Green Beta: Carbon Efficiency Investing

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- Fossil fuel divestment activism has elevated awareness of climate change and its implications for investing.
- Investors concerned about climate change should consider their fiduciary responsibility as well as their desire to de-carbonize their investments.
- We believe a green beta approach fulfills both environmental and fiduciary objectives.

How can we create a low carbon investment strategy without undermining the key responsibility of a fiduciary?

From rising sea levels to extreme weather, there is mounting scientific evidence that global warming is real and immediate. Despite many irreconcilable ideological differences, President Obama and China's President Xi reached a mutual agreement last November to reduce carbon emissions within the two largest economies in the world, sending a strong signal to other countries to follow suit and act now. As investors, what solutions do we have in our hands to build a greener economy? In this paper, we discuss an investment approach that we term Green Beta, which we believe can help contribute to a lower carbon economy. The ultimate question for such an approach is: how can we create a low carbon investment strategy without undermining the key responsibility of a fiduciary—to generate a reasonable return on capital?

ONE PERSPECTIVE: FOSSIL FUEL DIVESTMENT

The fossil fuel divestment campaign on university campuses deserves credit for raising the climate change issue in the investment arena. This campaign is built largely around the "stranded assets" argument, which may be summarized as follows: global warming, if unaddressed, is forecast to increase the earth's average temperature two degrees Celsius above pre-industrial levels. This would eventually render the earth unsustainable for many forms of life including human beings. In order to stay within this two-degree limit, only a small portion of carbon reserves can be burned. Consequently, many argue that the majority of carbon reserves are unburnable and hence stranded and overvalued. This in turn drives the economic argument for fossil fuel divestment.

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We believe that divestment is a missed opportunity to influence changes, and engagement is a better strategy.

A FRESH PERSPECTIVE—BEYOND FOSSIL FUEL

While the stranded assets argument is powerful and has a number of prominent advocates, in our view it's incomplete. It requires assumptions about energy supply and demand that are driven by many complex factors such as regulations and innovation. In addition, it represents a practical challenge: The global economy is so energy-dependent that it is currently impossible to implement a near-term wholesale shift away from fossil fuels and the technologies that use them without a massive—many would say unacceptable—economic impact. While some countries have taken steps to materially increase energy produced by alternative means, no viable comprehensive alternative energy infrastructure currently exists to meet existing energy needs on a global basis. Therefore, we must accept that significant changes in energy production and usage will likely come about more gradually; we need a way to have a more immediate impact.

While we certainly don't dismiss the climate risk associated with fossil fuel assets or carbon reserves, we believe that they represent a less effective yardstick for addressing the immediacy of global warming. Until a model is developed to estimate such risk more reliably, we prefer to focus on carbon emissions—it is these that are raising temperatures, creating air pollution, and damaging fragile ecosystems today. The earth will not cool down by itself. According to a recent research study by NASA and NOAA,[1] global temperatures increased 0.68 degree Celsius above the long term average in 2014, making it the warmest year on record. The greenhouse gases emitted today will stay in the atmosphere for many decades to come, so we must focus on what we put in the air every day to create a sense of urgency for reducing carbon emissions. Almost every company emits greenhouse gases and contributes to global warming to some extent. As we invest, we have a choice to make regarding the companies that we invest in and how much capital we allocate to them. That choice can have an environmental impact as we support those companies that make the world greener.

