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The Carbon Impact of Investments in Mirova Equity

Written November 30, 2015

Mirova is publishing the first measurement of its equity portfolios' carbon impact. They total € 2.8 billion and 47% of its assets under management, in accordance with the commitments made as part of the Montreal Carbon Pledge and the Portfolio Decarbonization Coalition. This measurement has been carried out using Carbon Impact Analytics, an innovative methodology co-developed with Carbone 4, which emphasises:

- **Emissions induced by the activity of investees on their overall scope of responsibility, from cradle to grave,**
- **Emissions avoided through the implementation of low-carbon strategies.**

The consolidated equity Portfolio presents induced emissions that are less than half that of a European benchmark (97 tCO2/M€ vs. 222 tCO2/M€). This performance owes its strength mainly to the absence of very high-carbon companies (coal or oil) in all of Mirova's portfolios.

As for its European environmental strategy, Mirova presents avoided emissions that are more than three times higher than the benchmark (-43 tCO2/M€ vs. -12 tCO2/M€), thanks to investments specifically targeting leading companies providing low-carbon solutions. This particular investment strategy illustrates Mirova's determination to be aligned with a scenario in which the rise in temperatures does not exceed the 2°C threshold.

Carbon Impact of Mirova's Equity Portfolios

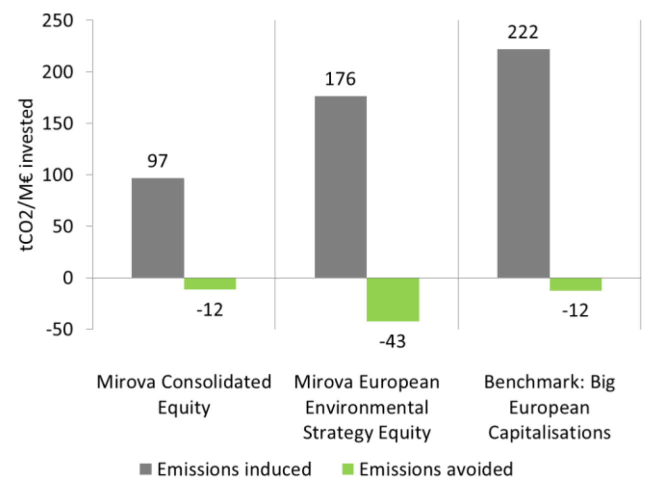
After an analysis conducted in collaboration with Carbone 4, Mirova is publishing the very first carbon footprint of its listed equity investments, which represent € 2.8 billion, i.e. 47%, of its assets under management.

This analysis notably allows us to compare the performances of:

- Mirova's consolidated equity portfolio
- Mirova's various strategies and notably its strategy targeting the environment in Europe
- A benchmark composed of the 300 largest European companies

The results of this analysis are shown in Figure 1 and illustrate Mirova's commitment to financing the transition to a low-carbon economy.

Figure 1: Induced and Avoided Emissions by Portfolio



Source: Mirova, 30/11/2015

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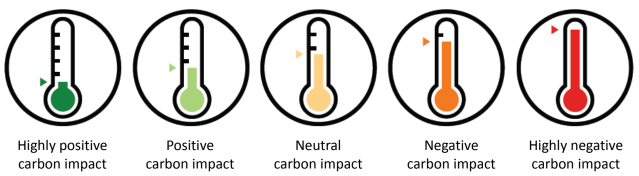
In order to measure the carbon impact of investments, Mirova uses Carbon Impact Analytics, a methodology that is innovative in two different ways:

- **Induced emissions are estimated** on a broadened perimeter, considering not only direct (scope 1+2) emissions but also emissions related to the supply chain and the use of products sold (scope 3). This Life Cycle approach is crucial, especially when looking at companies for which most of the impact is related to the use of their products (oil & gas companies, automobiles manufacturers…).
- **Avoided CO_2 emissions are estimated** in order to take into account the efforts being made to develop low-carbon solutions. These avoided emissions are crucial to distinguishing companies in the field of renewable energy from companies in the tertiary sector: in this case both figures of induced emissions are low, but of course renewable energy allows for far greater emissions savings.

