The Environmental Impact of Corporate Mergers *

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[*Preliminary Draft. Please do not circulate without consent.*]

Abstract

This paper investigates the environmental consequences of corporate consolidation, focusing on how mergers influence firms' greenhouse gas emissions, green innovation, and vegetation health. I combine theoretical and empirical approaches to examine whether the potential reduction in competition resulting from mergers affects environmental performance. Theoretically, I model the trade-off between market power and emissions, showing that mergers can reduce emissions either by lowering output through increased pricing power or by incentivizing green innovation. Empirically, using firm-level data from 2006 to 2022, I implement a panel event study and a difference-in-differences (DiD) design that compares completed and cancelled mergers. I find that mergers lead to reductions in absolute emissions, a decline in green patenting, and no significant change in vegetation health—effects. These results are particularly pronounced in notifiable transactions subject to antitrust scrutiny. These findings suggest that corporate consolidation may also have important implications for environmental policy.

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1 Introduction

Market competition is of paramount importance for a well functioning economy. Firms with higher market power can set high prices, which has negative implications for society welfare, and resource allocation, can decrease the demand for labor and dampens investment in capital, it distorts the distribution of economic rents, and it discourages business dynamics and innovation (De Loecker et al., 2019). For this reason functioning of markets and the protection of consumer rights have been a priority for governments in the past decades. On the other side, in recent years, another government priority has rapidly emerged. The increasing scientific evidence and the heightened frequency of extreme weather events underscore the urgent need for countries to rapidly decarbonize. Climate change poses a significant threat to economic stability, public health, and global ecosystems. The Intergovernmental Panel on Climate Change (IPCC) has highlighted the catastrophic consequences of failing to limit global warming to well below 2 degrees Celsius above pre-industrial levels (IPCC, 2018). The economic impacts of climate change are profound, including reduced agricultural productivity, increased health care costs, and more frequent and severe natural disasters, which collectively threaten global economic growth (Nordhaus, 1991). To mitigate these risks, governments have announced and implemented various environmental policies aimed at reducing carbon emissions. One of the most prominent initiatives is the European Union Emission Trading Scheme (EU ETS), which sets a cap on the total amount of greenhouse gases that can be emitted by covered entities and allows companies to buy and sell emission allowances (Ellerman et al., 2010).

This study explores the interplay between market concentration and environmental performance, with a particular emphasis on the aftermath of mergers. Given the scrutiny that mergers attract from competition authorities due to potential implications for market power and consumer harm, this research investigates whether mergers lead to improvements or deteriorations in environmental metrics, specifically greenhouse gas (GHG) emissions, vegetation health, and green patenting.

Drawing on fundamental economic theories, I hypothesize that increased market power, often resulting from mergers, may lead to reduced production levels. This reduction in output, when considered in the context of environmental outcomes, suggests that a more concentrated market could lower GHG emissions and improve vegetation health. Alternatively, merged entities may benefit from better technology or improved management, which can be measured by increased green patenting and greater process efficiency, allowing them to enhance their environmental performance without reducing output.

Firstly I set up a model which focuses on the dynamics between oligopolistic competition, environmental consciousness among consumers, and the impact of mergers on environmental emissions within a simplified economic model. The model, which emulates a scenario with two firms producing differentiated products amidst price competition, suggests a trade-off between prices and emissions in the presence of consumer environmental awareness. The analysis reveals that post-merger outcomes hinge on the magnitude of production efficiencies realized: significant efficiencies lead to increased output, lower prices, and higher emissions, whereas minimal efficiencies result in higher prices but lower emissions, showcasing the environmental benefits of reduced production. This trade-off underscores the complex relationship between competitive market behaviors and environmental impacts, highlighting how mergers can both exacerbate and mitigate environmental damage depending on the resultant operational efficiencies. Furthermore, I introduce the potential for mergers to foster green innovation, proposing that beyond mere output adjustments, mergers may incentivize investments in environmentally friendly technologies, thus offering a pathway to reducing emissions.

For the empirical session I employ two empirical strategies to investigate the impact of corporate mergers on environmental indicators. Firstly, a panel event study methodology is utilized to analyze the temporal effects of mergers on environmental measures, building on the works of Miller (2023) and de Chaisemartin and D'Haultfœuille (2020). This approach examines changes in emissions before and after the merger, controlling for unobserved heterogeneity across firms and over time. Secondly, a quasi-experimental design is adopted to address the endogeneity of merger selection. Inspired by Seru (2014), Bena and Li (2014), and Gugler et al. (2003), this approach compares firms that completed mergers (treatment group) with those that announced but subsequently canceled their mergers (control group). By leveraging the difference-in-differences (DiD) framework, this strategy isolates the causal impact of mergers on environmental measures.

I find that, following a merger, companies tend to decrease their emissions but do not improve the vegetation health surrounding their facilities. Moreover, they tend to produce fewer green patents. These findings suggest that the main mechanism behind the emissions reduction is likely an increase in market power and possibly the divestment of facilities, rather than efficiency improvements, demonstrated by the decrease in the number of new green patents. This interpretation is consistent with the findings in Chlond and Germeshausen, 2025.

Related Literature. I contribute to the literature of the non-market impact of mergers and market concentration, by extending it into the environmental literature. Recent decades have seen a drastic change in market structure and concentration. The latest publications have noted a trend for increased industry concentration in the United States (Furman and Orszag, 2015 and Autor et al., 2020). On the contrary, the more current literature has not reached a consensus on the direction of concentration for Europe; Gutierrez and Philippon (2023) found that competition in Europe increased, due to independent regulators and appropriate competition policies, while Koltay et al. (2023) observe a moderate increase in European industry concentration and a trend towards oligopolies.

There is existing literature on the importance of mergers for market concentration and industry links (Ahern and Harford, 2014). Part of the literature on mergers focuses on mergers' impact on consumer choice (Nocke and Whinston, 2022, and Eckbo, 1983), on which companies do merge and why (Crouzet and Eberly, 2019, Kaplan and Stromberg, 2009, Krishnan et al., 2005, Shleifer and Vishny, 2003, Weber et al., 1996, and Mulherin and Boone, 2000), and the impact of mergers for innovation (Phillips and Zhdanov, 2013). Specifically on non-market effects of mergers, research has shown that mergers can reduce government pro-competitive policies (Kang and Xiao, 2023) and impact voters availability of information (Garz and Ots, 2025). Finally, on competition and the environment, Aghion et al. (2023) found that when consumers care about their environmental footprint, firms pursue greener products.

With respect to the literature on corporate emissions, several key drivers have been identified that influence firms' environmental outcomes. These include firm size (Cole and Elliott, 2006), sectoral characteristics (Duflo et al., 2008), environmental policies (Kumar and Managi, 2012), technological capabilities and innovation activities (Porter and van der Linde, 1995), as well as market pressures and consumer demand for sustainable practices (Delmas and Montes-Sancho, 2011). All of these factors can significantly impact firms' environmental indicators.

Layout. The remainder of the paper is structured as follows. Section 2 outlines the institutional setting of merger regulation in both the United States and the European Union, section 3 presents a theoretical model that captures the trade-off between market power, output reduction, and emissions in an oligopolistic setting, and explores how mergers may also incentivize green innovation. Section 4 describes the data sources, section 5 details the empirical strategy and presents results from a panel event study and a difference-in-differences framework, with an emphasis on comparing completed and cancelled mergers, and section 6 concludes.

2 Institutional Setting

Large mergers and acquisitions (M&As) are subject to review by competition authorities to assess their potential impact on market structure and consumer welfare. In both the United States and the European Union, dedicated legal frameworks govern merger control, ensuring that transactions which may substantially lessen competition are either blocked or modified through remedies.

In the United States, merger control is administered by the Federal Trade Commission (FTC) and the Department of Justice (DOJ) under the Hart–Scott–Rodino (HSR) Antitrust Improvements Act (U.S. Congress, 1976). Transactions above a certain size threshold must be notified to the agencies before completion. For fiscal year 2024, this threshold is set at $119.5 million (Federal Trade Commission, 2024). Upon notification, the agencies conduct a preliminary investigation (Phase I) and may issue a "second request" for further information if the merger raises potential competitive concerns. A full investigation (Phase II) may follow, during which the agencies analyze the relevant product and geographic markets, assess the potential for unilateral or coordinated effects, and review internal documents and customer input. The DOJ or FTC may ultimately clear the merger, impose structural or behavioral remedies, or challenge it in federal court (Werden and Froeb, 2011).

