Have We Underestimated Climate Change?

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Climate change was thought to be a mere theory but think about the weather headlines in the news. Insurance companies are in the business of predicting the frequency, intensity, and cost of extreme weather. The case is not made by one hurricane that cancelled your trip to Disney or by a snow drought in the Rockies. The evidence is the intensity of extreme weather events overall.

According to insurance company Munich Re, the number of extreme weather events has doubled over the last thirty years. It is estimated that climate change already costs $1.2 trillion per year, which equates to 1.6% of global GDP. We have been talking about climate change for nearly 60 years now. However, its reach and scale has become more evident over recent years, going beyond the environment. It has become the "ultimate risk multiplier" for society, causing societal stresses including economic disparity, human health destruction, human migration, and tensions between nations. We must step up to the urgency of climate change!

"Climate change already costs $1.2 trillion per year."

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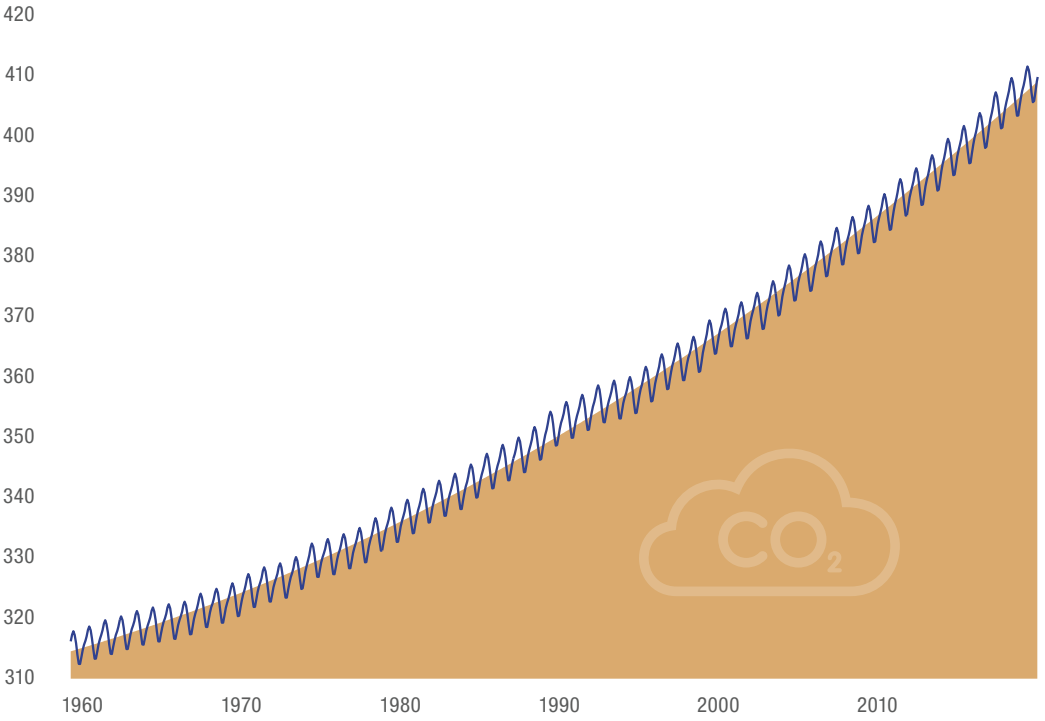
What about the science?

What about the evidence? Scientists can measure the amount of carbon dioxide and greenhouse gases (GHG) emitted over centuries by examining fossil, ice, and rock samples. If we look at two thousand years of data, we can easily see that CO_2 in the atmosphere has soared since the beginning of the Industrial Revolution in 1751. The graphic below is just impressive. It shows that about half of the cumulative human-generated carbon dioxide emissions since the start of the Industrial Revolution have been generated over just the last 40 years, according to the Intergovernmental Panel on Climate Change (IPCC). And, what scientists fail to mention is that it can take generations for natural processes to disperse the CO_2 and other greenhouse gases which are already in the atmosphere.

