

# Related Party Transactions and Corporate Environmental Responsibility

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## Abstract

This study empirically examines the effect of related party transactions on corporate environmental responsibility and finds that firms with more related party transactions tend to provide more controversial environmental reports. More importantly, we find evidence that firms involved in more related party transactions have lower corporate environmental responsibility expenditures and higher pollution emissions. Overall, the results corroborate the hypothesis that the marginal costs of corporate environmental responsibility outweigh their benefits for financially constrained firms and, thus, deter firms from engaging in corporate environmental responsibility activities.

**Keywords:** corporate environmental responsibility; pollution emission; related party transaction; internal capital market; corporate governance

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## **1. Introduction**

Firms are expected to become increasingly supportive of corporate environmental responsibility (CER) activities over time. For instance, Henriques and Sadosky (1996) and Christmann (2004) show that regulatory pressure is considered a critical determinant of corporate environmental conduct in many countries, as formalized laws, rules, sanctions, and regulations are the most effective ways to enforce environmental protection (Kostova & Roth, 2002;). Dangelico and Pujari (2010) posit that environmental regulations function to decrease the risk of activity breakdowns, monetary losses, or damage to firms' reputations. In addition to comply with mandatory government regulations, firms have become working more proactively to protect the environment as they believe the benefits of CER outweigh the costs (Pachauri & Reisinger, 2008; Stern, 2007). Wahba (2008) documents the evidence that the market values firms with strong CER engagement.

However, corporate social responsibility (CSR) activities, including CER activities, also add significant costs to firms, with related benefits usually only to be realized in the long term (Burke and Logsdon, 1996; Wang and Bansal, 2012). CSR requires channeling considerable corporate internal and external resources into various dimensions of corporate decision-making (Xu and Kim, 2020). Additionally, the long-term nature of CSR activities influences managerial behavior, which is under scrutiny by a firm's corporate governance system including the board of directors, the audit committee and internal controls, the role of shareholders, and remuneration systems. Standard agency theory describes shareholders as risk neutral because they can diversify their investments across multiple firms. By contrast, managerial efforts are limited to one firm and thus likely to be risk averse. Hence, managers may focus on short-term activities inconsistent with firms' CSR and long-term goals. This managerial myopia has found support in studies such as Lundstrum (2002) and Wahal and McConnell (2000). In addition, pressures on managers to report quarterly earnings, typically linked to managerial compensation,

can aggravate the myopia. Stein (1988) suggests that the constant pressure to deliver good short-term performance causes managers to avoid uncertain long-term projects, such as CSR engagement. Given that CSR's benefits and costs are likely to break even in the long term, we expect that firms facing near-term challenges and complications, such as those with financial constraints, are less incentivized to engage in costly CSR activities. In a recent study, Xu and Kim (2020) provide evidence that relaxed financial constraints reduce firms' environmental pollution in the U.S. This study specifically focuses on the environmental aspect of CSR activities.

Existing studies document the real effects of financial constraints on a firm's investment and employment decisions (e.g., Campello et al., 2010; Chaney et al., 2012; Chodorow-Reich, 2014). In particular, Dow and McGuire (2009) argue that financial constraints motivate firms to strengthen their affiliations to overcome liquidity issues in the external capital market. They show that related party transactions via internal capital markets are more evident for financially constrained firms, which is consistent with the theoretical implications of Riyanto and Toolsema's (2008) study. We consider due to accounts to quantify the intensity of related party transactions. We posit that the firm that seeks a deal through a related party transaction and has an outstanding due to account, which is a liability account, incurs some financial constraints. Using related party transactions as a proxy for corporate financial constraints, we investigate the relationship between corporate financial constraints and CER.

