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Decarbonization Commitment, Political Connections, and Firm Value: Evidence from China

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Abstract

On 22 September 2020, China announced an ambitious decarbonization commitment, leading to significant stock market reactions. Using a comprehensive dataset of China's listed firms and a manually updated political connections index, we employ an event study approach with regression analysis to examine the effects of political connections and industry heterogeneity on firm value following the announcement. Our analysis reveals several key findings: First, there were overall negative market reactions to the announcement. Second, political connections negatively impact firm value by acting as a "grabbing hand" in China's private sector, as private firms with strong political ties often prioritize political agendas over shareholders' profit maximization objectives. Third, the adverse effects of political connections are industry-specific, with firms in the environmental protection and decarbonization sectors being more vulnerable to environmental policies. Lastly, we observe a limited moderating effect of the economic development of the firm's host province. Our results are robust across different estimation techniques, model specifications, and major financial announcements such as quarterly financial statements, M&A, and dividend offering.

Keywords: decarbonization; political connections; firm value; event study

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1. Introduction

With joint global efforts such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol to curb greenhouse gas (GHG) emissions, China, as one of the world's largest CO_2-emitting countries[1], has an inevitable obligation. China first pledged to address the global climate change issue in the 2015 Paris Agreement. Later, on 22 September 2020, China's government announced to the United Nations General Assembly that China will peak its carbon emissions before 2030 and achieve carbon neutrality by 2060. This announcement was prioritized by national ministries, causing nationwide extensive discussions among government authorities and industrial practitioners. As the carbon neutrality commitment contributes to sustainable economic development (Dhanda & Hartman, 2011; Dong et al., 2021), the decarbonization commitment of a market participant reflects its environmental, social, and governance (ESG) responsibility (Liang & Renneboog, 2017; Xie et al., 2023) and tends to move significantly with its firm value (Krüger, 2015; Garel & Petit-Romec, 2021; Dong et al., 2022; Xie et al., 2023); the decarbonization commitment creates ripples in the Chinese market.

However, the response of a market participant can vary depending on its political ties, ownership structure, industry, and attributes. Some firms are more likely to feel obligated to

fulfil a commitment from the upstream of the hierarchy due to the their corporate strategy (Hillman, 2005). The obligation may help the firm gain political resources and facilitate a competitive advantage, leading to better financial performance (J. P. Fan et al., 2007; H. Li et al., 2008). However, a decarbonization commitment may deviate from a firm's profit maximization by imposing excessive political agendas on the firm, thus harming its value (Shleifer & Vishny, 1994; Frye & Shleifer, 1996; F. Liu et al., 2018). Although the dominant view is that political resources benefit a firm's financial performance by providing easier access to financing (Claessens et al., 2008; D. Guo et al., 2014), lighter taxation, and bailouts (Adhikari et al., 2006; Faccio, 2006), the story of China can be controversial. Because of China's underdeveloped property rights and market economy, the government plays a fundamental role in resource allocation, which engenders uncertainty for enterprises. Thus, the political connections are more likely a "grabbing hand" (C. R. Chen et al., 2017; F. Liu et al., 2018; Yu & Zheng, 2019). We, therefore, intend to contribute to the debate on the firm value effect of political connections in an institutional setting like China.

By the conventional trade-off theory (Friedman, 1970), a pledge to decarbonization raises a firm's compliance costs (X. Chen & Lin, 2021) because it has to reallocate resources from productive to unproductive units like green auditing, waste disposal, and cleaner assembly lines (Goulder et al., 2010; Ramiah et al., 2013; Oestreich & Tsiakas, 2015), thus worsening a firm's financial performance (Friedman, 2007; Rassier & Earnhart, 2010; Dong et al., 2022). Nonetheless, Porter and Linde (1995) suggest that competitiveness promotion and emission abatement can be simultaneously achieved when a firm cuts environmental pollution. Since decarbonization-related firms embrace more ESG responsibilities and bear lower climate risks (Dionne & Spaeter, 2003), they tend to access investment and subsidies more easily, which contributes to a more desirable outcome in the capital market (Bansal & Roth, 2000; Jones et al., 2018). Turning our attention to China, Zhang et al. (2017) advise that decarbonization helps build public relations and improves the performance of firms overall, and a decarbonization goal benefits the decarbonization-related power industry (Dong et al., 2022). Opponents such as Zeng et al. (2021) argue that the commitment to decarbonization impedes corporate cash flow, causing negative impacts on the stock price of polluting firms (M. Guo et al., 2020). An ambitious decarbonization announcement mirrors China's determination to transition to a green economy, and its impact on firm value by industry/ownership structure is worth examining. We aim to enrich the discussion on the firm value effect of state ownership and industry heterogeneity.

We choose China as our quasi-natural experiment object for the following reasons: First, China is the second-largest economy in the world, accounting for approximately 35% of global carbon emissions. Its carbon-intensive economy leads to 15% higher per capita carbon emissions than the world average.[2] Second, China has a unique institutional background because of its poorly defined property rights and underdeveloped capital market (F. Liu et al., 2018). Political power decides resource allocation and offers firms privileges (Su & Littlefield, 2001; Wu et al., 2012a). Enforcement of the decarbonization objective thus exerts varying influences on different market participants. Finally, with an ambitious carbon reduction target, China's decarbonization market and green investment are expanding rapidly. The market potential is estimated at around USD 10 trillion.[3] The market reaction to the commitment to decarbonization has profound implications for practitioners and policymakers.

Using a manually collected dataset of 3404 listed firms in the Chinese stock market, this article performs an event study with regression analysis to detect the effect of political connections on firm value in response to China's decarbonization announcement and answer a key question: How does firm value move with the decarbonization commitment? This study contributes to the literature on political connections, climate policy, and asset

pricing in China in four ways. First, it utilizes the decarbonization announcement as a plausibly exogenous shock and uses an event study design to credibly identify short-run valuation effects, documenting overall negative market reactions consistent with near-term compliance costs, enriching the findings of Pham et al. (2019) and Yu and Zheng (2019). Second, it updates and extends a rank-sensitive index of political connections post-18th Decree suggested by F. Liu et al. (2018), capturing the intensity and configuration of ties under the appointment rules. Third, it shows that political connections operate as a "grabbing hand" with profound negative reactions in private firms and in environmental protection and decarbonization industries, clarifying where connections most hinder firm value (C. R. Chen et al., 2017). Fourth, it finds limited moderation from regional development, offering evidence for eliminating regional disparity and inequality while supporting the findings of Huang et al. (2017). Together, these advances provide policy-relevant evidence that political connections are more like a liability under environmental policies. Our findings suggest that strategic management may consider reallocating resources from cultivating political connections toward areas such as cleaner production technologies.