In the European Union, mergers are reviewed under the EU Merger Regulation (EUMR) by the Directorate-General for Competition (DG COMP) of the European Commission (European Commission, 2004). Mergers must be notified to the Commission if the parties meet certain turnover thresholds across the EU and member states. The Commission conducts a Phase I investigation to determine whether the transaction raises serious doubts about its compatibility with the internal market. If concerns remain, a more detailed Phase II investigation is opened. Remedies, such as divestitures or access commitments, may be negotiated to address identified issues. The Commission can prohibit mergers that would significantly impede effective competition, in particular by creating or strengthening a dominant position (European Commission Directorate-General for Competition, 2021).

In both jurisdictions, the majority of notified mergers are cleared unconditionally, but more complex transactions, particularly those involving horizontal overlaps or significant market shares, are subject to detailed scrutiny. Consequently, the set of mergers reviewed by competition authorities tends to overrepresent larger and potentially more impactful transactions, introducing important selection considerations for empirical research. Understanding the institutional process behind merger control is thus essential for interpreting observed merger outcomes and any associated environmental or economic effects (Kwoka, 2015).

3 Theoretical Framework

In this study, I propose a simplified model of oligopolistic competition where consumers are environmentally conscious. The model features two firms producing differentiated products, with production processes that result in emissions. A representative consumer purchases both goods, and emissions are considered harmful, leading to a scenario where, all else being equal, the consumer's demand for the two goods increases as their environmental concerns diminish. The firms engage in price competition.

I explore the impact of a merger between these two firms on prices and emissions. It is posited that a merger could yield specific efficiencies from the combined production of the two goods. My analysis demonstrates that if these efficiencies are sufficiently large, the merger could lead to increased output, reduced prices, and heightened emissions. Conversely, in scenarios where the efficiencies are minimal, the merger leads to higher prices but benefits the environment through a reduction in emissions. Thus, our findings underscore a trade-off between prices and emissions in markets characterized by polluting production processes.

My model is intentionally streamlined to underscore this trade-off and to articulate our underlying logic. I make certain assumptions regarding consumer preferences and the number of firms in the market. Nonetheless, these assumptions are not fundamental. The crucial assumptions are twofold: first, that demand decreases as prices increase, and second, that emissions escalate with increased output. Given these conditions, any model of competition would reveal a similar trade-off between pricing strategies and environmental preservation.

Toward the end of this section, I introduce the possibility of an alternative mechanism. Specifically, we argue that a merger could lead to a reduction in emissions not solely by diminishing output due to enhanced market power but also by fostering innovations in green technology.

Preferences and Technology There are two products $i \in \{1, 2\}$, and two firms. Each firm produces a different product. A representative consumer buys the two goods. The consumer has a Singh and Vives (1984) utility function:

$$u(q_1, q_2) = q_1 + q_2 - \frac{1}{2}\left(q_1^2 + q_2^2\right) - \gamma q_1 q_2 - \phi z(q_1 + q_2) \ , \tag{1}$$

where q_i is the quantity of product i, and the parameter $\gamma \in (0, 1)$ captures the degree of product differentiation. When $\gamma = 0$, products are completely unrelated, and firms act as local monopolists. When $\gamma = 1$, products are perfect substitutes, and Bertrand competition brings profits down to zero. We rule out both cases.

The function $z(q_1 + q_2)$ describes the technology according to which total output $(q_1 + q_2)$ generates emissions. We assume the following functional form:

$$z(q_1 + q_2) = (q_1 + q_2)^{\alpha} \,. \tag{2}$$

When $\alpha > 1$ ($\alpha \leq 1$), emissions are a convex (concave) function of output. For what follows, we assume a linear form: $z(q_1 + q_2) = q_1 + q_2$.[1] The parameter $\phi \geq 0$ captures the degree of environmental concern for the consumers. When $\phi = 0$, the consumer does not care about emissions, for example, because the cost of pollution is sustained by people located in different locations or by future generations. Then, the utility function can be rewritten as:

$$u(q_1, q_2) = (1 - \phi)(q_1 + q_2) - \frac{1}{2}\left(q_1^2 + q_2^2\right) - \gamma q_1 q_2 \,. \tag{3}$$

The consumer's utility maximization problem results in the following demand functions:

$$q_i(p_i, p_j) = \frac{1 - \phi - p_i + \gamma(p_j + \phi - 1)}{1 - \gamma^2} \,. \tag{4}$$

As expected, $q_i(p_i, p_j)$ is increasing in p_j as goods are substitutes and decreasing in p_i as goods are normal. Interestingly, demand is also decreasing in ϕ. When the degree of environmental concern increases, the consumer reduces their consumption to reduce emissions. We assume that the two firms are equally efficient. Their marginal cost is $c \geq 0$. Profits can then be written as follows:

$$\begin{gathered}\pi_i(q_i, p_i, p_j) = (p_i - c)\, q_i = \\ \frac{(p_i - c)(\gamma(p_j + \phi - 1) + 1 - \phi + p_i)}{1 - \gamma^2}\end{gathered} \tag{5}$$

[1] Our results are qualitatively robust to changes in the parameter α. In particular, the quadratic case ($\alpha = 2$) is substantially equivalent to the linear case $\alpha = 1$. We stick to linearity for the sake of simplicity.

I now solve the game for two different states of the world $m \in \{0, 1\}$. If the state is $m = 0$, the two firms do not merge. If the state is $m = 1$, the two firms merge. Then, we will perform a welfare assessment of the merger.

Market Equilibrium Let us start from $m = 0$. Firms do not merge. Then, they set prices simultaneously and independently. The FOC for each firm implies:

$$p_i^* (p_j) = \frac{1}{2}(c + \gamma(p_j + \phi - 1) + 1 - \phi) \tag{6}$$

Intersecting the best responses, we obtain Nash Equilibrium (equilibrium henceforth) prices:

$$p_i^* = \frac{\gamma\phi + c - \gamma + 1 - \phi}{2 - \gamma} \tag{7}$$

Total emissions are:

$$z (q_1^*, q_2^*) = \frac{2(1 - c - \phi)}{(2 - \gamma)(\gamma + 1)} \tag{8}$$

Let us now turn to the case of $m = 1$. After a merger, firms set prices cooperatively. In particular, the merged entity chooses prices to maximize the joint sum of profits, that is,

$$\begin{aligned} &\Pi (q_i, q_j, p_i, p_j) = (p_i - \mu c)\, q_i + (p_j - \mu c)\, q_j = \\ &\sum_i \frac{(p_i - c)(\gamma(p_j + \phi - 1) + 1 - \phi + p_i)}{1 - \gamma^2} \,. \end{aligned} \tag{9}$$

In this case, equilibrium prices are:

$$p_i^m = \frac{1}{2}(c\mu + 1 - \phi) \,. \tag{10}$$

Total emissions are:[2]

$$z (q_1^m + q_2^m) = \frac{1 - c\mu - \phi}{\gamma + 1} \,. \tag{11}$$

It is interesting to see that as ϕ increases, prices decrease for all m. As the degree of environmental concern increases, demand shrinks, and firms need to set lower prices.

Merger, Prices and Emissions We are now ready to state our main prediction. The merger decreases prices if and only if

$$\mu < \frac{\gamma\phi + 2c - \gamma}{c(2 - \gamma)} := \hat{\mu} \,. \tag{12}$$

[2]We assume that $\phi < 1 - c$ so that output and prices are always positive for all m.

However, whenever $\mu < \hat{\mu}$, the merger increases emissions. The threshold $\hat{\mu}$ is increasing in ϕ and decreasing in γ. As in standard competition models, a merger presents a trade-off. On one hand, the merger increases market power, potentially leading to higher prices. On the other hand, the merger can generate efficiencies, allowing cost savings to be partially passed through to consumers. Thus, a merger results in higher prices if, and only if, the efficiencies are insufficiently large. Our model suggests a potential environmental "benefit" associated with price increases, as a reduction in output implies a reduction in emissions. Conversely, should the merger generate significant efficiencies, the merged entities may increase output (as production becomes more cost-effective), leading to higher emissions.

