Climate Laws and Cross-border Mergers and Acquisitions*

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February 2022

Abstract

We document climate regulations are relevant to cross-border mergers by exploiting cross-country variations in the timing of introducing climate laws. After a target country adopts climate laws, the acquisition activity between two countries declines. This effect is more pronounced among industries with high law exposure and countries with strong law enforcement. However, acquirers' concerns about climate change mitigate the relation. Climate laws also reduce synergies and offer premiums. Moreover, announced bids are more likely to be canceled after the target country adopts climate laws. Our findings suggest national climate laws have unintended consequences on cross-border acquisitions and, thereby, capital allocation.

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1 Introduction

Climate change is one of the most pressing challenges of our time. As efforts to combat climate change, governments around the world have adopted various regulations. More climate change-related policies are expected to come given that governments recently reached an agreement to keep the goal of limiting global warming to 1.5℃ at the UN Climate Change Conference in Glasgow (COP26). According to a recent survey of finance academics, professionals, and regulators (Stroebel and Wurgler, 2021), regulatory risk is ranked as the top risks associated with climate change for businesses and investors over the next five years. Despite this evidence, it is underexplored how climate regulations influence corporate decisions.

In this paper, we investigate whether and how climate laws matter for cross-border acquisition activity. This research question is worth exploring for several important reasons. First, as a central component of foreign direct investment (FDI), cross-border mergers and acquisitions have profound impacts on financial globalization and cross-country capital allocation. The frequency and size of cross-border acquisitions are large (Figure 1). In 2019, the total transaction value of global cross-border mergers and acquisitions is around \$1.2 trillion. Second, cross-border mergers and acquisitions could bring various benefits to the target firm and the target country. After being acquired by foreign firms, a firm tend to have higher productivity (Fukao et al., 2008), face lower financial constraints (Erel et al., 2015), and spend more on the research and development (R&D) activities (Bertrand, 2009). Cross-border acquisition deals could also exert positive spillover effects on unacquired firms in the host country (e.g., Albuquerque et al., 2019). Third, it has been known that institutional differences across countries may enhance or hinder cross-border acquisitions. Given the growing prevalence of climate laws and the large cross-country variation in these laws, it is essential to understand the role of climate regulations in the international market for corporate control.

Climate laws generally refer to legal documents that address issues of climate change mitigation and adaption. Although climate laws share the objective of combatting global climate crisis, they differ in scope and ambition. Once climate laws are enacted, firms usually have their obligations to fulfill. For example, climate laws may require reduction in energy usage or cut in emissions. Some laws might establish rules regarding carbon pricing, and some mandate corporate investments in

abatement technologies.

It is unclear ex ante how climate laws may affect the propensity of cross-border mergers and acquisitions. On the one hand, climate laws in a country potentially reduce the likelihood of companies from that country being acquired in several ways.[1] First, climate regulations may adversely affect operating synergies if they bring frictions to the operation of the merged company. Second, climate laws in the target country may force potential customers and suppliers of the merged firm to move to other countries, resulting in lower synergy gains derived from the increased market power. Third, climate laws may lead to higher financing costs for companies in the country, which will decrease potential financial synergies. Finally, financial synergies from a merger can also be reduced by regulations such as carbon taxes.

On the other hand, the merger activity between two given countries might increase after the target country adopts climate laws. There are two possible reasons for this conjecture. First, acquiring firms may not wish to pursue mergers and acquisitions in countries with no climate laws since these countries are likely associated with higher uncertainty about future climate policies. The reluctancy is reasonable given that uncertainty tends to deter firms' irreversible investments such as mergers and acquisitions. Second, target firms in countries with climate change laws can be attractive because climate laws may provide long-term benefits to acquirers via increased resilience to future climate risks.

To test the competing hypotheses, we adopt a difference-in-differences approach that exploits the staggered enactment of climate laws across countries. With the data on acquisition deals between firms from 103 countries (jurisdictions), we show that climate laws exert a significant negative impact on cross-border merger activity. In particular, the number (dollar volume) of acquisitions between two given countries decreases by 2.8% (13.4%) after the target country adopts a climate law. This effect is obtained after controlling for macroeconomic factors, investment environment and the quality of institutions in both countries, trade relation between the two countries, valuation effects associated with

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[1] Anecdotal evidence suggests that risks associated with climate regulations have become one of the top risk factors in acquisitions. For example, when disclosing its acquisition of Hycroft Mining Corporation (Hycroft), Mudrick Capital Acquisition Corporation (MUDS) emphasized climate regulation risks related to Hycroft by mentioning "*increased regulation regarding climate change could impose significant costs on us and our suppliers, including costs related to increased energy requirements, capital equipment, environmental monitoring and reporting and other costs to comply with such regulations. Any adopted future climate change regulations could also negatively impact our ability to compete with companies situated in areas not subject to such regulations.*" Further details can be found in the SEC Form S-4 for this transaction (Accession No. 0001104659-20-021939).

variations in exchange rates, time-invariant factors, as well as any time-invariant country-pair-specific factor. In addition, the result is robust to alternative measures of merger activity and to alternative subsamples that exclude extremely large and small countries. Overall, the evidence supports the hypothesis that climate laws in the target country reduce the cross-border merger activity.