We examine the effect of related party transactions on various aspects of CER: general governance ratings, environmental expenditures, emissions reduction efforts, and controversial environmental reports. Our findings show that firms with more related party transactions appear to have poor governance mechanisms, potentially encouraging tunneling and propping via internal capital markets within affiliated firms (Dow and McGuire, 2009; Riyanto and Toolsema, 2008). We also find that firms that are more involved in related party transactions tend to

produce more controversial environmental reports. Moreover, we find evidence that firms with more related party transactions decrease their CER expenditures and increase their pollution emissions, consistent with Xu and Kim's (2020) findings. Our robustness tests reveal that the negative influence of related party transactions on CER activities is greater for poorly governed firms, implying that these transactions are associated not only with negative externalities but also with value-decreasing financing decisions in the long term. Taken together, the results corroborate the hypothesis that the marginal costs of CER outweigh the benefits for financially constrained firms and, thus, deter such firms from engaging in CER activities. Overall, to the best of our knowledge, this study is the first to present empirical evidence substantiating the effects of related party transactions on CER.

## **2. Sample and Methodology**

Our sample of public firms with related party transactions comes from the Calcbench dataset, which provides additional financial accounting information based on footnotes and proxy statements. The dataset covers a large number of public firms and provides information about their related party transactions between 2007 and 2018. Following U.S. Generally Accepted Accounting Principles, we define related party transactions as transactions between affiliates; subsidiaries under common control; parent entities; owners of a business, its managers, and their families; and trusts for the benefit of employees. We then extract the amount of due to accounts created by related party transactions to investigate whether firms properly use their limited corporate resources. In addition, we employ the ASSET4 environmental, social, and governance (ESG) dataset provided by Thomson Reuters Datastream to capture firm-level tendencies toward environmental decisions. This dataset provides various firm-level ratings of governance, production management, and social activities, covering both financial and non-financial aspects (e.g., environmental expenditures, emissions reduction

efforts, general governance ratings, and controversial environmental reports). We also employ 13F filings dataset providing institutional ownership to conduct sub-sample analysis. We obtain financial accounting data from Compustat to control for firm characteristics. We exclude observations with missing information and winsorize all variables at the one percent level at both tails to mitigate the potential effects of outliers.

The final sample consists of 2,369 firm-year observations spanning from 2008 to 2018. To capture each firm's relative amount of resource usage, we obtain the amount of due to accounts created by related party transactions and scale it by total sales. To estimate the marginal effect of related party transactions on environmental decisions, we consider different dependent variables, including corporate governance, controversial environmental reports, environmental expenditures, and emissions reductions. The corporate governance variable is each firm's weighted rating based on reported governance information. Controversial environmental reports are measured by scoring negative events exposed by the media. Environmental expenditures are calculated as the total amount of expenses related to environmental protection, prevention, clean-up, treatment, control, and investment. Emissions reduction efforts are measured as firm-level effectiveness and commitment in reducing emissions and production waste. These efforts include the reduction of air pollution, water pollution, and hazardous waste, as well as the attitude towards recycling. All of these dependent variables are provided in the ASSET4 ESG dataset. In addition, we consider a set of control variables, including firm size, profitability, leverage, and tunneling. Tunneling and related party transactions can both be opportunistic activities that may reduce firm resources and lead to inefficient decisions, such as more controversial environmental reports, fewer environmental protection efforts, and less emissions reductions. We present the detailed definitions of the variables and their polarities in Table 1.

**Table 1**

Definitions of variables

<i>Panel A. Key variables</i>	<i>Definitions</i>
<i>Related Party Transactions</i>	Amount of due to accounts created by transactions with related parties scaled by sales.
<i>Governance</i>	Governance rating is the firm's weighted average relative rating based on the reported governance information and the resulting scores in three governance categories <ul style="list-style-type: none"> <li>• Polarity: positive</li> </ul>
<i>Controversial Reports</i>	The firm's exposure to environmental, social, and governance controversies and negative events reflected in global media <ul style="list-style-type: none"> <li>• Polarity: negative</li> </ul>
<i>Environmental Expenditures</i>	Total environmental expenditures: all investments and expenditures for environmental protection or to prevent, reduce, or control environmental aspects, impacts, and hazards. This total also includes disposal, treatment, sanitation, and clean-up expenditures <ul style="list-style-type: none"> <li>• Polarity: positive</li> </ul>
<i>Emissions Reductions</i>	The firm's commitment and effectiveness towards reducing environmental emissions in the production and operational processes <ul style="list-style-type: none"> <li>• Polarity: positive</li> </ul>
<i>Institutional Ownership</i>	Percentage of institutional ownership of the firm
<i>Panel B. Control variables</i>	<i>Definitions</i>
<i>Size = ln(Total Assets)</i>	Natural logarithm of the book value of total assets
<i>ROA</i>	Net income divided by total assets
<i>Leverage</i>	Sum of debt in current liabilities and long-term debt, divided by total assets
<i>Tunneling</i>	Other receivables scaled by total assets

