WHAT ASSETS ARE TARGETED FOR DIVESTITURE IN RESPONSE TO ENVIRONMENTAL PERFORMANCE?*

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Running head: Environmental Performance and Asset Divestiture

Keywords: environmental performance; divestitures; corporate strategy; ownership change; question-driven research

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ABSTRACT

Research Abstract: We explore how parent- and facility-level environmental performance characteristics influence parents' choice of facilities for divestiture. Taking a question-driven approach and analyzing a sample of 19,994 facility-parent-year observations across 822 public firms between 2010 and 2018, we find that facilities are more likely to be divested by parents with high absolute emissions and high emission intensity, as well as when the facilities themselves have high emissions and make smaller contributions to the parent's total emissions. Our results also indicate that clean and dirty parent firms make different divestiture decisions, with clean parents considering both company-wide and facility-specific environmental impacts more thoroughly. These findings shed light on the role of environmental performance in driving divestitures and shaping firms' decisions about which assets to divest.

Managerial Summary: We examine how companies decide which assets to sell based on environmental performance. Our study found that companies with high overall emissions and high emission intensity relative to sales are more likely to sell off facilities. Facilities are more likely to be divested when they themselves have high emissions, but facilities that make smaller contributions to the parent's total emissions are less likely to be sold. Companies with strong environmental records tend to consider both company-wide and facility-specific environmental impacts in their decisions. In contrast, companies with weaker environmental records are less thorough in evaluating environmental factors. Managers should assess both their overall environmental footprint and the specific impacts of each facility when planning divestitures to support long-term sustainability goals.

Keywords: environmental performance; divestitures; corporate strategy; ownership change; question-driven research

"What role will divestments play in achieving our net zero aims? Divestments are, and continue to be, an important part of our strategy…Divestments contribute to reducing our operational emissions…Proceeds from divestments will help to grow our low carbon businesses which over time will contribute to a reduction in [emissions]."

– BP, *BP Sustainability Report 2021* (2022: 20)

INTRODUCTION

In August 2019, BP, a British oil and gas multinational, announced plans to sell all its carbon-intensive Alaskan facilities to the privately held company Hilcorp Energy. Bob Dudley, then CEO, indicated that the divestiture was aimed at reducing the firm's carbon footprint (Gilblom & Bloomberg, 2019). The firm needed to swiftly reduce 54.4 million metric tons of carbon dioxide equivalent greenhouse gas emissions by 2019 to meet its goal of being a net-zero emitter by 2050, with the Alaskan facilities generating an estimated 8 million metric tons of carbon dioxide equivalent emissions annually (Adams-Heard, 2021). In choosing to divest the Alaskan facilities, BP evaluated its corporate environmental emissions, as well as the environmental emissions of its facilities—both individually and in relation to how these emissions contributed to the firm's overall environmental footprint. This case raises an intriguing question: How do environmental performance characteristics influence firms' decisions on which facilities to sell?

Corporations are paying considerable attention to environmental performance due to growing stakeholder pressures and the need to manage environmental risks associated with their operations (Flammer et al., 2021). One strategic approach to managing this performance involves ownership changes through divestitures, where ongoing firms can sell or liquidate assets from their portfolios. By divesting assets that are relatively undesirable from an environmental perspective, firms can intend not only to demonstrate a commitment to enhancing environmental performance but also to offload environmental liabilities and reallocate resources to further reduce the environmental footprint of their remaining assets (Halttunen et al., 2023; Tabuchi, 2022; Veziroğlu & Kayıklık, 2023). Further, as illustrated by BP's case, when firms decide to pursue divestitures in response to environmental performance, they must strategically choose

which assets to divest by considering various environmental performance characteristics at both the parent company and individual asset levels. This dual-level assessment is crucial because firms, when evaluating their portfolios, tend to review each unit independently and consider how each unit contributes to the overall corporation (Delmas & Toffel, 2008; Galunic & Eisenhardt, 1996).

Yet, extant literature on divestiture has extensively focused on what are the drivers of divestiture, with a particular focus on financial metrics—specifically weak financial performance (Berry, 2010, 2013; Johnson, 1996; Montgomery & Thomas, 1988; Shimizu & Hitt, 2005). Relatively newer work has started to consider the role that non-financial drivers have on divestiture choices, highlighting that while firms consider financial metrics, there are other drivers to strategic choices, including industry-specific metrics such as media attacks in the arms industry (Durand & Vergne, 2015) and accident rates in the airline industry (Gaba & Greve, 2019). While the general drivers of divestitures are well-documented, relatively little is known about how firms decide which specific assets to divest. This gap is particularly evident when considering environmental performance as a driver of divestiture. Thus, in this study, we explore both parent- and asset-level environmental performance characteristics that influence which assets—specifically, facilities—are targeted for divestiture.

This study adopts a question-driven approach (Berry et al., 2021; Graebner et al., 2023). While prior literature and most theoretical lenses have been used to understand the conditions under which firms are likely to pursue strategic change through divestitures, there is still little development in fully understanding changes at the asset level. We posit that a parent's choice of which facilities to divest depends on both the environmental performance characteristics of the parent and the characteristics of the facility, considered both as an individual asset and relative to the firm's portfolio. To examine these ideas, we analyze a sample of 19,994 facility-parent-year observations, representing 822 unique public firms and 3,245 facilities. We look at the parent's absolute emissions and emission intensity, as these are two relevant metrics that managers and stakeholders pay close attention to when trying to assess the environmental performance of a

corporation. At the facility level, we explore the role of facility emissions independently, as well as relative to the parent's emissions. We extend this exploration of factors by considering the overall standing of the parent relative to its industry, recognizing that clean and dirty parents may behave differently in their choices regarding which assets to eliminate, as they may have broader environmental strategies or capabilities that influence how they assess their portfolio. Thus, this study seeks to shed light on how the environmental performance characteristics of a corporation influence which assets are more likely to become targets for divestiture. Moreover, we consider several angles in the decision-making process: the standing of the corporation, the corporation's standing relative to its industry, the standing of each facility, and the standing of the facilities relative to the portfolio.

Our findings show that facilities are more likely to become a target for divestiture by parents that have high absolute emissions and high emission intensity. When examining facility characteristics, we find that facilities with high emissions are more likely to be targeted for divestiture. However, facilities that constitute a large proportion of the parent's total emissions are less likely to be divested. This combination of results suggests that while emissions are important, parent companies also closely consider how essential a facility is to overall operations. In our extended analysis, which explores differences between clean and dirty parents—those parents that emit less or more, respectively, than their industry median—we find some interesting contrasts. For clean parents, facilities are more likely to be divested when the parent has high emission intensity and when the facilities account for a smaller portion of the parent's total emissions. Overall, clean parents appear to take a proactive approach to divestiture decisions by carefully considering various environmental performance characteristics at both the parent and facility levels, possibly as part of a broader strategy to enhance environmental performance. In contrast, dirty parents are more likely to target facilities for divestiture when the parent's absolute emissions are high, placing less emphasis on other environmental performance characteristics at either the parent or facility level.

