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Economic Impact of Climate Change

Our approach is to invest a concentrated value portfolio based on long-term fundamental prospects, effective management and attractive valuations. We also believe climate change is real with accelerating economic costs and that the risks and opportunities of climate change must be considered in each long-term investment.

At Redwood Grove we continue to look for disconfirming evidence, but the science of CO2 emissions remains clear. Despite the evidence, the forecast and the costs of climate change remain largely unpriced in the public equity markets.

Alarm bells are ringing in certain corners of the markets. In the near past, detailed reports describing the increasing climate risk in portfolios have been published by Citigroup, Barclays, Bloomberg, Cambridge Associates, McKinsey, and Blackrock, among others. Mark Carney the Governor of the Bank of England warned this year that stock markets are building a carbon bubble comparable to the debt bubble of 2008. He writes:

“As climate-related risks are re-evaluated, [we] could de-stabilize markets, spark a pro-cyclical crystallization of losses and lead to a persistent tightening of financial conditions: a climate Minsky moment.... Markets need information to assess which companies are well positioned to seize the opportunities the transition to a low carbon economy brings. Which car manufacturers are leading the way on fuel efficiency and electrification? How are energy companies adapting their mix of energy sources? This needs to be considered against investors’ views of possible transition paths.”

So why is climate change still not part of the mainstream investment process? We’ve found five primary reasons: (1) the long-term horizon problem; (2) lack of reliable data; (3) the natural biases of the human mind as described by behavioral economics; (4) the political polarization of climate change; (5) the increasing socialization of climate change. Here we discuss the socialization of climate change.

The Socialized Costs of Climate Change

The capital markets should at a minimum reflect the current physical costs of climate change. They do not. While these costs are subsidized in a myriad of ways across our economy, coastal real estate is a good place to start the discussion because it’s on the ‘front line.’ Rising sea-levels and increased storm activity in Florida have resulted in increased, sometimes catastrophic damage to homes. However, homeowners are not paying the full cost to repair that damage. The State of Florida has created a state-backed insurance company that uses tax dollars to subsidize coastal homeowner costs. The result is that existing homes do not reflect their true carrying cost, which inflates their value and encourages homes to be built and repaired in harm’s way.

This started in 1992 when Hurricane Andrew caused \$200 billion of damage bankrupting 11 insurance companies. Many of the remaining insurers stopped offering property and casualty insurance in Florida. The Florida State legislature, to prevent a decline in its tax base, created two insurance companies that

merged to become Citizens Property Insurance, an insurer of ‘last resort’. Over the subsequent decades, Citizens Property Insurance, owned by the State of Florida, became the single largest insurer in Florida with over \$500 billion dollars of liabilities and less than \$20 billion of reserves. Legally restricted from raising rates more than 10% a year, Citizen’s currently offers property insurance at 30-50% below the open market rates.

This below market insurance results in inflated prices for coastal properties, just as federally backed loans in 2000’s inflated housing prices nationally. (For those interested, we’re happy to discuss the budget for the State of Florida and why these costs may ultimately have to be covered by the Federal Government). And Florida is not alone. Louisiana, the second lowest lying state in the Gulf of Mexico, has a similar state-sponsored insurance program. Not to be outdone, the National Flood Insurance program is currently \$24.5 billion in debt to the U.S. Treasury as it pays to rebuild houses in flood zones, with some of these homes damaged every five or six years. As a result, we expect to see an increase in construction expenditures as we continue to build assets in increasingly risky locations.

In 2017, hurricanes caused \$282 billion dollars of damage. Since repairs may take up to ten years, we can estimate an additional \$28.2 billion of construction spend a year. That represents a 2.2% increase in annual construction spend, which may not sound like a lot, but from 1993-2018 construction spend grew at a 4.2% CAGR. The increase spend due to hurricanes represents a 52.8% acceleration. Some portion of that increase will be offset by planned projects being delayed. However, when we look at the impact of storm damage on construction companies’ revenue and earnings we find most of the increase flows through.

Reference Baseline US Construction Spending Growth	
Total Construction Spending, Jan 1993, Seasonally Adjusted Annual Rate ¹	\$458.1 billion
Total Construction Spending, Jan 2018, Seasonally Adjusted Annual Rate ¹	\$1,276.3 billion
Number of years	25 years
CAGR	4.2%
US Construction Spending Growth from Hurricane Damage	
Damage from 2017 Hurricane Season ²	\$282 billion
Assumed number of years to fix 2017 damage	10 years
Annual increase in Construction over 10 years	\$28.2 billion
Total Construction Spending, Jan 2018, Seasonally Adjusted Annual Rate ¹	\$1,276.3 billion
Annual additional growth from Hurricane Damage	2.2%
Unanticipated growth of Construction Spending from Hurricane Damage	52.8%