We organize the rest of this paper as follows: Section 2 introduces the institutional background and develops hypotheses. Section 3 presents the research design. Section 4 illustrates the data source, variable construction, and descriptive statistics. Section 5 discusses the results with robustness checks. And Section 6 concludes with policy recommendations.

2. Hypothesis Development

Compliance with decarbonization tends to redistribute valuable resources to unproductive sectors (Friedman, 2007; Rassier & Earnhart, 2010). Therefore, our first and immediate hypothesis is the following:

- **H1**: The decarbonization announcement reduces firm value in China.

In China's institutional environment, the state wields substantial influence over credit allocation, market access, subsidies, and regulatory enforcement, creating strong incentives for firms to cultivate political ties (Khwaja & Mian, 2005; Faccio et al., 2006; Claessens et al., 2008; Wu et al., 2012a, 2012b). Such connections can, in principle, relax financing constraints, lower effective tax burdens, and provide insurance against adverse shocks (Faccio et al., 2006; Adhikari et al., 2006; D. Guo et al., 2014). Yet a growing body of literature argues that under weak property rights and extensive state intervention, political ties may function as a "grabbing hand", diverting firm resources toward non-pecuniary political objectives, distorting investment, and eroding shareholder value (Shleifer & Vishny, 1994; Frye & Shleifer, 1996; C. R. Chen et al., 2017; F. Liu et al., 2018; Yu & Zheng, 2019). China's post-2013 anti-corruption campaign and the 18th Decree have further altered the cost–benefit calculus: while overt appointments have been curtailed, politically connected insiders may still face stronger career and loyalty incentives to demonstrate policy implementation, especially on salient agendas like decarbonization (North, 1990; L. Wang, 2015; Tang et al., 2016; Cheng, 2018; Hu et al., 2020; Z. Wang et al., 2022). When green targets are prioritized, connected managers can be more willing or compelled to undertake costly, fast-tracked compliance, signaling effort to superiors but sacrificing near-term profits (Porter & Linde, 1995; Ramiah et al., 2013; X. Chen & Lin, 2021). This mechanism should be most pronounced among private firms, which lack inherent political status and must actively maintain ties, making them more exposed to political agenda pressures than SOEs whose political mandates are embedded and may be buffered by access to state support (J. P. Fan et al., 2007; H. Li et al., 2008; C. R. Chen et al., 2017; Yu & Zheng, 2019). Accordingly, we postulate the following:

- **H2a**: Political connections have adverse effects on firm value around the decarbonization announcement, consistent with a "grabbing hand" channel that prioritizes politi-

cal agendas over shareholder value (Shleifer & Vishny, 1994; C. R. Chen et al., 2017; F. Liu et al., 2018).

- **H2b**: The adverse effects of political connections are more pronounced for private firms than for SOEs, reflecting differences in embedded political status, incentives, and access to state support (J. P. Fan et al., 2007; C. R. Chen et al., 2017; Yu & Zheng, 2019).

Our final hypothesis extends H2 and centers on industry heterogeneity, as the nature of business determines a firm's sensitivity to specific environmental policies (Han et al., 2021). In particular, Ramiah et al. (2013) document diverse market responses to a green policy across different industries. W. Li and Lu (2016) and M. Guo et al. (2020) find significantly negative market reactions to an environmental regulation among China's polluting firms, while Dong et al. (2022) suggest that decarbonization regulation benefits the renewable energy sector in China. China has been extensively promoting renewable energy for decarbonization since the "Thirteenth Five-Year Plan" period (2016–2020), leading to 42.5% of renewable energy among the total installed capacity.[4] The ambitious decarbonization announcement as a key political agenda imposes substantial additional pressure on decarbonization-related firms, causing their political IDs to fulfill the commitment intentionally. Political IDs in fossil fuel or polluting firms have been forced to cut carbon emissions since 2016, and they can well foresee the likely enforcement.[5] We finally conjecture the following:

- **H3a**: The negative effect of political connections is industry-specific (Ramiah et al., 2013; W. Li & Lu, 2016; M. Guo et al., 2020; Han et al., 2021).
- **H3b**: Decarbonization and/or environmental protection-related firms experience more pronounced adverse impacts of political connections (Jones et al., 2018; D. Guo et al., 2014; Dong et al., 2022).

3. Research Design

3.1. Event Study

Our proposed event study method helps to detect short-run market responses to a specific event while circumventing challenges like endogeneity involved in a conventional panel data analysis (Endrikat, 2016). With details specified in the works by Claessens et al. (2008), Faccio (2006) and Faccio et al. (2006), we first define 22 September 2020 as the event day $t = 0$. Following F. Liu et al. (2018), we select 200 trading days before the event day as our estimation window to calculate the normal return of a stock i on trading day t.

$$\mathbb{E}(R_{it}) = \alpha_i + \beta_i R_{mt}, t \in [-200, 0), \tag{1}$$

where $\mathbb{E}(R_{it})$ is the expected return of stock i on trading day t and R_{mt} is the actual market return on trading day t. The normal return is based on the forecast after the event day, using coefficient estimates (α_i, β_i) of stock i from the estimation window. To measure the deviation between the actual return (R_{it}) and the normal return, we compute the abnormal return (AR_{it}) by subtracting the actual return from the normal return.

$$AR_{it} = R_{it} - \mathbb{E}(R_{it}), t \geq 0. \tag{2}$$

Next, following F. Liu et al. (2018), we choose the event windows [0, 2], [0, 4], and [0, 6] to capture the reactions of the stock markets to the event. We do not, however, include the window [0, 8] because the Chinese stock exchanges are efficient in processing information (Seddighi & Nian, 2004). In particular, the interval [0, 2] will comprise information over the next two trading days after the event day under the efficient market hypothesis (Fama, 1970). Hence, we develop the cumulative abnormal return (CAR) as

$$CAR_i[0,T] = \sum_{t=0}^{T} AR_{it}. \quad (3)$$

where T reflects the event window of interest; for example, $CAR_i[0,2]$ is constructed by adding up the abnormal returns of firm i in the following two trading days after the event taking place. Equation (3) finally produces the dependent variables to be used in the regression analyses.

3.2. Regression Specification

We start with a liner regression specification of an industry j:

$$CAR_{ij}[0,T] = \alpha_j + \beta_{1j}X_{1ij} + \beta_{2j}X_{2ij} + \sum_{k=1}^{N} \gamma_{jk}Y_{ijk} + \varepsilon_{ij}. \quad (4)$$

We choose a linear specification because any non-linear equations can be approximated by a first-order Taylor series. Ignoring the variables' arguments ij for simplicity, Equation (4) involves the marginal effect of political connections (X_1) and state ownership (X_2) of (1) the environmental protection industry and (2) the decarbonization industry. $\{Y_k\}$ is a vector of controllers that likely affect a firm's stock performance, including the Regional Development Index of a firm's headquarter host province, total assets, Return on Equity (ROE), Book-to-Market Value, Herfindahl Index, CEO duality, management ownership, board size, independent directors, and leverage (Faccio et al., 2006; F. Liu et al., 2018). We later estimate Equation (4) using $CAR[0,2]$ to $CAR[0,6]$ as the dependent variables. Section 4 proceeds with detailed variable construction procedures.