This study contributes to the corporate strategy and sustainability literature in several ways. First, this study highlights environmental performance as a potentially key driver of divestiture, examining how firms make decisions about which assets to divest based on both parent- and asset-level environmental performance characteristics. By incorporating these characteristics at multiple levels, we provide a more in-depth exploration of the decision-making process within the business divestiture landscape. Second, this study complements the literature on environmental performance and acquisitions (Berchicci et al., 2012, 2017; Bose et al., 2021) by shedding light on the environmental performance characteristics of divesting firms and their linkage to divestiture decisions. Given that ownership change results from interactions between acquirers and divesters, we offer a more comprehensive view of how environmental performance influences ownership changes by focusing on the divester's side—specifically, how environmental performance drives the choices of which assets to divest. Third, the study has implications for both policymakers and corporate managers, highlighting the need for regulations and strategic decision-making to ensure divestitures genuinely contribute to environmental sustainability. Policymakers should enforce regulations that hold acquiring firms accountable for the environmental impact of divested assets, while managers should use divestitures strategically to enhance their firms' sustainability efforts.

ENVIRONMENTAL PERFORMANCE AND DIVESTITURES

Environmental performance has garnered increasing attention from stakeholders, including managers, investors, and society at large, driven by heightened awareness of environmental problems, environmental risks to business operations and individuals, and stricter environmental regulations (Flammer et al., 2021; Li & Zhou, 2017). This increased scrutiny places mounting pressure on firms to enhance their environmental performance by reducing their negative environmental footprint and demonstrating progress through tangible metrics (Hawn et al., 2018). Moreover, a firm's environmental performance is crucial not only for meeting societal expectations but also for creating competitive advantages and uncovering new market

opportunities (Hart, 1995; Porter & Linde, 1995). Firms with strong environmental performance have the potential to improve financial returns by enhancing reputation and gaining legitimacy (Dixon-Fowler et al., 2013; King & Lenox, 2001). As such, managing environmental performance has evolved into a strategic issue for firms.

However, managing environmental performance remains challenging due to several factors, such as a lack of top management support, insufficient capital for investing in new technologies and operational methods, and organizational cultures that do not prioritize environmental performance (Steelman et al., 1997). Initiatives aimed at enhancing environmental performance are often costly and resource-intensive (Hart & Ahuja, 1996; Klassen & Whybark, 1999). Firms also need to allocate substantial managerial attention to achieve acceptable environmental performance, but since managerial attention is a scarce resource, firms cannot focus on all the stimuli they encounter (Ocasio, 1997). In this vein, divestiture has emerged as an increasingly relevant strategy for firms aiming to manage their environmental performance. While divestitures are not always the first strategy firms pursue in response to environmental performance, they offer a strategic avenue for offloading environmentally burdensome assets. By doing so, firms not only reduce their environmental footprint but also signal their commitment to improving environmental performance, alleviate environmental liabilities, and reallocate resources to further reduce the environmental impact of their remaining assets (Halttunen et al., 2023; Tabuchi, 2022; Veziroğlu & Kayıklık, 2023). Asset divestitures may also provide firms with the opportunity to free up managerial attention and reallocate this to other core activities (Bennett & Feldman, 2017).

In this paper, we explore how environmental performance characteristics of both the parent firm and the facility influence the parent's decisions on which facilities are likely to become targets for divestiture. Much emphasis in the divestiture literature has been placed on what drives firms to undertake divestitures and the subsequent impact of freeing resources through divestitures on firms. A large set of studies has demonstrated that firm performance—in particular, weak financial performance—is a key driver of divestitures, linking financial

constraints to the decision to engage in them (Buchholtz et al., 1999; Johnson, 1996; Shimizu & Hitt, 2005). Divestitures serve as a mechanism for firms seeking to improve weak performance and enhance competitiveness (Duhaime & Grant, 1984; Montgomery & Thomas, 1988) by removing underperforming units (Duhaime & Baird, 1987; Hoskisson & Johnson, 1992) or businesses that are no longer core (Bergh et al., 2008; Johnson, 1996), reducing over-diversification (John & Ofek, 1995), and freeing up resources essential for bolstering performance improvements and ensuring the firm's continued survival (Kuusela et al., 2017; Moliterno & Wiersema, 2007; Vidal & Mitchell, 2015). Divestitures have been shown to help firms improve their short-term financial positions (Vidal & Mitchell, 2018) and free up financial and managerial resources to support investments in higher-growth opportunities (Berry, 2010; Berry & Kaul, 2021; Kaul, 2012; Vidal & Mitchell, 2015) and acquisitions (Bennett & Feldman, 2017).

Recent studies have begun to examine other reasons for divestitures, showing that firms pursue divestitures as a strategic response to non-financial performance outcomes, including media attacks (Durand & Vergne, 2015) and safety performance (Gaba & Greve, 2019). As firms increasingly face environmental risks that could disrupt their operations and diverse pressures from various stakeholders, environmental performance has emerged as another critical area that influences strategic decisions. The growing focus on sustainability and environmental responsibility has heightened the importance of managing environmental performance, leading companies to consider how their environmental footprint affects their overall corporate strategy. A small set of previous studies suggests that firms with weak environmental performance might seek to improve their position by selling assets (Barney et al., 1992; Berrone & Gomez-Mejia, 2009). Examples include Berrone and Gomez-Mejia (2009) which call for more research on how a firm's environmental performance may influence its decision to divest polluting facilities as a strategic option to improve its current environmental performance, while they show no statistically significant difference in the facility selling rates of high and low polluting firms. Barney and colleagues (1992) found that potential legal liabilities derived from the extent to

which employees are exposed to hazardous materials lead large firms to divest pollution-intensive facilities.

The existing literature on divestitures provides a solid theoretical foundation on how environmental performance can drive firms to engage in divestitures, but there remain underexplored questions regarding how environmental performance informs which assets would be more likely to become targets for divestiture. To address this, we explore the relationship between parent- and facility-level environmental performance and divestiture decisions. In this paper, we adopt a question-driven approach (Graebner et al., 2023), deriving key research questions from existing studies instead of formulating formal hypotheses. This allows us to empirically investigate a relatively new and underexplored area. This approach is appropriate because our goal is not to develop new theoretical frameworks but to look into a relatively underexamined phenomenon (Berry et al., 2021). By taking this exploratory and abductive approach, we aim to uncover insights that contribute to our understanding of the relationship between environmental performance characteristics and divestiture decisions.

In practical scenarios, firms consider not only parent-level factors but also facility-level factors in relation to the parent firm when making strategic decisions (Delmas & Toffel, 2008; Galunic & Eisenhardt, 1996), likely including deciding which facilities to divest. Parent-level characteristics provide insights into the broader strategic perspectives of the organization, as managers from the parent firm are the ones who identify divestiture targets from the portfolio of businesses. Facility-level characteristics, on the other hand, offer a more granular view and assessment, including the overall environmental impact that a given facility may have on the parent's overall operations. We begin our exploration by delineating two parent-level environmental performance characteristics—absolute emissions and emission intensity—that may influence the likelihood of certain facilities being chosen for divestiture, and then continue with facility-level characteristics. We suggest that when considering which facilities to divest, parent firms are likely to focus on both their absolute emissions and emission intensity for strategic and operational reasons.