Carbon Dioxide Over Two Millenia[1]

Global Average Long-Term Atmospheric Concentration of CO_2 (measured in parts per million)



1. Source: Scripps CO_2 Program, August 2019. Chart to be found at: http://scrippsco2.ucsd.edu/graphics_gallery/mauna_loa_record/mauna_loa_record_color

How does climate change affect my investments?

Human-induced climate change due to GHG emissions has profound economic consequences. Addressing global warming is a world-wide issue impacting the entire value chain. It is impossible to imagine any part of the economy, or any part of our lives, that is not intertwined with the need for power or heat—the majority of which is still produced using fossil fuels. Dealing with climate change implies transitioning to a net zero-carbon economy. In short, a world without burning fossil fuels in areas such as transportation, power generation, and industrial processes. As with any analysis, the key is to understand both the risks and potential opportunities. Energy transition is central to climate-related risks and potential opportunities.

Examples of climate-related risks include increased costs due to changing policy and emission regulations, shifts in supply and demand for certain commodities, products, and services. Climate change also creates value-related risks for company assets and a potential for stranded assets.

- Will the cost of energy soar if we tax emissions?
- Will power plants be worth less than their current balance sheet values?
- Will oil reserves become less valuable if demand slows below forecasts?

It is predicted that any production from new oil and gas fields, beyond those already in production or development, is incompatible with limiting warming to 1.5°C. This implies that the $4.9 trillion capital expenditure (Capex) forecast in new oil and gas fields is incompatible with limiting warming to 1.5°C.

There are also opportunities. Some companies are already on the path to reducing GHGs. Some are reducing their own emissions or making the end-use of their products more sustainable for consumers, while others are developing new sustainable technologies.

Who will make these revolutionary changes?

Everyone! Businesses, investors, consumers, and governments, through our behavior. Both because we all bear enormous responsibility, and because our behavior will determine the type and speed of action. As President Obama stated, “We are the first generation to feel the effect of climate change and the last generation who can do something about it.”

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Politics are slow—Won't this take some time?

At COP 21, the 2015 Paris Agreement was signed by 195 nations. These countries agreed to submit plans for the goal of maintaining the global average temperature increase to well below two degrees Celsius over pre-industrial levels, and to pursue efforts to limit temperature increase even further to 1.5 C. But only twenty heads of nations were present at COP 24 in 2018, when the IPPC presented its report requested three years before. This significantly undermines the pledges taken by countries during COP21. Three years later, COP24 tested the commitment of nations following the Paris Agreement in which the urgency of the situation was not fully appreciated by world leaders as several nations reduced the impact of the IPCC report findings by failing to "welcome" the report.

Failure to pursue actions will make these findings more urgent, and reduce the ability for companies, investors, and populations to plan. As UN Secretary-General Antonio Guterres said in May 2019, "Climate change is running faster than we are." Nations and regulators have already implemented changes which have had, and will have, substantial effects on businesses and others — just not quickly enough to slow GHG emissions.

Why do I need to worry about my investments now, if politicians are not making fundamental changes yet?

Change is being urged, even forced, by the new generation—who is more than just demonstrating for the cause. If our responsibility to ourselves and our children does not propel solutions, the consequences to our global economy will soon require change. Researchers estimate that a combined cost of climate change and air pollution will have more than doubled with 3.2% of global GDP within 2030. The greater these effects, the more costly they become to our society and economy, the more dramatic the surprises, and the more urgent the solutions. With or without broader political or societal will, regulators are already restricting emissions. Evaluating energy transition can help prevent some of the negative surprises.

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What about non-climate related investments?

There are no non-climate-related investments! At the risk of repetition, climate change affects the full value chain of our worldwide economy whatever your industry. Sectors as diverse as software developers, hotels and tourism, or sports industries, not just power generation, oil and gas, and agriculture, are impacted by this megatrend. Evaluating climate risk has become one more element of analyzing investment risks and opportunities, and an increasingly important one.

How to invest for climate change—and where does energy transition fit?

