpredictable patterns of climate change. Already, in both the short and long term future, it is increasingly likely that conflict will result from a multitude of such stress factors. Environmental stress, stress caused by climate change in particular, is only one of these factors. Nonetheless, in light of its diverse and multiplier impacts, it remains an important one. This report, intended for policy makers and business professionals, examines the economic aspects of the relatively under-explored concept of planetary security. Planetary security refers to the role of the environment in geopolitical risks and conflicts. The report evaluates the vulnerabilities and resilience of countries to environmentally induced conflict. It first discusses the concept of planetary security and the role of economics therein, and then builds a

quantitative framework and monitor capturing the vulnerabilities and resilience of different countries. The monitor is innovative in its inclusion of a variety of security risks related to the transition to a low carbon economy: Conflict Vulnerability, Climate Change Vulnerability, Low Carbon Risk and Economic Resilience. These layers are combined to create a Consolidated Risk Layer and a Consolidated Resilience Layer, in order to provide insight into how resilience to the above vulnerabilities could be bolstered. The monitor and accompanying report, have been produced by The Hague Centre for Strategic Studies (HCSS) and Clingendael Institute as a key input to the Planetary Security Initiative conference, which took place in The Hague, the Netherlands on December 5 and 6, supported by the Dutch Ministry of Foreign Affairs. The New York Times-bestselling "skeptical environmentalist" argues that panic over climate change is causing more harm than good. Hurricanes batter our coasts. Wildfires rage across the American West. Glaciers collapse in the Arctic. Politicians, activists, and the media espouse a common message: climate change is destroying the planet, and we must take drastic action immediately to stop it. Children panic about their future, and adults wonder if it is even ethical to bring new life into the world. Enough, argues bestselling author Bjorn Lomborg. Climate change is real, but it's not the apocalyptic threat that we've been told it is. Projections of Earth's imminent demise are based on bad science and even worse economics. In panic, world leaders have committed to wildly expensive but largely ineffective policies that hamper growth and crowd out more pressing investments in human capital, from immunization to education. False Alarm will convince you that everything you think about climate change is wrong -- and points

the way toward making the world a vastly better, if slightly warmer, place for us all. This volume deals with the multifaceted and interdependent impacts of climate change on society from the perspective of a broad set of disciplines. The main objective of the book is to assess public and private cost of climate change as far as quantifiable, while taking into account the high degree of uncertainty. It offers new insights for the economic assessment of a broad range of climate change impact chains at a national scale. The framework presented in the book allows consistent evaluation including mutual interdependencies and macroeconomic feedback. This book develops a toolbox that can be used across the many areas of climate impact and applies it to one particular country: Austria.

This issue of Finance & Development looks at the economic and financial impact of climate policy choices. It points to concrete solutions that offer growth opportunities, driven by technological innovation, sustainable investment, and a dynamic private sector. The private sector can stop supporting or subsidizing industries and activities that damage the planet and instead invest in sustainable development. Governments can roll out policies to fight climate change and the destruction of nature. The paper highlights that technological change and innovations are central to longer-term efforts to mitigate climate change by developing alternatives to fossil fuels. A new, sustainable financial system is under construction. It is funding the initiatives and innovations of the private sector and amplifying the effectiveness of governments' climate policies—it

could even accelerate the transition to a low-carbon economy. The Bank of England's latest survey finds that almost three-quarters of banks are starting to treat the risks from climate change like other financial risks—rather than viewing them simply as a corporate social responsibility. Banks have begun to consider the most immediate physical risks to their business models—from the exposure of mortgage books to flood risk to the impact of extreme weather events on sovereign risk.

This report synthesizes the results of country and sector studies on the economic costs and benefits of unilateral and regional actions on climate change in the Asian Development Bank's six South Asia developing members, namely Bangladesh, Bhutan, India, the Maldives, Nepal, and Sri Lanka. The study takes into account the different scenarios and impacts projected across vulnerable sectors and estimates the total economic loss throughout the 21st century and amount of funding required for adaptation measures to avert such potential losses. It is envisioned to strengthen decision-making capacities and improve understanding of the economics of climate change for the countries in South Asia.

