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Extreme Weather Is Not The "New" Normal

Redwood Grove was founded on two simple, divergent views. First, climate change is not accurately priced in the public equity markets. Second, the climate's mispricing is one of the last widespread sources of alpha for active managers. Redwood Grove's investment process, focused on this inefficiency, has enabled its portfolio to beat its benchmark since inception. Over the past three years, Redwood Grove's returns have been just short of double its benchmark. **This letter is going to discuss why we believe Redwood Grove's divergent views are enabling it to outperform and why we believe it is a durable advantage.**

While many market participants disagree with our thesis, we believe Redwood Grove has something more powerful than market opinion on our side: scientific research. We attribute Redwood Grove's alpha to the fact that scientifically based climate forecasts and their economic impacts are not conventionally included in market analysis.

This summer the world saw an unprecedented number of extreme weather events. Pakistan experienced record-breaking heat that scientists concluded had been 30 times more likely to happen because of global warming.[1] That heat was just the setup for the flooding caused by severe rains that submerged a third of Pakistan. Closer to home, California experienced 110 degrees Fahrenheit temperatures in September that almost crippled the state's ISO utility grid. China experienced an eleven-week heat wave and drought so extreme that it disabled their hydroelectric dams and cut off ships carrying supplies.[2] The climate change-driven proliferation of these and other events is not new news. Yet Redwood Grove has found that many if not all sell-side analysts refer to a reversion to historical averages when talking about the future economic impacts of these extreme weather events. This contrasts with climate science and Redwood Grove's fundamental analysis. In some cases, this divergence can cause a meaningfully different economic outlook for companies.

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[1] www.worldweatherattribution.org/climate-change-made-devastating-early-heat-in-india-and-pakistan-30-times-more-likely/

[2] https://www.nytimes.com/2022/08/26/business/economy/china-drought-economy-climate.html?campaign_id=9&emc=edit_nn_20220907&instance_id=71265&nl=the-morning®i_id=72887177&segment_id=105577&te=1&user_id=6748ce8bec4040e76d7abcc8de19ade5

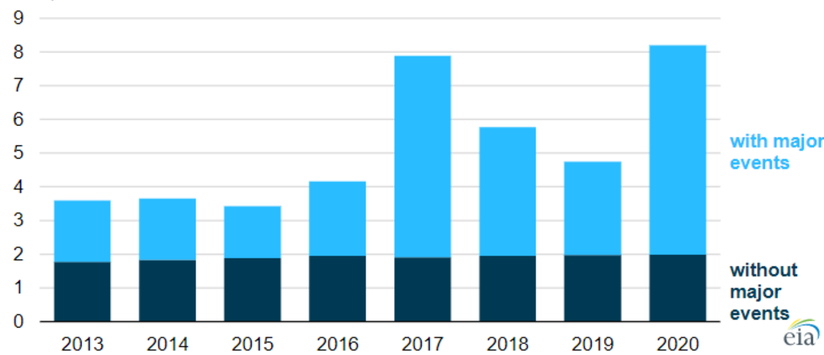
Media reports make a different but also incorrect assumption when reporting on weather events by calling extreme weather events the "new normal." In fact, the current weather conditions would be a welcomed new normal. Unfortunately, we have not hit a plateau, as the phrase "new normal" implies. Rather, we are in a transition where each year, the probability of extreme weather events goes up. In the last decade (2011-2021) the five-year rolling average annual damage caused by billion-dollar weather events in the United States has gone from $46.5 billion to $157.7 billion.[3] Importantly, because of how greenhouse gas emissions heat the planet, already released emissions will continue to heat the planet for decades. Climate scientists take no comfort in the fact that these increases had been forecast with impressive accuracy since the 1980's.[4]

Redwood Grove's research process investigates four major themes of climate change: technological innovations, regulatory changes, consumer behavioral patterns, and the physical impacts of climate change. It is the last one that we are discussing today. The physical impacts of climate change, like the other four themes, have many sub-themes that Redwood Grove explores to find economic insights not captured by traditional fundamental analysis. For example, these extreme weather events put an immense amount of pressure on the United States' aging and underfunded electrical grid.

The Physical Impacts of Climate Change and Electricity

The United States' Energy Information Agency (EIA) has been collecting detailed data on power outages since 2013. The EIA tracks System Average Interruption Duration Index (SAIDI), a standardized measure for disruptions. It quantifies power outages in the United States each year. There is data captured by other sources going back to 1984. While there are some comparability issues between the two time periods, both sets of data tell a consistent story. Since at least 1984, weather-related power outages have been going up.[5] In the last decade alone, they have doubled[6] and now account for over 75% of power outages.

[3] https://www.ncei.noaa.gov/access/billions/time-series
[4] https://pubs.giss.nasa.gov/docs/1988/1988_Hansen_ha02700w.pdf
[5] https://www.economist.com/graphic-detail/2021/03/01/power-outages-like-the-one-in-texas-are-becoming-more-common-in-america
[6] https://www.theguardian.com/us-news/2022/apr/06/us-power-outages-severe-weather-doubled-in-20-years



EIA's published data is only through 2020, as the 2021 data is still preliminary and has not yet been aggregated. However, the February 2021 power outages in Texas due to extreme cold were severe enough that 2021 outages will be meaningfully above the average shown in the above chart. Not only are storms, floods, and wildfires causing more power outages, but also years of underinvestment in grid resiliency, the transition to distributed renewable energy, and electric vehicles have resulted in much more vulnerable grids (the United States has three separately managed electrical grids: Eastern, Western and Texas).

