

Are EU firms climate-ready?

Micro evidence from EIBIS

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Outline



Motivation and research questions



Literature review



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Key takeaways

There is a **variety of profiles** in response to climate change

- Ranging from wait and see observers, to cautious reducers – low hanging fruit - to short and long-term explorers

Awareness of climate change risks is **crucial** for climate investment

- Firms with **positive views** on the energy transition are more likely to adopt active climate profiles

Uncertainty and finance constraints hinder climate action

- Firms are less likely to engage in climate action the greater the uncertainty, credit constraints and have little energy cost concerns

Evidence of stakeholder push for climate action

- Firms are more likely to adopt more climate-friendly strategy when they have **climate staff**, **environmental policy** is more **stringent** and **citizens** are more **engaged**

EIBIS background information

13,500 firms surveyed across EU27, plus the US and the UK

Firms of 5+ employees in Manufacturing, Services, Construction & Infrastructure sectors

Representative of the economy (firms weighted by value-added)

Information on:

- Firm characteristics and performance
- Past investment activities and future focus
- Investment finance
- Investment needs and constraints

Researchers that are interested in using EIBIS dataset, are invited to submit a research proposal to:
eibis_data_access@eib.org

Motivation and Research Questions



Motivation

Achieving EU 2030 climate goals requires additional green investments of €450bn/year this decade – 2/3 of this amount should come from the private sector

The literature shows that there are marked differences in climate action among sectors, regions and size of firms

Understanding the determinants of firms' climate strategies is imperative to scale up climate action



Research Questions

*Is it possible to identify climate strategies?
Greenwashing?*

What triggers firms to adopt more active green profiles?

Literature Review – Climate strategies

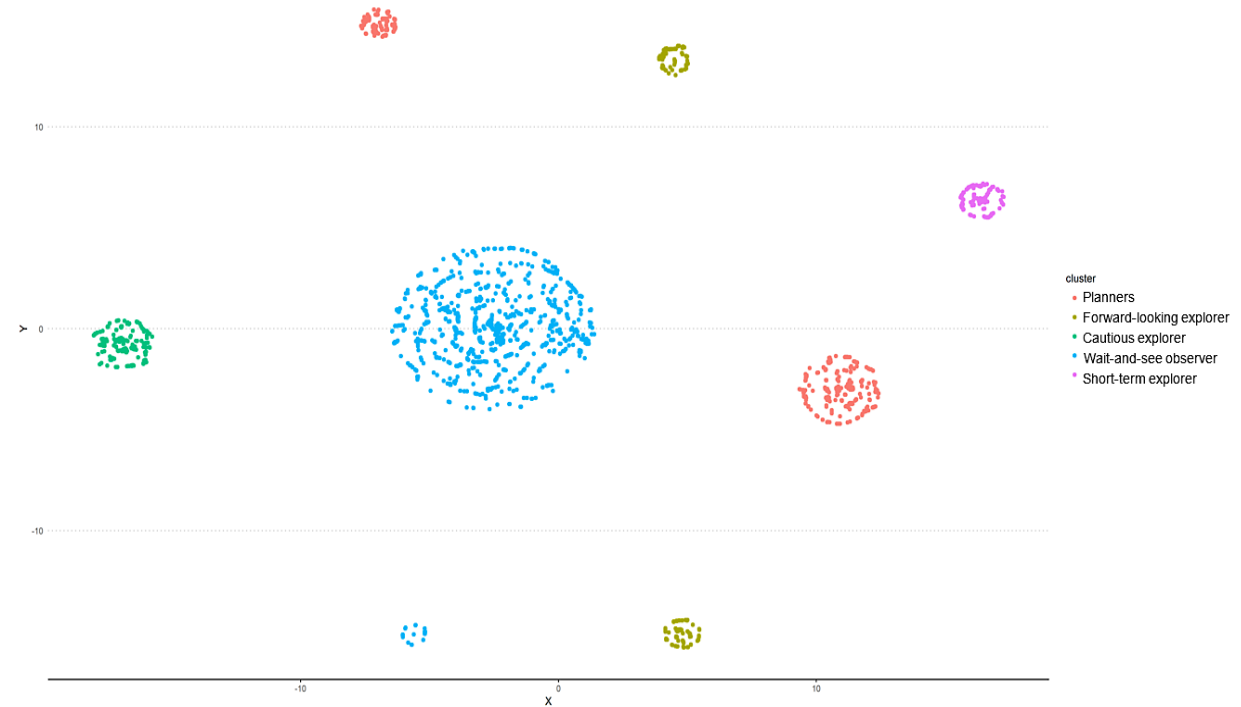
Research	Variables	Climate strategies	Method
Lee (2012)		wait-and-see observers, cautious reducers, product enhancer, all-round enhancer, emergent explorer, all-round explorer	A cluster analysis on 241 Korean firms
Weinhofer and Hoffmann (2008)		all-rounder, compensator, substituting compensator, reducer, substituting reducer, preserver	A cluster analysis with a sample in the electricity industry
Kolk and Pinkse (2005)	emission reduction targets, policies, activities and measurement, and their perceptions of climate change	cautious planner, emerging planner, internal explorer, vertical explorer, horizontal explorer, emissions trader	A cluster analysis with a broad sample of FT500 companies

