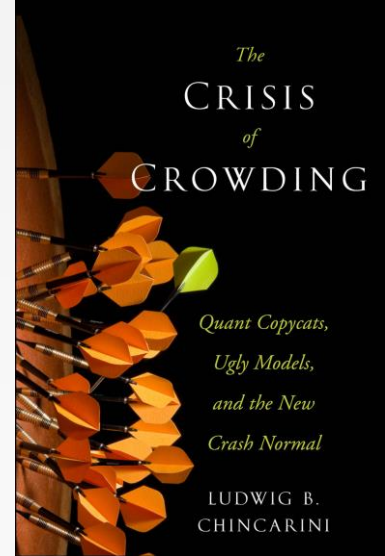# Carbon Policy Surprises and Stock Returns: Signals from Financial Markets

Authors: Hengge, Panizza, and Varghese
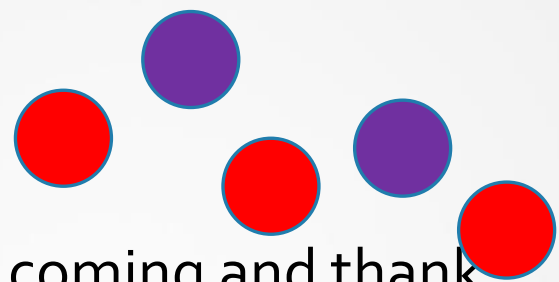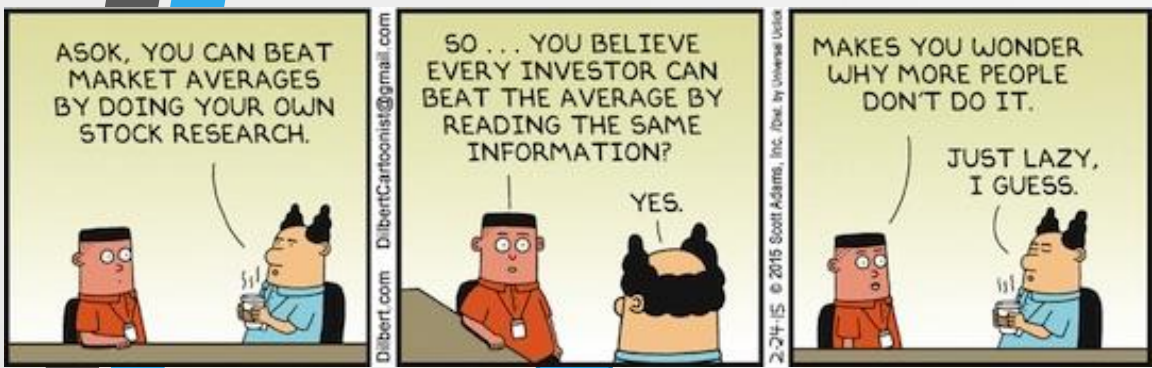
June 26, 2023

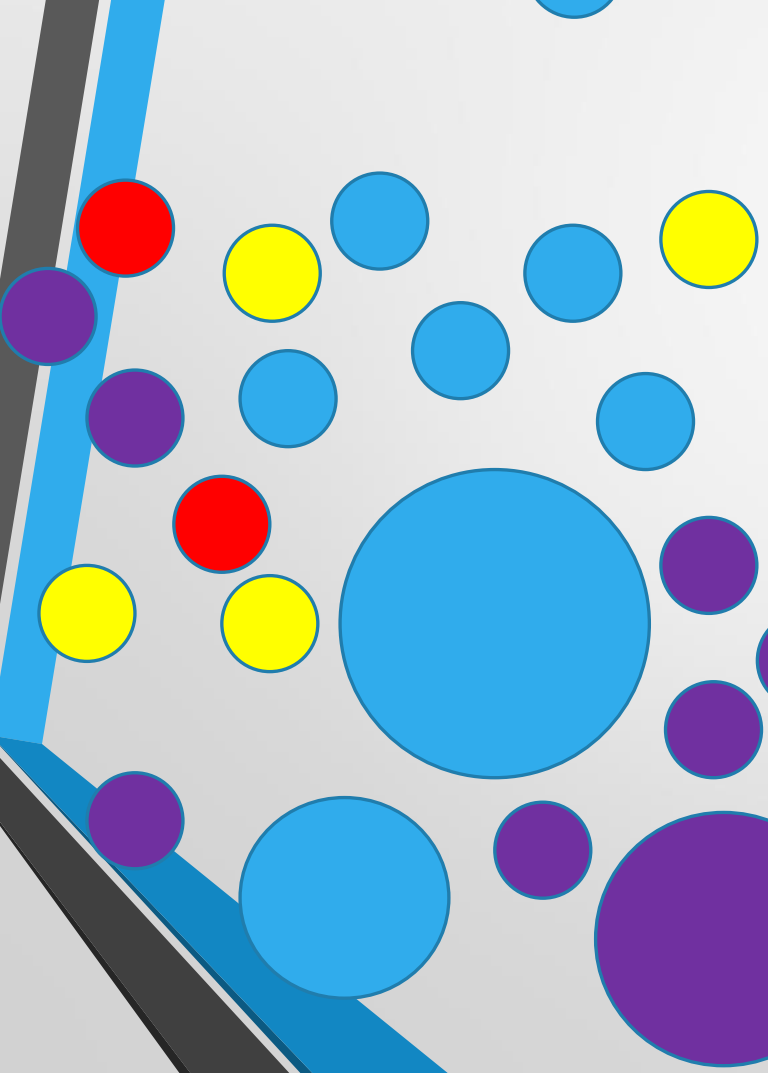Discussant: Ludwig B. Chincarini, Ph.D., CFA
University of San Francisco
USCF Investments
Wedge Capital