4. Data

4.1. Data Documentation

Our rich data sample comprises listed firms in China's Shenzhen and Shanghai Stock Exchange as of October 2020, the time when the decarbonization objective was announced.[6] We manually collect and match the stock price, firms' attributes, and personnel information from the databases of China Stock Market and Accounting Research (CSMAR) and Choice.[7] The actual return (R_{it}) and the market return (R_{mt}) are daily observations considering the cash dividend and reinvestment available from CSMAR. The right-hand-side (RHS) variable, the political connections index (X_1), is constructed based on the measure of political seniority in the work by F. Liu et al. (2018). Since the number of political IDs has dramatically declined after the CPC's 18th Decree, we use the following procedures suggested by Luo and Liu (2019) to update the index.

(a) If the chairman or general manager of a firm is a CPC member who has served or currently serves in the government/CPC Committee/CPC Commission for Discipline Inspection/Standing Committee of the National People's Congress (NPC)/Standing Committee of the Chinese People's Political Consultative Conference (CPPCC)/Court/Procuratorate, we then assign a political connection (PC) score to the firm by China's administrative hierarchy: $PC_a = 1$ for section-level cadres, =2 for division-level cadres, =3 for department-level cadres, =4 for ministry-level cadres and above, and =0 if there is no political connection.

(b) Or, if the chairman or general manager of a firm is not a CPC member but has served or currently serves as an NPC representative/NPC deputy/CPPCC member/CPPCC deputy, we then assign a PC score to the firm by the level of jurisdiction: $PC_b = 1$ for the county level and below, =2 for city and prefecture level, =3 for province level, =4 for nation level and above, and =0 if there is no political connection.

(c) Therefore, the political connection index is given by

$$X_1 = \max\{PC_a, PC_b\}. \quad (5)$$

We adopt the classification of environmental protection industry available from Choice. To define the decarbonization industry, we do not use the classification in studies such as that by Dong et al. (2022) directly, because the sample size is too small to reach reliable statistical inferences ($N < 100$). Instead, a firm is considered to be decarbonizing if it is in the list of "carbon neutrality" firms by Dong et al. (2022) or new energy is its main business.[8] After deleting the newly listed firms and the firms with poor data reliability or substantial missing values, we come up with a data sample of 3403 individual firms. Among these firms, 802 (23.56%) have one or more than one politically connected directors or general managers. We further winsorize the top and bottom 1% of the continuous variables to control for outliers. Table 1 describes the documentation for the remaining RHS variables.

Table 1. Data documentation.

Variable	Definition	Description	Source
X_2	SOE	=1 if the firm is state-owned, =0 otherwise	CSMAR
Y_1	Regional development	NERI Regional Development Index of a firm's headquarter host province	G. Fan et al. (2011) and https://cmi.ssap.com.cn/, accessed on 6 August 2024
Y_2	Total assets	Natural log of total assets (in CNY)	CSMAR
Y_3	ROE	Return on Equity	CSMAR
Y_4	Book-to-Market value	Book value divided by market value	CSMAR
Y_5	Herfindahl Index	The sum of the squares of the shares held by the top five shareholders	CSMAR
Y_6	CEO duality	=1 if the chairman and CEO positions are held by the same individual, =0 otherwise	CSMAR
Y_7	Manage ownership	=1 if the chairman and general manager are compatible, =0 otherwise	CSMAR
Y_8	Board size	Number of board members	CSMAR
Y_9	Independent director	Number of independent directors divided by total number of directors	CSMAR
Y_{10}	Leverage	Total liabilities divided by total assets	CSMAR

4.2. Descriptive Statistics

With the CAR values being computed by STATA (Corporation, 2003), Table 2 presents the descriptive statistics of the key variables in our data sample, and Table 3 provides their correlation coefficients. Table 2 shows that both the mean and median of abnormal returns (ARs) are predominantly negative, indicating an overall adverse market reaction following the announcement. It also reports negative mean and median of all CARs in our data sample, which reflects an overall negative market reaction and supports hypothesis H1. An immediate observation from Table 3 is that the political connections have consistently negative correlations with the CARs from CAR[0, 2] to CAR[0, 6]. Regional development and ROE tend to enhance the firm value, as signified by positive correlation coefficients. State ownership, Book-to-Market value, and leverage exhibit moderate and negative correlations with the CARs. Table 3 does not report the correlation coefficients among the RHS variables, because their variance inflation factors (VIFs) are well below the threshold of 10, thus alleviating concerns about multicollinearity (Wooldridge, 2010).

Table 2. Descriptive statistics of the data sample.

Variable	Mean	S.D.	Min	Max	Median
AR1	0.003	0.023	−0.104	0.196	−0.000
AR2	−0.011	0.022	−0.154	0.154	−0.011
AR3	−0.003	0.023	−0.203	0.203	−0.002
AR4	−0.006	0.025	−0.192	0.206	−0.006
AR5	0.004	0.025	−0.208	0.198	0.002
AR6	−0.000	0.021	−0.102	0.201	−0.002
CAR[0, 2]	−0.013	0.036	−0.112	0.115	−0.015
CAR[0, 4]	−0.022	0.046	−0.165	0.123	−0.022
CAR[0, 6]	−0.018	0.053	−0.184	0.148	−0.018
Political connection	0.769	1.410	0.000	4.000	0.000
SOE	0.265	0.441	0.000	1.000	0.000
Regional development	9.392	1.851	−1.420	11.400	10.000
Total assets	22.378	1.473	18.299	30.973	22.137
ROE	0.047	0.228	−3.835	2.378	0.071
Book-to-Market value	0.624	0.279	0.036	1.582	0.609
Herfindahl Index	0.145	0.110	0.001	0.696	0.113
CEO duality	0.317	0.465	0.000	1.000	0.000
Manage ownership	0.145	0.192	0.000	1.000	0.000
Board size	8.389	1.713	4.000	18.000	9.000
Independent director	0.378	0.055	0.166	0.800	0.363
Leverage	0.423	0.208	0.006	1.411	0.410

Table 3. Correlation coefficients of the data sample.