As power outages become more common, at-home generators go from a luxury item to something more like a necessity. Generac, a manufacturer of generators and other power products, has long been a company that we found compelling. They are a dominant player in the at-home generator market with 75-80% market share in the United States. The management team is also actively pivoting the company for a clean energy future. With high cash flows the company has been investing in solar inverters, at-home battery technology, and a smart thermostat business. The new business model allows Generac to become the independent energy provider for smart homes. It is not just power during outages that make their offerings compelling; as grids increasingly are stressed by electricity demand Generac customers can sell electricity they have stored, generated, or captured through solar panels back to the utility. This helps support the grid and lowers the costs of Generac's products for the customer. Maybe more importantly, the at-home generator and batteries can become a source of non-intermittent distributed energy. They act as a virtual power plant that can be relied on by utilities to help support them during periods of stress brought on by things like heat waves.

In addition, Generac makes commercial and industrial generators that help support grids during periods of high stress, like the heat dome in Portland last year or the heat wave in California this year. Finally, as 5G rolls out and wireless connectivity is deemed an essential service, wireless towers are increasingly required by state legislatures to have backup energy.

In November 2021, Generac's stock hit new highs on accelerating sales growth driven in part by record power outages in 2020 and 2021. It peaked at 60x LTM earnings, around $500 a share.

While Redwood Grove was interested in the long-term prospects of the company the investment team could not get comfortable with the valuation. Over the past five years it has traded on average above 33x's its last twelve months earnings. Not an entirely unreasonable valuation as revenue was growing at 50% and 40% in 2020 and 2021 respectively. But these growth rates overstated the long-term growth prospects of the company, even with the increased damage caused by extreme weather events.

2022 is the first year in the past three that appears to be a below-average year for power outages. According to Bank of America's September 12th research report on Generac, 12 million Americans have lost power in 2022 compared to 38 and 31 million in 2021 and 2020. (That 2022 outage number grew by approximately 2.5 million due to Hurricane Ian which happened after the Bank of America report was published). Not entirely surprisingly, Generac's management recently revised its third quarter estimates. The market appears to be reflecting this unusually low number of power outages and the corresponding decelerating growth and has repriced Generac to approximately 12x's 2022 estimated earnings. However, Generac has demonstrated the ability to grow its revenue north of 10% through multiple market cycles and we think that's a reasonable base case even in the face of slow natural disasters in 2022. When companies have durable long-term growth rates particularly due to climate change and hit a speed bump Redwood Grove often becomes interested.

Generac is emblematic of investments that reflect our long-term view around the economic impacts of climate change. It also highlights the phenomenon that we discussed at the start of this letter. Sell-side research and market analysts all talk about the weather patterns relative to the past 40-year averages. So this year power outages caused by extreme weather are down and projections from sell-side analysts refer to the historical mean. Going back to that same Bank of America research report, the analyst states "2022 so far looks a lot like 2019 – but the question is whether 2019 is really the norm? Reverting back to a longer history of outage events maintained by the EIA, we note that data suggests 2019 was a comparatively very weak year." This is true. More interesting to Redwood Grove, is that the analyst does not mention, that not only is 2019 a weak year, but the frequency of and damage caused by extreme weather events is growing at a demonstrably increasing rate as are power outages. That might seem like a minor point, but it's worth remembering we find this oversight to be pervasive. In addition, investment analysts make their living on identifying these trends. This trend has been happening for two decades and is not hidden in the weeds, yet it goes unmentioned. In this case, the future does not look like the past. Understanding this is our competitive advantage.

Closing thoughts

ESG and Sustainable mutual funds through the first three quarters of the year have underperformed the market.[7] While Redwood Grove has outperformed the market, it is reasonable to presume it is because other sustainable funds like Redwood Grove are not exposed

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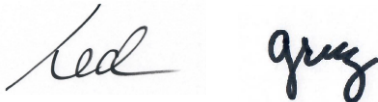
[7] https://www.nytimes.com/2022/10/14/business/mutual-funds/investing-environmental-social-governance-funds.html?smid=nytcore-ios-share&referringSource=articleShare

to fossil fuels. But according to Morningstar, only 35% of Sustainable Equity funds in the United States are not invested in fossil fuels. The bigger driver for their underperformance in 2022, has been their Growth bias.[8] Sustainability and growth have almost been synonymous for two reasons: first, many of the companies working to transition to a low-carbon economy are new "growthier" companies. Second, sustainable investing has become popular in an era where growth has been the better performing style.

There is nothing wrong with this, though many sustainable mutual funds did not market themselves as having a growth bias. This has left some investors surprised by the underperformance of sustainability. This corner of investing, ESG and sustainable, has somehow become political in recent months. So we anticipate increased headlines of the underperformance of ESG and Sustainable funds. We are defending our sustainability brethren here. Their underperformance is more likely due the growth tilt than the sustainability tilt. Of course, Redwood Grove has always had the out-of-favor value approach and we continue to believe that is the better approach over the long term.

Most important, we have a new member of the team: Grzegorz Parosa. Greg has finished his Ph.D. studies in Economics and Finance at the Warsaw School of Economics and awaits his dissertation defense. He holds a CFA designation and has MBA from Stanford Graduate School of Business. Between his studies, he has spent almost a decade as a public equity investor. Most recently he worked at Fuller & Thaler Asset management. He is a wonderful addition to the team, and we are thrilled that he has joined Redwood Grove. We hope to introduce him to everyone over the next few months.

With gratitude,



[8] https://www.morningstar.com/articles/1115641/growth-bias-has-hurt-sustainable-equity-funds-this-year

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