Parent firm absolute emissions represent the total volume of environmental impact caused by the firm. Managers pay attention to absolute emissions as this metric provides a foundational measure of the firm's overall environmental footprint, essential for setting and achieving environmental performance targets (Dahlmann et al., 2019). These metrics are commonly used to establish reduction goals at the parent level, highlighting their importance in demonstrating the firm's commitment to sustainability (Ioannou et al., 2016). High absolute emissions can lead to increased regulatory scrutiny and societal pressure, making transparency crucial for accountability, as it allows stakeholders to understand the extent of the firm's environmental impact (Hoffmann & Busch, 2008). Moreover, parent-level absolute emissions are vital for regulatory compliance, as they often underpin emissions regulations such as caps and carbon taxes (Bose et al., 2021).

In contrast, parent firm emission intensity measures the environmental impact relative to a specific business metric, such as revenues or production output (Dahlmann et al., 2019). This metric provides managers with a nuanced view of the firm's operational efficiency and productivity in terms of environmental impact (Hoffmann & Busch, 2008), offering deeper insights beyond what absolute emissions alone can reveal. Focusing on emission intensity allows managers to track progress in reducing environmental impact relative to business activities (Jaller & Matthews, 2021). Additionally, using an intensity measure makes it easier to compare companies and assess reduction potentials, thereby enhancing transparency (Hoffmann & Busch, 2008). These metrics also allow firms to set realistic environmental performance targets by normalizing environmental impact (Hoffmann & Busch, 2008), facilitating benchmarking across different industries and business activities (Jaller & Matthews, 2021).

We posit that corporate managers pay attention to both absolute emissions and emission intensity when making decisions about divestitures. The case of BP presented earlier exemplifies this, with the CEO of the corporation claiming that total emissions needed to be reduced as part of their strategic goals. It is also plausible to consider that the CEO may have considered emission intensity relative to the scale of business activities. Parent emissions and parent

emission intensity inform divestiture choices and influence which facilities are more likely to be targeted for divestiture by parents. These environmental metrics together offer a comprehensive view of the parent's environmental performance. Yet, whether and how these parent-level environmental performance characteristics influence divestiture decisions remains an open empirical question. Therefore, our first research question is:

Q1: How do parent-level environmental performance characteristics influence the likelihood of a facility being targeted for divestiture?

Parent firms' managers may not rely solely on parent-level environmental performance characteristics but may also consider facility-level factors when making strategic decisions (Berchicci et al., 2012, 2017; Duchin et al., 2022). Corporate managers may assess facilities to be targeted for divestiture from the pool of facilities within their portfolio, looking at each facility's characteristics as individual units, as well as the facility's role relative to the overall corporate operations of the parent. We thus further explore two facility-level environmental performance characteristics: facility absolute emissions and facility emissions relative to parent emissions.

Facility absolute emissions have the potential to offer a clear measure of each facility's environmental impact, providing a straightforward assessment that helps identify which facilities significantly influence the parent's overall environmental performance. Similarly to the arguments made about parent absolute emissions, facility absolute emissions are relevant to parents as they set goals for the corporation regarding total emissions. However, focusing solely on facility absolute emissions might overlook the broader strategic context, especially for parents with multiple facilities, where high-emission facilities may be operationally critical and less likely to be divested despite their environmental impact. While the absolute level of emissions is important for managers, so is the relevance of those emissions to the overall corporation. Considering that divestiture decisions are influenced by a range of factors, including the

operational significance of business units and their relationship to the parent's portfolio (Duhaime & Grant, 1984), parents should also assess the proportion of a facility's emissions relative to the parent's total emissions. This approach offers a nuanced understanding of each facility's significance within the parent's portfolio and helps the parent make more informed divestiture decisions.

While the impact of parent-level environmental performance characteristics on the choice of facilities for divestiture remains an open empirical question, the role of facility-level environmental performance factors in these divestiture decisions is equally unexplored. Taken together, we explore our second research question:

Q2: How do facility-level environmental performance characteristics influence the likelihood of a facility being targeted for divestiture?

DATA AND METHODOLOGY

To examine our research questions, we used publicly available data from the United States Environmental Protection Agency's Greenhouse Gas Reporting Program from 2010 to 2018. This program's database reports greenhouse gas emissions data from direct emitters and suppliers of fossil fuel products in the United States.[1] Since 2009, the program has required facilities emitting 25,000 metric tons or more of carbon dioxide equivalents annually to report their greenhouse gas emissions to the Greenhouse Gas Reporting Program. This data has been made publicly accessible on an annual basis starting in 2010. We focused solely on direct-emitting facilities, as the corporations that own these facilities have the controlling rights to make divestiture decisions and are scrutinized based on their environmental performance. The database is a valid and rich source of information, as over 8,000 facilities are mandated to report their emissions annually, representing about 50 percent of the total greenhouse gas emissions in

[1] Suppliers of fossil fuel products such as petroleum, natural gas, and industrial gases report the total greenhouse gas quantity that would result from the complete combustion, oxidation or use of the covered products they supply to the economy.

the United States. In addition to reporting greenhouse gas emissions, facilities must also provide detailed information about their parent organization(s), including each parent's degree of ownership in the facility. The dataset features various types of parent organizations, such as public and private firms, government institutions, universities, and individual investors. Facilities are required to report all owners along with their respective ownership shares. This comprehensive data allows us to explore both the environmental elements and the ownership changes that are central to our analysis.

Our unit of analysis is the facility-parent-year level, focusing on the relationship between parent- and facility-level environmental performance characteristics and their influence on asset divestiture decisions. To create a facility-parent-year level sample, we manually coded the names of parent firms in the Greenhouse Gas Reporting Program database to identify the ultimate parent(s) for each facility, as divestiture decisions are typically made at the top management level of the parent firm (Johnson et al., 1993). We then obtained ticker symbols for the ultimate parent firms from the Compustat and Capital IQ databases to retrieve accounting information for these parent firms. This process identified 4,503 parent organizations in our sample, of which 822 were public firms. After excluding observations with missing data for the explanatory and dependent variables, our final sample consists of 19,994 facility-parent-year observations, representing 822 unique public firms and 3,245 facilities.

Measures

Dependent variable. We operationalized *Facility divestiture* as a binary variable that takes the value of 1 if the firm decreased its ownership in the facility—including both full (complete sale of a facility by a given parent) and partial divestitures (sale of a stake in ownership by a parent firm of a facility, retaining some amount of ownership)—between year *t* and year *t+1*. We excluded spin-offs and any events where facility ownership was transferred as a result of a merger between two firms.

Explanatory variables. The primary explanatory variables we are interested in exploring for our research questions are parent- and facility-level environmental performance

characteristics. At the parent level, we operationalized the parent firm's environmental performance in two ways. First, we operationalized *Parent firm absolute emissions* as the log of the total greenhouse gas emissions of the parent firm in a given year as it is highly skewed. Higher absolute emissions indicate worse environmental performance of the parent firm. Second, we operationalized *Parent firm emission intensity* as the total emissions of the parent firm divided by total sales in a given year. A lower ratio of total emissions to total sales indicates better environmental performance of the parent firm, as it means the firm is generating fewer emissions relative to the scale of its business activities in terms of sales, suggesting that the parent's operations are more efficient or cleaner.