Variable	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.009	−0.008	−0.021
SOE	−0.034	0.044	0.000
Regional development	0.004	0.032	0.038
Total assets	−0.031	0.112	0.044
ROE	0.076	0.099	0.089
Book-to-Market value	−0.002	−0.003	0.082
Herfindahl Index	0.022	0.073	0.030
CEO duality	0.055	0.012	0.022
Manage ownership	0.004	0.003	0.001
Board size	−0.053	−0.042	0.091
Independent director	−0.006	−0.010	−0.018
Leverage	−0.044	0.031	−0.019

5. Results and Discussion

5.1. Overview Of Market Reaction

We first look into a sketch of market reactions after the event day. Figure 1 reports the CAR distributions after the event day. We observe that approximately more than half of the firms experienced a drop in stock return within the next 6 trading days after the decarbonization announcement, thus supporting hypothesis H1. Next, Table 4 summarizes average market reactions across various sectors. Panel A shows negative market responses for both SOEs and private firms, with the adverse effect for private firms intensifying through the [0, 6] window. Panel B indicates that environmental protection (EP) firms experience average firm value declines of about 1.6% to 2.4%, while the drop for non-EP (NEP) firms is smaller, with a maximum of around 2.2%. Panel C shows negative reactions for both decarbonization (DC) and non-decarbonization (NDC) firms where the declines for DC firms are generally smaller than those for EP firms. Overall, Table 4 points to broadly negative market reactions across firm types, but it does not isolate the role of political

connections in response to the event. We, therefore, turn to regression analyses for more informative statistical inference.

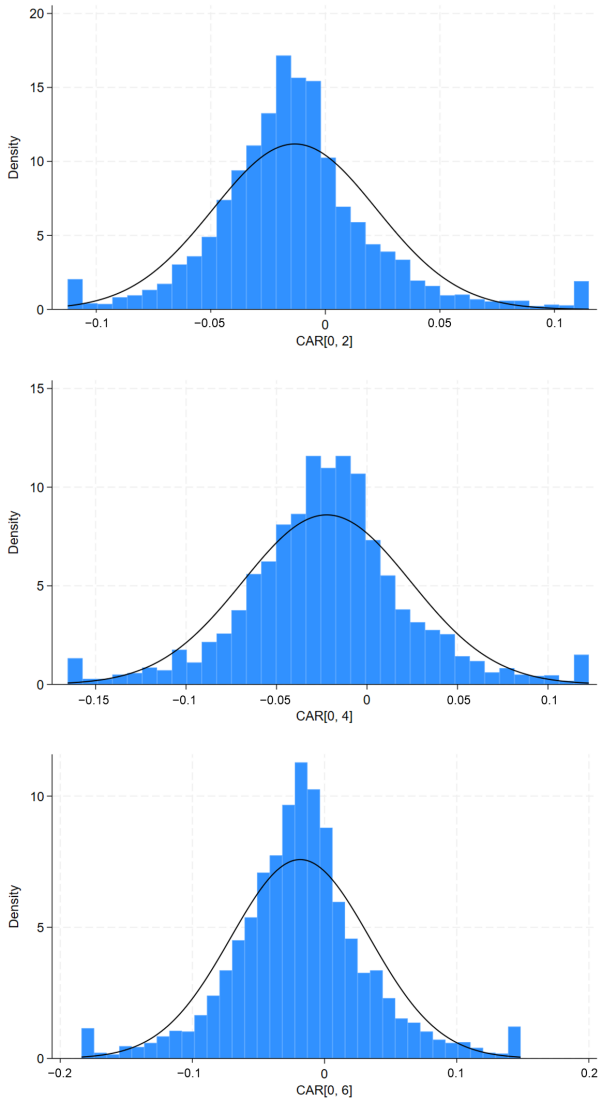

Figure 1. Distributions of CAR[0, 2] to CAR[0, 6] of all listed firms.

Table 4. An overview of average market reactions by sector.

Panel A: Private Firm vs. SOE				
Event window	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	*N*
Private	−0.013	−0.024	−0.018	2500
SOE	−0.015	−0.019	−0.018	903
Panel B: Environmental Protection (EP) vs. Non-Environmental Protection (NEP) Firm				
Event window	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	*N*
EP	−0.017	−0.024	−0.020	267
NEP	−0.013	−0.022	−0.018	3136
Panel C: Decarbonization (DC) vs. Non-Decarbonization (NDC) Firm				
Event window	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	*N*
DC	−0.015	−0.021	−0.015	430
NDC	−0.013	−0.022	−0.018	2973

5.2. Regression Results

In order to eliminate the influence of possible outliers not completely excluded by the winsorizing procedure, we estimate Equation (4) using robust regression with STATA (Corporation, 2003; Rousseeuw & Leroy, 2005). Table 5 reports the baseline regression results including all listed firms in our data sample.[9]

Table 5. Baseline regression for all listed firms.

Event Window	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.000	−0.001 *	−0.001 **
	(0.000)	(0.000)	(0.001)
SOE	−0.001	0.002	0.001
	(0.001)	(0.002)	(0.002)
Regional development	0.000 *	0.000	0.001
	(0.000)	(0.000)	(0.000)
Total assets	0.000	0.004 ***	0.004 ***
	(0.001)	(0.001)	(0.001)
ROE	0.010 ***	0.015 ***	0.012 ***
	(0.002)	(0.003)	(0.004)
Book-to-Market value	−0.010 ***	−0.012 ***	−0.026 ***
	(0.002)	(0.003)	(0.004)
Herfindahl Index	0.003	0.016 **	0.005
	(0.005)	(0.007)	(0.007)
CEO duality	0.002 *	0.004 **	0.003 *
	(0.001)	(0.002)	(0.002)
Manage ownership	−0.007 **	−0.007 *	−0.004
	(0.003)	(0.004)	(0.005)
Board size	0.001 *	0.001	−0.000
	(0.000)	(0.001)	(0.001)
Independent director	0.018	0.011	−0.004
	(0.011)	(0.015)	(0.017)
Leverage	0.002	−0.000	−0.001
	(0.003)	(0.004)	(0.005)
Constant	−0.035 ***	−0.125 ***	−0.103 ***
	(0.011)	(0.015)	(0.017)
Obs.	3391	3390	3390
F-statistic	5.951	11.016	8.777

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Ceteris paribus, political connections consistently reduce firm value by approximately 0.1% at the 5% (event window [(0, 6]) to 10% (event window [(0, 4]) significance levels. The negative nexus between political connections and market reactions corroborates the trade-off theory proposed by Friedman (1970) as well as empirical evidence by C. R. Chen et al. (2017) and F. Liu et al. (2018). In China's context, firms may face stronger anticipated enforcement or signaling incentives to comply visibly, thereby raising expected costs. These outcomes often occur after follow-up communications and reinforcement, thus showing up more strongly and significantly in longer event windows, like [0, 6] (N. N. Liu et al., 2015; Xu et al., 2023). Corroborating extant studies, total assets and ROE tend to significantly improve market reactions after the announcement with $\alpha = 1\%$. CEO duality moderately increases the market reaction by 0.2% (event window [0, 2]) to 0.4% (event window [0, 4]) because it helps to save information costs and promote efficiency (Yang & Zhao, 2014). Evidenced by positive coefficient estimates, Table 5, meanwhile, suggests a weak moderation effect by the regional development level. Moreover, this effect is only 10% significant for event window [0, 2]. In contrast to F. Liu et al. (2018), we believe that the weak moderation effect

is a result of China's efforts to alleviate regional disparity and inequality (Hao et al., 2020). Finally, the Book-to-Market value unsurprisingly has a negative influence on firm value at the significance level of 1% because it signifies the financial risk of a firm to an investor.