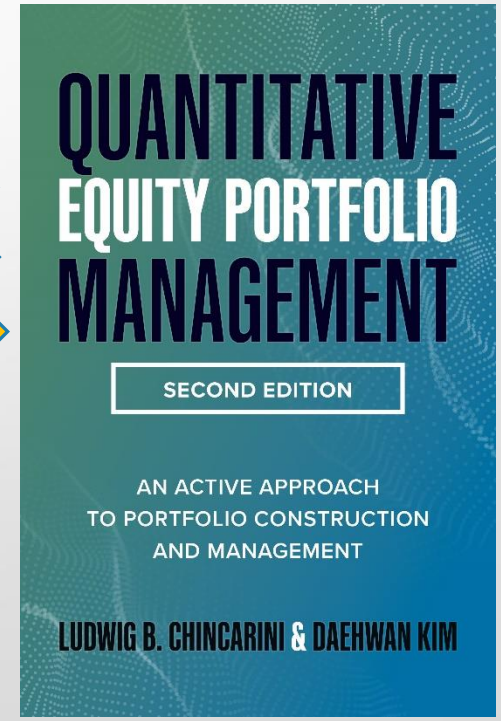Thank you for coming and thank you Collegio Alberto and LTI Unito.

New Edition of QEPM 2023.

Good for teaching students in quant finance.

1. Summary of Work

- Study the price impact on firms of EU carbon policy from 2011-2021
- Events related to higher carbon prices lead to negative returns of firms with higher intensity for firms using more carbon
- Carbon policies can raise cost of capital for firms

2. Background & Findings

- EU Committed to reduce [greenhouse emissions](#) in December 2020 by 55%
- Data: Urgentum (carbon emission data by firm-year)
- Use 98 policy events and affect on carbon prices on a daily basis
- 1 SD increase in carbon price (on event day) leads to a 7% decrease in stock price (relatie to sample) of median carbon emission firm

2. Background & Findings

- Big Question: Can policy penalize firms in terms of cost of capital that are exposed to the "bad".

- Thought Experiment: What if these firms can't change (e.g. coal), then are they penalized, but ultimately consumer pays the cost? Is that what we want? Are counting ways in which other companies are causing issues?