Choosing to **invest in climate**, **planning to do so in the future** and **setting climate targets** are indicators that communicate part of a firm's carbon strategy

Climate strategies – Clustering Analysis

Identified clusters

	Wait-and-see observer	Planners	Cautious reducer	Short-term explorer	Forward-looking explorer
Climate targets	13%	32%	0%	100%	49%
Climate investments	0%	0%	100%	100%	100%
Climate plans	0%	100%	0%	0%	100%
Observations	4309	2038	1012	818	1338

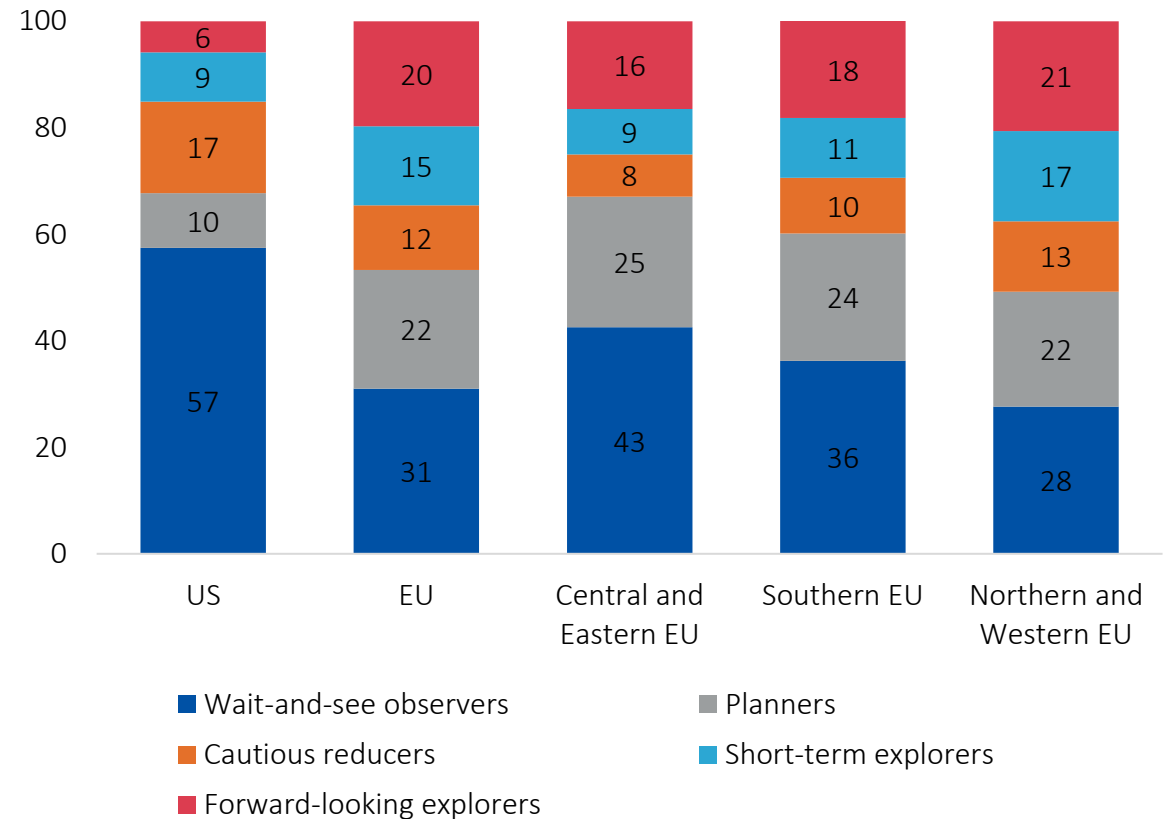


- ✓ Hierarchical clustering using Gower's similarity coefficient
- ✗ Did not use K-means clustering as it only works when all variables are numeric