Next, we repeat the above regression for private firms and SOEs separately by excluding X_2 (state ownership), and Table 6 presents the results. Ranging from −0.001 to −0.002, the negative impact of political connection prevails among private firms on the left-hand panel of Table 6 ($\alpha = 5\%$ for event window [0, 6]). However, political connection has no material impact on SOEs (right-hand panel of Table 6). This is mainly because political IDs in SOEs are born with a political ranking, and they do not undertake excessive political agendas such as decarbonization to achieve their career goals (C. R. Chen et al., 2017). That said, the adverse influence of political connections among SOE leaders tends to be negligible. The coefficient estimates of other variables are comparable to those of Table 5. Our regression investigations support hypotheses H2a and H2b.

Table 6. Regression results by firm's ownership.

Event Window	Private Firm			SOE		
	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.001	−0.001 *	−0.002 **	0.000	0.001	−0.001
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Regional development	0.000	0.000	0.001	0.001 **	0.000	0.000
	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Total assets	0.001	0.006 ***	0.006 ***	−0.001	0.001	0.002 *
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
ROE	0.011 ***	0.015 ***	0.011 **	0.005	0.009 *	0.008
	(0.003)	(0.004)	(0.005)	(0.004)	(0.005)	(0.006)
Book-to-Market value	−0.013 ***	−0.021 ***	−0.035 ***	−0.003	0.006	−0.009 *
	(0.003)	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)
Herfindahl Index	0.013 **	0.025 ***	0.015	−0.006	0.008	−0.007
	(0.007)	(0.009)	(0.010)	(0.007)	(0.009)	(0.010)
CEO duality	0.002 *	0.003 *	0.004 *	0.002	0.004	0.002
	(0.001)	(0.002)	(0.002)	(0.003)	(0.004)	(0.004)
Manage ownership	−0.007 **	−0.006	−0.002	0.023	−0.005	−0.028
	(0.003)	(0.005)	(0.005)	(0.024)	(0.031)	(0.033)
Board size	0.001 **	0.001	0.000	0.000	0.001	−0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Independent director	0.021	0.019	0.000	0.025	−0.010	−0.011
	(0.015)	(0.020)	(0.023)	(0.016)	(0.021)	(0.023)
Leverage	−0.003	−0.002	−0.003	0.010 **	0.006	0.002
	(0.004)	(0.005)	(0.006)	(0.005)	(0.007)	(0.007)
Constant	−0.051 ***	−0.166 ***	−0.146 ***	−0.016	−0.062 ***	−0.051 **
	(0.016)	(0.021)	(0.024)	(0.014)	(0.019)	(0.020)
Obs.	2491	2491	2491	900	899	899
F-statistic	6.494	10.570	9.856	1.713	2.791	0.962

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Finally, turning our attention to the industry-specific effects summarized in Tables 7 and 8, we find adverse impact of political connection between −0.003 (event window [0, 2] of environmental protection and decarbonization firms) and −0.006 (event window [0, 6] of environmental protection firms), significant at the $\leq 5\%$ level. This finding affirms the "grabbing hand" postulation by C. R. Chen et al. (2017). The adverse effect is mitigated by higher regional development in the firm's headquarter province and stronger firm financial health. In particular, regional development tends to improve market performance by 0.2% among decarbonization firms (event window [0, 2]) and by at least 0.3% among

environmental protection firms at the 5% significance level (event window [0, 2]). The effect of regional development is mixed and insignificant among their counterparts on the right-hand panel of Tables 7 and 8. Tables 7 and 8, however, document insignificant effect of political ties among non-environmental protection/non-decarbonization firms, because decarbonization enforcement leaves these firms with unchanged cash flows and greater noise in event windows, yielding statistically null abnormal returns regardless of political status (Gupta & Innes, 2014). Tables 7 and 8 indicate generally weaker marginal effects of the other controllers when a firm is not in the environmental protection nor decarbonization sector. Together, these findings lend support to hypotheses H3a and H3b.

Table 7. Regression results by environmental protection (EP) and non-environmental protection (NEP) firms.

Event Window	EP			NEP		
	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.003 ***	−0.004 **	−0.006 ***	−0.000	−0.000	−0.001
	(0.001)	(0.002)	(0.002)	(0.000)	(0.001)	(0.001)
SOE	−0.000	0.009	0.010	−0.001	0.001	0.000
	(0.005)	(0.006)	(0.007)	(0.001)	(0.002)	(0.002)
Regional development	0.003 **	0.004 **	0.004 **	0.000	−0.000	0.000
	(0.001)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)
Total assets	0.001	0.003	0.003	0.000	0.004 ***	0.005 ***
	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
ROE	−0.004	0.029 *	0.009	0.011 ***	0.014 ***	0.012 ***
	(0.013)	(0.016)	(0.016)	(0.002)	(0.003)	(0.004)
Book-to-Market value	−0.001	−0.012	−0.016	−0.011 ***	−0.013 ***	−0.027 ***
	(0.011)	(0.014)	(0.015)	(0.002)	(0.003)	(0.004)
Herfindahl Index	0.011	0.049 *	0.019	0.003	0.014 **	0.005
	(0.021)	(0.026)	(0.027)	(0.005)	(0.007)	(0.008)
CEO duality	0.001	−0.001	−0.007	0.002 *	0.004 **	0.004 **
	(0.005)	(0.006)	(0.006)	(0.001)	(0.002)	(0.002)
Manage ownership	−0.022 *	−0.019	−0.010	−0.006 *	−0.006	−0.003
	(0.013)	(0.017)	(0.017)	(0.003)	(0.004)	(0.005)
Board size	−0.001	0.002	−0.001	0.001 *	0.001	−0.000
	(0.002)	(0.002)	(0.002)	(0.000)	(0.001)	(0.001)
Independent director	−0.001	0.035	0.014	0.020 *	0.011	−0.003
	(0.041)	(0.052)	(0.054)	(0.011)	(0.016)	(0.018)
Leverage	0.001	−0.000	−0.013	0.001	−0.000	−0.001
	(0.013)	(0.017)	(0.017)	(0.003)	(0.004)	(0.005)
Constant	−0.067	−0.164 **	−0.095	−0.032 ***	−0.124 ***	−0.106 ***
	(0.055)	(0.069)	(0.072)	(0.011)	(0.015)	(0.017)
Obs.	265	265	265	3126	3125	3125
F-statistic	1.747	3.256	2.385	5.895	9.511	8.437

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table 8. Regression results by decarbonization (DC) and non-decarbonization (NDC) firms.

