Foundations of Climate Investing

Featuring: **Linda-Eling Lee, Global Head of ESG Research;**
Guido Giese, Executive Director, Core Equity Research
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Linda-Eling Lee
Hello. I'm Linda-Eling Lee. I am the global head of ESG research at MSCI. Thank you so much for joining us for a new MSEI insights video, with which we are bringing our research insights to you more quickly in a more digestible format. I'm based in New York. I'm joined today by my colleagues, Guido Giese who is part of our core equity research team based in London and Bruno Rauis, who is part of our climate research risk team, also based in London.

In 2019, we published a research report in The Journal of Portfolio Management called the Foundations of ESG Investing, where we identified the economic transition channels through which companies, ESG characteristics impact their risk and return. Although this paper also considered climate as part of the financial materiality of ESG factors for certain sectors, today, I am happy to share our latest research paper in which we focus exclusively on climate and study the financial impact of climate transition risks in particular, in global equity markets. I'd like to start by asking Guido to give us a little bit of background. What questions did you want to address in your paper? And what were the underlying assumptions of your analysis?

Guido Giese
Thank you, Linda, for the question. So the purpose of this research paper was to answer the fundamental question, whether and how equity markets, price, climate, transition risks. Now, to analyze this question, we use the very traditional structure of risk model that I summarized on this slide here, where we basically assume that any financial impact seen in markets is linked to a risk exposure and a risk driver. This structure allows us to decompose this very fundamental question into three subsets. The first question being, what type of financial impact do we see in terms of earnings, stock price, valuation levels? The second question being, how do we measure or how can we approximate a company's exposure to climate transition risk? And the third question being, what is driving the repricing of equities in the market?

We actually started with the third question, the drivers, because the first part it's the beginning of the causation chain. Now, to look for or to understand the risk drivers, it's helpful to recall the difference between uncertainty and risk as it was defined by Professor knight in 1921, so exactly 100 years ago. I summarized it on this slide

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here. Basically climate risk is different from traditional risk, like market risk or credit risk in the sense that there is a lot of unknown information, unknown probability distributions.

And even efficient markets can only price known information, they can't price unknown information. But what we've seen in the past couple of years, there was a lot of new information appearing in the market, the Paris Agreement, new policies regarding climate change, new technologies, electric vehicles, wind farms, and so on. The first question we addressed in the paper, whether this flow of new information is the driver behind climate transition risks.

Linda-Eling Lee
Well, thank you, Guido. Now, let's turn to Bruno for the first question. What are the economic drivers of climate change and what transmission channels have you identified?

Bruno Rauis
Yes, thanks, Linda. So we looked at two types of economic drivers and transmission channels. The first one is climate policies. So, nearly everywhere in the world we find that governments are implementing stricter climate policies. And of course that has an effect on companies that are operating India economy. So that's the first driver, climate policies, and the transmission channel is the one that I'm showing on this slide here. So it starts with stricter climate policies, leading to targets in terms of less greenhouse gas emissions, so tighter greenhouse gas emission targets.

And of course this then has a broader operational impact on companies, and this impact eventually materializes in costs and earnings. Eventually, as we know, the price of the stocks of companies will therefore be impacted as well through the earnings channel. So that's the first transmission channel. And so we tested that in several ways, and I'm just going to show one way here is, an intuitive way is to look for example at how climate policies are more or less ambitions around the world and what are the implications for that in stock markets.

So you can see here on the left-hand slide I have a world map which is color-coded and green, for example, in Europe shows the countries where the climate policies are more ambitious, red, for example, in some of the emerging markets shows where it's less ambitious, and you can see the US is somewhere in between. And on the right-hand side we've looked at the price performance of various companies in different geographic regions and what the difference in return was between the companies that were the more carbon efficient versus the less carbon efficient.

So you can see that in the MSCI world, X, USA, which is primarily Europe, the greener companies or less carbon-intensive companies tend to perform better than the more carbon intensive. You can see that emerging markets, the green line is the other way

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around and the USA is somewhere in between. So this is really in line with what we see, with the ambitions of the climate policies around the world.

The second economic driver is the flip side of climate policies, which is the green technologies. So here, the transmission channel that we are looking at is companies investing into green research and development, which leads to owning of green technologies, which then leads to growth and the earnings and the revenue coming from low-carbon technologies, which then in turn leads to growth in the stock performance as well, so better stock performance.

And here we tested this by looking at, in the sectors there are typically, SEE companies we've more low-carbon revenues. We tested what the impact was of the propensity to have more green revenues on both the earnings growth and on the stock returns. And you can see that, especially in the more carbon-intensive sectors, the utilities, materials, and energy, there's a big impact there. So companies which were, everything else being equal, that had more green revenues versus those that had less green revenues had more earnings growth and had more returns as well. Industrials IT and real estate, this was a little bit less so, but still a positive relationship there.

Linda-Eling Lee
Great. Well, let's dig into the financial performance a bit more, so Guido, how has climate risk affected stock price performance or earnings growth performance over this period? Did climate change risk actually qualify as an equity risk factor?