At the facility level, we measured the facility's environmental impact in two ways. First, we measured *Facility absolute emissions* as the log of the total greenhouse gas emissions by a facility in a given year due to its significant skewness. Second, we considered the proportion of emissions that the facility contributes to the total emissions of the parent firm (*Facility emissions over parent emissions*) to reflect how much of the total emissions of the parent firm can be attributed to a given facility. This would indicate the environmental impact that a given facility has on the overall emissions portfolio of the parent firm.

Control variables. We included several parent- and facility-level controls to account for alternative explanations that may be driving the parent firm's choice of a certain facility for divestiture. To account for the parent firm's financial performance and constraints, we included *Parent firm financial performance*, measured as return on assets, and *Parent firm financial slack*, measured as the log of the parent firm's total cash ratio (cash and cash equivalents/current liabilities). Financial slack is a direct indicator of the parent firm's quick access to financial resources, which may prompt divestitures as a means to gain liquidity for survival (Berry, 2010; Kuusela et al., 2017; Vidal & Mitchell, 2015). We accounted for *Parent firm size* by including the log of the parent firm's total assets, as larger firms typically undertake fewer divestitures than smaller firms (Bettinazzi & Feldman, 2021). *Parent firm new facilities* was included as the number of facilities that the parent firm newly acquired in a given year. The incorporation of this

variable allows us to acknowledge the potential influence these new facilities could exert on the parent firm's overall greenhouse gas emissions. In situations where the parent firm integrates a substantial number of new facilities, it might concurrently opt to divest from certain existing facilities to maintain strategic balance. Moreover, the parent firm may undertake portfolio restructuring processes, entailing the simultaneous acquisition of new assets and divestiture from others.

We controlled for *Number of parent firms* that the facility may have, as the facility that is owned by more parents may be more likely to be divested due to potential conflicts among them, and they may not be core to the operations of any given parent. In line with this, we controlled for the degree of ownership that the parent firm has on that facility (*Parent firm ownership*), as a parent firm that owns a higher proportion of a facility has more controlling power as well as a higher degree of responsibility to bear for the environmental impact that the facility may have. To explore the effect of ownership structure on facility divestiture, we measured *Share owned by public parent firms* as the percentage of ownership that the facility is owned by public parent firms.

Additionally, we also considered the discrepancy between the parent firm and the facility in terms of industry code and location (*Parent-facility same industry* and *Parent-facility same state*). The main idea is that if the facility's industry code differs from its parent firm's, this facility might not be central to the parent firm's business portfolio. Similarly, if the facility is located in the same state as the parent firm's headquarters, the parent firm may consider the facility important and oversee its operations more closely, making it less likely to be chosen for divestiture. *Parent-facility same industry* is coded as 1 if the parent firm and the facility share the same two-digit North American Industry Classification System code and 0 otherwise. *Parent-facility same state* is coded as 1 if the parent firm is headquartered in the same state as the facility and 0 otherwise. Finally, we included state and industry dummies to account for any unobserved heterogeneity. For industry, we included dummies for the two-digit Standard Industrial Classification codes of the industry in which the parent firm primarily operates. Aside

from industry, regulations for greenhouse gas emissions vary by state, thus we controlled for the choice to divest being driven by any potential state-level drivers by including facility-state dummies.

Table 1 presents relevant descriptive statistics. To note, our average number of divestitures is 0.035. On average, 2.9 new facilities are added per facility-parent year. The average number of parents per facility is 1.6, and one thing to note is that the maximum is 309 parents for a facility, and we want to highlight that this is not an error, as there are a few facilities that are owned by a cooperative of individuals with each individual being listed and disclosed as a parent. On average, facilities are 88.8% owned by one parent, and we see that in 76.2% of our observations, facilities are located in the same industry as the parent, and in 18.2% of the cases, they are in the same state. All correlations are relatively low (< 0.3), with the exception of *Parent firm size* and *Parent firm absolute emissions*, suggesting that firms with more assets are also emitting more greenhouse gases, which is expected. Post-estimation results show that while this correlation is relatively high, there are no issues with multicollinearity (VIF < 6). While not presented in the table, according to the two-digit Standard Industrial Classification codes, Electric, Gas, and Sanitary Services comprise the largest portion of the final sample at 61.5%, followed by Oil & Gas with 11.08% and Petroleum Refining at 10.91%.

***** INSERT TABLE 1 ABOUT HERE *****

Methodology

We employed a conditional logistic regression specification to explore our questions. This model specification is appropriate given the binary nature of our dependent variable and, more importantly, because it allows us to group the observations at the parent firm level. Thus, the likelihood was calculated relative to each group, enabling us to explore whether facilities are more likely to be divested relative to the pool of facilities that a parent has in its portfolio. In our models, we included year fixed effects to account for systematic variation in time trends. We

utilized a one-year lead dependent variable to examine temporal precedence, which is crucial for inferring causality (He & Huang, 2011). To mitigate potential issues resulting from sample selection, we included all firms, both divesters and non-divesters, in our analysis. Finally, we used the parent firm as our group since the choice to divest is made by a parent firm overseeing a portfolio of facilities over which it has ownership.

RESULTS

Table 2 presents the results of our empirical analysis regarding our research questions on the association between parent- and facility-level environmental performance characteristics and the likelihood of a facility being chosen for divestiture.

***** INSERT TABLE 2 ABOUT HERE *****

Table 2, Model 1 presents a model without any of the main explanatory variables. In this model, we find that facilities are less likely to be targeted for divestiture as the number of parent firms increases (Table 2, Model 1: *Number of parent firms* ß = -0.042, p-value = 0.032). In terms of the financial status of parent firms, our results show that facilities whose parents have lower levels of financial slack are more likely to be divested (Table 2, Model 1: *Parent firm financial slack* ß = -1.065, p-value = 0.003), suggesting that facilities are more likely to be sold by parents experiencing financial liquidity concerns. This finding aligns with previous literature on divestitures. We also find that facilities are more likely to become targets for divestiture by parents who have added other facilities to their portfolio (Table 2, Model 1, *Parent firm new facilities* ß = 0.016, p-value = 0.011). This suggests that for every additional facility added to the portfolio of a parent firm, the odds of any facility being divested increase by 1.6%, all else being equal. Additionally, facilities that are located in the same state as the parent or operate in the same industry are less likely to be divested (Table 2, Model 1: *Parent-facility same industry* ß = -0.766, p-value < 0.000; *Parent-facility same state* ß = -0.431, p-value = 0.008). Thus, the odds of

a facility being divested are reduced by ~53% when the facility is in the same industry as the parent firm, all else equal. Additionally, the odds of a facility being divested are reduced by 35% when the facility is in the same state as the parent firm, all else equal.