Event Window	DC			NDC		
	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.003 ***	−0.003 **	−0.005 ***	−0.000	−0.000	−0.001
	(0.001)	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)
SOE	−0.003	0.004	0.002	−0.001	0.001	0.001
	(0.004)	(0.005)	(0.006)	(0.002)	(0.002)	(0.002)
Regional development	0.002 *	0.002	0.002	0.000	−0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)

Table 8. *Cont.*

Event Window	DC			NDC		
	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Total assets	−0.001	0.002	0.005 **	0.000	0.004 ***	0.004 ***
	(0.002)	(0.002)	(0.003)	(0.001)	(0.001)	(0.001)
ROE	0.003	0.025 **	0.004	0.011 ***	0.014 ***	0.012 ***
	(0.009)	(0.011)	(0.013)	(0.002)	(0.003)	(0.004)
Book-to-Market value	0.003	−0.009	−0.027 **	−0.011 ***	−0.013 ***	−0.027 ***
	(0.008)	(0.010)	(0.012)	(0.002)	(0.003)	(0.004)
Herfindahl Index	0.009	0.005	−0.023	0.003	0.017 **	0.009
	(0.015)	(0.019)	(0.022)	(0.005)	(0.007)	(0.008)
CEO duality	0.000	−0.002	−0.003	0.002 *	0.004 **	0.004 **
	(0.004)	(0.005)	(0.005)	(0.001)	(0.002)	(0.002)
Manage ownership	−0.020 **	−0.022	−0.009	−0.006 *	−0.005	−0.002
	(0.010)	(0.013)	(0.015)	(0.003)	(0.004)	(0.005)
Board size	−0.001	0.002	0.001	0.001 *	0.001	−0.000
	(0.001)	(0.002)	(0.002)	(0.000)	(0.001)	(0.001)
Independent director	0.004	0.042	0.022	0.020 *	0.010	−0.003
	(0.032)	(0.042)	(0.048)	(0.012)	(0.016)	(0.018)
Leverage	0.009	0.013	0.001	0.001	−0.002	−0.002
	(0.009)	(0.012)	(0.014)	(0.003)	(0.004)	(0.005)
Constant	−0.017	−0.120 **	−0.140 **	−0.036 ***	−0.126 ***	−0.104 ***
	(0.036)	(0.047)	(0.054)	(0.011)	(0.016)	(0.018)
Obs.	426	426	426	2965	2964	2964
F-statistic	1.496	2.777	2.011	5.782	9.276	8.281

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

5.3. Additional Checks

We perform several additional checks to confirm the robustness of our results. First, our regression results are robust to the choice of the estimation technique. Re-estimating Equation (4) by Ordinary Least Square (OLS) does not materially alter the coefficient estimates that we obtained in the previous section. We report the OLS coefficient estimates in Tables A1–A4 in the Appendix A. Second, China's decarbonization announcement was in late September, a period when listed firms release the third-quarter financial report. Equivalently, firms may also disclose major corporate M&A or offer dividends, which can induce confounding abnormal returns. To isolate these effects, we exclude firms that, within the event window, (a) publish Q3 financial reports, (b) disclose M&A transactions, and (c) announce dividends and then re-estimate Equation (4). The coefficient estimates of the driver of interest in Table A5 are mostly comparable to Table 5. Next, we address a concern over industry heterogeneity in evaluating the political connections suggested by Claessens et al. (2008) and Yu et al. (2020). To do so, we estimate Equation (4) with a dummy variable representing the firm's industry. By involving the dummy for environmental protection and decarbonization firms, Tables A6 and A7 yield materially analogous coefficient estimates compared to our benchmark. In addition, the statistical significance of these dummy variables echoes our baseline results. Finally, since SOEs may receive information from the governors prior to the decarbonization announcement, we follow F. Liu et al. (2018) and assume a dead time of $t = -10$ to -1 to test potential information leakage prior to the event. Re-estimating Equation (4) by replacing the dependent variables with CAR[−10, 0), CAR[−5, 0), and CAR[−1, 0) yields positive and insignificant coefficient estimates of political connection in Table A8. Table A9 reports the summary statistics for AR[$-N$] at $t = -10$ to -1. Nearly all abnormal returns are slightly positive and hover around zero.

6. Conclusions

This article investigates the relationship between political connections and firm value in the context of the national announcement of a decarbonization commitment made on 22 September 2020. By updating the political connection index, we utilize a comprehensive dataset of approximately 3400 listed firms in China to gain current insights into the political economics of China's capital market. Our findings illuminate the role of political connections following the 18th Decree and also respond to the suggestion by F. Liu et al. (2018): "[...] future studies can examine whether politically connected firms experience greater decline in firm value in the years following the 18th Decree". This inquiry is especially relevant to corporate governance in a regime where political factors are increasingly pervasive and complex.

Our event study and regression analyses yield several key findings. First, the decarbonization announcement negatively impacts firm value, supporting the trade-off theory (Friedman, 1970). Second, political connections function more as a "grabbing hand" than a "helping hand" in China's private sector under the commitment to decarbonization, as firms with strong political ties often prioritize political agendas over shareholders' profit maximization objectives to demonstrate loyalty, which extends the insights of C. R. Chen et al. (2017) and F. Liu et al. (2018). The negative effects of political connection are significant for private firms without inherent political ties. Third, the negative impact of political connections varies by industry. Firms engaged in environmental protection and decarbonization experience more significant losses from political connections compared with their peers. Finally, we find a limited moderating effect exerted by the economic development level of a firm's host province. This limited effect is partially attributed to the Chinese government's ongoing efforts to create a more equitable market and address regional disparities (Hao et al., 2020).

In light of the continuing anti-corruption campaign, Chinese firms should reassess their business–politics nexus thoroughly. Our empirical evidence suggests that political connections are increasingly a liability for particular firms rather than an asset under environmental policies. Strategic management may benefit from reallocating resources away from cultivating political connections toward areas such as cleaner production technologies. We also advocate for policymakers to design industry-specific green policies to accommodate business heterogeneity.

It is important to note that our event study focuses on the short-term and immediate effects following the decarbonization announcement. However, a decarbonization commitment has far-reaching implications for investment and market structure in renewable energy, environmental protection, and carbon neutrality by 2060. Future research could explore quasi-natural experiments using difference-in-differences (DiD) analysis with specific carbon neutrality policies. Additionally, while our findings are particularly relevant to China, where the government plays a crucial role in resource allocation, exploring the impact of political connections in more developed market economies would offer further insights.

