The term structure of carbon premia

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**Summary**

**Focus**

Our paper explores a carbon premium – the extra yield investors demand to buy bonds issued by firms with more greenhouse gas emissions – in the US corporate bond market. We analyse the carbon premium along two channels. One is the preference channel, under which the premium reflects investors' preference for firms that they perceive as being more environmentally responsible, all else equal. The other is the risk channel, where investors perceive more carbon-intensive firms as more prone to default.

**Contribution**

It is important to examine how much of a carbon premium is priced in financial assets for at least two reasons. First, testing the existence of a carbon premium verifies whether investors differentiate between financial assets that fund activities with varying degrees of environmental impact – a precondition for financial markets to support the transition to a more sustainable economy. Second, estimating the carbon premium embedded in current prices sheds light on financial stability concerns from a possible sharp repricing of carbon risks in financial assets.

Our paper contributes to the growing literature on whether a carbon premium is reflected in asset prices. Our paper also contributes to the line of literature investigating whether firms' environmental and social commitments, more generally, affect their cost of debt. Finally, our paper adds to the literature on the determinants of corporate spreads.

**Findings**

We confirm the existence of a carbon premium in both the preference and the risk channel, with the premium being larger for firms in more energy-intensive sectors. Moreover, the premium differs across maturities, giving rise to a hump-shaped term structure of carbon premia, reaching its highest level for maturities of 15–20 years. For instance, a 50% reduction in carbon emissions by an energy-intensive firm can reduce the credit spread of a bond in the belly issued by the firm by over 10 basis points.

**Abstract**

This paper explores a carbon premium – the extra yield investors demand to buy bonds issued by firms with more greenhouse gas emissions – in the US corporate bond market. We analyse a carbon premium along two channels, via panel regression. One is the preference channel, under which the premium reflects investors' preference for firms that they perceive as being more environmentally responsible, all else equal. The other is the risk channel, where investors perceive more carbon-intensive firms as more prone to default. We test the preference channel by investigating the relationship between corporate bond yields and carbon emissions, while controlling for the probability of default (PD) and other bond characteristics. We examine the risk channel by analysing how carbon emissions affect the PD. We validate the existence of carbon premia in both channels, with the premium being larger for firms in more energy-intensive sectors. Moreover, the premium differs across maturities, giving rise to a humpshaped term structure of carbon premia, reaching its highest level at the belly of the curve (maturities of 15–20 years). For instance, a 50% reduction in carbon emissions by an energy-intensive firm can reduce credit spread of a bond in the belly issued by the firm by over 10 basis points.

JEL classification: G12, G30, Q54.

Keywords: climate change, carbon emissions, corporate bond spread, term structure.

**Url:**<https://www.bis.org/publ/work1045.htm>