The threshold $\hat{\mu}$ increases with ϕ. The more environmentally concerned the consumer, the less likely it is that the merger will decrease emissions. This counterintuitive outcome arises because an increase in ϕ diminishes the consumer's willingness to pay, reducing firms' market power and making a pro-competitive outcome more probable. Conversely, the threshold $\hat{\mu}$ decreases with γ. A higher degree of product differentiation enhances the merger's ability to create market power, thereby reducing the likelihood of the merger being pro-competitive.

Green Innovation In this section, we explore how a merger can reduce emissions not only by decreasing output, which inevitably leads to higher prices, but also by encouraging investments in green innovations. We propose a modification to our model for this analysis.

Suppose that before engaging in the Bertrand competition, each firm has the option to invest a cost of $K > 0$ in green technology. This technology, conceptualized as an emission abatement mechanism, enables firms to produce with minimal pollution. Given the consumer's environmental concerns, such innovation is likely to boost demand.[3] Firms will invest in innovation only if the anticipated increase in revenue outweighs the technology's cost, K. We examine how a merger influences firms' incentives to innovate.

We specifically focus on equilibria where both firms choose to innovate.[4] Let $\Delta\pi(m)$ be the benefits for a

[3] In scenarios where consumers are indifferent to environmental impact ($\phi = 0$), firms lack the incentive to invest in green technology. In the real world, the cost of emissions and the financial benefits derived from investments in abatement technologies often lead to cost reductions. The logic behind this alternative scenario parallels that of our initial model.

[4] In the absence of a merger ($m = 0$), it is possible to find equilibria where only one firm innovates, leading to higher emissions compared to scenarios where both firms innovate (resulting in zero emissions). Our analysis concentrates on situations where both firms innovate, assessing whether a merger can amplify incentives for green innovation.

single firm from the innovation as a function of market structure m (given that both firms innovate). To obtain these expressions, we compute firms' profits in the case of $\phi = 0$, and we compare them with the profits that firms gain when $\phi > 0$. Then,

$$\begin{aligned}\Delta\pi(0) &= \frac{(\gamma-1)\phi(2c+\phi-2)}{(\gamma-2)^2(\gamma+1)} > 0 \\ \Delta\pi(1) &= -\frac{\phi(2c\mu+\phi-2)}{4(\gamma+1)} > 0\end{aligned} \tag{13}$$

For all m, both firms invest in the green technology if and only if the cost K is low enough.

$$\begin{aligned}\Delta\pi(0) \geq K &\Rightarrow K \leq \overline{K}_0 \\ \Delta\pi(1) \geq K &\Rightarrow K \leq \overline{K}_1\ .\end{aligned} \tag{14}$$

The merger increases the incentives to innovate as $\overline{K}_1 > \overline{K}_0$.

If $K \in \left(\overline{K}_0, \overline{K}_1\right]$, both firms invest in the green technology if and only if the merger occurs ($m = 1$). The rationale behind this is straightforward. A merger enhances firms' incentives to innovate by increasing the returns on such investments. Innovation, particularly those that increase consumer demand through environmental benefits, becomes more financially appealing as it can elevate firms' profits. In the absence of a merger, however, competitive pressures may erode these additional profits. A merger mitigates this competition, enabling firms to allocate more resources towards innovation.

A merger can lead to a reduction in emissions through two distinct pathways. Firstly, by potentially reducing output, a merger might inadvertently raise prices, a scenario generally unfavorable to consumers. Secondly, and more constructively, it can encourage investments in green technologies. This dual-faceted outcome highlights the complex impact mergers can have on both market dynamics and environmental sustainability.

4 Data and Descriptive Statistics

4.1 Data

Merger data is collated from Orbis and supplemented with S&P Capital IQ transactions on private and publicly listed firms globally from 2006 to 2022, I have to limit the sample to 2006 for transactions as early emissions data is only available from 2004. For each transaction I am provided with unique identifiers for the acquirer and target, their country of incorporation, and sector (SIC code). Fundamentals data is collected from Orbis, Compustat and S&P, where available data on revenues, total assets and liabilities is matched to the merger database.

Establishment Emissions. Firm-level carbon emission data is obtained from the European Union Transaction Log (EUTL) for the European companies, this dataset covers EU Member States, the European Free Trade Association countries (Iceland, Liechtenstein and Norway) as well as Northern Ireland for electricity generation, it covers greenhouse gas emissions from around 10,000 installations in the energy sector, manufacturing and transport industry (European Envitornmental Agency, 2025). The emissions data is provided at installation level and then matched with firms´ Orbis identifier. For American companies I use data from the Environmental Protection Agency's Greenhouse Gas Reporting Program (GHGRP).[5] From 2009, EPA reports emissions for facilities that emits 25,000 metric tons or more of greenhouse gases (GHGs) per year, if they are a supplier of certain fossil fuels, industrial GHGs, or products containing GHGs, or if they inject CO_2 underground. I retain only companies with non-missing emissions in all years and interpolate when values are missing. Emissions are then winsorized at the top and bottom 1% and converted to logarithms. This dataset is matched with the merger dataset using raw names and then I manually verify the accuracy of the matching. I supplement the emissions dataset with the S&P trucost emissions dataset, this is particularly useful for earlier years.

Patent Data. I merge the merger dataset with the Orbis Intellectual Property (Orbis IP) dataset, which offers extensive global coverage of patent filings and corporate patent ownership for both listed and unlisted firms across 81 countries. The dataset contains information on approximately 136 million patents linked to 2.3 million companies. In addition to patent metadata, it includes data on patent citations, which serve as a

[5]See https://www.epa.gov/ghgreporting.

proxy for the technological significance or impact of an innovation. To identify patents related to environmentally friendly technologies, I follow the OECD methodology, which classifies "green" patents based on their alignment with specific Cooperative Patent Classification (CPC) and International Patent Classification (IPC) codes associated with climate change mitigation and other environmental objectives (Haščič and Migotto, 2015).

Normalized Difference Vegetation Index (NDVI). The Normalized Difference Vegetation Index (NDVI) is a remote-sensing metric that quantifies vegetation health and density by comparing near-infrared (NIR) and red (R) light reflectance:

$$\mathrm{NDVI} = \frac{\mathrm{NIR} - \mathrm{Red}}{\mathrm{NIR} + \mathrm{Red}} \tag{15}$$

In this study, I derive NDVI from NASA's MODIS surface-reflectance product (Didan, 2021). NDVI values range from –1 to +1, where values near one denote dense, photosynthetically active vegetation, values near zero indicate sparse or stressed vegetation, and negative values typically correspond to water, snow, or bare soil. Because the index is normalized, it allows for robust comparisons across sensors, dates, and regions.

I merge the merger and emission dataset, both the EUTL and EPA GHGRP have facility locations, retaining only grid cells with five or fewer facilities. Each facility is geolocated to its corresponding 11 km × 11 km MODIS cell (Gianinazzi et al., 2024), and I compute annual average NDVI for each cell.

4.2 *Descriptive Statistics*

Table 1 highlights how the majority of the mergers in the sample are in the manufacturing sector, the reasoning is bi-fold firstly the manufacturing sector is highly concentrated and historically had a significant merger activity, secondly, as the manufacturing sector is the most polluting, environmental regulation has usually applied mandatory disclosure and or targets for this sector before expanding it to the rest of the economy.

Table 2 provides detailed descriptive statistics for scope 1 absolute, revenues, assets and liabilities for the sample with all mergers. Overall, the descriptive statistics underscore the heterogeneity in financial metrics among mergers, with some companies exhibiting extreme values in emissions, revenue, assets, and liabilities. While table 3 compares the mean values of scope 1 absolute, revenues and assets[6] between cancelled

[6]Unfortunately, the data for total liabilities is missing for several cancelled mergers, for this reason it has not been reported here.