There are marked regional differences

- Active climate profiles are concentrated in Europe compared to the US
 - Within Europe, NWE lead the way with a higher share of active profiles

Distribution of firms' climate profiles, by region (%)



Source: Data obtained from EIBIS 2020

Literature Review – Determinants of profiles

Perceptions of climate risk influence climate investments (Arnell and Delaney, 2006; Hoffman, 2009; EIBIS, 2020; Kalantzis et al., 2021)

- Firms need to be aware of climate change to act (Arnell and Delaney, 2006; Hoffman, 2009; Sullivan and White, 2019)
- Physical and transition risks are positively related to mitigation investments (Bryan et al., 2009; Hoffman, 2009; EIBIS, 2020)

Income plays an important factor (Bryan et al., 2009; Smith and Leiserowitz, 2014; Han and Liu's, 2018)

- **Income is negatively correlated with physical risks.** Firms in higher-income countries perceive fewer physical risks and are higher transition risks as they better positioned to impose regulation to support the transition (EIBIS, 2020).
- **Income is positively correlated with investments.** Wealthier households are more likely to adopt measures to address climate change, whereas lower-income households tend to be financially constrained (Bryan et al., 2009).

Firm-characteristics also play a role (Smithers and Blay-Palmer, 2001; Weinhofer and Hoffmann 2010; Lee, 2012)

- **Larger** firms are more likely to adopt a broader spectrum of activities than SMEs (Weinhofer and Hoffmann 2010; Lee, 2012).
- **Innovation** prompt the adoption of mitigation measures and strategies (Smithers and Blay-Palmer, 2001; van den Bergh, 2013).

Climate stringency and citizen engagement can push climate action (Damert, et al., 2017; Yunus, 2017)

- External stakeholders can influence a firms' response to climate change. **Regulatory pressure, citizen engagement and climate staff** are positively correlated with the adoption of mitigation measures (Damert, et al., 2017)

Testing Hypotheses

We test with an **mlogit regression** how firms' climate strategies vary alongside climate perceptions and firm-specific characteristics and expect that **more sophisticated strategies** are followed by:

- **H1:** Firms that **acknowledge climate change risks** and especially those that view the transition positively
- **H2:** Firms that are optimistic about the **future**, their **demand**, **access to finance** conditions but have **energy cost concerns**
- **H3:** **Frontier firms** as reflected by innovative and exporting activities and profitability status
- **H4:** Firms with **advanced management practices** – performance pay reward
- **H5:** **Larger** firms, that operate in **manufacturing** and **infrastructure** and are located in **NWE**
- **H6:** Firms that feel a **push** from various stakeholders e.g., **governments**, **citizens** and **staff**
- **H7:** Firms that operate in **sectors** and/or **regions** with more **sophisticated practices**
- **H8:** Firms in more **competitive markets**