In addition to these quantitative figures, the methodology provides a **global rating** of the company on climate matters, integrating qualitative information (alignment of company's strategy with the energy transition, capital and R&D expenditures related to low-carbon solutions, etc.) This 5 level rating describes how strongly investees are committed to the transition to a low-carbon economy.

Figure 2 : Scale of Carbon Impact Analytics Global Rating



Source: Carbone 4

More detailed information is available in the **methodology**[1] published by Carbone 4 and in our **research note**[2] describing the issues at stake.

[1] http://www.carbone4.com/sites/default/files/CarbonImpactAnalytics.pdf

[2] http://www.mirova.com/Content/Documents/Mirova/publications/va/studies/MIROVA_Study_Measure_Carbon_Impact_Methodology_EN.pdf.

Mirova's Consolidated Equity Universe

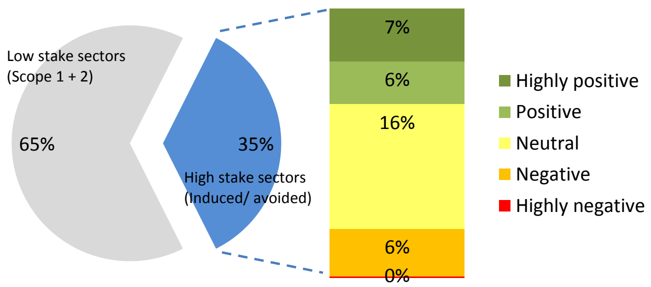
The carbon footprint thus calculated indicates the following for Mirova's consolidated equity universe:

- Induced emissions of 97 t CO_2/M€, 56% lower than the European large cap benchmark[3];
- Avoided emissions of 12 t CO_2/M€, identical with the European large cap benchmark.

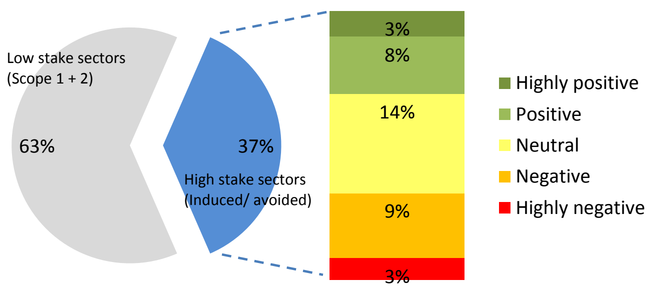
These positive results are mainly due to sector allocation choices: Mirova's equity portfolios do not invest in companies exposed to coal or oil. Thus, compared to the European benchmark, companies negatively contributing to the energy transition are underweighted by 50% (from 12% to 6% of total) while companies positively contributing to the energy transition are overweighted by 18% (from 11% to 13% of total).

Figure 3 : Distribution of Carbon Impact Analytics Global Ratings

Mirova consolidated



European Benchmark



Source: Mirova, 30/11/2015

[3] Composed of the 300 top free-float European market capitalisations

Figure 4 : Top 10 Contributors to Induced and Avoided Emissions

Top contributors to induced emissions

Mirova Consolidated		European Benchmark	
Company	**% of induced emissions**	**Company**	**% of induced emissions**
LAFARGEHOLCIM	9.1%	SHELL	12.2%
SIEMENS	8.3%	TOTAL	8.1%
WEIR	7.4%	SIEMENS	8.0%
ENAGAS	6.1%	BP PLC	7.8%
NESTLE	5.4%	NESTLE	5.3%
MICHELIN	5.0%	DAIMLER	3.2%
CONTINENTAL	4.7%	ABB LTD	2.9%
BASF	4.5%	AIRBUS GROUP	2.8%
ALTAGAS	4.5%	GLENCORE	2.5%
DEUTSCHE POST	3.6%	ENI	2.5%
% of the Total	**58.6%**	**% of Total**	**55.3%**