Table 2 reports descriptive statistics for the key variables. The relative size of related party transactions is 8.1% on average, and the maximum amount of related party transactions is 20 times larger than sales. Some firms have negative amounts of related party transactions. The average governance and controversial report ratings are 47.7 and 46.2, respectively. In our sample, the medians of these two measures are 47.2 and 56.8, respectively, implying that more firms have above average controversial environmental report ratings. Average environmental

expenditures are 19.4, with a median of 5.5. Although this variable can be a direct measure of environmental protections and investments, the number of observations is only 407, and the data are captured based on firm disclosures. Thus, we also consider each firm’s emissions reduction efforts in the dataset; this rating considers firm-level efforts to reduce air and water pollution and to recycle. The benefit of using this measure relative to the direct measure is that we obtain both more observations and consistent evaluations across all firm-year observations. We also report statistics for firm characteristics in Table 2.

**Table 2**  
Descriptive statistics

<i>Variable Names</i>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<b><i>Key independent variables:</i></b>						
<i>Related Party Transactions</i>	2,369	0.081	0.001	0.838	-0.004	20.00
<b><i>Dependent variables:</i></b>						
<i>Governance</i>	2,369	47.708	47.210	23.252	3.390	98.780
<i>Controversial Reports</i>	2,369	46.172	56.780	21.578	0.140	73.960
<i>Environmental Expenditures</i>	407	19.409	5.517	45.160	0.000	332.124
<i>Emissions Reductions</i>	2,369	44.124	40.980	26.949	0.200	99.830
<b><i>Control variables:</i></b>						
<i>Size=ln(Total Assets)</i>	2,369	8.659	8.677	1.555	3.167	13.709
<i>ROA</i>	2,369	0.052	0.060	0.169	-3.026	1.285
<i>Leverage</i>	2,369	0.353	0.331	0.252	0.000	3.489
<i>Tunneling</i>	2,369	0.010	0.001	0.027	0.000	0.330

This table shows descriptive statistics for the full sample, which includes 2,369 firm-year observations between FY2008 and FY2018. Detailed definitions of all variables are provided in Table 1.

Table 3 presents the correlations among the key variables. As expected, the key independent variable, *Related Party Transactions*, has negative correlations with firm governance, environmental expenditures, and emissions reduction efforts and a positive correlation with controversial reports. Additionally, governance and corporate environmental

decisions have correlations either close to or higher than 0.3. Thus, we do not include those variables in the regression models together except as control variables.

**Table 3**

Correlation matrix.

	<i>Related Party Transactions</i>	<i>Governance</i>	<i>Controversial Reports</i>	<i>Environment Expenditures</i>	<i>Emissions Reductions</i>	<i>Size</i>	<i>ROA</i>	<i>Leverage</i>	<i>Tunneling</i>
<i>Related Party Transactions</i>	1.000								
<i>Governance</i>	-0.056***	1.000							
<i>Controversial Reports</i>	0.004	-0.185***	1.000						
<i>Environment Expenditures</i>	-0.255***	0.245***	-0.042	1.000					
<i>Emissions Reductions</i>	-0.078***	0.422***	-0.317***	0.151***	1.000				
<i>Size</i>	-0.116***	0.340***	-0.356***	0.066	0.415***	1.000			
<i>ROA</i>	-0.125***	0.049**	0.004	-0.045	0.054***	0.142***	1.000		
<i>Leverage</i>	-0.048**	-0.047**	0.049**	-0.076	-0.015	-0.011	-0.059***	1.000	
<i>Tunneling</i>	0.024	0.017	-0.013	-0.030	0.051**	0.034	0.016	0.086***	1.000