Our core explanatory variables reveal interesting findings. *Parent firm absolute emissions* is positively associated with divestiture, suggesting that facilities are more likely to be divested by parent firms that have higher levels of emissions (Table 2, Model 4: ß = 0.386, p-value = 0.009). Specifically, a unit increase in the logged absolute emissions corresponds to a 47.2% increase in the odds of a facility being divested, all else equal. When it comes to emission intensity in proportion to sales, we find something similar—facilities owned by parent firms that are heavy emitters in proportion to their sales are more likely to become targets for divestiture (Table 2, Model 3: *Parent firm emission intensity* ß = 0.096, p-value = 0.024). Here, a one-unit increase in emission intensity is associated with a 10.1% increase in the odds of divestiture, all else equal. This one-unit increase can be understood as the difference between a parent firm with average emission intensity and a parent firm with one standard deviation above average, making this an economically meaningful comparison. Thus, these results combined suggest that the environmental performance of parent firms, both in terms of their absolute emissions and the intensity of those emissions, influences the likelihood of certain facilities being targeted for divestiture.

When examining facility-level characteristics, we find that facilities with higher levels of emissions are more likely to be divested (Table 2 Model 6: *Facility absolute emissions (logged)* ß = 0.113, p-value = 0.001), suggesting that facilities with emissions one standard deviation above average have approximately 12% higher odds of being divested compared to average-emitting facilities, holding all else equal. Additionally, facilities that contribute a larger proportion of emissions relative to the parent firm's total emissions are less likely to be divested (Table 2 Model 6: *Facility emissions over parent emissions* ß = -1.636, p-value = 0.001). Facilities contributing a larger share of the parent firm's total emissions have approximately 80.5% lower odds of being divested compared to facilities with a smaller emissions share, all

else equal. This implies that facilities with higher relative emissions within the parent firm's portfolio are at a lower risk of divestiture, possibly because these facilities are considered operationally important to the parent.

Additional Results: Clean vs. Dirty Parents?

Previous research suggests that parent firms can be categorized as either clean or dirty relative to their industry peers, with this categorization influencing how environmental performance shapes their corporate strategy decisions (Berchicci et al., 2012, 2017). We define clean parent firms as those with superior environmental performance compared to others in their industry, indicating that these firms have likely developed or acquired capabilities that enhance their sustainability. Conversely, dirty parent fs are characterized by inferior environmental performance, reflecting a potential lack of well-developed environmental capabilities. Berchicci and co-authors (2012) found that dirty parent firms are, on average, more likely to acquire other dirty facilities compared to clean parent firms. This finding illustrates the critical role a parent firm's environmental performance plays in determining acquisition targets. When it comes to divestiture decisions, the impact of environmental performance may vary between clean and dirty parent firms. We propose that clean parent firms, with superior environmental performance, and dirty parent firms, with inferior environmental performance, might approach divestiture target selection differently, taking into account the distinct environmental implications of retaining or divesting specific assets.

We explore how the impact of the four environmental performance characteristics on the choice of facilities for divestiture may vary between clean and dirty parent firms. Parent firms are classified as clean or dirty based on their environmental performance (*Parent firm emission intensity*: total emissions relative to sales), adjusted by the median industry performance. A firm is considered clean if its environmental performance is better than the industry median, and dirty otherwise. For the tests comparing the impacts on clean and dirty parent firms, we used a split sample analysis, as the non-parametric nature of the model makes interpreting interaction terms challenging (Greene, 2010; Shaver, 2019). Table 3 shows the impact of parent- and facility-level

environmental performance characteristics on divestiture decisions for clean parents, while Table 4 presents the results for dirty parent firms.

***** INSERT TABLES 3 & 4 ABOUT HERE *****

Our exploratory results reveal interesting patterns in the characteristics that influence the likelihood of a facility becoming a target for divestiture. We find that facilities are more likely to be targeted for divestiture when parent firms, whether clean or dirty, are actively adding new facilities to their portfolio (*Parent firm new facilities* Table 3 Model 1 ß = 0.021, p-value = 0.092; Table 4 Model 1 ß = 0.022, p-value = 0.033). The results also highlight differences in the significance of certain characteristics and their influence on divestiture decisions for clean versus dirty parent firms. Facilities are more likely to be divested by clean parents that are financially constrained, while financial constraints are not a significant factor for dirty parents (*Parent firm financial slack* Table 3, Model 1: ß = -1.863, p-value = 0.001, Table 4 Model 1: ß = -0.187, p-value = 0.753). We find a similar pattern for industry and state co-location, where facilities are less likely to be divested by clean parents that share the core industry with the facility or are located in the same state. However, co-location, whether by industry or state, does not appear to be a significant driver for divestiture by dirty parent firms. This suggests that facilities are more likely to be retained if they are closer to the core—both operationally and geographically—of their clean parents.

One particular characteristic shows contrasting effects for clean and dirty parent firms. Facilities are more likely to be targeted for divestiture when they have a higher degree of ownership by clean parents (Table 3 Model 1: *Parent firm ownership* ß = 0.010, p-value = 0.001), whereas the opposite effect is observed for dirty parent firms (Table 4 Model 1: *Parent firm ownership* ß = -0.009, p-value = 0.042). This finding is intriguing, as it suggests that clean parents are more likely to divest facilities in which they hold significant ownership, while dirty firms may be divesting facilities where their ownership or control is limited. Overall, these

results suggest that facilities are more likely to be targeted for divestiture by clean parents that have greater ownership of the facility, have recently reconfigured their portfolio by adding other plants, face financial constraints, or operate in different states and industries. In contrast, facilities are more likely to be targeted for divestiture by dirty firms when they have less ownership of the facility and after they have added other facilities to their portfolio.

With respect to our core explanatory variables, we again observe differing patterns between clean and dirty parent firms. For facilities owned by clean parents, the likelihood of becoming divestiture targets increases when these parent firms exhibit high emission intensity (Table 3 Model 3: *Parent firm emission intensity* ß = 0.602, p-value = 0.054). The odds of facilities being targeted for divestiture by clean parents are approximately 82.6% higher when those clean parents have high emission intensity compared to when they have average emission intensity, all else being equal. However, we find that, on average, *Parent firm absolute emissions* does not significantly influence the likelihood of a facility being targeted for divestiture by clean parents (Table 3 Model 2: *Parent firm absolute emissions (logged)* ß = 0.215, p-value = 0.226). Regarding facility-level factors, facilities are less likely to become targets for divestiture when they represent a large portion of the emissions of the parent for clean firms (Table 3 Model 5: *Facility emissions over parent emissions* ß = -1.151, p-value = 0.039), whereas this is not significant for dirty parent firms (Table 4 Model 5: *Facility emissions over parent emissions* ß = -0.875, p-value = 0.213). For the case of dirty parents, the key driver is *Parent firm absolute emissions,* with the results showing that facilities are more likely to become targets for divestiture by parent firms that have higher levels of emissions (Table 4 Model 2: *Parent firm absolute emissions (logged)* ß = 1.536, p-value = 0.002).

Overall, our results suggest that clean and dirty parents are influenced by different environmental performance characteristics when making divestiture decisions. Across all firms, higher levels of emissions, high emission intensity, and facilities with high emissions but lower contributions to the parent's total pollution are more likely to be divested. However, the importance of these factors differs between clean and dirty firms. For clean parents, facilities are

more likely to be divested when the parent exhibits higher emission intensity and when the facility represents a smaller proportion of the parent's total emissions. This implies that clean parents tend to take a more strategic approach to divestiture decisions by thoroughly evaluating both parent and facility-level environmental factors, potentially as part of a broader effort to improve their environmental footprint. In contrast, dirty parents are more likely to divest facilities when the parent firm has high absolute emissions, with less consideration given to other environmental performance characteristics at either the parent or facility level. Figure 1 presents an overview of the key empirical findings.

