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Research article

Does climate change exposure affect the intensive and extensive margins of corporate R&D investment?

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Supplementary

Appendix A

Variable Definitions

Variable	Definition	Source
Climate change exposure	The relative frequency of climate change-related bigrams in earnings conference call transcripts. The authors count the number of such bigrams and divide by the total number of bigrams found in the transcripts. Other measures climate change physical exposure, climate change regulatory exposure and climate change opportunities exposure.	Saunter, van Lent, Vilkov, and Zhang (2023)
Climate Change Risk	The frequency with which bigrams connected to climate change are stated simultaneously with the phrase's "risk" or "uncertainty" (or synonyms thereof) in one sentence in earnings conference call transcripts. The number of such bigrams is counted and divided by the total number of bigrams in the transcripts.	Saunter et al. (2023)

R&D intensive margin (R&D)	Positive R&D expenditures (xrd) divided by total sale (sale) Other measures are R&D expenditure divided by employee; R&D expenditure divided by total assets.	Compustat
R&D extensive margin	Equals 1 if a firm reported zero or positive R&D expenditure and 0 otherwise including reporting blank R&D.	Compustat
Paris Agreement (after 2016)	Dummy variable with a value of 1 in the years following the 2015 signing of the Paris Agreement and 0 otherwise.	Author's calculation
State adoption RPS	Dummy variable equals 1 if a firm is in a State implementing the Renewable Portfolio Standard and 0 otherwise.	Author's calculation
Firm size	Natural logarithm of total assets (at)	Compustat
Firm age	Age is computed as one plus the current year under investigation minus the firm's year of birth.	Compustat
Total debt	The ratio of the firm's long- and short-term debt (dltt+dlc) divided to the total assets (at)	Compustat
Cash holding	Cash and short-term investments (che) divided by total assets (at)	Compustat
Dividend dummy	Dummy variable equals 1 if firm pays positive dividend (dvpsx_f) and 0 otherwise.	Compustat
Profitability	Return on assets is the ratio of the firm's earnings before interest, taxes, depreciation, and amortization (ebitda) to the book value of total assets (at)	Compustat
Tobin Q	measure as total asset (at) less book value of equity plus market value of equity divided by total asset. Book value of equity is calculated as total asset (at) less total liability (lt) and liquidation value of preferred stock (pstkl) plus deferred taxes and investment tax credit (txditc), and market value of equity (prcc_f x csho_f)	Compustat
Book to market (BTM) ratio	The book to market ratio is the book value of common equity (ceq) to the firm's market value of equity (csho_f x prcc_f)	Compustat
Capital investment	The ratio of capital expenditure (capx) to total assets (at)	Compustat
Industry Sales growth	Sales growth is the %age growth in sales from the end of the previous year to the end of the current year based on 2-digit industry code.	Compustat
Market power	The ratio of net operating profits (sale minus cost of goods sold minus selling, general and administrative expense) to the total sale (sale) Measures the market power.	Compustat
Carbon intensive industries	Equals 1 for firms that emit high carbon and 0 otherwise	Author's calculation

Green industries	Equals 1 for firms that emit low carbon and 0 otherwise	Author's calculation
Inflation Rate	The consumer price index measures inflation as the annual %age change in the cost to the average consumer of acquiring a basket of goods and services over year (FPCPITOTLZGUSA)	FRED St. Louis
Interest Rate	The federal funds rate is the overnight interest rate at which depository institutions trade federal funds (balances maintained at Federal Reserve Banks) The federal funds rate is the primary interest rate in the United States' financial industry (FEDFUNDS)	FRED St. Louis
Real GDP	The real GDP is the inflation-adjusted worth of goods and services produced by labor and property in the United States.	FRED St. Louis
Global Fin. Crisis (2007–2009)	Equals 1 for years 2007–2009 representing global financial crisis and 0 otherwise	Author's calculation