This table shows the correlation matrix for the variables used in this study. The table reports Pearson's correlation coefficients from two-tailed tests. Detailed definitions of variables are provided in Table 1. The symbols \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

To test our hypothesis, we employ an ordinary least squares (OLS) regression model that estimates the marginal effect of related party transactions on a firm's environmental decision making. The baseline regression is given by

$$\begin{aligned}
 \text{Firm Decision}_{it} = & \beta_0 + \beta_1 \cdot \text{Related Party Transaction}_{it} \\
 & + \beta_2 \cdot \text{Firm controls}_{it} + \text{FES} + \varepsilon_{it},
 \end{aligned} \tag{1}$$

where  $i$  denotes the firm and  $t$  denotes the year. *Firm Decision* represents various corporate environmental decisions, including *Governance*, *Controversial Reports*, *Environmental*



*Expenditures*, and *Emissions Reductions*. Following prior studies (e.g., Jiang et al., 2010), we control for several fundamental firm characteristics, such as size, profitability, leverage, and tunneling. In addition, we include year and industry fixed effects to control for systematic differences over time and across industries.

### **3. Empirical Findings**

Our baseline regression models find a negative marginal effect of related party transactions on firm environmental decisions. Table 4 presents the results from the four proxies for firm decisions. Model (1) shows the impact of related party transactions on corporate governance. We consider tunneling activity, measured by other receivables divided by total assets, to control for firm decisions that may reduce internal resources. As expected, related party transactions have a negative and statistically significant marginal effect on firm governance. We also test the relation between lagged related party transactions and concurrent governance rating and find consistent results with those of Model (1), although we do not report them here. Model (2) shows that related party transactions positively affect the controversial environmental report rating. Thus, a firm with more related party transactions is likely to have more controversial environmental events reported by the media. In this model, we control for the firm-level governance rating because corporate governance is a way to mitigate managers' opportunistic behavior, such as releasing controversial reports. Model (3) finds a negative and statistically significant relation between environmental expenditures and related party transactions. In this regression analysis, we can use only 407 firm-year observations because this measure is based on individual firm's disclosures of environment-related costs and investments. To ensure that our results are not driven by this limited sample size, we employ another measure that covers the entire sample. Model (4) shows that the marginal effect of related party transactions on emissions reduction efforts is negative and significant at the 1%

level. In sum, all of the regression results confirm that related party transactions negatively influence firm decisions. This finding is consistent with recent evidence that financially constrained firms tend to release more toxic emissions (Xu and Kim, 2020).

**Table 4**

Related party transactions and firm decision making

Model:	(1)	(2)	(3)	(4)
Dependent variable:	<i>Governance</i>	<i>Controversial Reports</i>	<i>Environment Expenditures</i>	<i>Emissions Reductions</i>
<i>Related Party Transactions</i>	-1.356*** (0.273)	1.031* (0.546)	-0.049* (0.028)	-1.020*** (0.249)
<i>Size</i>	4.854*** (0.342)	4.810*** (0.352)	-0.001 (0.002)	6.336*** (0.403)
<i>ROA</i>	-1.211 (2.885)	-12.573*** (2.590)	0.010 (0.013)	-4.471 (3.013)
<i>Leverage</i>	-5.061** (2.100)	-6.809*** (1.735)	0.081*** (0.016)	-2.220 (2.049)
<i>Tunneling</i>	45.525*** (16.782)	19.746 (18.508)	0.029 (0.078)	80.214*** (19.132)
<i>Governance</i>		0.045** (0.020)	-0.000*** (0.000)	0.279*** (0.024)
<i>Constant</i>	1.586 (5.407)	-81.104*** (5.883)	-0.005 (0.021)	-18.307*** (6.111)
<i>Year/Industry FE</i>	Yes	Yes	Yes	Yes
<i>Number of Observations</i>	2,369	2,369	407	2,369
<i>Adj. R-Squared</i>	0.277	0.190	0.225	0.327