Table 1: Sector distribution of mergers (matched with emissions

	SIC sector	Mergers
1	Manufacturing	746
2	Financials	558
3	Information Technology	513
4	Consumer Discretionary	425
5	Health Care	325
6	Materials	310
7	Communication Services	284
8	Real Estate	228
9	Consumer Staples	218
10	Energy	175
11	Utilities	155
	Total	3,937

and successful mergers. As expected successful mergers have lower emissions, but they tend to have lower revenues and a smaller asset base.

Table 2: Descriptive Statistics: All Mergers

Statistic	Total Scope 1 Absolute (CO2 Tonnes)	Total Revenues (USD Millions)	Total Assets (USD Millions)	Total Liabilities(USD Millions)
Mean	2,570,209.94	161.27	1,725.30	247.74
Standard Deviation	9,228,942.96	9,790.84	106,802.12	13,267.11
Min	792.57	-31.93	0.00	0.00
25th Percentile	6,327.38	8.05	27.12	4.97
Median	33,058.22	18.06	165.24	12.11
75th Percentile	238,669.33	49.19	365.38	55.63
Max	52,549,649.00	1,018,691.47	11,114,132.33	1,379,798.73

Table 3: Descriptive Statistics: Comparison between Successful and Cancelled Mergers

Mean	Cancelled Mergers	Successful Mergers	Difference
Total Scope 1 Absolute (CO2 tonnes)	2,570,209.94	3,380,567.49	-810,357.55
Total Revenues (USD Millions)	161.27	49.56	111.72
Total Assets (USD Millions)	1,725.30	270.30	1,455.01

5 Empirical Methodology and Results

5.1 *Notifiable Mergers*

To account for differences in regulatory relevance, I divide the analysis into two subsamples. The first includes the full set of mergers in the dataset, regardless of size or regulatory visibility. The second focuses on mergers that are likely to have been subject to formal scrutiny by competition authorities based on statutory notification thresholds. I refer to these as *notifiable mergers*—that is, transactions that exceed the size thresholds set by merger control frameworks in either the United States or the European Union.

In the United States, the Hart–Scott–Rodino (HSR) Act requires parties to file a pre-merger notification if the value of the transaction exceeds a specified threshold and the parties meet certain size criteria (see table B1 in the appendix for more information).

In the European Union, the EU Merger Regulation (Council Regulation No 139/2004) requires notification to the European Commission if (i) the combined worldwide turnover of the merging firms exceeds €5 billion, and (ii) at least two of the firms have EU-wide turnover of more than €250 million. For mergers involving firms headquartered in the US or EU, I assign the notifiable label if the transaction value or parties' revenue exceeds these jurisdiction-specific thresholds, using historical data on firm-level financials and transaction values where available.

This distinction allows me to separately analyze mergers that were plausibly large enough to warrant competition authority review—typically involving greater market share changes and more detailed regulatory scrutiny—from those that fall below these thresholds but may still be relevant from an environmental or strategic standpoint.

5.2 *Panel Event Study*

I firstly employ a panel event study methodology, in line with work of Miller (2023) and de Chaisemartin and D'Haultfœuille (2020), to investigate the impact of corporate mergers on total Scope 1 emissions. The panel event study framework allows for the analysis of temporal effects of merger events while controlling for unobserved heterogeneity across firms and over time. This approach builds upon the foundational work of seminal event studies by Fama et al. (1969) and MacKinlay (1997), which have been instrumental in examining the effects of corporate events on firm outcomes.The panel event study equation is specified as follows:

$$Y_{i,t} = \beta_0 + \sum_{\tau=-k}^{k} \beta_\tau D_{\tau,t} + X'_{i,t}\gamma + \alpha_i + \lambda_t + u_{i,t} \tag{16}$$

The dependent variable in the model is the environmental indicators, it is important to highlight that for emissions and green patents this is the sum of these variables for both the target company and the acquirer, cases where prior to the merger either company does not report their emission are excluded from the sample[7]. The coefficient of interest is β_τ, capturing the effect of the event at different time periods relative to the event. $D_{\tau,t}$ are indicator variables that take the value of 1 if time t is τ periods relative to the event (with $\tau = 0$ being the event period), and 0 otherwise.

$X'_{i,t}$ is a vector of control variables for firm i at time, in this case revenues, assets and liabilities are used, these controls are used as studies (such as Hartzmark and Shue (2023)) found that revenues, assets and liabilities might impact the company environmental indicators. To control for confounding factors, the model includes several fixed effects α_i is a fixed effect for the country of the acquiring firm, target firm (when they differ) and their sectors, emissions could be influenced by country specific policies or sector practices and / or specificity. Year fixed effects (λ_t) are included to control for macroeconomic trends and shocks that vary over time. The inclusion of fixed effects is crucial for controlling unobserved heterogeneity, thereby mitigating the risk of omitted variable bias.

5.2.1 Panel Event Study - Emissions Results

Table 4 summarizes the results of the event study of the impact of a mergers on Scope 1 absolute emissions and emission intensity (for full specifications see tables B2 and B3 in the appendix) across majority of specification coefficients are negative and statistically significant, indicating a robust negative effect of mergers on emissions after accounting for various factors. Figure A1 in the appendix shows that both absolute and intensity emissions decrease following the first year of the merger.

In table 5 I run the same specification as table 4, but I limit my sample to notifiable mergers (for full specifications see tables B4 and B5 in the appendix). Across all specification coefficients are negative and statistically

[7] I have spoken to the data provider on how emissions are categorised after the merger, usually they are reported only for the acquirer, if they are reported for both it means that the company acquired is still mandated to independently report their emissions (these are rare cases). Both instances are left in the sample

Table 4: Post-Merger Effects on Absolute and Intensity Emissions

	log(Scope 1 Absolute Emissions)		log(Scope 1 Emissions Intensity)	
	(3)	(5)	(3)	(5)
Post-Event	-0.587***	-0.200***	-0.240***	-0.372***
	(0.010)	(0.011)	(0.053)	(0.067)
Sector FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Year FE	N	Y	N	Y
Firm-level controls	N	Y	N	Y
R^2	0.467	0.485	0.627	0.881
Adj. R^2	0.467	0.485	0.627	0.879
N	216,784	216,384	205,927	205,927

Note: Each column represents a separate regression. Columns 1-2 reports the results for absolute emissions, while 3-4 for emissions intensity. The dependent variable is indicated in the column header. Standard errors are clustered at the firm level. Columns 1 and 3 are intermediate specifications; columns 2 and 4 include full controls and fixed effects.

significant, indicating a robust negative effect of mergers on emissions after accounting for various factors. Similarly figure A2 in the appendix shows that the impact of a notifiable merger is a persistent decrease in the resulting company's emissions, which is still present three years following the merger.

Table 5: Post-Merger Effects on Emissions (Notifiable Mergers)

	log(Scope 1 Absolute Emissions)		log(Scope 1 Intensity Emissions)	
	(1)	(2)	(3)	(4)
Post-Event	-0.195***	-0.0712***	-0.337***	-0.452***
	(0.017)	(0.017)	(0.037)	(0.060)
Sector FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Firm-level controls	N	Y	N	Y
R^2	0.575	0.577	0.780	0.932
Adj. R^2	0.574	0.576	0.780	0.930
N	20,036	20,036	78,443	78,443

Note: Each column represents a separate regression for notifiable mergers. Columns (1) and (2) show results for log Scope 1 absolute emissions; columns (3) and (4) show results for log Scope 1 intensity emissions. Standard errors in parentheses are clustered at the firm level.

5.2.2 Panel Event Study - Green Patents Results

Table 6 presents the results of estimating the impact of mergers on green innovation, measured by the log of newly filed green patents. Columns (1) and (2) report results for the full sample of mergers, while Columns (3) and (4) restrict the analysis to notifiable mergers that are likely subject to antitrust scrutiny. Across all specifications, the coefficient on the *Post-Event* indicator is negative and statistically significant, suggesting that green patenting activity tends to decline following a merger.

Table 6: Post-Merger Effects on Green Patents

	log(New Green Patents) - All Mergers		log(New Green Patents) – Notifiable Mergers	
	(1)	(2)	(3)	(4)
Post-Event	-0.005***	-0.008***	-0.113**	-0.181**
	(0.018)	(0.017)	(0.037)	(0.036)
Sector FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Firm-level controls	N	Y	N	Y
R^2	0.317	0.356	0.299	0.341
Adj. R^2	0.317	0.355	0.298	0.339
N	312,456	309,228	112,084	110,731

Note: Each column represents a separate regression for new green patents. Columns (1) and (2) show results for all mergers; columns (3) and (4) show results for notifiable mergers. Standard errors in parentheses are clustered at the firm level.

