

Carbon Intensity and the Cost of Equity Capital

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The need for governments to pursue a transition from high- to lower-carbon economic systems poses an increasingly salient financial risk. Firms may face intensified regulations that constrain and price carbon emissions. At the same time, competitors could develop lower-carbon technologies and serve the growing demand of consumers and investors for more sustainable products. Hence, the cash flows of high-carbon production activities are at risk.

This paper investigates to what extent equity market investors demand a premium to compensate for such risks and thus might raise firms' cost of equity capital (CoE). We find that firms' carbon intensity (carbon emissions per unit of output) has a distinct and robust impact on CoE: On average, a standard deviation higher (sector-adjusted) carbon intensity is associated with a CoE premium of 6 (9) basis points or 1.7% (2.6%). These results are based on a combination of portfolio-level analyses and panel regression techniques, using two comprehensive international panel data sources over the years 2008–2016.

The CoE premium is primarily explained by systematic risk factors: high-emitting assets are significantly more sensitive to economy-wide fluctuations than low-emitting ones. Carbon intensity has a stronger CoE impact in contexts in which carbon risk poses a more salient issue, such as in high-emitting sectors, EU countries, and firms subject to carbon pricing regulation.

Our findings have several implications for policymakers and practitioners. Firstly, financial market investments are considered crucial to facilitate and stimulate low-carbon activity (IPCC, 2018; UNFCCC, 2015). We establish that the risk mitigation effect provides an important, but relatively weak, market mechanism that will stimulate investment in low-carbon activities. Policymakers are informed, however, that additional regulations will be needed to foster low-carbon investment. Policies also are needed to improve disclosure and validation of firms' climate-related impacts and strategies, as the risk mitigation effect largely hinges on reliable data. Secondly, our analysis could guide investors' security selection, sector allocation, and portfolio decarbonization strategies (PDC, 2017; TCFD, 2017). Finally, firm managers are informed about the relevance of low-carbon production for the CoE, which is a key driver of business and project decisions.

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