Guido Giese
Yes. I mean, that is the key question. So in this study, we looked at the potential financial impact of climate transition risk on companies earnings, valuation levels, and of course stock performance. And we use the MSCI ACWI IMI as benchmark universe. I just want to show you two examples here. The first example, we looked at the valuation impact of companies holding fossil fuel reserves. That is important because fossil fuel reserves are potentially stranded assets. So what we did, and this is shown on this slide here, we looked at the utilities in the energy sector because they hold the majority of fossil fuel reserves in the benchmark universe and we compared the price-to-book valuation level of companies holding less fossil fuel reserves to companies holding more fossil fuel reserves. We looked for differences in price-to-book valuation.

What you'll see in here is the valuation difference in price-to-book ratio has increased over time, over the past years, which means companies holding more fossil fuel reserves, so their price-to-book valuation levels go down. That means equity markets started to price a discount on companies holding fossil fuel. So basally equity markets become more and more pessimistic on the value of this potentially stranded assets. So this is how we looked at valuation. We found, by the way, similar picture in

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green technology, we found companies generating a lot of green revenues they saw their valuation levels increase over time. So in line with the narrative, the economic transition channel that Bruno just highlighted.

But of course, what investors are probably most interested in is stock price impact. So what we did is we took company's total emission profile, so that is the aggregate of scope one, scope two, scope three emissions, and we imported this company's emission profile into our effector model as a potential risk exposure. We asked the risk model whether there was a stock price impact associated with the emission profile of companies, basically after stripping out all other equity factors, whether there was a stock price effect linked to the emission profile. And you see the outcome of the analysis on this slide here, and we've seen that there has been a positive cumulative factor return linked to company's emission profile over time, which basically means on average greener accompanies tended to outperform browner companies.

And what is interesting is this outperform started very slowly in 2015, which is the year that the Paris Agreement was signed, and it has clearly accelerated during the past two or three years, which is very much in line with the narrative and the economic transmission channel that Bruno pointed out, that we seen an increasing level of new policies, new regulations coming out that drives the repricing of stocks. What is important to mention is that this stock price impact was not uniformly distributed across the benchmark universe. It was very much concentrated in the wings, meaning the very carbon-intense companies on the left and the solutions, the green tech companies on the right, whereas about three quarters of MSA ACWI IMI was not effected at all.

So it's a very non-uniform effect. It was also very nonlinear. So even in the effected wings, the relationship between specific return and carbon emission profile was very non-linear. And as you can see here, it was accelerating over time. But the interesting thing is using carbon emissions as a risk exposure, we found clear evidence for a financial impact in terms of valuation levels, stock price, and also in terms of earnings.

Linda-Eling Lee
Well, that's a lot of very insightful results there, but Bruno, maybe in very concrete terms, what are the lessons that investors can learn from these results?

Bruno Rauis
Yes, thanks, Linda. So I think that the concrete implications are some of the ones that Guido has already highlighted. So number one, we can see pricing impacts of transition risk, but it's accelerated tremendously in the last two years, which is really interesting. The other thing is that we can also see that the different types of stocks are not impacted by transition risk in the same way. I'm showing here on this slide, a

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graph which looks quite complicated but the idea is that it shows for different types of companies how transition risk has impacted the returns. And here, what you can see is that in the green line, which are the solutions companies, the companies that are typically providing solutions for climate mitigation, you can see that there's a lot of convexity, which means really that the transition risk profile of a company within the solutions category has a big impact on the return.

On the other side of the spectrum, the asset is trending, which are the companies that are the most impacted by transition risk. You can see that there's also some convexity there showing that the climate transition risk profile of the companies have an impact. By comparison, the other ones that are in between the product transition, the operation transition and the neutral, those lines are nearly straight lines. They don't show convexity, which tells us that there is less differentiation. I think it's a very interesting, because it shows that the pricing of climate transition risk is really in the tails as well as in the last two years. So what does that mean for investors? Well, in my opinion, this raises a few very interesting questions. First one is, will this process continue? Are we going to continue to see pricing impacts of transition risk in those categories, is it going to continue to accelerate as well?

And in my opinion, one very interesting question is, will we see pricing impacts move from the tails or the wings of the distribution into the middle of the distribution? Because a common narrative is that transition risk will impact all companies, the transition to a low-carbon economy, is going to impact everyone. But what we're seeing now in equity markets is actually, that's not really the case. It impacts the very brown companies, the very carbon-intensive companies, it impacts the very green companies, the climate champions, but in the middle we don't see so much of an impact. And so one question which we will have to wait to find out is, is this pricing impact going to move in the middle and start impacting potentially all companies in equity markets?

Linda-Eling Lee
Well, thank you, Bruno, and thank you Guido. If you'd like to learn more, there's a lot more details in the paper and you can come and download the paper at msci.com/research. And please do stay tuned for the next paper in which we're going to be looking at the practical implications of transition risks for investors in terms of risk management and portfolio construction. Thank you very much for joining us.

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