Putting a price on pollution

As the world's largest carbon trading market, the EU emission trading system (ETS) creates pressure on companies to reduce emissions.



May 8, 2023 | Updated July 24, 2025

How does the trading of emission allowances work? IESE's Robert Raney explains how research in accounting is attempting to address climate change.

Polluting less. Or trading with those who pollute less. Both actions have value in the pursuit of

©IESE Business School

sustainability goals. And Europe is home to the world's first and biggest carbon trading market — the EU emission trading system (ETS) — which is shaping up to become the template for other such markets around the world. This gives IESE's Robert Raney the real chance to explore some of the tough questions arising around emission allowances.

In this interview, Raney unpacks "Trading of emission allowances and reporting incentives," a paper co-authored with his IESE colleagues Gaizka Ormazabal and Donald N'Gatta. Here he explains how research in accounting and finance is attempting to address climate change and help us progress toward a more sustainable economy — something he personally feels passionate about.

How can accounting address climate change?

In three key areas: 1) requiring disclosures; 2) setting prices; and 3) setting standards that everyone can follow. Let me explain.

Firms are going to be held accountable for their pollution footprints and environmental impacts — much more accountable than they are today. That's where disclosure comes in. Environmental impacts should be disclosed. Right now, they're not always readily available. There's a gap — what we call information asymmetry — between what's happening in the company and what can be seen from the outside. And accounting can play an important role in bridging that gap through increased disclosure of environmental performance and risk.

A second area is through the creation of mechanisms to impose meaningful costs on companies for polluting and for other negative impacts on the environment — essentially creating a price for pollution.

Finally, setting standards for measurement and reporting facilitates monitoring and enforcement, and it also helps investors to assess risks related to climate change. It's increasingly important as, for example, more investment funds have a mandate to invest in firms that are managing their environmental, social and governance (ESG) risks appropriately and making positive impacts in these areas.

How do you put a price on pollution?

Two main ways: 1) via a carbon tax; and 2) via a cap-and-trade emission trading system (ETS). An ETS is where a cap or limit on greenhouse gas emissions is imposed, allowances for emissions are distributed into the market, and market participants discover the price of

©IESE Business School

pollution by buying and selling those allowances.

How do emission allowances in a cap-and-trade system work?

Putting a restrictive cap on emissions and requiring firms both to report verified emissions and to obtain allowances to cover their emissions create a cost for pollution. The cap can be lowered each year to increase pressure on firms to achieve emission reduction targets.

For the EU ETS, the caps are set so that the European Union can meet its target emission-reduction goal by 2050, which is to reduce greenhouse gas emissions by 80-95% compared with 1990 levels. It's a system of constraint that puts pressure on participants to make changes to help meet the goals.

When firms act to reduce their emissions — maybe even investing more than they need to, doing more than their pro rata share — they will have a lower need for emission allowances and potentially even an excess of allowances that can benefit the firm, thanks to this marketplace.

I should explain that emission allowances give their holder the right to emit one ton of CO2 or its equivalent. In the EU ETS, a certain number of allowances are allocated to participants for free, and the rest are auctioned with prices set by the bids of auction participants. Firms can also buy and sell allowances from each other in a secondary market.

Accumulated allowances can be sold by one firm to another that may be finding it more difficult to reduce its pollution footprint. The idea is that the buying and selling of allowances — facilitated by some banks and speculative traders who also want to discover this price for carbon — helps to discover the price of pollution, a price that changes dynamically as the cap becomes more restrictive and firms work to reduce their emissions.

What financial frictions emerge?

The problem we see is that there is still a lack of clarity and official guidance on how to account for emission allowances in financial statements. It's essentially a new asset. But firms disagree about what type of asset it is. Is it a financial asset, an intangible asset or inventory?

Amid this lack of clarity, thanks to a particular form of accounting, we see that some firms

©IESE Business School

have been able to create an off-balance-sheet pool of allowances — assets which firms can then sell opportunistically at a moment in time when it helps their financial performance.

These types of opportunistic trades are not helping us to discover the price of carbon. It is trading related to something else, including liquidity needs and the financial performance of the firm.