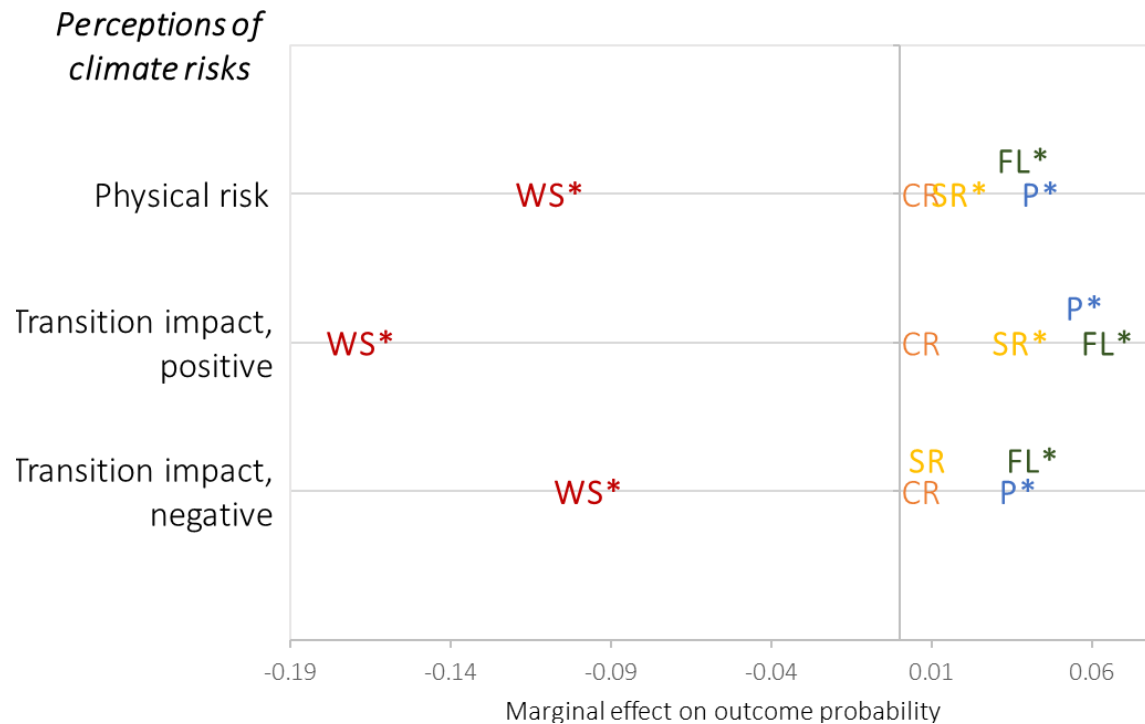
Data - Variables

Independent variables	Mean
Perception of climate change risks	
Physical risks – Impact vs no impact	58%
Transition impact on demand – positive vs no impact	34%
Transition impact on demand – negative vs no impact	15%
Barriers to investment	
Low demand	25%
Energy cost concerns	24%
Availability of finance	20%
Uncertainty about the future	50%
Advanced management practices	
Performance pay vs family-owned	70%
Climate stringency	
Policy stringency at the country level	56%
Citizen action	1.7
Climate staff	22%
Concentration index	

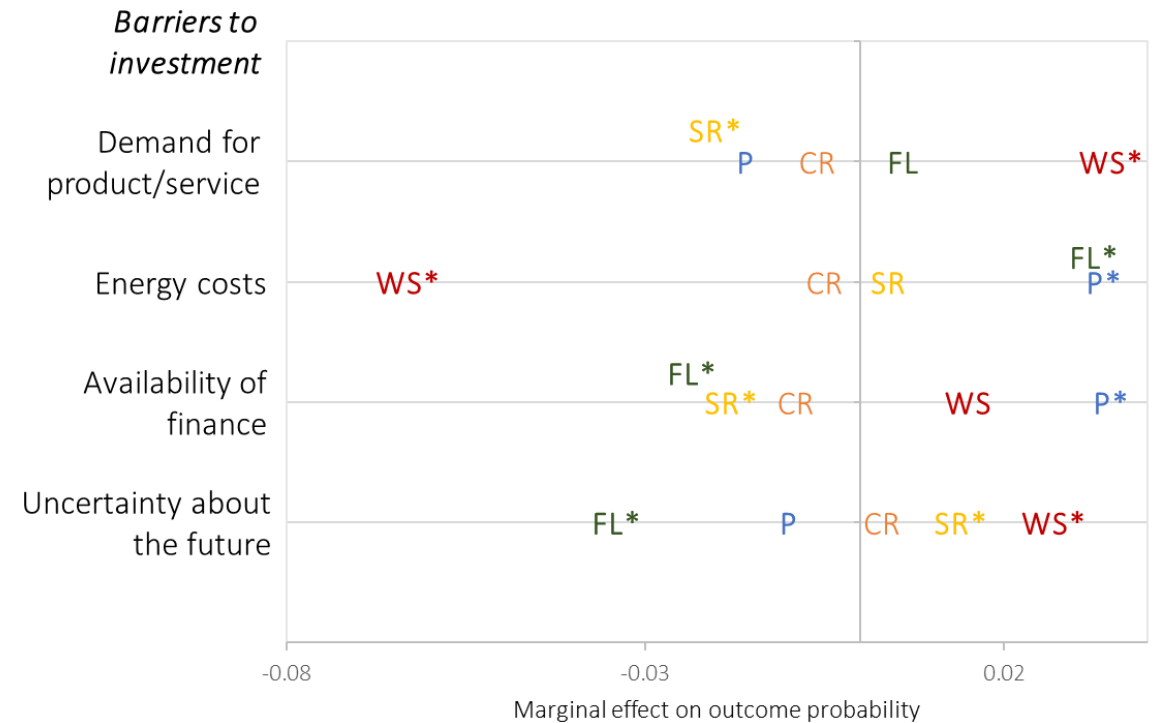
Control variables	Mean
Frontier firms	
Innovation	42%
Exporting activity	56%
Profitability	80%
Sector (baseline manufacturing)	
Services	8%
Construction	27%
Infrastructure	27%
Region (baseline Northern and Western Europe)	
Central and Eastern EU	10%
Southern EU	22%
Size	
SME vs large	52%
Age (baseline less than 5 years of experience)	
20+ years of experience	75%