***** INSERT FIGURE 1 ABOUT HERE *****

Robustness and Sensitivity

We conducted several additional analyses to ensure that our results are robust. First, we tested alternative model specifications to confirm that the findings are not driven by the conditional logistic regression approach. Specifically, we employed a complementary log-log specification, which is typically used when the probability of an event is very small (or very large), as is the case here. The results from this alternative specification are largely consistent with those presented in the paper, with the exception that parent absolute emissions are negatively associated with facility divestiture for clean parents (compared to a null effect in the results presented here). We chose to present the conditional logit model because it allows us to group choices at the parent level, which is conceptually relevant given that divestiture decisions are made at the parent firm level from the pool of facilities within each parent's portfolio.

Another concern we addressed was the parametric nature of the model imposed by the binary operationalization of our dependent variable. To explore this, we considered an alternative operationalization by examining changes in stock ownership that a parent firm has in a given facility between year *t* and year *t+1*. This was measured as $\ln[1+(\text{Parent Ownership}_{t+1}/\text{Parent}$

Ownership$_t$)] and analyzed using a fixed effects panel regression specification. With this approach, we found that higher parent emission intensity is negatively associated with changes in ownership, indicating that ownership in facilities decreases when parents have higher emission intensity, consistent with our main results. Additionally, we found that ownership in facilities tends to decrease as facility emissions increase, further aligning with our main findings—parents reduce ownership in facilities that are heavy polluters in absolute terms. However, results for facility emissions over parent emissions were inconsistent; in this alternative specification, ownership decreases when the proportion of facility emissions relative to the parent emissions increases. This suggests that, in this case, the comparison pool may not be entirely equivalent.

DISCUSSION

In this paper, we adopt a question-driven approach (Graebner et al., 2023) to explore whether and how environmental performance characteristics at both the parent and facility levels influence the likelihood of a facility being selected for divestiture. Our findings consistently show that facilities are more likely to be divested by parent firms with higher overall emissions and greater emission intensity relative to sales, as well as when the facilities themselves have higher emission levels but contribute less to the parent's total emissions. We also find that the impact of these environmental performance characteristics on divestiture decisions varies between clean and dirty parent firms. Clean parents are more likely to divest facilities when the parent exhibits high emission intensity and when the facility contributes less to the parent's total emissions, indicating that these firms are particularly mindful of their overall environmental impact. In contrast, for dirty parent firms, facilities are more likely to be targeted for divestiture when the parent's absolute emissions are high, with less consideration given to other environmental performance characteristics at either the parent or facility level. In sum, these findings suggest that both parent- and facility-level environmental performance factors significantly influence divestiture decisions, with clean and dirty parent firms potentially making different divestiture decisions based on their environmental performance.

Our findings make three key contributions to the corporate strategy and sustainability literature. First, our results have important implications for the divestiture literature concerning the drivers of divestitures and the selection of assets for divestiture. Traditionally, this literature has focused on financial factors, particularly weak financial performance and financial constraints, as the primary triggers for firms to undertake divestitures (Berry, 2010; Vidal & Mitchell, 2015). While these factors remain relevant, our study broadens this perspective by examining how environmental performance—an increasingly important metric—also shapes firms' asset divestiture decisions. Additionally, we provide a more nuanced understanding of the divestiture process by analyzing how both parent and asset characteristics influence which specific assets are selected for divestiture. Despite the valuable insights from existing literature, there is still limited knowledge about the specific criteria firms use to determine which assets to divest (Karim, 2006; Moliterno & Wiersema, 2007; Wang & Jensen, 2019). Our findings suggest that firms likely consider multiple factors, including the corporation's overall position, its standing within the industry, the condition of each facility, and the role of these facilities within the broader portfolio. By integrating these dimensions within the framework of environmental performance and divestiture decisions, we offer a deeper exploration of how firms make divestiture decisions.

Second, this study contributes to the literature on environmental performance and acquisitions. While ownership changes result from interactions between acquirers and divesters, the corporate strategy literature has primarily focused on the relationship between environmental performance and acquisitions. Previous research has shown that environmental performance can motivate firms to pursue acquisitions, as acquirers seek to obtain capabilities from targets that can enhance their environmental performance (Berchicci et al., 2012) or outsource regulatory and financial risks associated with poor environmental performance (Bose et al., 2021). Recent studies by Berchicci and colleagues (2012) and Bose and co-authors (2021) further demonstrate that environmental performance influences acquirers' decisions on target selection. Yet, this perspective largely overlooks the divester's role in ownership changes. While acquirers assess

potential targets outside the firm, often comparing them against industry peers or their own environmental metrics, divesters face the more complex challenge of deciding which assets to part with based on both parent- and asset-level environmental performance characteristics. This internal decision-making process within divesting firms involves a nuanced evaluation that has remained understudied in the existing literature. This study complements the current understanding by shedding light on the divester's side of ownership changes, providing insights into how the environmental performance of both divesting firms and their assets influences divestiture decisions. In doing so, we broaden the scope of research on environmental performance and ownership changes, offering a more comprehensive view of how both sides of the transaction are affected by environmental considerations.

Third, our findings offer insights for both policymakers and corporate managers concerning the role of divestitures in advancing sustainability. Although divestitures can be employed to improve a firm's environmental performance by shedding high-emission assets, our findings caution that such actions might not always lead to substantive environmental benefits. It is essential for policymakers to establish regulations that hold acquiring firms accountable for the environmental performance of divested assets, ensuring these assets do not simply transfer environmental liabilities from one entity to another. At the same time, corporate managers should use divestitures as a strategic opportunity to enhance their asset portfolios and drive meaningful environmental progress. Firms with superior environmental records, which already consider the environmental impact of their assets, have the opportunity to further refine their divestiture strategies by setting more aggressive sustainability targets. This could involve developing comprehensive frameworks that evaluate not only the emissions profile of each asset but also the potential for future environmental improvements or risks, ensuring that divestitures contribute to long-term sustainability goals. Firms with weaker environmental records, which currently focus on reducing absolute emissions through divestiture, should broaden their strategic focus to include a wider range of parent- and asset-level environmental performance metrics.

These considerations are crucial for achieving broader societal-level environmental goals beyond organizational-level environmental performance improvements.

This paper has several limitations that could serve as a basis for future research. First, our measures of facility-level environmental performance are somewhat limited due to the limited availability of detailed data at this level. Factors such as a facility's production capacity and workforce size may influence its greenhouse gas emissions, meaning larger facilities are likely to produce higher emissions. Future studies could investigate how facility-level emission intensity relative to production capacity and facility size affects divestiture decisions. Second, our reliance on greenhouse gas emissions to measure environmental performance may not fully capture regulatory differences across U.S. states, suggesting the need for more widely regulated metrics. Replicating our findings using alternative measures, such as waste generation data from the Toxic Release Inventory, would be valuable. Third, we focus only on firms that sold their assets, overlooking the role of buyers in divestiture transactions. Future research could explore who purchases cleaner or dirtier facilities and how these buyers influence the sellers' strategic responses. Additionally, it would be insightful to examine the subsequent environmental performance of both divesting firms and the divested assets, as firms might offload polluting assets to companies with weaker environmental commitments or fewer operational disclosures. Finally, we acknowledge the potential for omitted variables due to the observational nature of our data. Future work could consider additional factors that may drive divestitures, alongside environmental performance, such as ESG ratings (Duchin et al., 2022), shareholder proposals (Zhou, 2022), media attacks (Durand & Vergne, 2015), and conflicts among firms' stakeholders (Bettinazzi & Feldman, 2021).

