On Bond Returns in a Time of Climate Change

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The impact of a particular market-based instrument, the EU-ETS, upon financial values has already been addressed by the literature; nevertheless, efforts pertain primarily to stocks, leaving the bonds field out of the picture. The objective of this paper is to assess the impact of low-carbon policy—the 2003/87/CE directive which generated EU-ETS—upon the bond returns of European firms.

In order to accomplish this objective, a Fama and French (1993) framework is employed for the first time. Alongside the two bond market factors proposed by Fama and French (1993), TERM and DEF, an EU-ETS participation factor is added, GMC. GMC (Green minus Carbon) is meant to mimic the risk factor in bond returns related to low-carbon policy, the 2003/87/CE directive in this case. It has been found that augmenting the Fama and French (1993) model for bonds with the GMC factor improves the effectiveness of the model, at least with regard to Europe between 2008 and 2018. This holds true in the 2008–2018 time-span and in the 2008–2012 (Phase II) and 2013–2018 (Phase III) sub-periods.

The sensitivity of bond portfolio returns to the GMC factor has been found to be positive in the case of Green portfolios and negative in the case of Carbon portfolios. Most importantly, slopes on GMC are statistically highly significant. Ultimately, the average value of GMC itself is positive: a positive GMC means that in Europe, in the 2008–2018 time-span, there is no carbon premium as some of the literature asserts, but rather a green premium. The presence of a green premium in the European bond market in the years 2008–2018 is a useful asset management insight for financial practitioners. In other words, low-carbon investments can no longer be understood solely from the point of view of taking an ethical stand: nowadays, as the green premium shows, investing in low-carbon firms is a profitable exercise.

Recently, the literature has proposed stress testing, a technique developed for testing the stability of an entity, as an evaluation framework for climate change risks. The carbon stress test put forward, which leverages the GMC factor, is able to indicate the impact of an EU-ETS average price increase upon bond returns: results show the effects of a plausible but more severe EU-ETS average price on bond portfolios and on individual bonds. The low-carbon transition risk stress test provides useful insights to legislators in terms of the financing of the low-carbon transition, i.e. increasing capital inflows towards green firms and capital outflows from carbon firms. The low-shock scenario, for example, would provide an additional boost to the low-carbon transition, without harming excessively high-carbon firms.

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