We conduct several tests to validate the empirical design. First, one may be concerned that the timing of law adoption in a country could be non-random and correlated with omitted factors that are related to M&A activity. Contradictory to this conjecture, we find that there is almost no difference in acquisition activity between two given countries across years before the target country adopts climate laws. Second, we perform placebo tests where each country in the sample is randomly assigned an adoption year while maintaining the initial distribution of adoption years. The results show that with the fake adoption time, the mean of coefficient estimates on the indicator for climate law adoption in the target country is almost zero and statistically insignificant. The evidence suggests our baseline findings are unlikely driven by chance.

Further analysis provides additional supports for our main findings. First, one may expect that climate laws exert a larger influence on acquisition activity among firms are exposed to the regulations and if the laws are effectively implemented. We find supporting evidence for this view. In particular, the decline in cross-border acquisition activity is more pronounced when the target firm comes from industries with high exposure to climate laws, including mining, manufacturing, transportation, and public utilities. In addition, the impacts of climate laws on cross-border mergers and acquisitions are stronger when the law-adoption country has a high level of law enforcement.

Second, the increased regulatory burden, as described above, could be a contributing factor to the decline in cross-border deals. If this story holds true, it is reasonable to expect that the decline is smaller if the acquiring firm is more concerned about the climate crisis and thus is more willing to pay for the regulatory costs. Consistent with this conjecture, our baseline results are weaker if the acquirer firm comes from a country where more people regard climate change as a serious issue. Additional analysis shows that our results are less pronounced if the prospective acquirer is from a country that has recently experienced significant climate disasters and is likely motivated to address climate issues. Taken together, the suggestive evidence supports the view that climate laws reduce

cross-border acquisition activity due to regulatory costs.

Third, we employ the time-series variation in public awareness about climate regulations. If firms are taking costs of climate laws into account, one would expect stronger effects when the public awareness of climate issues increases. Using the release of the Stern Review and the signature of the Paris Agreement as shocks to climate awareness of the public, we find that adopting climate laws in a target country is associated with a more pronounced reduction in cross-border acquisition activity following salient events related to climate change.

We also find that climate laws matter for several important deal characteristics. The reduction in cross-border mergers and acquisitions after a target country adopts climate laws indicates that climate laws may adversely affect synergy gains from mergers. In fact, our empirical evidence supports this view and indicates a strong negative effect of climate laws in the target country on merger synergies. Consistent with the decline in merger synergy, we show that offer premiums decrease significantly after the target country adopts climate change laws. Moreover, the likelihood of deal withdrawals increases substantially following the adoption of climate laws in the target country.

Finally, we supplement the difference-in-differences design by examining the relation between cross-border merger activity and a continuous measure of climate policy stringency. This measure is based on the climate policy component of the Climate Change Performance Index (CCPI) developed by Germanwatch. The results show that cross-border acquisition activity decreases if target countries adopt stricter climate policies. The evidence further strengthens our main conclusion.

This paper contributes to the growing literature on the impacts of climate policies, and more broadly, environmental policies.[2] Existing research has documented important implications of these policies for asset pricing (e.g., Bolton and Kacperczyk, 2021a; Duan, Li, and Wen, 2021; Ilhan, Sautner, and Vilkov, 2021) and shareholders' investment decisions (e.g., Krueger, Sautner, and Starks, 2020). Climate policies have also been shown to affect corporate behavior such as the location of carbon emissions (e.g., Ben-David, Jang, Kleimeier, and Viehs, 2021) and firms' choice of capital structure (Dang, Gao, and Yu, 2021). This paper, to our best knowledge, is the first one to document

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[2] It has been shown that environmental regulations influence a number of aspects, including firms' environmental performance (Deng, Tang, and Zhang, 2020) and corporate innovation strategies (Dai, Duan, and Ng, 2020). Another strand of literature focuses on the impacts of physical risks associated with climate change. Readers interested in this topic may refer to, among others, Lin, Schmid, and Weisbach (2019), Murfin and Spiegel (2020), Bai, Chu, Shen, and Wan (2021), and Li, Lin, and Lin (2021).

that national laws aimed at mitigating climate change reduces cross-border acquisition activity.