5.2.3 Panel Event Study - NDVI Results

Table 7 presents the estimated effects of mergers on vegetation health, measured by the Normalized Difference Vegetation Index (NDVI) at the facility level. Across all specifications, the coefficients on the *Post-Event* indicator are small in magnitude and statistically insignificant. This result holds for both the full sample of mergers (Columns 1 and 2) and the subsample of notifiable mergers (Columns 3 and 4), regardless of whether firm-level financial controls are included.

These findings suggest that, while mergers may affect internal firm outcomes such as emissions and innovation, they do not appear to have a measurable impact on the external vegetation environment surrounding production facilities. One possible interpretation is that companies may divest certain facilities following a merger. As a result, while the overall emissions of the merged firm may decline, the physical facilities continue to operate under new ownership. Consequently, NDVI values in the areas surrounding those facilities remain unchanged. This interpretation is consistent with the findings of Chlond and Germeshausen (2025).

Table 7: Post-Merger Effects on Vegetation Health (NDVI)

	NDVI – All Mergers		NDVI – Notifiable Mergers	
	(1)	(2)	(3)	(4)
Post-Event	0.0012	0.0008	-0.0021	-0.0034
	(0.0035)	(0.0034)	(0.0047)	(0.0045)
Sector FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Firm-level controls	N	Y	N	Y
R^2	0.146	0.187	0.129	0.165
Adj. R^2	0.145	0.185	0.127	0.163
N	188,240	184,567	72,103	70,998

Note: This table reports the effect of mergers on vegetation health as measured by NDVI at the facility level. Columns (1) and (2) include all mergers; columns (3) and (4) are limited to notifiable mergers. All specifications include sector, year, and country fixed effects. Firm-level financial controls are added in columns (2) and (4). Standard errors are clustered at the firm level.

5.3 *Quasi-Experiment*

As selection into mergers is endogenous, the main complication is that the average treatment effect (ATE) where ATE = $E[y_i(C=1) - y_i(C0]$ are the emissions of firm i when it is (not) a part of merged company j=1 (j=0). This cannot be observes in the data, leading to a selection bias bracketed below which creates issues with the estimates between merged and non-merged companies:

$$\begin{aligned} E[y_i(1) \mid C=1] - E[y_i(0) \mid C=0] &= (E[y_i(1) \mid C=1] - E[y_i(0) \mid C=1]) \\ &+ \underbrace{(E[y_i(0) \mid C=1] - E[y_i(0) \mid C=0])} \end{aligned}$$

In order to isolate the causal effect of merger on emissions I adopt a methodology similar to Seru (2014), Bena and Li (2014), and Gugler et al. (2003). In an ideal experimental setting I could randomly assign firms with similar characteristics into merged and non-merged companies and remove this selection bias. To proxy for this ideal setting the empirical strategy in this section of the paper adopts a quasi-experiment involving cancelled mergers, i.e. mergers that were announced but failed to successfully complete, aiding to generate exogenous variation in acquisition outcomes of target firms. I hypothesise that the reasons for which the mergers failed to go through are unrelated to emissions of the target (control group).

Mergers could fail to complete after being announced due to a variety of reasons including regulatory hurdles (Eckbo (1983)), financing issues (Kaplan and Stromberg (2009)), cultural clashes (Weber et al. (1996)), economic condition changes (Shleifer and Vishny (2003)), discoveries during due-diligence (Krishnan et al. (2005)), and shareholder opposition (Mulherin and Boone (2000)). These factors should be unrelated to emissions of the target.

In my specification the treatment group is composed of firms in a completed merger and the control group is firms in a merger that was announced but subsequently cancelled. The two groups then form a sample in which the assignment of a firm to the acquirer role can be considered random. This assumption allows me to eliminate any selection bias by comparing the emissions of firms in the treatment group before and after the merger with those in the control group (Seru (2014)). In order to have comparable samples I use propensity score matching to assign the correct control to a treated firm.

The empirical strategy leverages the difference-in-differences (DD) framework to estimate the impact of mergers on corporate emissions. Specifically, we compare the logarithm of total Scope 1 absolute emissions (windsorized) between companies that completed their mergers (treatment group) and those that canceled their mergers (control group). The specification is as follows:

$$Y_{it} = \alpha + \beta_1 \text{After}_{it} + \beta_2(\text{After}_{it} \times T_i) + X'_{i,t}\gamma + \alpha_i + \lambda_t + u_{i,t} \tag{17}$$

where After is an indicator variable that takes a value of one for all the years after the event date and zero otherwise, and T is an indicator variable that takes a value of one for targets in the treatment group and zero for targets in the control group. Similar to equation 16 in this specification we have $X'_{i,t}$ a vector of control variables for firm i at time and several fixed effects, country of the acquiring firm and target firm (when they differ) and their sectors.

5.3.1 Quasi-Experiment - Emission Results

Table 8 presents difference-in-differences estimates of the impact of mergers on firms' Scope 1 carbon emissions. Columns (1) and (2) report results for the log of absolute emissions, while Columns (3) and (4) use log emissions intensity (as the dependent variable. Across specifications, we find a statistically significant reduction in absolute emissions for treated firms relative to the control group following merger completion.

By contrast, the corresponding estimates for emissions intensity (Columns 3 and 4) are smaller in magnitude and statistically insignificant. These findings indicate that the observed decline in emissions is not primarily driven by improvements in carbon efficiency relative to revenue, but rather by reductions in the overall scale of emissions. This pattern is consistent with a scenario in which firms consolidate or downsize following mergers, resulting in lower total emissions

Similarly figure A3 exhibits the coefficients in the year prior and after the merger with the year prior as a reference. There are no pre-trends and after the merger date the treated companies show a decrease in emissions compared to the control group.

Table 9 presents difference-in-differences estimates of the effect of completed notifiable mergers on Scope 1 emissions, both in absolute terms (Columns 1 and 2) and as intensity relative to revenues (Columns 3 and 4). All specifications include sector, year, and country fixed effects, with Columns (2) and (4) additionally controlling for firm-level characteristics. Standard errors are clustered at the transaction level.

Compared to the broader sample of mergers reported previously, the estimated effect on absolute emissions among notifiable mergers is smaller in magnitude. The null impact on emissions intensity remains consistent with prior results.

Similarly figure A4 exhibits the coefficients in the year prior and after the merger with the year prior as a reference for the mergers which could be scrutinised by a competition authority. There are no pre-trends and after the merger date the treated companies show a decrease in emissions compared to the control group.

Table 8: Results of the DD Specification for Scope 1 Emissions

	log(Scope 1 Absolute Emissions)		log(Scope 1 Intensity Emissions)	
	(1)	(2)	(3)	(4)
Post*Treated	-0.884*	-0.819*	-0.089	-0.064
	(0.437)	(0.369)	(0.149)	(0.153)
Sector FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Firm-level controls	N	Y	N	Y
R^2	0.601	0.879	0.740	0.915
Adj. R^2	0.598	0.871	0.737	0.910
N	16,786	16,786	16,780	16,780

Note: The regression reports the combined companies total emissions from the year of the merger to three years after. The fixed effects are SIC sector fixed effects, emission year, and companies' country. Column 2 and 4 also have firm level controls. The standard errors are clustered at firm level (regression without clustering leads to similar results).

Table 9: Results of the DD Specification for Scope 1 Emissions - Notifiable Mergers

	log(Scope 1 Absolute Emissions)		log(Scope 1 Intensity Emissions)	
	(1)	(2)	(3)	(4)
Post*Treated	-0.432**	-0.437**	-0.076	-0.057
	(0.143)	(0.140)	(0.115)	(0.044)
Sector FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Firm-level controls	N	Y	N	Y
R^2	0.663	0.950	0.780	0.929
Adj. R^2	0.658	0.946	0.777	0.924
N	11,348	11,348	11,342	11,342

Note: The regression reports the combined companies total emissions from the year of the merger to three years after. The fixed effects are SIC sector fixed effects, emission year, and companies' country. Column 2 and 4 also have firm level controls. The standard errors are clustered at firm level (regression without clustering leads to similar results).