2. Background & Findings

- 54% of total emissions come from Utilities, Mining, and Energy producers

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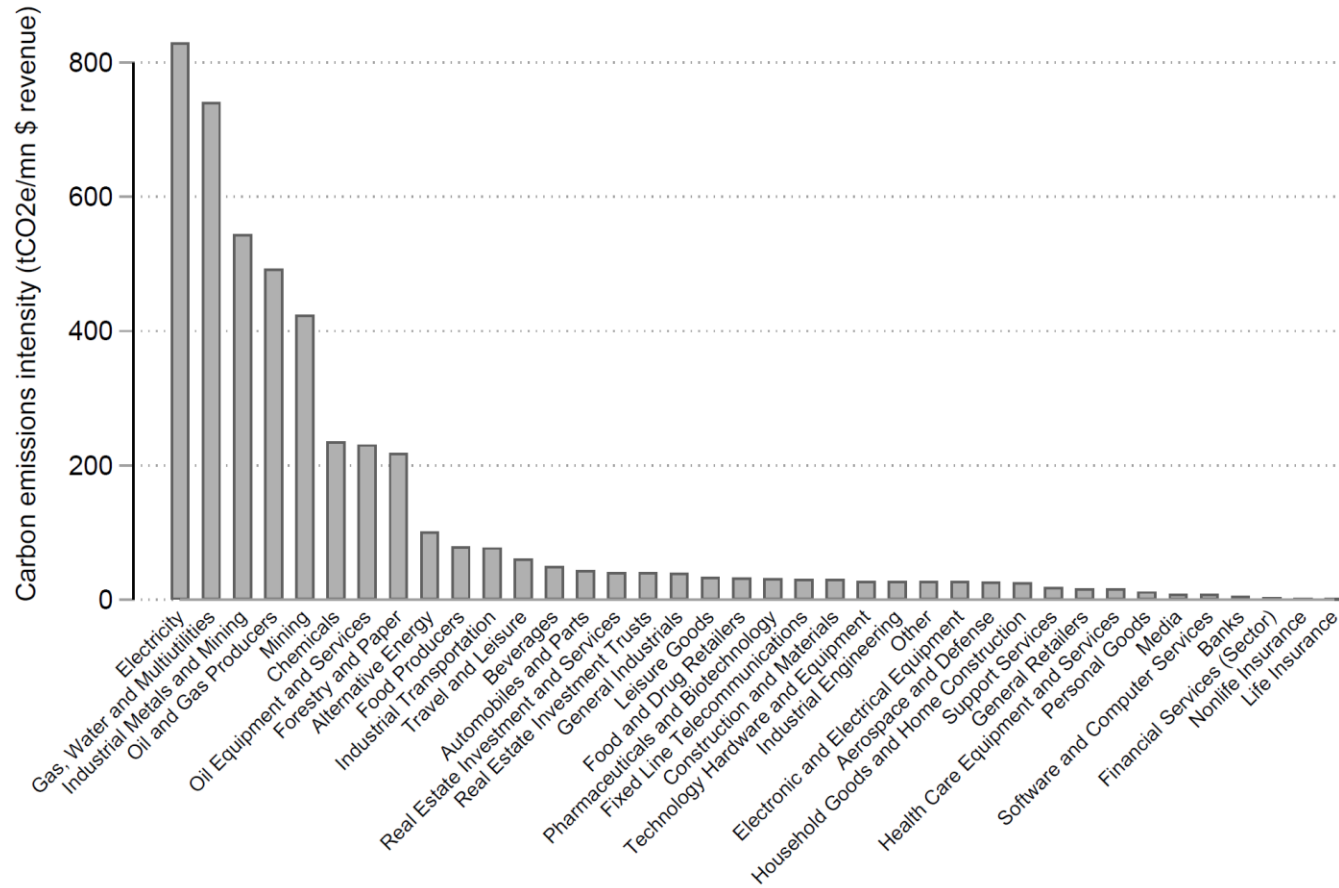
2. General Comments

- I think their work is straightforward and apparently differentiated from other work on the topic, so not a lot to add.
- I would clean up presentation of paper, especially equations and methods of estimation (use more standard presentation methods).
- Maybe add graphs of "event" like series in the paper t-10 to t+10.

2. Specific Comments

- Page 7. I think it would help to explain the [EUA futures contracts](#) in footnote or even in main text.
- Page 10. Rewrite or spend more time explaining the estimation process. It's a bit murky. Some of the equations look like functions rather than regressions.

2. Specific Comments

The main equation estimated is:

$$R_{i,d(y)} = CE_{i,y-1}\left(\alpha + \beta_1 \Delta CP_{d(y)} + \beta_2 EV_{d(y)} + \beta_3 \Delta CP_{d(y)} \times EV_{d(y)}\right) + \phi_i + \tau_{c,s,d(y)} + \varepsilon_{i,d(y)} \quad (10)$$

where $EV_{d(y)}$ is a dummy variable that takes value one on days of the regulatory events identified by Känzig (2022) and extended in this paper. All other variables are as in Equation 9.

Equation 10 implies that:

$$\frac{\partial R}{\partial(\Delta CP)} = CE(\beta_1 + \beta_3 EV)$$

2. Specific Comments

- Find that firms have positive returns with carbon emissions on non-event days and substantial negative returns on event days.

