Climate Impact Assessment

A sample analysis of Harvard Endowment's investments and their climate impact

Executive Summary

The climate impact of investors has over the past year been propelled to the top of the climate change agenda. While institutional investors launched initiatives such as the "Montreal Carbon Pledge" and the "De-Carbonization Coalition" to report on emissions and optimize portfolios in terms of carbon performance, organizations such as 350.org have created a powerful movement that has successfully applied pressure on investors and significantly raised awareness on the topic.

The following report analyzed USD 989 million of Harvard Endowment's investments for its climate impact, and extrapolated the intensity to the entire USD 36.4 billion endowment. With conservative assumptions, Harvard Endowment annually finances greenhouse gas emissions of over 11 million tons of CO_2e, which is equivalent to those of a small country like Jamaica or the US States of Rhode Island or Delaware.

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1. Introduction

This enormous public demand for climate impact integration into financial investment decisions has spurred a number of unprecedented pledges to action from institutional investors. A Montreal investor summit in September 2014 saw a range of investors coming forward to pledge climate transparency until 2015. Moreover, during UN Climate Week in New York the same month, Al Gore presented a list of over 800 institutional investors representing $50 billion, including the heirs of the Rockefeller oil fortune, who have committed to divest from fossil fuel investments. Just before, more than 340 institutional investors representing a total of $15 trillion in assets, including the world's largest asset manager BlackRock, announced to not only take climate change risk into consideration, but even called for the implementation of a meaningful price on carbon. Finally, at the summit, the UN along with Sweden's National pension fund AP4, Europe's largest asset manager Amundi, and the climate change NGO CDP launched the Portfolio De-carbonization Coalition (PDC) with the aim to decarbonize $100 billion of institutional investments worldwide.

The aim of this study is to give an idea of the climate impact of Harvard Endowment's investments, and specifically look at the financed emissions of the holdings by conducting an investment carbon footprint.

2. Results

The sample analysis of USD 989 Million of the overall USD 36.4 billion endowment shows investments in several carbon intense sectors. From the direct company investments, the largest contributor to the portfolio's Scope 1 & 2 greenhouse gas emissions is Cemex, responsible for 41.9% of overall. The analysis also shows that Harvard Endowment is directly invested in fossil fuel related companies such as Petrobas and Anadarko petroleum, who are responsible for annual CO_2e emissions of 73 million tonnes and 13 million tonnes respectively.

Through its investments in funds, Harvard invests in some of the largest emitters in the world, many of whom are heavily reliant on coal in the business. An example of this is NTPC Power in the Indian portfolio, which supplies 18% of the electricity grid of India, and generates more than 90% of their electricity from coal. NTPC together with Tata Power help makes the MSCI India portfolio the most carbon intense of the analysed Harvard Endowment funds with an intensity figure of 40.4 emissions (kg $CO2_e$) per 100 USD invested.

Harvard Endowment is also indirectly invested in Huaneng Power International, a Chinese utility company that generate 91% of its energy from coal. The amount of energy generated from coal in 2013 was GWh 289,000, which results in approximately 200 million tCO_2e, making it one of the world's largest emitters.

The financed Scope 1 & 2 emissions of the sample investment is 103'068 (tCO_2e). When extrapolating this intensity to the 33% public equity investments of Harvard's holdings, the estimated financed emissions for all equities is thus 1'133'748 tCO_2e million and for all holdings in

the range of 3.4 million tonnes of CO_2e, equivalent to the annual greenhouse gas output of Washington DC. [1]

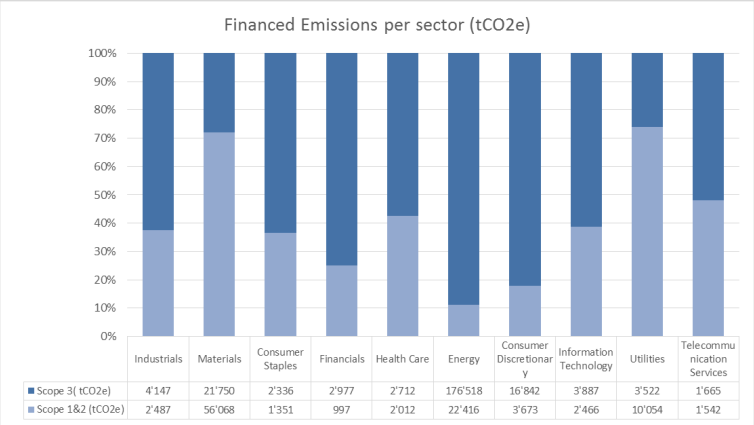
The above analysis is based on a Scope 1&2 emissions, averaging out in a carbon intensity metric of 10.4 ($kgCO_2e$) per USD 100 invested. While this is lower than the intensity of the Russell 2000 index, the intensity of the different underlying portfolios were up to four times as high. With only 9 % of the Harvard's public equity investments covered in this study, there is of course the possibility that the greenhouse gas emissions for the extrapolated portion of the endowment has been underestimated. It is recommended that Harvard Endowment runs a proper analysis for the investments that are not publicly accessible.