H1/2 - How do climate strategies vary with risk perceptions and barriers to investment?

Awareness leads to climate action



Uncertainty, credit constraints and mild energy cost concerns hinder climate action

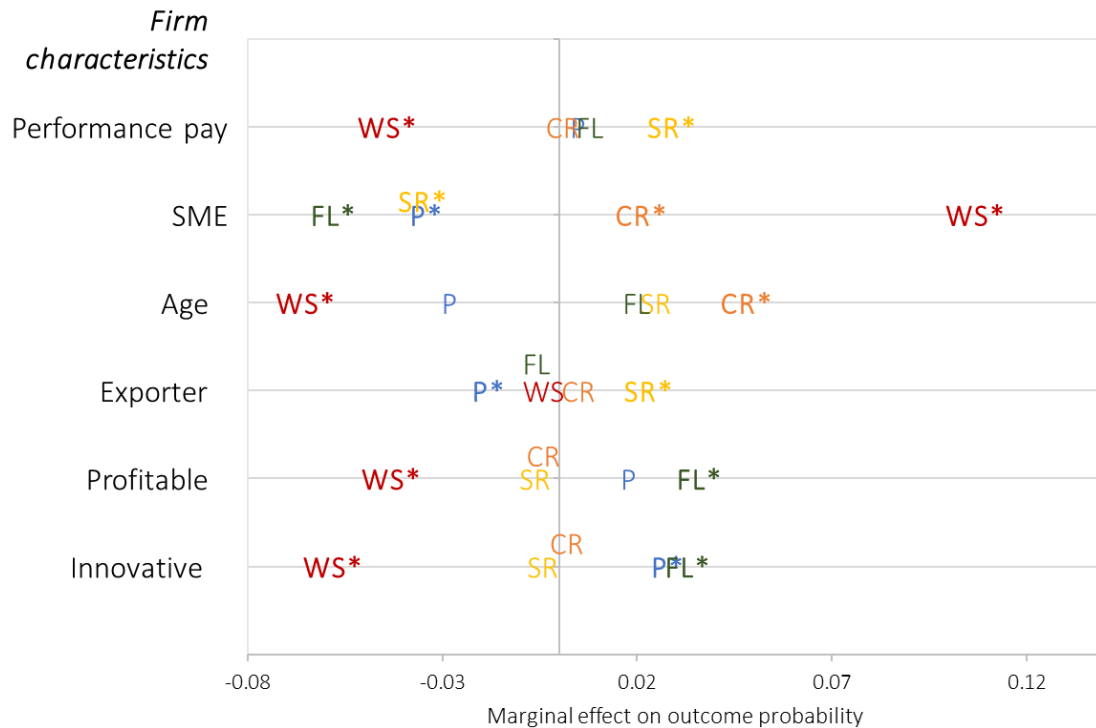


Note: WS=wait and see, P=Planners, CR=Cautious reducers, SR=Short run explorers, FL=Forward looking explorers; * indicates statistical significance at least at 10%