2. **Specific Comments**

- Question #1: Are all of these events negative events? Wasn't sure?

Table A.2: Regulatory events

table lists the events we identified over 2019–2021 to extend the carbon policy surprise series by Känzig (2022).

	Date	Event	Type
1	Jan 15, 2019	Commission publishes status update for New Entrants' Reserve	Free alloc.
2	April 23, 2019	EU Emissions Trading System: Iceland, Liechtenstein and Norway to start auctions on the common auction platform soon	Auction
3	May 15, 2019	ETS Market Stability Reserve to reduce auction volume by almost 400 million allowances between September 2019 and August 2020	Auction
4	June 12, 2019	Poland's 2020 auction volume to include allowances not used for power sector modernisation	Auction
5	June 19, 2019	Updated information on exchange and international credit use in the EU ETS	Intl. credits
6	July 15, 2019	Commission publishes status update for New Entrants' Reserve	Free alloc.
7	October 31, 2019	Adoption of the Regulation on adjustments to free allocation of emission allowances due to activity level changes	Free alloc.
8	December 12, 2019	The start of auctioning for the Innovation Fund slightly postponed but no delay to the launch of the Innovation Fund	Auction
9	January 15, 2020	Commission publishes status update for New Entrants' Reserve	Free alloc.
10a	May 8, 2020	Updated information on exchange and international credit use in the EU ETS	Intl. credits
10b	May 8, 2020	ETS Market Stability Reserve to reduce auction volume by over 330 million allowances between September 2020 and August 2021	Auction
11	December 11, 2020	Further information on the start of phase 4 of the EU ETS in 2021: emission allowances to be issued for aircraft operators and the Market Stability Reserve	Cap
12	March 15, 2021	Adoption of the Regulation determining benchmark values for free allocation for the period 2021-2025	Free alloc.
13	May 12, 2021	ETS Market Stability Reserve to reduce auction volume by over 378 million allowances between September 2021 and August 2022	Auction
14	May 25, 2021	Updated information on exchange and international credits' use in the EU ETS	Intl. credits
15	May 31, 2021	Commission adopts the uniform cross-sectoral correction factor to be applied to free allocation for 2021 to 2025 in EU ETS	Free alloc.

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2. **Specific Comments**

- **Question #2**: Do certain countries behave differently than others?
- **Question #3**: Are you able to identify announcements that would affect one country versus another and hence witness some differentiation?
- **Question #4**: Is there a way to get a database of "events" that have conflicting sources of news? Positive and Negative for pricing?

2. Specific Comments

- **Question #5**: Are the results more about valuation or uncertainty? Is there a way to disentangle by the "type" of news?

Summary

- I like the approach of the paper, but would suggest they make a little more readable.
- Maybe start with an event-like graph to entice the reader.
- Overall, interesting contribution to the effects of climate regulation.
- More generally, I think people in ESG space need to also think about what is ultimate objective and how it would be achieved for society. Is shunning companies that naturally do these things the best approach?
- Is taxing companies the best approach?

Summary

- **An Analogy: Cell Phone Usage**. Let's assume the good is generally a "bad" and has externalities as well as direct damaged, but self control issues.
- Do we limit use of cell phone for everyone? What about an outfit that uses cell phones to do communication business? That is, it is their work? They might suffer the worst, but is that what we want?
- Instead, do we need to discriminate based on societal needs and usage needs? Limit teenager use of cell phones, but let business communication firm use it?

Thank you

- Dr. Ludwig Chincarini, CFA   www.ludwigbc.com
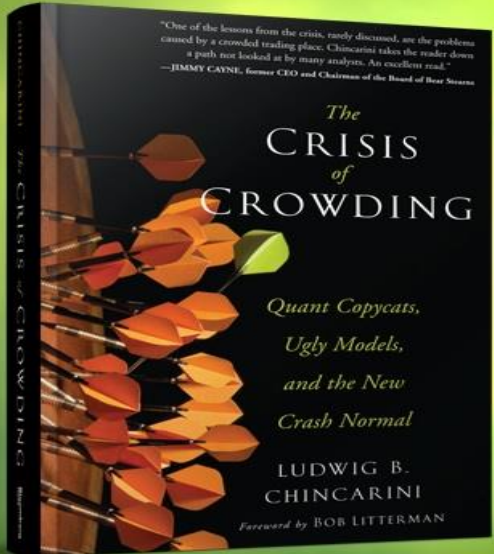
- University of San Francisco   chincarinil@hotmail.com