Scope 3 Analysis

A detailed Scope 3 emission examination – i.e. from supply chain and product usage – was not part of the bottom-up analysis of the study. However, to establish an idea of the magnitude of Scope 3 emissions and the effect that this would have on the portfolio, a top-down approach was applied to estimate such emissions for each particular sector. By including Scope 3 emissions, the overall emission financed emissions for the examined sample more than triples to 339'423 tCO_2e.

This effect is most obvious in the energy sector, where Scope 3 emissions are over seven times higher than Scope 1 & 2 emissions.[2] The main climate impact of energy companies is, after all, reflected in their Scope 3 emissions – for example when fossil fuel that they sell is burned by other companies. Including Scope 3 into the sample holdings analysed, the energy companies would account for 59% of the overall emissions (all Scopes) in the portfolio.

When extrapolating this Scope 3 analysis result from the assessed 3% of the holdings to the overall endowment of USD 36.4 billion, the magnitude of financed emissions including all Scopes stands at 11'314'106 tonnes of CO_2e, which are roughly the annual emissions of a country like Jamaica or twice the emissions of Vermont.



[1] It has to be noted that this extrapolation to all holdings is a very rough narrowing: Different asset classes have different carbon intensities and using the equity intensity ratio for non-equity assets is solely a proxy for a necessary in-depth analysis that was beyond the scope of this work.

[2] The analysis above does not take into account the potential double counting of emissions, in the sense that what may be regarded as Scope 3 emissions of energy companies would be counted in the Scope 1 & 2 section of utility companies. In a bottom-up analysis, discounting this double counting is possible, but whether one should do so or not depends on the reason for conducting such an analysis. If the primary aim is to disclose the climate impact of an investment discounting double counting would of course be favorable. However, if the primary goal is to analyze the carbon-specific risk of the investment, then the investor is in fact exposed to the risk associated with the same ton of carbon twice, as both the energy company and the utility company face increased costs.

Transparency

In terms of transparency, out of all the companies analysed – including the different ETFs and indexes - 20% of the companies disclose their annual carbon emissions. Looking only at the companies in which Harvard directly invests, the amount of disclosing companies rises to 47%. This is rather low compared to the 76% disclosing companies in the MSCI World Index.

3. RECOMMENDATIONS

As a result of the above analysis, we recommend for Harvard Endowment to systematically and regularly assess the climate impact of the portfolio. This will help in considerations to potentially integrate climate risk into the investment strategy.

Climate Impact Assessment of entire portfolio.

The above analysis looks only at a sample of Harvard's public equity holdings and serves as a snapshot of the climate impact of the investments. We recommend conducting an analysis of all holdings and all asset classes in order to create an emissions heat map and identify investments that are either lagging or leading in terms of both greenhouse gas emissions and incorporating climate associated risks into their business processes. Such an analysis is the fundament for considering different ways of incorporating climate risks into an investment processes.

Include a thorough Scope 3 analysis

A thorough Scope 3 analysis of the holdings of the portfolio was not part of this study. The figures presented followed a top-down approach per sector to give an idea of the order of magnitude, and the impact that Scope 3 emissions have in each sector. We recommend a more thorough bottom-up analysis of the Scope 3 emissions of the portfolio, which also allows for the elimination of double-counting of emissions.

Combine Scope 3 analysis with fossil fuel reserves data.

Companies with large fossil fuel reserves or a dependency on fossil fuel related activities can pose a risk to investor returns. A thorough analysis of the companies allows for the identification of poorly positioned companies, as well as shedding light on companies who are already beginning to implement climate friendlier alternatives.