5.3.2 Quasi-Experiment - Green Patents Results

Table 10 presents difference-in-differences estimates of the effect of mergers on firms' green innovation activity, measured by the log of newly filed green patents. Columns (1) and (2) report results for the full sample of mergers, while Columns (3) and (4) restrict the analysis to notifiable mergers that meet jurisdiction-specific size thresholds and are more likely to be reviewed by competition authorities.

Across all specifications, the coefficient on the *Post*Treated* interaction term is negative and statistically significant, indicating that completed mergers are associated with a decline in green patenting relative to cancelled mergers. The effect is more pronounced among notifiable mergers, with larger point estimates and higher statistical significance. These results suggest that the consolidation process following a merger may reduce firms' incentives or capacity to invest in environmentally oriented innovation.

Table 10: Difference-in-Differences: Effect of Mergers on Green Innovation

	log(New Green Patents) – All Mergers		log(New Green Patents) – Notifiable Mergers	
	(1)	(2)	(3)	(4)
Post*Treated	-0.204**	-0.228**	-0.312***	-0.355***
	(0.082)	(0.079)	(0.093)	(0.090)
Sector FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Firm-level controls	N	Y	N	Y
R^2	0.431	0.603	0.398	0.577
Adj. R^2	0.428	0.600	0.394	0.573
N	47,122	47,122	16,540	16,540

Note: This table presents difference-in-differences estimates of the effect of mergers on green innovation, measured by the log of newly filed green patents. Columns (1) and (2) include the full sample of completed and cancelled mergers. Columns (3) and (4) restrict the sample to notifiable mergers. Standard errors (in parentheses) are clustered at the firm level. Firm-level controls are included in Columns (2) and (4).

5.3.3 Quasi-Experiment - NDVI Results

Table 11 reports the difference-in-differences estimates of the effect of mergers on vegetation health, measured using the Normalized Difference Vegetation Index (NDVI). Across all specifications, the estimated effects of mergers on NDVI are small in magnitude and statistically insignificant. This result holds for

Table 11: Difference-in-Differences: Effect of Mergers on Vegetation Health (NDVI)

	NDVI – All Mergers		NDVI – Notifiable Mergers	
	(1)	(2)	(3)	(4)
Post*Treated	0.0006	0.0003	-0.0012	-0.0017
	(0.0025)	(0.0024)	(0.0031)	(0.0029)
Sector FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Firm-level controls	N	Y	N	Y
R^2	0.143	0.185	0.118	0.161
Adj. R^2	0.140	0.182	0.115	0.158
N	42,308	41,902	15,004	14,788

Note: This table presents difference-in-differences estimates of the effect of mergers on vegetation health, measured using the Normalized Difference Vegetation Index (NDVI) at the facility level. Columns (1) and (2) include the full sample of completed and cancelled mergers, while Columns (3) and (4) restrict the sample to notifiable mergers. All specifications include sector, year, and country fixed effects. Firm-level controls are added in Columns (2) and (4). Standard errors (in parentheses) are clustered at the firm level. No statistically significant effect is detected in any specification.

both the full sample and the subset of notifiable mergers, and remains robust to the inclusion of firm-level financial controls.

These findings suggest that, while mergers may affect internal firm outcomes such as emissions and green innovation, they do not lead to measurable changes in the vegetation surrounding production facilities. One possible explanation is that firms may divest certain facilities after a merger. In such cases, total firm-level emissions may decline, but the physical facilities remain in operation under new ownership, resulting in no observable change in local NDVI.

Conclusion

This paper studies the environmental implications of corporate mergers, combining theoretical modeling with empirical evidence on emissions, green innovation, and vegetation health. While mergers are typically evaluated through the lens of market power and consumer welfare, I show that they can also carry important environmental consequences.

Using a panel of firm-level data covering emissions, patenting, and satellite-based vegetation indicators from 2006 to 2022, I find that mergers lead to a decline in absolute and intensity-adjusted greenhouse gas emissions. However, this reduction does not appear to be driven by efficiency gains or greener innovation: green patenting declines significantly post-merger, particularly for notifiable transactions, and vegetation health surrounding production facilities remains unchanged.

Taken together, these results suggest that the environmental effects of mergers are more consistent with market power or structural reshuffling—such as facility divestitures—than with improved environmental performance. Emission reductions may stem from output reductions or asset sales, rather than cleaner production processes or increased environmental investment.

These findings have two key implications. First, they point to a potential environmental dimension of antitrust policy: merger enforcement could consider how market consolidation affects not only consumers but also climate goals. Second, they suggest that emission-based metrics may overstate environmental progress if not accompanied by innovation or local environmental improvements. More broadly, the paper highlights the need to jointly consider market structure and environmental policy when evaluating the broader consequences of corporate restructuring.

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Appendix

A Appendix Tables

Table B1: HSR Size-of-Transaction Thresholds and Size-of-Person Tests (2006–2021)

Year	Size-of-Transaction Threshold (USD)	Size-of-Person Test (USD)
2006	\$56.7 million	One party $\geq$ \$113.4m; other party $\geq$ \$11.3m
2007	\$59.8 million	One party $\geq$ \$119.6m; other party $\geq$ \$12.0m
2008	\$63.1 million	One party $\geq$ \$126.2m; other party $\geq$ \$12.6m
2009	\$65.2 million	One party $\geq$ \$130.3m; other party $\geq$ \$13.0m
2010	\$63.4 million	One party $\geq$ \$126.9m; other party $\geq$ \$12.7m
2011	\$66.0 million	One party $\geq$ \$131.9m; other party $\geq$ \$13.2m
2012	\$68.2 million	One party $\geq$ \$136.4m; other party $\geq$ \$13.6m
2013	\$70.9 million	One party $\geq$ \$141.8m; other party $\geq$ \$14.2m
2014	\$75.9 million	One party $\geq$ \$151.7m; other party $\geq$ \$15.2m
2015	\$76.3 million	One party $\geq$ \$152.5m; other party $\geq$ \$15.3m
2016	\$78.2 million	One party $\geq$ \$156.3m; other party $\geq$ \$15.6m
2017	\$80.8 million	One party $\geq$ \$161.5m; other party $\geq$ \$16.2m
2018	\$84.4 million	One party $\geq$ \$168.8m; other party $\geq$ \$16.9m
2019	\$90.0 million	One party $\geq$ \$180.0m; other party $\geq$ \$18.0m
2020	\$94.0 million	One party $\geq$ \$188.0m; other party $\geq$ \$18.8m
2021	\$92.0 million	One party $\geq$ \$184.0m; other party $\geq$ \$18.4m

Table B2: Results of the Event Study for Scope 1 Absolute Emissions

	log(Scope 1 Absolute Emissions)				
	(1)	(2)	(3)	(4)	(5)
Post-Event	-0.589***	-0.592***	-0.587***	-0.195***	-0.200***
	(0.013)	(0.013)	(0.010)	(0.011)	(0.011)
Sector FE	N	Y	Y	Y	Y
Country FE	N	N	Y	Y	Y
Year FE	N	N	N	Y	Y
Firm-level controls	N	N	N	N	Y
R^2	0.012	0.385	0.467	0.483	0.485
Adj. R^2	0.012	0.384	0.467	0.483	0.485
N	216,784	216,784	216,784	216,784	216,384

Note: The regression reports the combined companies total emissions from the year of the merger to three years after. The fixed effects are SIC sector fixed effects, emission year, and companies' country. The decrease in the number of observations is because some companies are missing at least one control variable. The standard errors are clustered at firm level (regression without clustering leads to similar results).