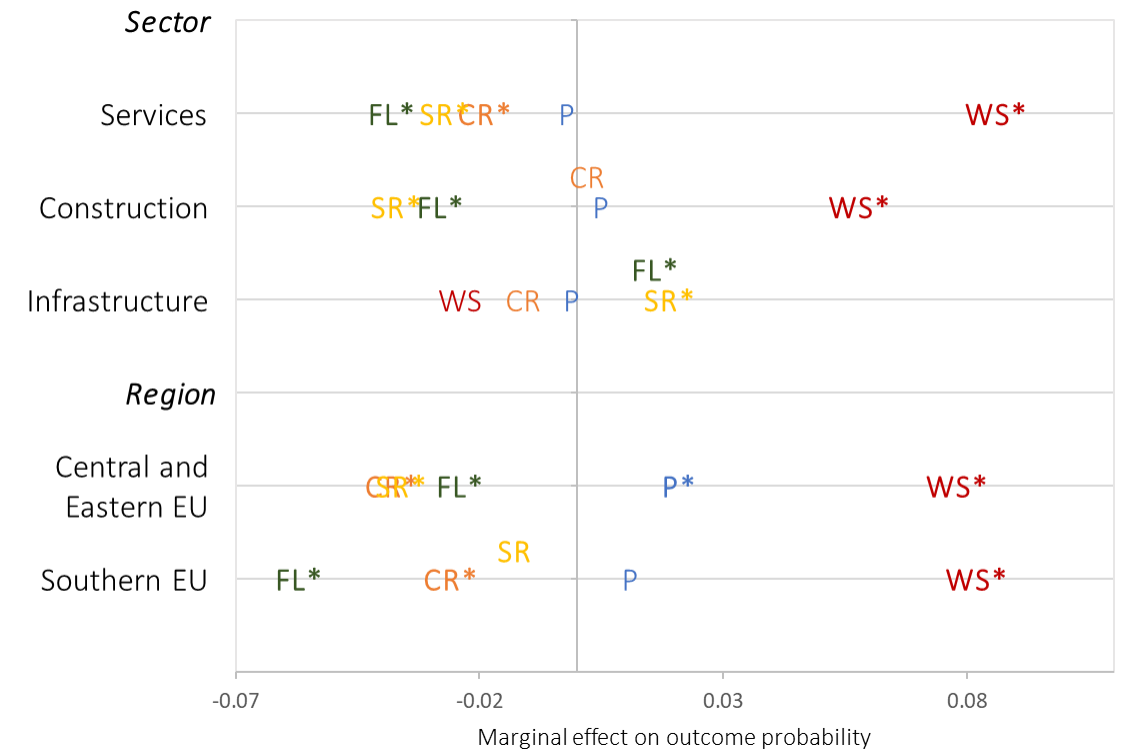
Source: Data obtained from EIBIS 2020

H3/4/5 - How do they vary with other firm-specific characteristics?

Larger, more established and frontier firms prompt climate action



Firms located in NWE and in infrastructure and manufacturing sectors also prompt action