4. Methodology

Conducting a carbon footprint of an investment requires several steps, the first of which is to understand the footprint of each individual company in the portfolio. This can be determined based on the direct and indirect greenhouse gas emissions today as well as on an indication of future climate impact considering the structural transitions of the company. Secondly, it is necessary to define how a company's climate impact can be allocated to an investor. Here, the study applies an

ownership model, in the sense that for an investor owning 1% of a company, 1% of the companies greenhouse gas emissions are being allocated to that investor's investment carbon footprint.

Assessing a companies' climate impact

The operations of companies have an impact on the climate. Depending on the industry, burning fossil fuel, certain production methods and chemical reactions as well as consuming large amounts of energy emit greenhouse gas that harms the climate. When assessing a company's climate impact, one can look at the company's "greenhouse gas footprint" to assess the current emissions at a certain point in time.

Greenhouse gas accounting distinguishes between direct emissions from own operations (also known as "Scope 1" emissions) and indirect emissions. Indirect emissions are usually divided into "Scope 2" and "Scope 3" emissions. Scope 2 emissions are all emissions that stem from buying electricity and heat and are apportioned according to the company's consumption. Scope 3 emissions cover all other indirect emissions, such as those from a company's supply chain or product usage.

It has to be noted that Scope 1 and 2 emissions are reasonably well documented for a wide range of companies or can be approximated on an individual company level. However, Scope 3 emissions reporting by companies is currently too incoherent to use as a basis for comparison, where most companies report on a few of the 15 parameters set by the greenhouse gas protocol, such as business flights or in some cases supply chain activities. The following analysis looks only at the Scope 1 and 2 emissions of the companies and uses a sector approximation for the Scope 3 emissions.

All self-reported company greenhouse data has been validated for plausibility and accuracy. For companies that did not self-report, greenhouse gas emissions were approximated based on 800 subsector specific models. For companies in the Utilities sector, each company has been modelled individually based on its energy production mix and appropriate grid factors.

The analyzed holdings

This study looked at a snapshot of the public equity investments where holding information is publicly available in April 2015. The analysed assets were worth a total of USD 989 million, which constitutes about 2.7 % of Harvard's entire endowment value of USD 36.4 billion. The analysed section of the investments include direct investments in 70 companies, and indirect investments in 3'160 companies through seven different fund and index investments.

In order to estimate a rough overall footprint, the financed emissions of the selected portfolio were then extrapolated to the total value of Harvard's endowments.

5. About South Pole Group

South Pole Group (thesouthpolegroup.com) is a privately owned sustainable solution and service provider with proven impact and solid experience on the ground. Since its inception in 2006, the company headquartered in Zurich has grown very rapidly. South Pole Group now operates with 16 offices and spans 6 continents. Its team of over 100 enthusiastic climate professionals is made up of individuals from over 20 different countries.

South Pole Group is the world's biggest developer of emission reduction projects. Starting off as a project-driven company focused on developing and selling high-quality carbon credits, it has become one of the leading providers of climate solutions. The company offers a wide spectrum of sustainability services, including climate policy and strategy advisory. Its expertise covers the key sustainability-related areas of climate change, forests and land use, water, sustainable cities and buildings, as well as renewable energy and energy efficiency. South Pole Group's two main target segments are public and private entities.

The company is determined to help its clients grow their business with ground breaking solutions which positively impact the environment and the needs of society. South Pole Group aims to be the global 'go-to' option for innovative and reliable high quality sustainability solutions. Since 2006, we have measured the climate impact of countless companies and products worldwide. We have developed 270+ projects in renewables, forestry, agriculture, industry, households and public institutions.

Through our efforts, 50 million tonnes of CO2 have been saved, almost as much as the annual CO2 emissions of Portugal. We have enabled the production of 35,000 GWh of renewable energy, and mobilized over USD 6 billion for clean energy investments in emerging markets. In total, our projects have helped create almost 20,000 jobs in developing countries and we have saved 17,000+ hectares of forest from deforestation, about the size of 24,000 soccer pitches.

South Pole Group is measuring climate impact of all sorts of projects, operations and – relevant to this report – investments. With the largest and deepest coverage of high quality company greenhouse gas information in its proprietary database, South Pole Group has screened over USD 200 bn in assets under management for their climate impact. The company pioneered high volume portfolio carbon screening that is now available on Bloomberg terminals (APPS CARBON) and YourSRI.com.

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