This paper also adds to the literature on the determinants of cross-border mergers and acquisitions. Compared with domestic mergers and acquisitions, cross-border transactions are more complex. One element of the complexity is that firms face frictions associated with country-level institutions when they acquire foreign companies. Prior research highlights the role of labor market regulations (Dessaint, Golubov, and Volpin, 2017), intellectual property rights protection (Alimov and Officer, 2017), disclosure requirements (Bonetti, Duro, and Ormazabal, 2020), and economic policy uncertainty (Bonaime, Gulen, and Ion, 2018). Our findings suggest that costs related to climate regulations in the target country are taken into account when firms consider acquiring foreign targets.

Last but not least, this paper provides important policy implications. Climate laws are crucial for combating climate change. Nevertheless, these laws may have unintended consequences for the global economy as evidenced by the findings of this study. Climate regulations in target countries reduce synergies from cross-border acquisitions and discourage the transactions. Given the role of cross-border acquisitions for international capital flows and the significance of international market for corporate control, this paper aims to call for more attention to the design of climate policies. Providing subsidies for climate-friendly corporate actions could be a potential way to mitigate the adverse consequences of climate regulations. With climate policies in place, regulators may also consider attracting foreign acquirers using policies in other areas such as lowing statutory tax rate, loosening product market regulations, or improving financial systems.

The remainder of the paper proceeds as follows. Section 2 introduces the institutional background of global climate laws and develops the hypothesis. Section 3 describes the data and sample construction. Section 4 presents the empirical results. Finally, Section 5 concludes this study.

2   Background and Hypothesis Development

2.1   Global Climate Laws

The climate on our planet has been changing over the past few decades, which is featured by an unequivocal global warming process. Climate change threatens to have wide-ranging impacts on the physical environment, ecosystems and human societies. According to a report issued by the Intergov-

ernmental Panel on Climate Change (IPCC), human activities have contributed to approximately 1.1℃ of warming relative to the 1850–1900 levels, and 2℃ of warming will push heat extremes more frequently to critical tolerance thresholds for agriculture and human health (IPCC, 2021).

The intensifying climate crisis has facilitated national climate change actions worldwide that aim to mitigate and better adapt to climate change. There is no doubt that mitigation and adaptation to climate change are public goods in the sense that everyone benefits from a resilient community regardless of whether they contribute to it or not. Therefore, due to the potential free-rider problem, a solid legal basis of national climate actions is necessary. Essentially, climate laws are legal documents that address issues of climate change mitigation and adaption. The broad forms of climate laws range from legislation approved by parliaments (or equivalent parties) to executive orders or policies of equal importance issued by governments.

The scope and ambition of climate change laws vary. Some laws are specifically designed to combat climate change, promoting reductions in greenhouse gas emissions and adaptations to climate change. Other laws address climate change and aim at transitions to low-carbon economies from different perspectives. Some countries adopt laws with a narrower focus (e.g., energy), while others integrate climate change into broader initiatives such as green growth plans. In general, most climate laws cover one or more of the following dimensions: enhancing energy efficiency, promoting low-carbon energy, curbing greenhouse gas emissions through carbon pricing or other policies, encouraging research and development on green technology, regulating land use to reduce deforestation, and establishing supervisory authorities to manage domestic responses to climate change.

It is common for climate laws to specify obligations of businesses, which tends to increase regulatory costs for firms. For instance, the Framework Act on Low Carbon, Green Growth in South Korea requires each business entity in the country to "*initiate green management, reduce the emission of greenhouse gases and pollutants*" and to "*expand investment and employment in research and development of green technology as well as in green industries*". As another example, the Carbon Pricing Act in Singapore mandates all facilities emitting 25,000 tonnes or more of greenhouse gas in a year to pay a carbon tax of S$5 per tonne of greenhouse gas emissions.

The evidence on corporate behavior supports the idea that climate policies impose significant

costs on firms. Bartram, Hou, and Kim (2022) show that in response to the California cap-and-trade rule, financially constrained firms shift greenhouse gas emissions and outputs from California to other states where they have similar but underutilized plants. With international microdata on carbon emissions, Ben-David, Jang, Kleimeier, and Viehs (2021) document that multinational firms choose to allocate their CO_2 emissions to countries with less stringent climate regulations. In addition to direct regulatory costs, firms also respond to indirect costs of climate policies. For example, when the NOx Budget Trading Program requires power plants to cut emissions, manufacturing firms face higher electricity prices and thus adopt a lower capital structure to mitigate the increased operating leverage and distress risk (Dang, Gao, and Yu, 2021).