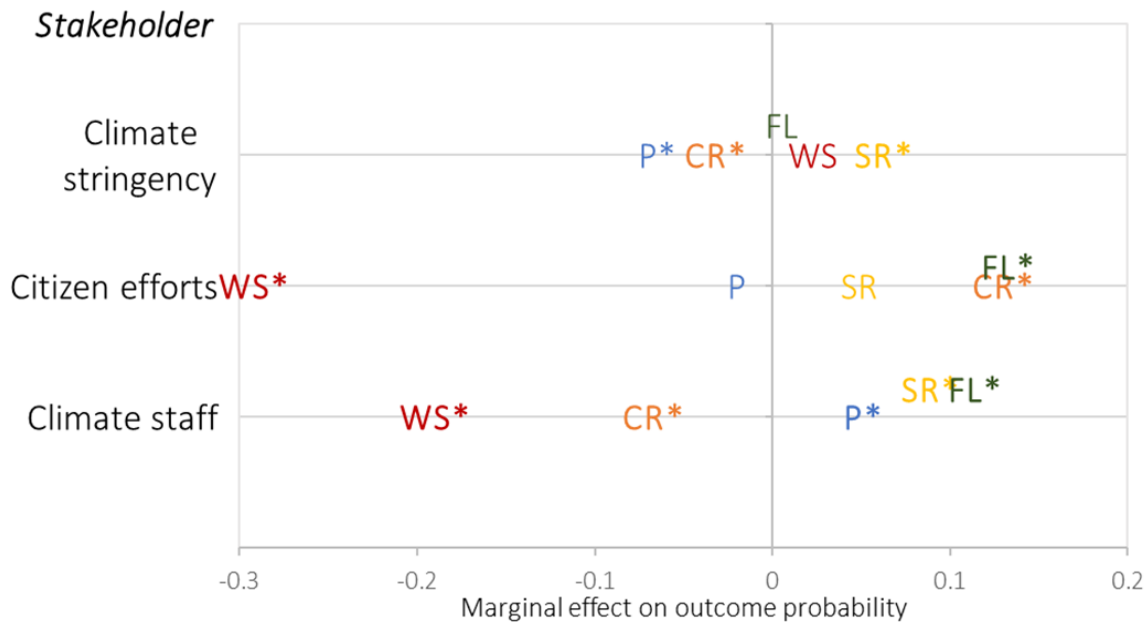


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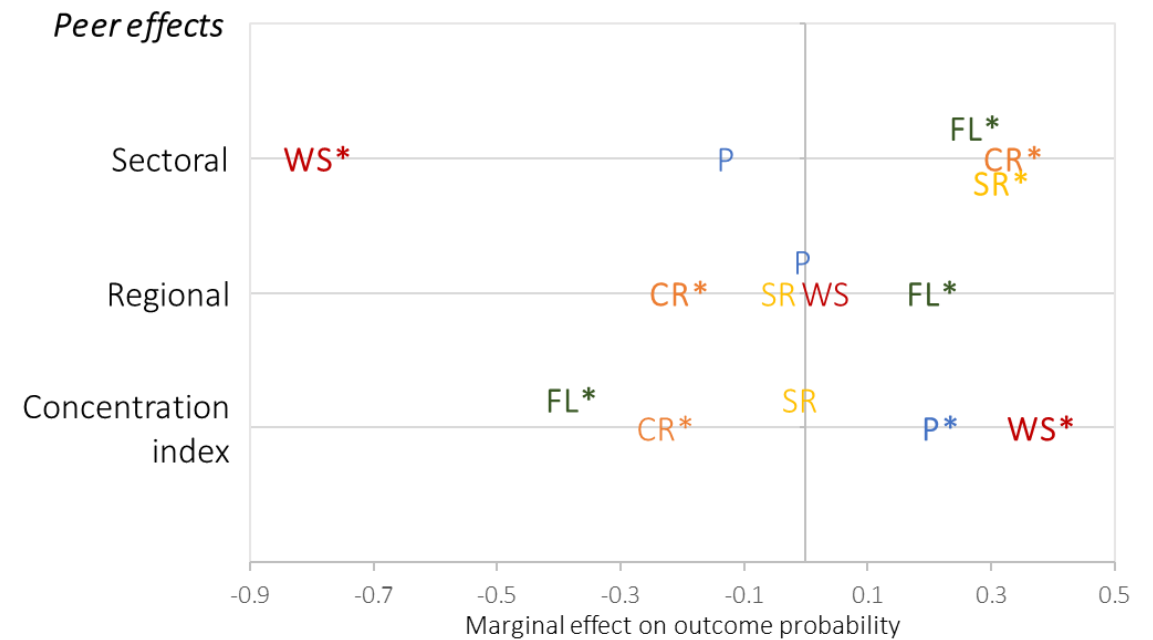
Source: Data obtained from EIBIS 2020

H6/7/8 – Does stakeholder pressure matter? Are there peer effects (FL)? Does market structure matter?

Firms with stakeholder pressures are more likely to take climate action



Firms in more competitive markets and firms subject to spillover effects prompt climate action



Note: WS=wait and see, P=Planners, CR=Cautious reducers, SR=Short run explorers, FL=Forward looking explorers

Source: Data obtained from EIBIS 2020

In a nutshell.....

Active profiles



Awareness of climate risks

especially for firms that view the transition positively



Frontier firms

Innovators and profitable firms. Firms with advanced management practices



Peer effects

Country-sector and regional effects matter



Better climate policy environment

Firms in climate stringent countries and where there are citizen and staff efforts



Less active profiles



SMEs

Information barriers in SMEs prevent firms from adopting active profiles



SE & CEE

Firms located in Southern Europe and Central and Eastern Europe



Barriers to investment

Credit constraints, low demand and greater uncertainty



Concentrated markets

Firms in markets with a high concentration



Going forward – paving the way to a net zero-carbon future

02

Assessing barriers to provide solutions

- A **clear decarbonisation** plan can alleviate uncertainty, while **advisory and government support** can improve access to finance.

01

Increased awareness and target-setting necessary

- Increasing awareness is important to keep stakeholders engaged.
- Firm's strategies also depend on income, geographic location and firm-characteristics. This information is useful for **identifying areas of support**.

03

Aligning climate ambitions

- There is an **outside-in push** for climate action, particularly stemming from citizens.
- This indicates the need for firms to **align climate ambitions with** those of **societies and governments** to ensure their survival.