ANOTHER FRESH PERSPECTIVE—BEYOND DIVESTMENT

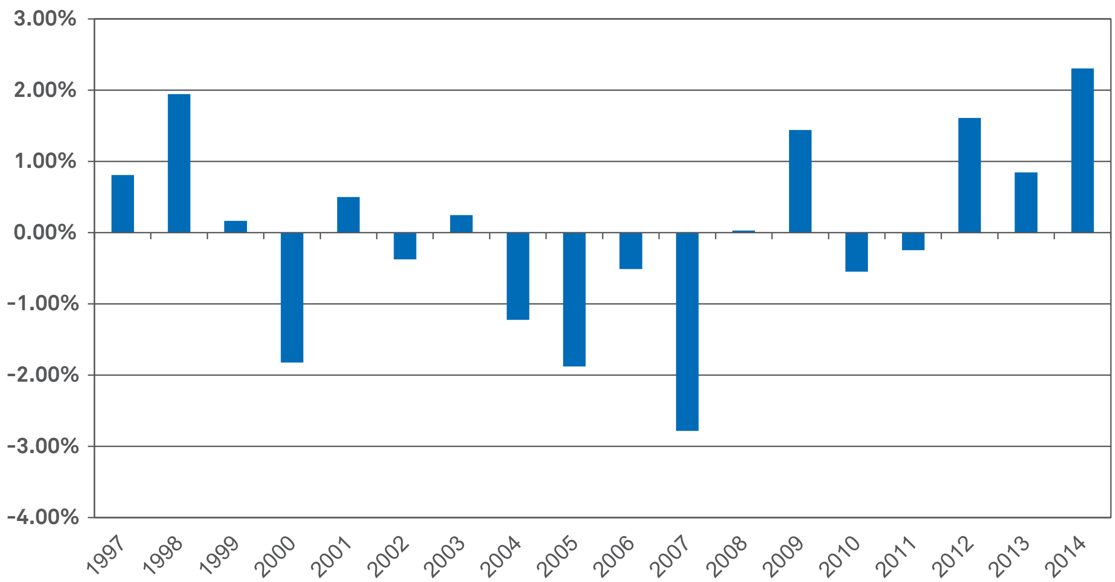
Divestment imposes investment risk in terms of increased volatility. To illustrate this impact, we can consider the Energy sector as a proxy for fossil fuels, and exclude this sector from the Russell 3000® Index to create a custom Russell 3000 ex Energy Index. The ex-post tracking error of this Russell 3000 ex Energy Index against its parent Russell 3000 Index from 1997 to 2014 is 1.59% per annum (the ex-ante tracking error is 1.20%). The chart below depicts the annual returns of the Russell 3000 ex Energy Index, relative to the parent index since 1997. While the divestment approach might look smart in light of the recent plunge in oil prices, the same approach would have struggled to gain adherents during the strong energy run-up from 2004 to 2007, during which the Russell 3000 ex Energy Index would have returned 36.10%, compared to the Russell 3000 return of 44.54%.

Investment performance considerations aside, those divesting their holdings in fossil fuel companies lose their voice of influence over those companies. There is also risk that the holdings, and with them the voice of influence on climate change issues, pass to other investors that are less concerned with such issues. Aside from coal, which has the highest level of carbon per unit of energy and faces a range of sensible substitutes in power generation, we believe that oil and gas assets can benefit from innovations and technological advances in energy production. This motivates us to engage with companies that produce and use fossil fuels to adopt more environmentally friendly corporate policies in order to improve their carbon footprint. In addition, energy companies happen to be a very convenient target, while many companies in the other

1 National Aeronautics and Space Administration Goddard Institute for Space Studies GISS Surface Temperature Analysis (GISTEMPP and National Oceanic and Atmospheric Administration January 16, 2015

sectors—predominantly utilities, materials, and industrials—make profits while ignoring or dismissing global warming. Fighting global warming is a long journey, from reducing carbon emissions in the near term to building a more environmentally friendly energy infrastructure globally. We believe that divestment is a missed opportunity to influence changes, and engagement is a better strategy.

Figure 1: Annual Return Impact from Energy Divestment 1997-2014



Performance shown represents the difference in the annual return of the Russell 3000 Index vs. the Russell 3000 Index with energy sector excluded.

Data source: Mellon Capital and Russell Investments

DESIGNED TO ACHIEVE TWO OBJECTIVES IN ONE STRATEGY: ENVIRONMENTAL IMPACT AND FIDUCIARY RESPONSIBILITY

The journey from awareness to implementation is a long one. From the first time that they hear about the fossil fuel divestment campaign to the moment that they decide to make an impact on global warming, investors are often unsure how to execute a carbon efficient strategy while still fulfilling their fiduciary responsibility. Unlike some earlier adopters who are willing to give up return and/or accept significant deviation from the broader market for a social or environmental objective, most institutional investors need to pursue a reasonable return on capital, as expressed in commonly measured terms.