¹ U.S. Bureau of the Census. “Total Construction Spending.” 2 July 2018. Federal Reserve Bank of St. Louis. Web. 24 July 2018.
 <<https://fred.stlouisfed.org/series/TTLCONS>>

² “2017 Atlantic hurricane season.” Wikipedia, The Free Encyclopedia. Wikimedia Foundation, Inc., 21 July 2018. Web. 24 July 2018.
 <https://en.wikipedia.org/wiki/2017_Atlantic_hurricane_season>

Hurricanes are just one driver of damage caused by climate change. NOAA has reported that in 2017, the cumulative damage from weather and climate related disasters in the U.S. was \$309.5 billion, a record. Insured losses in 2017, were the highest catastrophic claims ever.

Our latest addition to the portfolio, United Rentals (URI) illustrates how our understanding of the economic impact of climate change informs our investments. URI is the largest U.S. construction equipment rental company. It has 11% of the national rental market, over \$7 billion in sales, and an outsized presence in the Gulf of Mexico. Last year's two 1-in-500-year storms (Irma and Harvey) caused United Rentals' EBITDA growth to be approximately 2% greater than expected. Traditional thinking is that these storms are one-time events, and do not contribute to future growth. In contrast, we project these disasters will, tragically, become more common. URI will continue to help repair these assets, as well as play an important role in adaption strategies to protect and relocate coastal real estate.

We think URI's fundamentals and current valuation represent an attractive entry point. The stock is down 20% from its 52-week high on concerns of a cyclical downturn. The company's management has proven itself to be shrewd allocators of capital over the last decade, making acquisitions that have been highly accretive. They have also demonstrated the ability to manage downturns effectively, remaining free cash flow positive through the 2008/9 downturn. In addition, management has also grown the business and diversified its client base making it less cyclical. URI is trading at 9x P/E, less than 7x EV/EBITDA, and over 10% free cash flow yield. All of which represent a discount to their competitors Ashtead and Herc Holdings. Given management has evidenced excellent asset allocation and execution, the modest relative valuation, and our belief that climate change presents a tailwind to growth, we believe United Rentals is an attractive long-term investment.

Low Carbon Technological Innovations Unvalued in Large Caps

The physical impact of climate change is one of four climate themes in our portfolio. The other three are changing consumer behavior, increased regulation at the state or federal level and technological innovations. This quarter we saw the market begin to recognize value in GM's technological leadership as the company helps bridge the gap to a low carbon economy.

In our first letter to investors (March 2017), we highlighted General Motors, our second largest investment because we felt it was a particularly good example of an investment that resulted from our unique investment process. The company had a low valuation, an impressive CEO in Mary Barra, and an unpriced economic advantage in leading the industry toward a low carbon economy. In May this year, Ms Barra released a statement on CAFÉ standards saying:

"I assure you we have an absolute and unwavering commitment to improve fuel economy, reduce emissions and invest in technologies to drive an all-electric future. These are the right actions for our customers, our company and our environment. Climate change is real. We recognize the transportation sector is a contributor, and we must be part of the solution. At General Motors, we take this challenge seriously. It's a driving force behind our vision of a future with zero crashes, zero emissions and zero congestion."

More important than the statement is that she is executing by moving the company toward those three guideposts, focusing the company on electric (EV) and automated (AV) vehicles as well as transportation as a service (TaaS). Importantly, Barra is also committed to financial success, aiming for a 19% ROIC. She is leveraging the company's ability to mass produce vehicles and generate free cash flow to support these

initiatives. The conventional perception of GM is as an old-line, Detroit manufacturing company. Few Wall Street analysts favorably view, or value GM's strong pivot.

That perception started to change this past quarter. Softbank invested \$2.25 billion into GM's Cruise, their automated car business. This investment values Cruise at \$11.5 billion, with RBC's analyst suggesting that it could be worth as much as \$43 billion when integrated into GM's mass market electric vehicle fleet. Given GM's total market capitalization is \$55bln valuation, Cruise could become a significant component of GM's valuation. The share price traded up 20% following the Softbank news.

Cruise is just one of many initiatives in GM's effort to prepare for a low carbon, shared economy. GM is jointly manufacturing EV batteries with LG at \$150 a Kilowatt hour (similar cost to Tesla) and in our opinion has the best affordable electric vehicle: The Bolt. In addition, they have a leadership position in TaaS with Maven (a car sharing service that operates in 11 major U.S. cities) and own 11% of Lyft, a strategic partner. In the last few weeks of the quarter the market focused on the negative and more immediate impact of trade tariffs and a reduction in SAARs. That said we think the company's valuation at 6x P/E already reflects the risks and is particularly well managed for long term success.

If you have any questions please feel free to reach out at IR@redgrovecap.com