This book provides an authoritative insight on the Loss and Damage discourse by highlighting state-of-the-art research and policy linked to this discourse and articulating its multiple concepts, principles and methods. Written by leading researchers and practitioners, it identifies practical and evidence-based policy options to inform the discourse and climate negotiations. With climate-related risks on the rise and impacts

being felt around the globe has come the recognition that climate mitigation and adaptation may not be enough to manage the effects from anthropogenic climate change. This recognition led to the creation of the Warsaw International Mechanism on Loss and Damage in 2013, a climate policy mechanism dedicated to dealing with climate-related effects in highly vulnerable countries that face severe constraints and limits to adaptation. Endorsed in 2015 by the Paris Agreement and effectively considered a third pillar of international climate policy, debate and research on Loss and Damage continues to gain enormous traction. Yet, concepts, methods and tools as well as directions for policy and implementation have remained contested and vague. Suitable for researchers, policy-advisors, practitioners and the interested public, the book furthermore:

- discusses the political, legal, economic and institutional dimensions of the issue
- highlights normative questions central to the discourse
- provides a focus on climate risks and climate risk management
- presents salient case studies from around the world.

This publication serves as a roadmap for exploring and managing climate risk in the U.S. publication. It is the first major climate publication by a U.S. financial regulator. The central message of this publication is that U.S. financial regulators must recognize that climate change poses serious emerging risks to the U.S. financial system, and they should move urgently and decisively to measure, understand, and address these risks. Achieving this goal calls for strengthening regulators' capabilities, expertise, and data

and tools to better monitor, analyze, and quantify climate risks. It calls for working closely with the private sector to ensure that financial institutions and market participants do the same. And it calls for policy and regulatory choices that are flexible, open-ended, and adaptable to new information about climate change and its risks, based on close and iterative dialogue with the private sector. At the same time, the financial community should not simply be reactive—it should provide solutions. Regulators should recognize that the financial system can itself be a catalyst for investments that accelerate economic resilience and the transition to a net-zero emissions economy. Financial innovations, in the form of new financial products, services, and technologies, can help the U.S. economy better manage climate risk and help channel more capital into technologies essential for the transition.

Climate change is one of the greatest challenges facing human kind owing to the great uncertainty regarding future impacts, which affect all regions and many ecosystems. Many publications deal with economic issues relating to mitigation policies, but the economics of adaptation to climate change has received comparatively little attention. However, this area is is critical and a central pillar of any adaptation strategy or plan and is the economic dimension, which therefore merits the increase in attention it is receiving. This book deals with the difficulties that face the economics of adaptation. Critical issues include: uncertainty; baselines; reversibility, flexibility and adaptive management; distributional impacts; discount rates and time horizons; mixing monetary



and non-monetary evaluations and limits to the use of cost-benefit analysis; economy-wide impacts and cross-sectoral linkages. All of these are addressed in the book from the perspective of economics of adaptation. Other dimensions of adaptation are also included, such as the role of low- and middle-income countries, technology and the impacts of extreme events. This timely book will prove essential reading for international researchers and policy makers in the fields of natural resources, environmental economics and climate change.

The #1 international bestselling author of *The Gray Rhino* offers a bold new framework for understanding and re-shaping our relationship with risk and uncertainty to live more productive and successful lives. What drives a sixty-four-year-old woman to hurl herself over Niagara Falls in a barrel? Why do we often create bigger risks than the risks we try to avoid? Why are corporate boards newly worried about risky personal behavior by CEOs? Why are some nations quicker than others to recognize and manage risks like pandemics, technological change, and climate crisis? The answers define each person, organization, and society as distinctively as a fingerprint. Understanding the often-surprising origins of these risk fingerprints can open your eyes, inspire new habits, catalyze innovation and creativity, improve teamwork, and provide a beacon in a world that seems suddenly more uncertain than ever. How you see risk and what you do about it depend on your personality and experiences. How you make these cost-benefit calculations depend on your culture, your values, the people in the room, and even

unexpected things like what you've eaten recently, the temperature, the music playing, or the fragrance in the air. Being alert to these often-unconscious influences will help you to seize opportunity and avoid danger. *You Are What You Risk* is a clarion call for an entirely new conversation about our relationship with risk and uncertainty. In this ground-breaking, accessible and eminently timely book, Michele Wucker examines why it's so important to understand your risk fingerprint and how to make your risk relationship work better in business, life, and the world. Drawing on compelling risk stories around the world and weaving in economics, anthropology, sociology, and psychology research, Wucker bridges the divide between professional and lay risk conversations. She challenges stereotypes about risk attitudes, re-frames how gender and risk are related, and shines new light on generational differences. She shows how the new science of "risk personality" is re-shaping business and finance, how healthy risk ecosystems support economies and societies, and why embracing risk empathy can resolve conflicts. Wucker shares insights, practical tools, and proven strategies that will help you to understand what makes you who you are –and, in turn, to make better choices, both big and small.