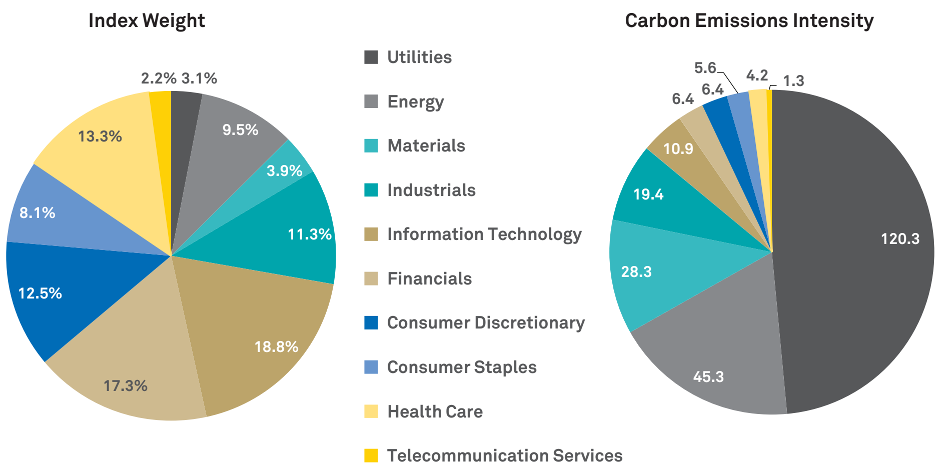
The journey from awareness to implementation is a long one.

As investors assess the carbon exposures in their portfolios, many will likely conclude that those exposures come predominantly from their index allocation. Given that index-based investing, by definition, tends to be broad based, it includes companies that are heavy emitters of greenhouse gases. This is an important insight because, even with a benchmark-centric strategy—green beta investing—investors would be able to decarbonize their overall holdings in a defensible manner. Furthermore, these investors are not forced to question or determine whether or not fully active low-carbon investing truly adds or subtracts value from their portfolio. Such an insight into carbon exposures builds the basis for green beta investing. We believe fulfilling both the environmental and fiduciary objectives in a green beta strategy can be achieved by striking the appropriate balance between addressing carbon exposure and achieving suitable beta exposure.

To illustrate this point, consider the right-hand chart in Figure 2 below, which shows that the three most carbon-intensive sectors in the Russell 3000® index—utilities, energy, and materials—account for more than 75% of the overall carbon emissions intensity[2] of the index, and yet represent just over 16% of the overall index composition (below left in Figure 2). One potential pitfall in pursuit of quick carbon emissions exposure reduction is to significantly underweight these three sectors, which can introduce unintended sector tilts. We think it's better to underweight companies within these sectors that have higher carbon intensity, while maintaining exposure to the sectors as a whole by overweighting companies within the same sectors that are taking a more proactive approach to reducing their carbon emissions. A truly robust strategy goes beyond the sector level and neutralizes exposures even at the industry level. This is particularly important when considering a sector as diverse as Consumer Discretionary, where an unintended bias can be created between two different industries that form part of the sector (auto and apparel, for example).

Beyond sector and industry constraints, risk control is necessary at other levels in order to create a well-balanced green beta strategy.

Figure 2: Carbon Emissions Intensity and Russell 3000® Index Weight As of August 31, 2014



Data sources: Mellon Capital and MSCI ESG Research

Beyond sector and industry constraints, risk control is necessary at other levels in order to create a well-balanced green beta strategy. Most high carbon intensity companies exhibit factor characteristics of lower volatility, larger market capitalization, orientation towards value and away from growth, and higher yield, to name a few. It's important to compensate for these factor exposures arising from underweighting such companies in order to achieve lower carbon exposure. Furthermore, individual security misweights must be limited so as to avoid introducing idiosyncratic risk to the strategy.

CONCLUSION: GREEN BETA

Since 2011, the fossil fuel divestment movement has elevated awareness of global warming and its implications for investing. Combating global warming is a long journey, and taking the first step demands deliberation and planning, especially with respect to fiduciary responsibility. In evaluating an approach to addressing the issues raised by fossil fuels and their impact on global warming, investors should consider their fiduciary responsibility in tandem with their desire to decarbonize their investments. Overall we believe a green beta approach fulfills both environmental and fiduciary objectives, and offers a great opportunity to broadly mobilize the investment community to do its part in reducing emissions in the near term.

2 Carbon intensity is defined as carbon emissions per unit of sales.

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