There are two categories of response to climate change—mitigation and adaptation. Within mitigation, energy efficiency and transition are the largest factors. This means moving the global economy towards sources of power that emit fewer, or no greenhouse gases. Our existing energy web is a complex system of technologies, existing assets and investments, regulations, and social issues. Energy efficiency alone is targeted at 44% of the reduction of global GHG emissions necessary to respect the 2 C scenario.

"Mitigation of climate change gives rise to risks which obviously vary across sector."

Mitigation of climate change gives rise to risks which obviously vary across sector. Energy transition may reduce the use of fossil fuels, auto makers will face increasing emission limits on their products, while buildings, both existing and new, will need to tackle energy consumption and emissions. Investment opportunities for energy transition and climate mitigation include energy efficiency, storage, and renewables. Capital goods companies may develop solutions such as energy-efficient industrial automation, smart grids to optimize energy conservation, and new energy storage technologies to resolve the problem of intermittent supply from solar, wind, and hydropower on days when the sun does not shine.

These technologies will create a domino effect and together will create long-term solutions to climate change. For example, energy efficiency technologies help reduce energy consumption but cannot address decarbonization needs. On the other hand, renewable energy alone will not be able to meet energy demand especially if we cannot efficiently manage and stock use.

We have reached a point of urgency as the planet has passed the milestone of 1°C of warming. We are only 0.5°C away from an unknown scenario, where adaptation may no longer be an option. Mitigation and adaptation efforts must go hand in hand to tackle climate change. Adaptation is intimately interrelated with mitigation. An example of the interrelationship is agriculture, which is both a main contributor to climate change and is highly vulnerable to it. The full agri-food chain is responsible for at least 25% of the European Union's GHG emissions. Yet concurrently, crops are very susceptible to severe weather events and other elements of climate change. Climate change has induced conflicting effects, including too much water and not enough at the same time. One climate adaptation opportunity is the development and sale of seeds for drought-resistant crops. Another climate adaptation problem, and investment opportunity, is adaptation to increased flooding. A stadium in Yokohama was built on stilts to allow for drainage of excess flood water. Copenhagen has a cloudburst management plan, which incorporates new green spaces and waterways to accommodate flash floods.

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Why are you so passionate about incorporating climate change in investment analysis?

The founding signatories of the UN Principles for Responsible Investment (PRI) in 2006, established the PRI as much on the basis of practical financial conviction as for ethical reasons. These hundred founders, and the over two thousand current signatories, share the conviction that by integrating environmental considerations into investment management, we can achieve better risk-adjusted returns.

Much has been accomplished, with still more to do, to enable investors to measure and compare results. The PRI has spawned many cooperative efforts to quantify climate change and other environmental, social, and governance factors in investing, such as the Task Force on Climate-Related Financial Disclosures (TCFD). Over 100 CEOs publicly supported this effort. In 2017, the TCFD established voluntary and consistent climate-related risk disclosures for companies to provide information to investors and others, although without a time frame for adoption.

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Energy transition: Orderly or chaotic?

Slow or rapid, the problem is here, the problem is growing, and solutions for energy transition are emerging. If cooperative, the solutions may be rapid and coordinated. If pursued in patchwork fashion, solutions, and therefore risks and opportunities, may be piecemeal and chaotic. If politicians are slow, business and investors may force the issues. When President Trump withdrew the U.S. from participation in the Paris Agreement in 2017, CEOs of major U.S. companies including Apple, Google, Intel, Morgan Stanley, Hewlett Packard, Levi Strauss, and others immediately published a letter announcing their continued support for the accord, stating that "By expanding markets for innovative clean technologies, the Paris Agreement generates jobs and economic growth."

Climate change is here. Energy transition and other mitigation efforts are underway. Adaptation strategies are being pursued. The more uncertain the timing, the greater the need to incorporate the risks and opportunities of climate change in all investment analysis.

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ABOUT RISK

All investments are subject to market risk, including possible loss of principal. Diversification cannot assure a profit or protect against a loss in a declining market.

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