Table B3: Results of the Event Study for Scope 1 Intensity Emissions

	log(Scope 1 Intensity Emissions)				
	(1)	(2)	(3)	(4)	(5)
Post-Event	-0.214***	-0.220***	-0.240***	0.035	-0.372***
	(0.012)	(0.053)	(0.053)	(0.067)	(0.067)
Sector FE	N	Y	Y	Y	Y
Country FE	N	N	Y	Y	Y
Year FE	N	N	N	Y	Y
Firm-level controls	N	N	N	N	Y
R^2	0.002	0.575	0.627	0.639	0.881
Adj. R^2	0.002	0.575	0.627	0.639	0.879
N	205,927	205,927	205,927	205,927	205,927

Note: The regression reports the combined companies total emissions from the year of the merger to three years after. The fixed effects are SIC sector fixed effects, emission year, and companies' country. The standard errors are clustered at firm level (regression without clustering leads to similar results).

Table B4: Results of the Event Study for Scope 1 Absolute Emissions - Notifiable Mergers

	log(Scope 1 Intensity Emissions)				
	(1)	(2)	(3)	(4)	(5)
Post-Event	-0.485***	-0.481***	-0.065***	-0.195***	-0.0712***
	(0.022)	(0.017)	(0.015)	(0.017)	(0.017)
Sector FE	N	Y	Y	Y	Y
Country FE	N	N	Y	Y	Y
Year FE	N	N	N	Y	Y
Firm-level controls	N	N	N	N	Y
R^2	0.008	0.433	0.554	0.575	0.577
Adj. R^2	0.008	0.433	0.554	0.574	0.576
N	84,036	84,036	84,036	84,036	83,818

Note: The regression reports the combined companies total emissions from the year of the merger to three years after. The fixed effects are SIC sector fixed effects, emission year, and companies' country. The decrease in the number of observations is because some companies are missing at least one control variable. The standard errors are clustered at firm level (regression without clustering leads to similar results).

Table B5: Results of the Event Study for Scope 1 Intensity Emissions - Notifiable Mergers

	log(Scope 1 Intensity Emissions)				
	(1)	(2)	(3)	(4)	(5)
Post-Event	-0.19****	-0.301***	-0.337***	-0.120*	-0.452***
	(0.030)	(0.037)	(0.037)	(0.050)	(0.060)
Sector FE	N	Y	Y	Y	Y
Country FE	N	N	Y	Y	Y
Year FE	N	N	N	Y	Y
Firm-level controls	N	N	N	N	Y
R^2	0.004	0.737	0.780	0.788	0.932
Adj. R^2	0.004	0.737	0.780	0.789	0.930
N	78,443	78,443	78,443	78,443	78,443

Note: The regression reports the combined companies total emissions from the year of the merger to three years after. The fixed effects are SIC sector fixed effects, emission year, and companies' country. The standard errors are clustered at firm level (regression without clustering leads to similar results).

B Appendix Figures

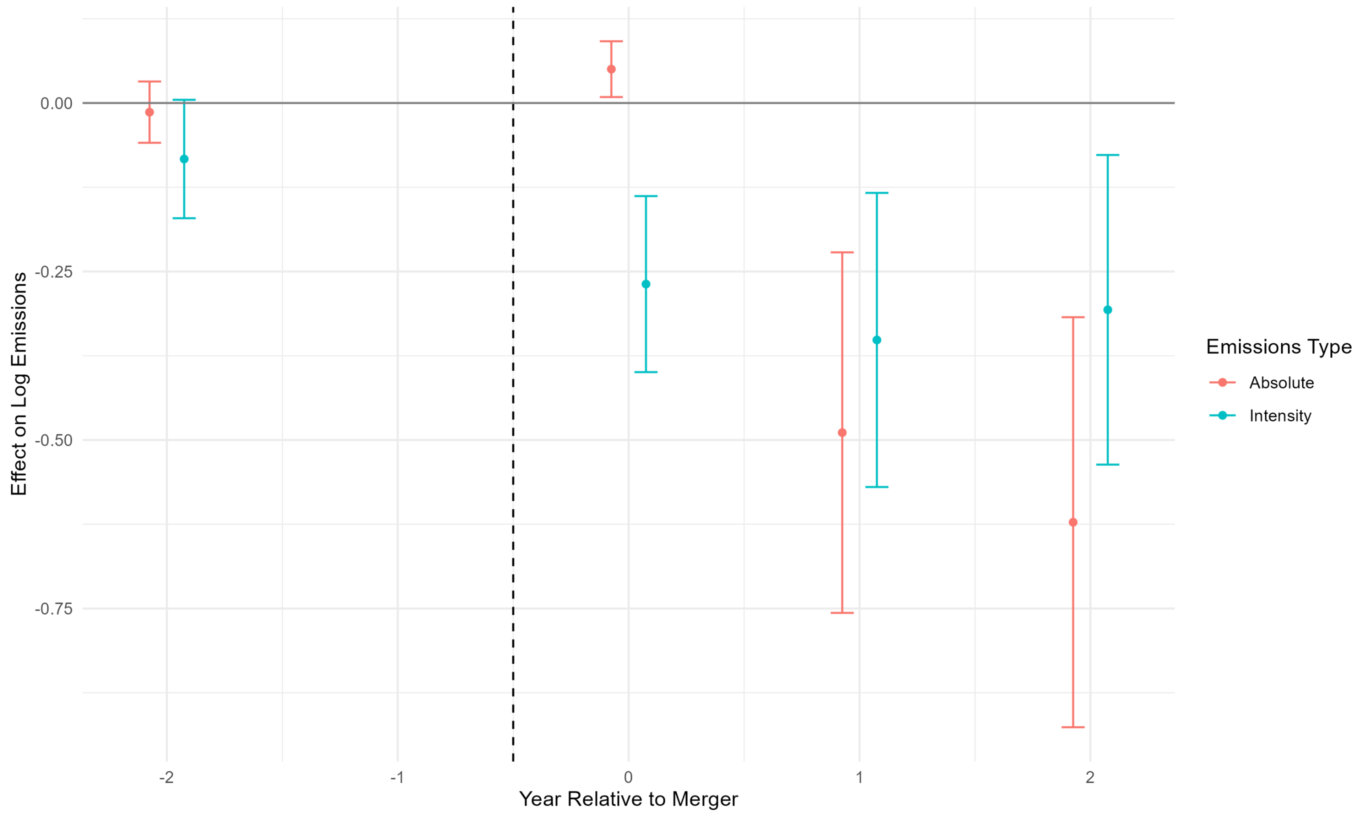

Figure A1: Percentage change in scope 1 absolute and intensity emissions following a merger

Note: The graph reports the coefficients for equation 16 the fixed effects are SIC sector fixed effects and companies' country.