In closing, this study adopts a question-driven approach to investigate the influence of environmental performance characteristics at both the parent and facility levels on divestiture decisions. By analyzing a comprehensive dataset of 19,994 facility-parent-year observations across 822 firms, we provide evidence that higher absolute emissions and greater emission intensity relative to sales at the parent level, as well as high emission levels at the facility level,

significantly increase the likelihood of the facility being chosen for divestiture. However, the facility that contributes a larger share of the parent's total emissions is less likely to be divested. Our analysis further distinguishes between clean and dirty parent firms, revealing that clean parents tend to divest facilities with higher emission intensity and smaller contributions to the parent's total emissions, while dirty parents are more likely to divest based on parent-level absolute emissions alone. These findings extend the corporate strategy and sustainability literature by highlighting environmental performance as a key driver of divestiture and offering insights into how firms make strategic decisions about which assets to divest. Moreover, our study complements existing research on environmental performance and acquisitions by focusing on the divester's role in ownership changes. Finally, the implications for both policymakers and corporate managers highlight the need for actions that ensure divestitures genuinely advance environmental sustainability.

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Figure 1. Summary of the Key Results

		All Parents	Clean Parents	Dirty Parents
RQ1: Parent-level Environmental Performance	Parent firm absolute emissions	Increase	-	Increase
	Parent firm emission intensity	Increase	Increase	-
RQ2: Facility-level Environmental Performance	Facility absolute emissions	Increase	-	-
	Facility emissions over parent emissions	Decrease	Decrease	-
Controls	Parent firm financial slack	Decrease	Decrease	-
	Parent firm new facilities	Increase	Increase	Increase
	Number of parent firms	Decrease	-	Decrease
	Parent firm ownership	-	Increase	Decrease
	Parent-facility same industry	Decrease	Decrease	-
	Parent-facility same state	Decrease	Decrease	-

Note. The findings demonstrate the relationship between each variable and the likelihood of a facility being chosen for divestiture.

Table 1. Descriptive Statistics

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1)	Facility divestiture	1														
(2)	Parent firm absolute emissions (logged)	-0.079	1													
(3)	Parent firm emission intensity	-0.011	0.467	1												
(4)	Facility absolute emissions (logged)	0.010	0.271	0.281	1											
(5)	Facility emissions over parent emissions	0.060	-0.46	-0.025	0.283	1										
(6)	Parent firm financial performance	-0.036	0.058	-0.107	-0.010	-0.028	1									
(7)	Parent firm financial slack	0.027	-0.152	0.141	0.085	0.172	-0.078	1								
(8)	Parent firm size	-0.024	0.459	-0.188	0.054	-0.287	0.188	-0.125	1							
(9)	Parent firm new facilities	-0.004	0.054	-0.038	-0.069	-0.097	-0.002	-0.092	0.108	1						
(10)	Share owned by public parent firms	-0.001	-0.005	-0.045	-0.062	-0.065	0.014	0.011	-0.023	-0.004	1					
(11)	Number of parent firms	-0.003	-0.024	-0.045	0.017	0.019	-0.009	0.026	0.047	-0.017	-0.176	1				
(12)	Parent firm ownership	-0.003	-0.040	0.079	-0.099	-0.019	-0.026	-0.053	-0.230	-0.013	0.361	-0.340	1			
(13)	Parent-facility same industry	-0.021	0.002	0.222	0.072	0.063	-0.069	0.032	-0.297	-0.019	0.005	-0.067	0.293	1		
(14)	Parent-facility same state	-0.025	0.073	0.093	0.112	0.050	0.017	-0.051	0.031	0.002	0.007	-0.015	0.034	-0.047	1	
(15)	Year	-0.027	-0.009	-0.058	-0.030	-0.008	-0.084	-0.067	0.077	0.025	-0.039	-0.001	-0.004	0.017	0.005	1
	Mean	0.035	16.094	1.989	11.491	0.053	0.022	0.192	10.361	2.889	98.434	1.646	88.801	0.762	0.182	2013.4
	S.D.	0.184	1.545	3.142	1.914	0.125	0.105	0.206	1.233	9.307	8.384	4.278	24.906	0.426	0.386	2.206
	Min	0	5.607	0	0	0	-2.283	0	4.805	0	0	1	0	0	0	2010
	Max	1	18.856	40.158	16.920	1	0.982	2.276	12.927	65	100	309	100	1	1	2017

Table 2. Conditional Logistic Regression Results for the Full Sample

	(1)	(2)	(3)	(4)	(5)	(6)
Parent firm absolute emissions (logged)		0.404	0.329	0.386	0.325	0.133
		(0.147)	(0.150)	(0.147)	(0.153)	(0.160)
		0.006	*0.028*	*0.009*	*0.034*	*0.407*
Parent firm emission intensity			0.096			0.100
			(0.043)			(0.042)
			0.024			*0.018*
Facility absolute emissions (logged)				0.058		0.113
				(0.028)		(0.034)
				0.038		*0.001*
Facility emissions over parent emissions					-0.809	-1.636
					(0.401)	(0.475)
					0.044	*0.001*
Number of parent firms	-0.042	-0.042	-0.042	-0.043	-0.040	-0.040
	(0.020)	(0.019)	(0.020)	(0.020)	(0.019)	(0.019)
	0.032	*0.032*	*0.032*	*0.029*	*0.038*	*0.038*
Parent firm ownership	0.004	0.004	0.004	0.004	0.004	0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
	0.130	*0.109*	*0.107*	*0.085*	*0.120*	*0.082*
Parent firm financial performance	-0.654	-0.548	-0.563	-0.546	-0.559	-0.579
	(0.350)	(0.350)	(0.352)	(0.350)	(0.351)	(0.356)
	0.062	*0.117*	*0.110*	*0.119*	*0.112*	*0.103*
Parent firm financial slack	-1.065	-1.053	-1.081	-1.048	-1.054	-1.076
	(0.358)	(0.367)	(0.370)	(0.367)	(0.368)	(0.373)
	0.003	*0.004*	*0.004*	*0.004*	*0.004*	*0.004*
Share owned by public parent firms	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
	0.783	*0.750*	*0.751*	*0.785*	*0.711*	*0.742*
Parent firm size	0.116	-0.050	0.070	-0.046	-0.058	0.068
	(0.220)	(0.228)	(0.233)	(0.228)	(0.229)	(0.236)
	0.598	*0.827*	*0.766*	*0.839*	*0.801*	*0.775*
Parent firm new facilities	0.016	0.018	0.017	0.018	0.017	0.017
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
	0.011	*0.005*	*0.007*	*0.005*	*0.006*	*0.008*
Parent-facility same industry	-0.766	-0.758	-0.763	-0.802	-0.740	-0.810
	(0.168)	(0.168)	(0.168)	(0.168)	(0.169)	(0.169)
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Parent-facility same state	-0.431	-0.426	-0.422	-0.439	-0.419	-0.435
	(0.163)	(0.163)	(0.163)	(0.162)	(0.163)	(0.163)
	0.008	*0.009*	*0.009*	*0.007*	*0.010*	*0.008*
Number of observations	19,994	19,994	19,994	19,994	19,994	19,994
Pseudo R-square	0.0826	0.0844	0.0855	0.0853	0.0853	0.0891
X^2	397.2	405.5	411.1	410.0	409.7	428.2

Note. Standard errors in parentheses, p-values in italics. Models include industry and state dummies, as well as year fixed effects. Analyses grouped by parent firm.