In our paper, we find clear evidence that opportunistic trading is happening. We can establish that it's happening because there is this lack of guidance, which, by the way, is also allowing inconsistent reporting across firms. The concern is that it could be distorting the price of pollution and reducing the efficacy of the system.

How might this be fixed? What should the accounting guidance be?

We make the case that it is time for regulators to close this gap in accounting guidance. While it is beyond the scope of our research to make specific reporting recommendations, we point to other research that supports recording allowances in firms' financial statements at fair value at each reporting period.

Additionally, shining more light on allowance trading could help. Currently, trading data from the EU ETS transaction log is made public in May, three years after the close of the compliance period. That means a trade made today would be disclosed in May 2027. Such a lag makes it hard to monitor firms' trading in a timely way.

Other research backs up the idea that using a fair-value-based method of accounting for allowances could help. As I mentioned before, emission allowances are granted to certain firms by a regulator at no cost; they're free. If you account for them at their historical cost, they're essentially invisible as assets on financial statements. But if you can see the fair or market value of those allowances, it removes a lot of the ability to opportunistically time when a firm recognizes its gains for selling them.

Do you see why? On the very day that a firm receives allowances, it could, in theory, sell them for a price that is openly observable on the market. That's the fair value, and it's already the way that some firms account for their allowances. For those firms, you can see how allowances are impacting their financial positions, taking away the ability to "manage" their earnings when they are having a bad quarter.

©IESE Business School

So, what you see in terms of financial frictions are mostly from firms that account for allowances at their historical cost?

Yes. We are seeing sales particularly at this threshold where firms can narrowly escape reporting a loss, thanks to their pool of off-balance-sheet assets. We see a concentration there. We also see selling activity concentrated around the end of the year, when firms have the greatest transparency into their financial performance, as executives know exactly how much they need to boost their performance to meet or beat market expectations. So, it fits with what we know from related literature: certain firms are opportunistic with their financial statements.

Will reporting standards be introduced soon?

It's a tricky issue, because fair-value reporting would involve more volatility, tied to the price of pollution. The price of pollution is outside firms' control. Looking at the related research, it still seems like the strongest solution, but change is always hard.

In the end, we don't say, "This is how the accounting should be." What we do is point out that this is still a problem that matters. Since the EU ETS is a template for ETS systems around the world, and climate change is a global problem, we can conclude that the lack of accounting guidance maps across many markets. And we know there are many markets that are significantly less liquid than the European Union, so they could have even greater problems with financial frictions impacting the normal functioning of an ETS.

That is very relevant to regulators. Are there takeaways for managers, too?

I think the big-picture takeaway is that no one can ignore the broader impacts of their environmental behavior anymore. Those days are gone. Managers need to assess their business's environmental risks and be cognizant of the reporting requirements.

In the past, as one company polluted, many of us paid a (relatively small) price, but we didn't hang a number on it or hold the polluting firm accountable. To reduce that pollution, a concentrated cost would have been required of that polluting firm without a clear benefit. Not surprisingly, we ended up with unsustainable levels of pollution.

©IESE Business School

Now, however, we are seeing a real cost for pollution being imposed on polluters and firms being held accountable, through a variety of channels, for the environmental impacts of their actions.

Specific to the finance and accounting space, managers need to be talking about risks, measuring and disclosing performance, and making sure that the price of pollution is accounted for within their regulatory framework.

It seems reasonable to assume that, in the future, it will be even more expensive to pollute.

Yes, absolutely. Even if you are managing a firm that is not currently paying out some price for pollution, there is a reasonable chance that, in the future, you will. More and more companies are experiencing a cost for pollution, either via a carbon tax or via an ETS, as more of each are being implemented. Remember, even if your company is not directly affected, your supply chain and other stakeholders likely will be.

READ MORE: "Trading of emission allowances and reporting incentives" by D. N'Gatta, G. Ormazabal & R. Raney (2025).

This interview is published in IESE Business School Insight #164.



Robert Raney

Assistant Professor of Accounting and Control at IESE Business School. His research focuses on settings with high uncertainty and information asymmetry, and explores complex, non-linear value implications of information and the disclosure choices of managers. He has active projects related to the fair value of financial assets, intangible assets and crypto assets, as well as blockchain technology.

©IESE Business School