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Data Availability Statement: The original data presented in the study are openly available in CSMAR at https://data.csmar.com/.

Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Table A1. Baseline OLS regression for all listed firms.

Event Window	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.000	−0.001	−0.001 *
	(0.000)	(0.001)	(0.000)
SOE	−0.002	0.001	0.001
	(0.002)	(0.002)	(0.002)
Regional development	−0.000	0.000	0.001
	(0.000)	(0.000)	(0.000)
Total assets	0.000	0.004 ***	0.005 ***
	(0.001)	(0.001)	(0.001)
ROE	0.009 ***	0.014 ***	0.012 ***
	(0.003)	(0.004)	(0.004)
Book-to-Market value	−0.014 ***	−0.015 ***	−0.031 ***
	(0.003)	(0.003)	(0.004)
Herfindahl Index	0.010 *	0.021 ***	0.010
	(0.006)	(0.007)	(0.008)
CEO duality	0.003 **	0.005 ***	0.005 **
	(0.001)	(0.002)	(0.002)
Manage ownership	−0.007 *	−0.007	−0.002
	(0.004)	(0.005)	(0.006)
Board size	0.001 **	0.002 ***	0.001
	(0.000)	(0.001)	(0.001)
Independent director	0.006	0.010	−0.002
	(0.012)	(0.015)	(0.018)
Leverage	−0.002	−0.002	−0.004
	(0.004)	(0.005)	(0.005)
Constant	−0.026 **	−0.132 ***	−0.120 ***
	(0.012)	(0.015)	(0.017)
Obs.	3391	3390	3390
R^2	0.022	0.035	0.032
F-statistic	6.260	12.080	10.046

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table A2. OLS regression results by firm's ownership.

Event Window	Private Firm			SOE		
	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.000	−0.001 *	−0.001 *	0.001	0.002 *	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Regional development	−0.000	0.000	0.001	0.001	0.001	0.001
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Total assets	0.001	0.006 ***	0.007 ***	−0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
ROE	0.011 ***	0.015 ***	0.011 **	−0.000	0.008	0.009
	(0.003)	(0.004)	(0.005)	(0.007)	(0.007)	(0.006)
Book-to-Market value	−0.017 ***	−0.022 ***	−0.039 ***	−0.005	0.004	−0.011 *
	(0.003)	(0.004)	(0.005)	(0.004)	(0.005)	(0.006)
Herfindahl Index	0.023 ***	0.031 ***	0.017	−0.008	0.007	0.000
	(0.008)	(0.009)	(0.010)	(0.008)	(0.010)	(0.011)
CEO duality	0.003 *	0.005 ***	0.006 **	0.004	0.004	0.003
	(0.002)	(0.002)	(0.002)	(0.004)	(0.004)	(0.005)

Table A2. *Cont.*

Event Window	Private Firm			SOE		
	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Manage ownership	−0.007 *	−0.006	0.000	0.032	−0.002	−0.015
	(0.004)	(0.005)	(0.006)	(0.033)	(0.029)	(0.036)
Board size	0.002 ***	0.002 **	0.001	−0.000	0.002 **	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Independent director	0.017	0.010	0.002	0.002	0.021	0.017
	(0.016)	(0.021)	(0.025)	(0.019)	(0.022)	(0.027)
Leverage	−0.007	−0.002	−0.006	0.014 **	0.001	0.001
	(0.004)	(0.006)	(0.006)	(0.007)	(0.008)	(0.009)
Constant	−0.046 ***	−0.163 ***	−0.162 ***	0.005	−0.081 ***	−0.053 **
	(0.016)	(0.021)	(0.025)	(0.017)	(0.022)	(0.024)
Obs.	2491	2491	2491	900	899	899
R^2	0.033	0.042	0.043	0.020	0.029	0.013
F-statistic	8.334	11.257	10.875	1.696	2.720	1.125

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table A3. OLS regression results by environmental protection (EP) and non-environmental protection (NEP) firms.

Event Window	EP			NEP		
	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.004 ***	−0.006 ***	−0.008 ***	0.000	−0.000	−0.000
	(0.001)	(0.002)	(0.002)	(0.000)	(0.001)	(0.001)
SOE	−0.004	0.011 *	0.009	−0.002	−0.000	0.000
	(0.005)	(0.006)	(0.007)	(0.002)	(0.002)	(0.002)
Regional development	0.002	0.003 *	0.004 *	−0.000	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.000)	(0.000)	(0.001)
Total assets	0.002	0.002	0.004	0.000	0.004 ***	0.005 ***
	(0.002)	(0.003)	(0.004)	(0.001)	(0.001)	(0.001)
ROE	−0.010	0.018	−0.011	0.009 ***	0.014 ***	0.012 ***
	(0.013)	(0.020)	(0.022)	(0.003)	(0.004)	(0.004)
Book-to-Market value	−0.004	0.000	0.003	−0.015 ***	−0.016 ***	−0.034 ***
	(0.012)	(0.016)	(0.019)	(0.003)	(0.004)	(0.004)
Herfindahl Index	0.018	0.069 **	0.042	0.009	0.018 **	0.008
	(0.024)	(0.032)	(0.031)	(0.006)	(0.007)	(0.008)
CEO duality	0.005	0.008	0.001	0.003 **	0.005 ***	0.006 **
	(0.006)	(0.008)	(0.009)	(0.002)	(0.002)	(0.002)
Manage ownership	−0.034 *	−0.027	−0.020	−0.005	−0.005	−0.001
	(0.018)	(0.022)	(0.024)	(0.004)	(0.005)	(0.006)
Board size	0.000	0.001	−0.001	0.001 ***	0.002 ***	0.001
	(0.002)	(0.002)	(0.002)	(0.000)	(0.001)	(0.001)
Independent director	−0.005	0.023	−0.017	0.008	0.011	0.003
	(0.051)	(0.052)	(0.061)	(0.013)	(0.016)	(0.019)
Leverage	−0.006	−0.003	−0.033	−0.002	−0.002	−0.003
	(0.016)	(0.019)	(0.022)	(0.004)	(0.005)	(0.005)
Constant	−0.057	−0.135 **	−0.118	−0.024 **	−0.132 ***	−0.120 ***
	(0.048)	(0.066)	(0.081)	(0.012)	(0.015)	(0.017)
Obs.	265	265	265	3126	3125	3125
R^2	0.068	0.123	0.093	0.024	0.034	0.036
F-statistic	2.127	3.882	2.367	6.531	11.016	10.357

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table A4. OLS regression results by decarbonization (DC) and non-decarbonization (NDC) firms.