The climate record for the past 100,000 years clearly indicates that the climate system has undergone periodic--and often extreme--shifts, sometimes in as little as a decade or less. The causes of abrupt climate changes have not been clearly established, but the triggering of events is likely to be the result of multiple natural processes. Abrupt climate changes of the

magnitude seen in the past would have far-reaching implications for human society and ecosystems, including major impacts on energy consumption and water supply demands. Could such a change happen again? Are human activities exacerbating the likelihood of abrupt climate change? What are the potential societal consequences of such a change? Abrupt Climate Change: Inevitable Surprises looks at the current scientific evidence and theoretical understanding to describe what is currently known about abrupt climate change, including patterns and magnitudes, mechanisms, and probability of occurrence. It identifies critical knowledge gaps concerning the potential for future abrupt changes, including those aspects of change most important to society and economies, and outlines a research strategy to close those gaps. Based on the best and most current research available, this book surveys the history of climate change and makes a series of specific recommendations for the future. The aim of this book is to provide information to scientists and local government to help them better understand the particularities of the local climate. Climate change is one of the biggest challenges to society. It can lead to serious impacts on production, life and environment on a global scale. Higher temperatures and sea level rise will cause flooding and water salinity problems which bring about negative effects on agriculture and high risks to industry and socio-economic systems in the future. Climate change leads to many changes in global development and security, especially energy, water, food, society, job, diplomacy, culture, economy and trade. The Intergovernmental Panel on Climate Change (IPCC) defines climate change as: "Any change in climate over time, whether due to natural variability or as a result of human activity." Global climate change has emerged as a key issue in both political and economic arenas. It is an increasingly questioned phenomenon, and progressive national governments

around the world have started taking action to respond to these environmental concerns. Climate change is occurring. It is very likely caused by the emission of greenhouse gases from human activities, and poses significant risks for a range of human and natural systems. And these emissions continue to increase, which will result in further change and greater risks. America's Climate Choices makes the case that the environmental, economic, and humanitarian risks posed by climate change indicate a pressing need for substantial action now to limit the magnitude of climate change and to prepare for adapting to its impacts. Although there is some uncertainty about future risk, acting now will reduce the risks posed by climate change and the pressure to make larger, more rapid, and potentially more expensive reductions later. Most actions taken to reduce vulnerability to climate change impacts are common sense investments that will offer protection against natural climate variations and extreme events. In addition, crucial investment decisions made now about equipment and infrastructure can "lock in" commitments to greenhouse gas emissions for decades to come. Finally, while it may be possible to scale back or reverse many responses to climate change, it is difficult or impossible to "undo" climate change, once manifested. Current efforts of local, state, and private-sector actors are important, but not likely to yield progress comparable to what could be achieved with the addition of strong federal policies that establish coherent national goals and incentives, and that promote strong U.S. engagement in international-level response efforts. The inherent complexities and uncertainties of climate change are best met by applying an iterative risk management framework and making efforts to significantly reduce greenhouse gas emissions; prepare for adapting to impacts; invest in scientific research, technology development, and information systems; and facilitate engagement between

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scientific and technical experts and the many types of stakeholders making America's climate choices.

This publication reviews the economics of climate change in Southeast Asia, with a particular focus on Indonesia, Philippines, Singapore, Thailand, and Viet Nam. It confirms that the region is highly vulnerable to climate change, demonstrates that a wide range of adaptation measures are already being applied, and that it has great potential to contribute to the reduction of greenhouse gas emissions globally. It shows that the cost to the region and globally of taking no early action against climate change far outweighs the cost of action. The publication urges Southeast Asia to play an important part in working toward a global solution to climate change, and to apply all feasible and economically viable adaptation and mitigation measures as key elements of poverty reduction and sustainable development strategies. It also argues that the current global economic crisis offers Southeast Asia an opportunity to start a transition towards a climate-resilient and low-carbon economy by introducing green stimulus programs that can simultaneously shore up economies, create jobs, reduce poverty, lower carbon emissions, and prepare for the worst effects of climate change.

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