Table 3. Conditional Logistic Regression Results for Clean Parent Firms

	(1)	(2)	(3)	(4)	(5)	(6)
Parent firm absolute emissions (logged)		0.215	0.043	0.206	0.077	-0.206
		(0.178)	(0.184)	(0.179)	(0.183)	(0.182)
		0.226	*0.815*	*0.249*	*0.672*	*0.258*
Parent firm emission intensity			0.602			0.631
			(0.313)			(0.326)
			0.054			*0.053*
Facility absolute emissions (logged)				0.062		0.149
				(0.041)		(0.051)
				0.133		*0.003*
Facility emissions over parent emissions					-1.151	-2.170
					(0.557)	(0.681)
					0.039	*0.001*
Number of parent firms	-0.046	-0.045	-0.046	-0.046	-0.043	-0.043
	(0.031)	(0.030)	(0.031)	(0.031)	(0.030)	(0.030)
	0.130	*0.136*	*0.131*	*0.131*	*0.152*	*0.150*
Parent firm ownership	0.010	0.010	0.010	0.010	0.010	0.011
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
	0.001	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*
Parent firm financial performance	0.150	0.214	0.275	0.213	0.195	0.252
	(0.644)	(0.641)	(0.653)	(0.640)	(0.647)	(0.660)
	0.816	*0.739*	*0.674*	*0.740*	*0.763*	*0.703*
Parent firm financial slack	-1.863	-1.892	-1.936	-1.899	-1.878	-1.918
	(0.542)	(0.547)	(0.548)	(0.548)	(0.550)	(0.554)
	0.001	*0.001*	*0.000*	*0.001*	*0.001*	*0.001*
Share owned by public parent firms	0.003	0.003	0.003	0.003	0.003	0.003
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
	0.723	*0.744*	*0.740*	*0.754*	*0.720*	*0.723*
Parent firm size	-0.375	-0.483	-0.365	-0.487	-0.448	-0.327
	(0.348)	(0.361)	(0.364)	(0.362)	(0.362)	(0.364)
	0.281	*0.182*	*0.315*	*0.178*	*0.215*	*0.368*
Parent firm new facilities	0.021	0.021	0.022	0.021	0.021	0.021
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
	0.092	*0.091*	*0.085*	*0.093*	*0.092*	*0.091*
Parent-facility same industry	-1.103	-1.099	-1.118	-1.152	-1.058	-1.165
	(0.244)	(0.244)	(0.244)	(0.244)	(0.246)	(0.244)
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Parent-facility same state	-0.587	-0.581	-0.568	-0.581	-0.578	-0.565
	(0.219)	(0.218)	(0.219)	(0.218)	(0.219)	(0.219)
	0.007	*0.008*	*0.009*	*0.008*	*0.008*	*0.010*
Number of observations	9,480	9,480	9,480	9,480	9,480	9,480
Pseudo R-square	0.116	0.116	0.118	0.117	0.118	0.123
X^2	310.6	312.2	316.2	314.5	316.7	330.0

Note. Standard errors in parentheses, p-values in italics. Models include industry and state dummies, as well as year fixed effects. Analyses grouped by parent firm.

Table 4. Conditional Logistic Regression Results for Dirty Parent Firms

	(1)	(2)	(3)	(4)	(5)	(6)
Parent firm absolute emissions (logged)		1.536	1.384	1.489	1.495	1.230
		(0.487)	(0.497)	(0.488)	(0.491)	(0.504)
		0.002	*0.005*	*0.002*	*0.002*	*0.015*
Parent firm emission intensity			0.101			0.099
			(0.061)			(0.061)
			0.101			*0.106*
Facility absolute emissions (logged)				0.046		0.083
				(0.041)		(0.047)
				0.260		*0.082*
Facility emissions over parent emissions					-0.875	-1.436
					(0.703)	(0.788)
					0.213	*0.068*
Number of parent firms	-0.048	-0.049	-0.049	-0.050	-0.046	-0.046
	(0.027)	(0.028)	(0.029)	(0.028)	(0.028)	(0.028)
	0.080	*0.087*	*0.090*	*0.080*	*0.104*	*0.103*
Parent firm ownership	-0.009	-0.010	-0.010	-0.009	-0.010	-0.009
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
	0.042	*0.038*	*0.040*	*0.058*	*0.026*	*0.043*
Parent firm financial performance	-0.832	-0.549	-0.592	-0.556	-0.546	-0.598
	(0.460)	(0.466)	(0.468)	(0.466)	(0.469)	(0.472)
	0.070	*0.239*	*0.206*	*0.232*	*0.245*	*0.205*
Parent firm financial slack	-0.187	-0.248	-0.180	-0.237	-0.264	-0.183
	(0.594)	(0.607)	(0.613)	(0.607)	(0.610)	(0.619)
	0.753	*0.682*	*0.769*	*0.696*	*0.665*	*0.768*
Share owned by public parent firms	-0.002	-0.001	-0.002	-0.001	-0.001	-0.002
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
	0.833	*0.889*	*0.858*	*0.905*	*0.869*	*0.852*
Parent firm size	0.130	-0.251	-0.074	-0.240	-0.287	-0.115
	(0.312)	(0.336)	(0.355)	(0.336)	(0.338)	(0.358)
	0.678	*0.456*	*0.834*	*0.475*	*0.396*	*0.748*
Parent firm new facilities	0.022	0.028	0.026	0.028	0.028	0.025
	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
	0.033	*0.011*	*0.023*	*0.011*	*0.012*	*0.025*
Parent-facility same industry	-0.418	-0.432	-0.439	-0.460	-0.428	-0.481
	(0.278)	(0.279)	(0.280)	(0.281)	(0.280)	(0.281)
	0.133	*0.122*	*0.117*	*0.101*	*0.125*	*0.087*
Parent-facility same state	0.361	0.351	0.353	0.341	0.363	0.356
	(0.299)	(0.299)	(0.298)	(0.299)	(0.299)	(0.299)
	0.227	*0.240*	*0.236*	*0.253*	*0.225*	*0.235*
Number of observations	9,293	9,293	9,293	9,293	9,293	9,293
Pseudo R-square	0.112	0.118	0.119	0.118	0.118	0.121
X^2	220.3	231.9	234.3	233.2	233.5	239.2

Note. Standard errors in parentheses, p-values in italics. Models include industry and state dummies, as well as year fixed effects. Analyses grouped by parent firm.