Top contributors to avoided emissions

Mirova Consolidated		European Benchmark	
Company	**% of avoided emissions**	**Company**	**% of avoided emissions**
EDF	12.2%	SIEMENS	13.0%
SMURFIT KAPPA	9.0%	AIRBUS	8.7%
ZUMTOBEL	8.4%	ABB	7.9%
ANDRITZ	7.6%	DAIMLER	6.3%
KINGSPAN	6.5%	VESTAS	5.4%
SIEMENS AG	6.3%	AP MOELLER	3.9%
GAMESA	4.8%	PEUGEOT	3.7%
VALEO	4.6%	VOLKSWAGEN	3.6%
LAFARGEHOLCIM	4.5%	ROLLS-ROYCE	3.6%
OSRAM LICHT	3.7%	IBERDROLA	2.9%
% of Total	**67.6%**	**% of Total**	**59.0%**

Source: Mirova, 30/11/2015

European Envionmental Strategy

Specifically looking at a European environmental strategy, which is primarily aimed at climate issues, the results are as follows:

- Induced emissions of 176 t CO_2/M€, 21% lower than the European large cap benchmark;
- Avoided emissions of 43 t CO_2/M€, over three times higher than for the European large cap benchmark;
- An overweighting of 189% (from 9% to 26% of total) for companies positively contributing to the energy transition and an underweighting of 8 (from 12% to 11% of total) for companies negatively contributing to the energy transition.

These results are due to a positive selection of companies providing solutions to environmental challenges and especially solutions to climate challenges; thanks to these solutions, there has been a three-fold increase in the CO_2 emissions avoided. It is interesting to note that this positive selection also guides investments towards more emission-intense industrial sectors, which explains greater induced emissions than at the consolidated level (even if lower than the European benchmark).

Are These Investments Compatible With a 2°C Scenario?

This legitimate question must be approached with caution and significant reservations.

First, there is no consensual – even less prescriptive – investment scenario for reaching the objective of capping global rise in temperatures at 2°C. They are all questioned and questionable. Thus, one of the most commonly cited scenarios from the IEA is questioned on several key points:

- A growing share of nuclear power while there is no guarantee for this technology's acceptability in the future;
- The capacity of carbon capture and storage (CCS) technologies to reach the industrial stage of development while pilot projects do not yet allow conclusions;
- The ability to obtain major energy efficiency improvements remains uncertain.
- etc.

Moreover, these investment scenarios, while pretty clear and precise at the macro-economic level, are not – or not sufficiently – translated onto the micro-economic level. Indeed, these scenarios are based on global industrial investment needs and do not make any assumption on what should be provided by the public or the private sector. There is also very little research on what should be the sources of financing (self-financing, issuance of share or debt) needed by those players to undertake these investments.

However, among these many uncertainties, two facts emerge:

- The reduction in global CO_2 emissions needs to begin now and follow a 2-factor worldwide until 2050 and a 4-factor at the European level.
- A drastic shift in the energy mix needs to be undertaken. Today, this implies a rebalancing of investments from fossil energies in favour of renewables and energy efficiency (the IEA's 450 PPM scenario for example states that there should be an equilibrium between the investments in the 'green share' and the 'fossil share' in the period between 2014-2035, while fossil energies represented 70% of investments in the period between 2000 to 2013).