Event Window	DC			NDC		
	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.003 ***	−0.005 ***	−0.006 ***	0.000	0.000	−0.000
	(0.001)	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)
SOE	−0.006	0.001	−0.003	−0.002	0.000	0.002
	(0.004)	(0.005)	(0.006)	(0.002)	(0.002)	(0.002)
Regional development	0.001	0.001	0.002	−0.000	0.000	0.000
	(0.001)	(0.001)	(0.002)	(0.000)	(0.000)	(0.001)
Total assets	−0.001	0.003	0.007 **	0.000	0.004 ***	0.005 ***
	(0.002)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
ROE	−0.004	0.018	−0.001	0.010 ***	0.014 ***	0.013 ***
	(0.010)	(0.014)	(0.014)	(0.003)	(0.004)	(0.004)
Book-to-Market value	−0.003	−0.010	−0.020	−0.015 ***	−0.016 ***	−0.034 ***
	(0.010)	(0.013)	(0.015)	(0.003)	(0.004)	(0.004)
Herfindahl Index	0.020	0.033	0.000	0.009	0.020 ***	0.012
	(0.016)	(0.021)	(0.022)	(0.006)	(0.007)	(0.008)
CEO duality	0.005	0.004	0.001	0.003 **	0.006 ***	0.006 ***
	(0.005)	(0.006)	(0.007)	(0.002)	(0.002)	(0.002)
Manage ownership	−0.035 ***	−0.037 **	−0.021	−0.004	−0.004	0.000
	(0.014)	(0.017)	(0.019)	(0.004)	(0.005)	(0.006)
Board size	−0.000	0.001	0.001	0.001 ***	0.002 ***	0.001
	(0.001)	(0.002)	(0.002)	(0.000)	(0.001)	(0.001)
Independent director	−0.017	0.013	−0.009	0.010	0.011	0.003
	(0.039)	(0.045)	(0.056)	(0.013)	(0.017)	(0.019)
Leverage	0.005	0.007	−0.014	−0.003	−0.003	−0.005
	(0.012)	(0.015)	(0.016)	(0.004)	(0.005)	(0.006)
Constant	0.006	−0.108 **	−0.170 ***	−0.029 **	−0.136 ***	−0.116 ***
	(0.040)	(0.051)	(0.065)	(0.012)	(0.015)	(0.018)
Obs.	426	426	426	2965	2964	2964
R^2	0.047	0.069	0.053	0.025	0.035	0.037
F-statistic	1.797	3.469	2.125	6.506	10.749	10.142

Note: Standard errors in parentheses; ** $p < 0.05$, and *** $p < 0.01$.

Table A5. Regression results excluding firms disclosing major financial announcements; coefficient estimates for controllers are skipped for simplicity.

Panel A: Excluding Firms Publishing Q3 Financial Report			
Event Window	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.000	−0.001 *	−0.001 **
	(0.000)	(0.000)	(0.001)
Obs.	3389	3388	3388
F-statistic	5.919	10.985	8.657
Panel B: Excluding Firms Involved in M&A			
Event Window	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.000	−0.001	−0.001 **
	(0.000)	(0.001)	(0.001)
Obs.	3087	3086	3086
F-statistic	5.274	10.532	7.883
Panel C: Excluding Firms Offering Dividends			
Event Window	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.001 *	−0.001 *	−0.002 ***
	(0.000)	(0.001)	(0.001)
Obs.	2402	2402	2402
F-statistic	4.923	12.116	9.555

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table A6. Regression results by including environmental protection (EP) firms dummy variable; coefficient estimates for controllers are skipped for simplicity.

Event Window	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.000	−0.001	−0.001 **
	(0.000)	(0.000)	(0.001)
EP	−0.002	−0.000	0.003
	(0.002)	(0.003)	(0.003)
Obs.	3391	3390	3390
F-statistic	5.552	10.168	8.163

Note : Standard errors in parentheses; ** $p < 0.05$.

Table A7. Regression results by including decarbonization (DC) firms dummy variable; coefficient estimates for controllers are skipped for simplicity.

Event Window	CAR[0, 2]	CAR[0, 4]	CAR[0, 6]
Political connection	−0.000	−0.001	−0.001 **
	(0.000)	(0.000)	(0.001)
DC	−0.002	0.001	0.006 ***
	(0.002)	(0.002)	(0.002)
Obs.	3391	3390	3390
F-statistic	5.571	10.159	8.704

Note: Standard errors in parentheses; ** $p < 0.05$, and *** $p < 0.01$.

Table A8. Regression results by selecting event windows $[-N, 0)$ prior to the event day, coefficient estimates for controllers are skipped for simplicity.

Event Window	CAR[−10, 0)	CAR[−5, 0)	CAR[−1, 0)
Political connection	0.000	0.000	0.000
	(0.001)	(0.001)	(0.000)
Regional development	0.000	0.000	0.000
	(0.001)	(0.001)	(0.000)
Obs.	3399	3399	3399
F-statistic	1.543	1.667	5.112

Note: Standard errors in parentheses.

Table A9. Summary statistics of the abnormal returns AR$[-N]$ before the event day ($t = 0$).

Variable	Mean	S.D.	Min	Max	Median
AR[−1]	−0.000	0.008	−0.011	0.112	0.000
AR[−2]	0.000	0.009	−0.011	0.111	0.000
AR[−3]	0.000	0.010	−0.011	0.334	0.000
AR[−4]	−0.000	0.010	−0.011	0.116	−0.001
AR[−5]	−0.000	0.008	−0.011	0.111	0.000
AR[−6]	0.000	0.010	−0.011	0.141	0.000
AR[−7]	0.000	0.010	−0.011	0.302	0.000
AR[−8]	−0.000	0.009	−0.011	0.080	0.000
AR[−9]	−0.000	0.009	−0.012	0.135	−0.001
AR[−10]	−0.000	0.008	−0.011	0.084	−0.000

Notes

[1] Available from: https://www.statista.com/statistics/271748/the-largest-emitters-of-co2-in-the-world/, accessed on 6 August 2024.

[2] Source: https://www.iea.org/reports/co2-emissions-in-2023/the-changing-landscape-of-global-emissions, accessed on 6 August 2024.

[3] Available from https://rmi.org.cn/wp-content/uploads/2022/07/202104270934095267.pdf, page 15, accessed on 6 August 2024.

[4] Available from: https://www.ndrc.gov.cn/, accessed on 6 August 2024.
[5] This can be exemplified by the Thirteenth Five-Year Plan's Decarbonization Working Plan of the State Council. See Section 2 of https://www.gov.cn/zhengce/content/2016-11/04/content_5128619.htm, accessed on 6 August 2024.
[6] We do not include the listed firms in Hong Kong, Macau, and Taiwan because of institutional differences.
[7] Available from: https://data.csmar.com/, accessed on 6 August 2024 and https://choice.eastmoney.com/, accessed on 6 August 2024.
[8] Classification available from the Choice database.
[9] We do not report R^2 in the regression output tables because R^2 is not used as a measure of fit for robust regressions (Rousseeuw & Leroy, 2005).

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