This table reports the results of OLS estimations of the relation between related party transactions and firm decision making. Detailed definitions of all variables are provided in Table 1. All models include year and industry fixed effects. Numbers in parentheses are heteroskedasticity-robust (White-Huber) standard errors. The symbols \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5 presents sub-sample analyses as robustness tests. The corporate governance literature suggests various ways to mitigate managers' opportunistic behavior. Stronger governance systems can reduce agency costs and increase firm value (Yermack, 2004). As one example, institutional investors as large shareholders can exercise their voting rights to increase firm value (Barclay and Holderness, 1989). Following these studies, we perform sensitivity tests of our main results conditioning on firms' governance strength. We expect a stronger effect of

related party transactions on CER in poorly governed firms, where managers have more freedom to make suboptimal decisions. We partition our sample into two parts based on a firm's governance strength, proxied by either the governance rating or institutional ownership. We sort each firm-year observation into high or low governance groups using the annual median value of governance strength as cutoff. Models (1) and (2) of Table 5 estimate the marginal effects of related party transactions on emissions reduction efforts for firms with high and low governance ratings, respectively. The results show that related party transactions decrease emissions reductions only when a firm has inferior governance systems, supporting corporate governance theory and prior literature. Models (3) and (4) report similar statistics for firms with high and low institutional ownership, respectively. Interestingly, related party transactions show negative and significant impacts on emissions reduction efforts in both sub-samples, suggesting that institutional ownership does not play an effective monitoring or advising role in a firm regarding its emissions reduction. It is possible that institutional ownership increases shareholders value but those shareholders are not very interested in environmental protections as long as the firm does not violate any regulations. To ensure the robustness of this test, we also divide the sample into high and low institutional ownership sub-samples based on the ownership of the top-five and top-ten largest institutional holders. Although we do not tabulate the results here, they are consistent with those presented by Models (3) and (4).

**Table 5**

Sub-sample analyses

Model:	(1)	(2)	(3)	(4)
Dependent variable: <i>Emissions Reductions</i>				
	Governance		Institutional Ownership	
	High	Low	High	Low
<i>Related Party Transactions</i>	0.659 (2.067)	-1.175*** (0.280)	-1.069*** (0.251)	-1.259* (0.751)
<i>Size</i>	8.750*** (0.627)	4.544*** (0.550)	5.524*** (0.559)	6.268*** (0.649)
<i>ROA</i>	-8.319 (5.093)	-0.911 (4.684)	-5.327 (4.185)	-0.487 (4.675)

<i>Leverage</i>	-5.497 (3.953)	0.184 (2.624)	0.262 (2.532)	-5.972 (3.495)
<i>Tunneling</i>	143.661*** (26.753)	21.194 (29.587)	90.440*** (21.014)	80.972*** (42.934)
<i>Governance</i>	0.287*** (0.061)	0.374*** (0.057)	0.290*** (0.030)	0.269*** (0.041)
<i>Constant</i>	-32.546*** (9.662)	-15.138* (8.297)	-22.692*** (9.401)	-9.416 (7.601)
<i>Year/Industry FE</i>	Yes	Yes	Yes	Yes
<i>Number of Observations</i>	1,187	1,182	1,348	1,021
<i>Adj. R-Squared</i>	0.332	0.205	0.261	0.424

This table reports the results of OLS estimations of the relation between related party transactions and firm decision making, conditioning on firm's governance rating (Models (1) and (2)) or institutional ownership (Models (3) and (4)). Detailed definitions of all variables are provided in Table 1. Numbers in parentheses are heteroskedasticity-robust (White-Huber) standard errors. The symbols \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

#### 4. Conclusion

This study investigates the effect of related party transactions, as a proxy for corporate financial constraints, on CER activities including a general governance rating, environmental expenditures, emissions reduction efforts, and controversial environmental reports.

The empirical results indicate that firms with related party transactions appear to produce more controversial environmental reports, reduce CER expenditures, and increase pollution emissions. In addition, our robustness tests show that the negative influence of related party transactions on CER activities is more evident among poorly governed firms, implying that related party transactions are associated not only with negative externalities but also with suboptimal financing decisions. Overall, the results are consistent with the marginal benefit and cost trade-off associated with CER activities for financially constrained firms.

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