



Are insurance balance sheets carbon-neutral? Harnessing asset pricing for climate change policy

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By redirecting capital flows associated with investment and underwriting businesses towards carbon-neutral activities, the insurance industry should play a key role in countering climate change; in particular due to its enormous size and capital base. Insurance companies can be viewed as large portfolios consisting of financial risks (asset side) and underwriting risks (liability side). Therefore, we suggest an asset pricing approach to detect carbon-intensive positions on their balance sheets. The framework should be accompanied by two simple policy changes to reinforce its effectiveness.

Climate change, the global average temperature rise compared to pre-industrial levels and associated catastrophic and irreversible consequences such as ocean acidification, permafrost thawing, desertification, extreme weather, coastal flooding, and the extinction of many species significantly increased the awareness of the world's population towards the responsibility of business and investment behavior. On the positive side, serious efforts to stabilise carbon emissions are burgeoning. Since the ratification of the United Nations Framework Convention on Climate Change (UNFCCC) in 1994, 24 Conferences of the Parties (COP) have been held. During the summit of 2018 in Katowice, almost 200 nations agreed on binding rules for the implementation of the 2015 Paris Agreement (see UNFCCC Wwebsite1). The major shift in energy generation and industrial practices associated with the long-term temperature goal of 2 °C will require a significant redirection of global capital flows towards carbon-neutral infrastructure projects and technologies.

The insurance industry, as one of the largest contributors to the world's GDP, bears a great responsibility. Recognising their key role in countering climate change, many insurers have committed themselves to a comprehensive, enterprise-wide reaction. In a detailed survey of related engagements, Mills (2012) reports 1148 initiatives from 378 institutions in 51 countries. Moreover, 2012 witnessed the introduction of the Principles for Sustainable Insurance (PSI), a voluntary framework supported by 65 entities (see UNEP 2012). While these are encouraging developments, the actual effectiveness of many of these activities remains unclear. In some cases, companies might merely pursue showcase projects such as investments in emission reduction technologies or environmentally focused funds on a smaller scale, simply because mentioning sustainable business practices resonates well with the public.

For a real impact to materialise, however, insurance firms must consistently pursue green policies in their core investment and underwriting portfolios. The potential is enormous: estimates for the global insurance sector indicate around USD 25 trillion in assets under management and almost USD 5 trillion in non-life premium volume. A reallocation of just a fraction of these capital flows to low-carbon sectors of the economy could be a substantial catalyst for the achievement of climate goals. However, since existing frameworks are not binding, and it is costly for stakeholders to scrutinise the industry, insurers might not be strongly incentivised to extend the green paradigm to their entire balance sheet.

We aim to take up the discussion by suggesting a novel policy framework consisting of two main elements.



First, we develop a rapid test for carbon exposure in the investment portfolios of exchange-listed insurance companies, based on asset pricing theory. More specifically, we enrich a well-established five-factor insurance sector model with an excess return series for traded anthropogenic greenhouse gas (GHG) certificates. The latter must be purchased by “polluters” to cover their emissions in a given year, forcing them to internalise externalities associated with climate-wrecking activities. Through this new factor, we can capture long exposures to the CO₂ price hidden in insurance stock returns, thus unveiling the actual investment practices of the companies. Based on a sample of 35 European insurers, we illustrate the implementation of the model and analyze the time-varying patterns of the carbon factor coefficients (betas). Due to the supposed negative relationship between the price of CO₂ and the stock prices of heavy emitters, higher betas imply less carbon exposure. Most firms exhibit an observable increase in the carbon betas throughout 2018, which is in line with explicit public declarations to decarbonize their balance sheets. Also, we illustrate how the model can be extended to capture a broader range of sustainability criteria such as the exclusion of controversial weapons and nuclear energy, as well as the adherence to occupational safety standards and human rights.

Further, we suggest several accompanying regulatory changes. One key aspect concerns the institutionalization of the suggested carbon test and the consequences for firms which exhibit a significant CO₂ coefficient. A straightforward way to tackle this question is an integration into Solvency II. Insurers could, for instance, be obliged to publish the carbon beta in their annual report and their Solvency and Financial Condition Report (SFCR). Stakeholders of the firm would thus have an easy and inexpensive way to evaluate the firms’ climate compatibility.

Moreover, the results of the suggested carbon test could be utilized for the introduction of an environmental, social, and governance (ESG) label for insurers akin to existing signals and rankings in the investment fund industry. Finally, as a measure of last resort, regulators could contemplate a rebate in the capital charges for insurers with green balance sheets and a markup for those with significant carbon exposures. While an adjustment of risk-based capital standards based on mere political considerations is certainly debatable, increasing carbon regulation and investor scrutiny could indeed change the risk profile of heavy emitters in the medium to long run. After all, empirical research has already documented a comparable effect for the stocks of companies in the tobacco, alcohol, and gambling businesses.

Access to the full study:

Alexander Braun, Sebastian Utz & Jiahua Xu, “Are Insurance Balance Sheets Carbon Neutral? Harnessing Asset Pricing for Climate-Change Policy”, Geneva Papers on Risk and Insurance – Issues and Practice 44(4), 549-568. [Link](#)

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