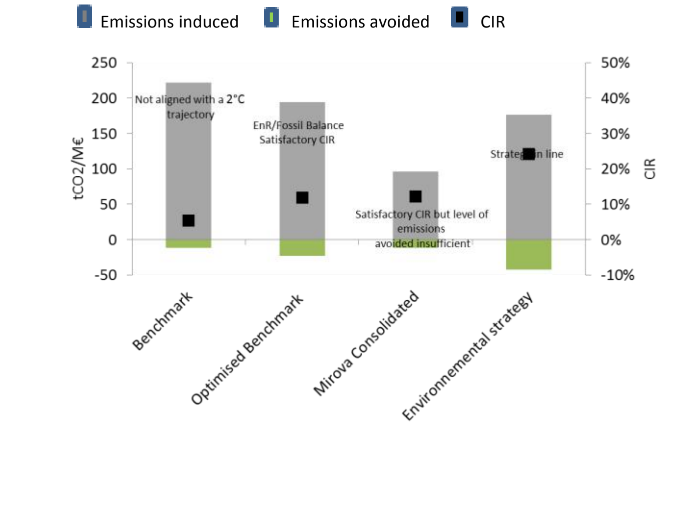
These facts highlight the under-representation of companies involved in renewables and energy efficiency in mainstream market indices (which could be considered representative of the global economy in a first approximation). Thus, looking at a European large cap benchmark, these companies account for less than 0.5% of total capitalization while companies in 'fossil' sectors represent about 7%. From this point of view, current stock indices cannot be considered consistent with the financing needs of a 2°C scenario.

A mainstream index thus needs to be rebalanced in order to create a point for comparison when assessing company alignment with the needs of the energy transition. In this case, companies mainly involved in renewables and the energy transition represent at least 5% of total capitalisation and this weight should not be lower than that of companies involved in 'fossil' sectors. We have thus applied these rules to build a large European index based on the 300 biggest companies that would be consistent with a 2°C scenario. This led to the inclusion of medium companies highly exposed to green technologies while proportionally underweighting other sectors. In this framework, a European equity portfolio will be considered consistent with a 2° scenario if (figure 4):

- Its avoided emissions are higher than 23 tCO_2/M€, guaranteeing investment in values with a strong positive impact (figure 5);
- The ratio of its avoided emissions over its induced emissions (or Carbon Impact Ration, CIR) is higher than 12%, guaranteeing that investments in fossil fuels are limited;
- Its induced emissions will not reach or exceed an 'S-curve' starting from 194 t CO_2/M€ and ending at 49 t CO_2/M€ in 2050 so as to follow a trajectory that is coherent with a macro scenario (factor 4 reduction by 2050 in Europe for example, figure 6).

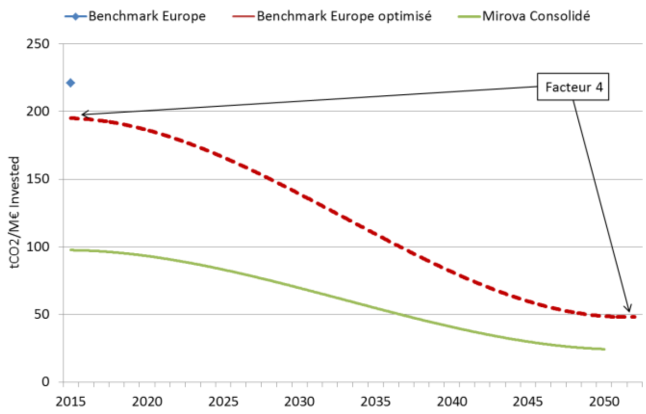
Our European environmental strategy is consistent with these objectives and therefore, under these assumptions, can be considered compatible with a 2° scenario.

Figure 5: Level of Alignment with The Needs of the Transition to a Low-Carbon Economy



Source: Mirova, 30/11/2015

Figure 6 : Global Emissions Reduction trajectory



Source: Mirova, 30/11/2015

What's Next?

Several research projects remain to be undertaken to improve the coverage and precision in measuring our contribution to the energy transition and exposure to climate change risk. Here are the main points which we will be focusing on in 2016:

- Complete the carbon footprint and make compatible with other asset classes;
- Enrich our offer regarding low-carbon investment solutions;
- Define a global low-carbon strategy for Mirova;
- Develop other metrics of impact - as crucial as the climate issue may be, it must not obscure other environmental problems (e.g. land degradation, biodiversity loss…) or social issues. These challenges are *de facto* connected and are therefore taken into account across all our investment strategies.

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