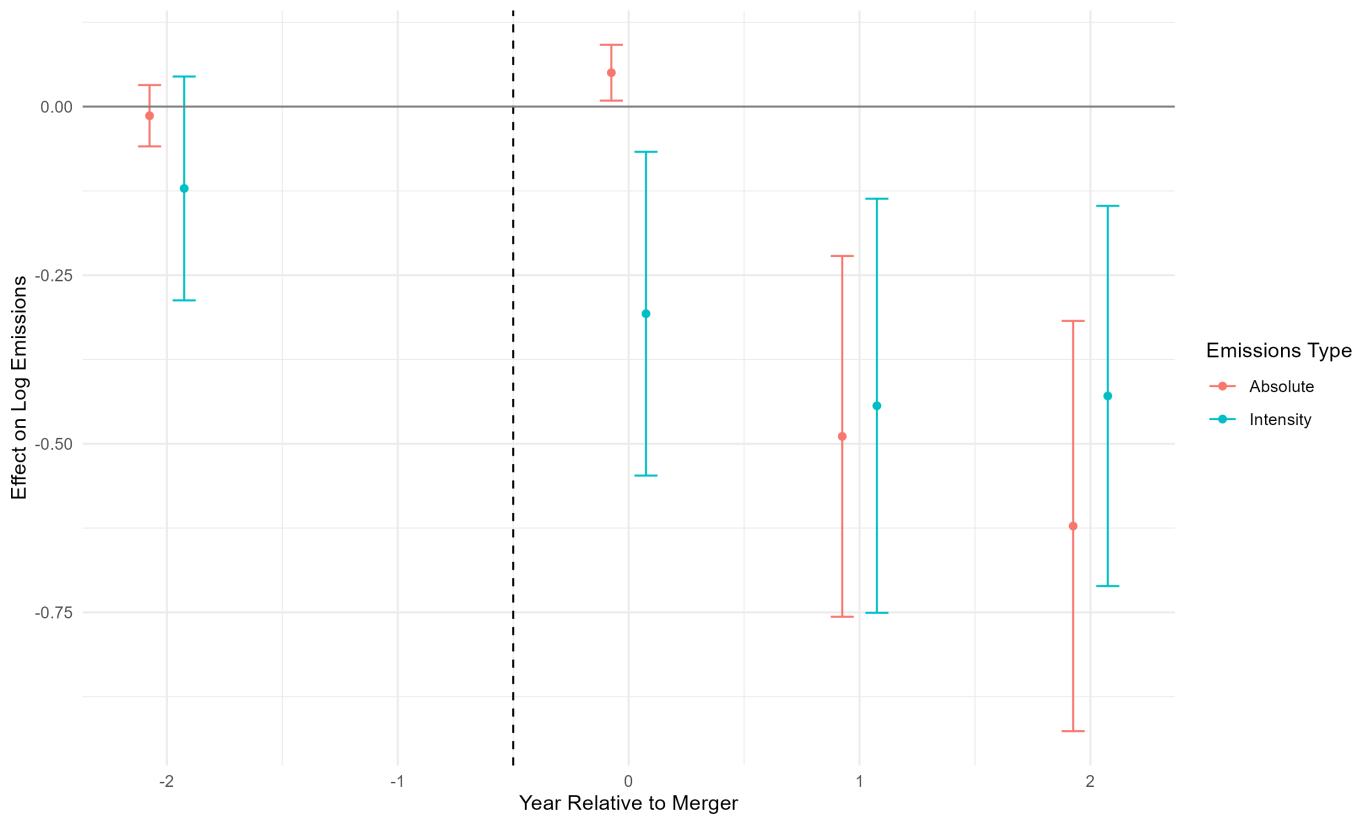

Figure A2: Percentage change in scope 1 absolute and intensity emissions following an notifiable merger

Note: The graph reports the coefficients for equation 16 the fixed effects are SIC sector fixed effects and companies' country.

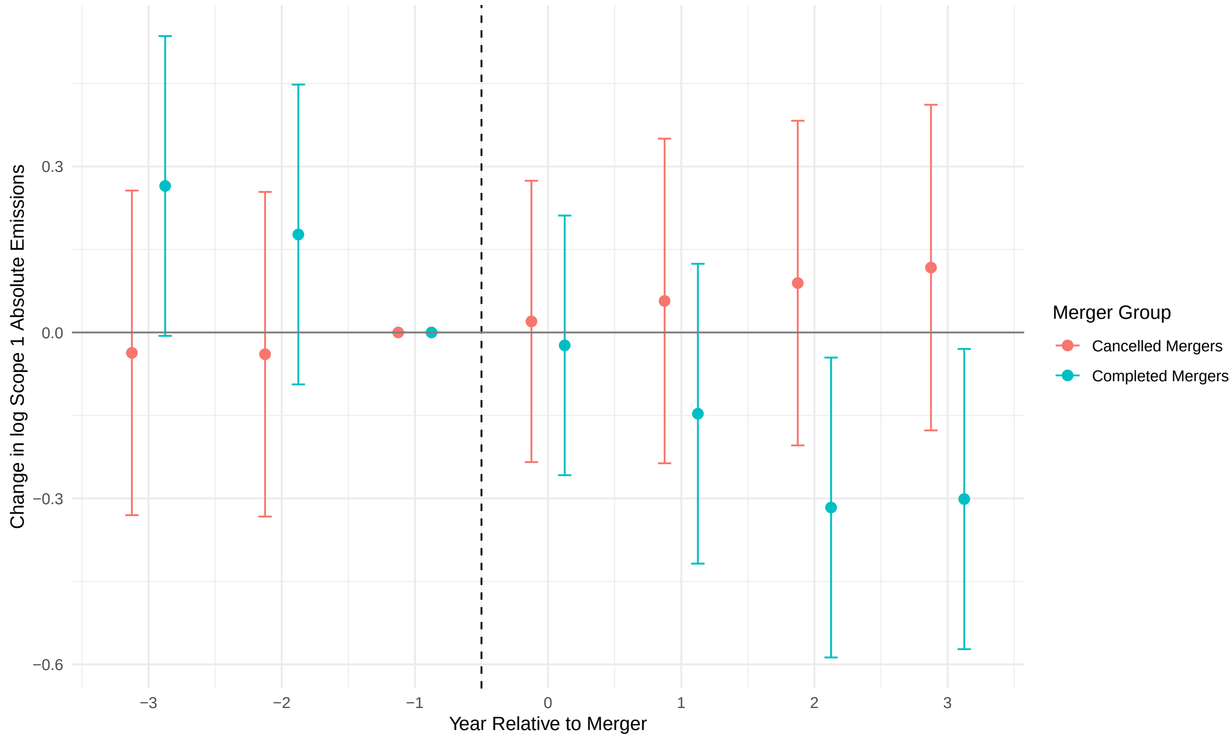

Figure A3: Difference in differences for scope 1 absolute emissions between cancelled and completed mergers.

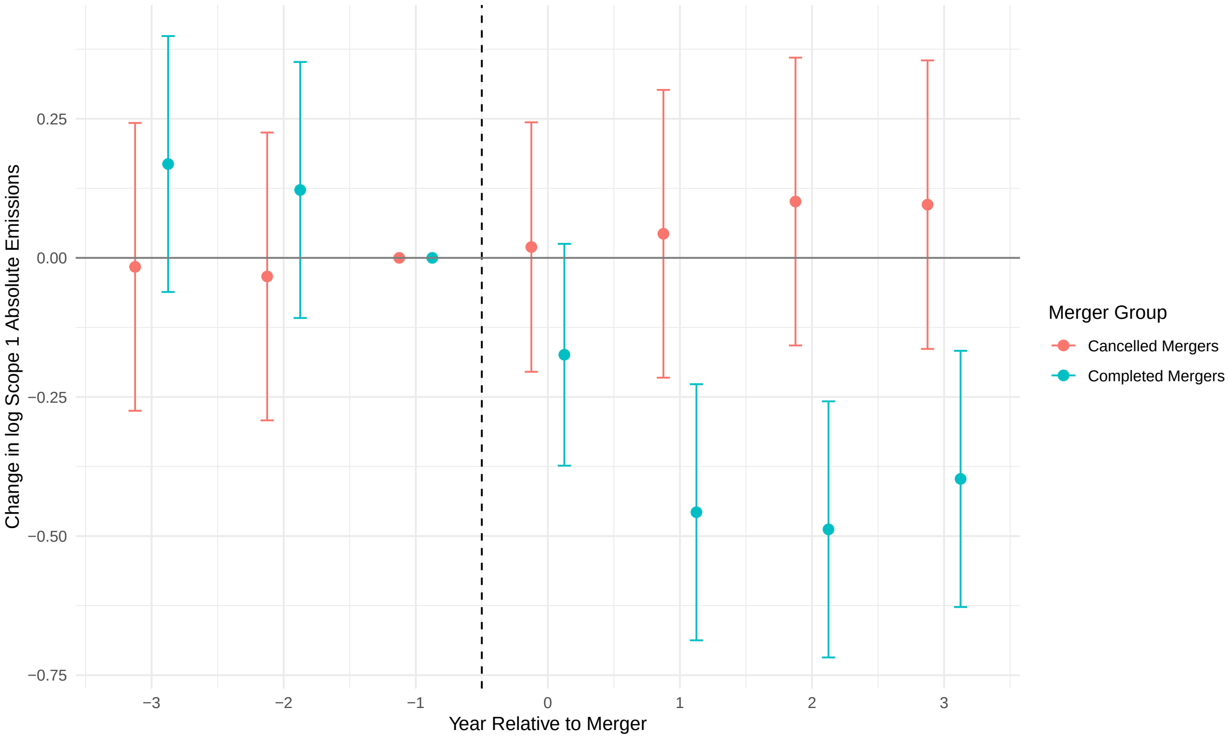

Figure A4: Difference in differences for scope 1 absolute emissions between cancelled and completed mergers, for mergers with a potential to be scrutinised by competition authorities.