The exposure to climate policies also affects firms' financing costs. For example, Seltzer, Starks, and Zhu (2021) provide evidence that higher climate regulatory risks are associated with higher yield spreads of corporate bonds. Similarly, firms facing greater climate policy risk tend to be charged a higher interest rate when borrowing from banks (e.g., Ivanov, Kruttli, and Watugala, 2021). Moreover, Bolton and Kacperczyk (2021b) document that mandatory carbon disclosure requirements increase the cost of capital for firms emitting high levels of carbon dioxide.

2.2   Hypothesis Development

Assuming that managers seek to maximize shareholder value, they will choose to pursue mergers that create a positive net value.[3] Theoretically, mergers could generate value, which is often referred to as synergy, in various ways. Synergy gains can be broadly classified into two categories: operating synergies and financial synergies. Operating synergies can be achieved through cost reduction and revenue enhancement. Cost reduction may stem from economies of scale and scope, while revenue enhancement may result from improved operating efficiency or increased market power. Financial synergies are finance-related benefits such as tax savings, easier access to capital markets, and lower cost of capital. The likelihood of a merger between two firms depends on the magnitude of synergy gains.

Following the implementation of climate laws in a country, the likelihood of a company from that

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[3] Although agency problems may induce some managers to engage in value-destroying acquisitions, it has been well-documented that mergers on average increase the combined equity value of the acquiring and target firms. For example, Devos, Kadapakkam, and Krishnamurthy (2009) estimate that the average synergy gains in 264 large mergers between 1980 to 2004 to be as large as 10.03% of the combined equity of the acquirer and target firms.

country being acquired could become lower for several reasons. First, climate regulations may create frictions in the operation of the merged firm, making operating efficiency more difficult to improve. For example, restrictions on energy use may prevent the acquiring firm from applying its production technology in the target country. Second, climate laws in the target country may reduce synergy gains and discourage acquisition attempts if these laws drive away potential customers and suppliers of the merged firm. This is because synergies in certain mergers arise from the combined firm's market power (e.g., Ellert, 1976) and firms tend to shift business away from climate regulations (e.g., Ben-David, Jang, Kleimeier, and Viehs, 2021). Third, firms in countries with climate laws may face higher financing costs due to the exposure to climate regulations (e.g., Bolton and Kacperczyk, 2021b; Ivanov, Kruttli, and Watugala, 2021; Seltzer, Starks, and Zhu, 2021), which will result in lower financial synergies. Finally, regulations such as carbon taxes can directly erode the financial benefits from a merger. Therefore, we hypothesize that the merger activity between two given countries decreases after the target country adopts climate laws.

On the other hand, the passage of climate laws in a country might attract more foreign acquirers. Firms are reluctant to make irreversible investments amid uncertainty. Mergers and acquisitions, one of the most significant corporate investment decisions, are likely to be irreversible (e.g., Toxvaerd, 2008). Thus, if shareholders of acquiring firms view the passage of climate laws as a resolution of climate policy uncertainty, companies in countries that have already adopted climate laws may be preferred targets over firms in countries without such laws. In addition, climate laws are supposed to increase a country's resilience to future physical climate risks, particularly over the long run. Considering the long-term nature of M&A investments, it is possible that firms are more willing to purchase targets in countries with climate change laws. Consequently, the alternative hypothesis is that the merger activity between two given countries increases after the target country adopts climate laws.

3 Data and Sample

The data on mergers and acquisitions come from the Security Data Company (SDC) Mergers and Corporate Transactions database. We initially obtain all M&A deals in the database that are announced between 1985 and 2019. Following the literature (e.g., Ferreira, Massa, and Matos, 2010),

we apply several filters to create the final sample. The sample excludes LBOs, spin-offs, recapitalizations, self-tender offers, exchange offers, repurchases, and privatizations. Acquisitions involving firms in the financial industry are also excluded. To focus on acquisitions of majority interests, we require that the acquirer owns less than 50% of the target firm prior to the bid and owns more than 50% of the target firm after the deal completion. Moreover, we only keep completed cross-border deals with deal value larger than $1 million.[4] These data filters yield a sample of 45,159 cross-border deals.

We combine three sources to collect the information on climate change-related laws. The first one is ECOLEX, which is an official service jointly offered by Food and Agriculture Organization of the United Nations (FAO), International Union for Conservation of Nature (IUCN), and United Nations Environment Programme (UNEP). The second source is the Climate Change Laws of the World database provided by the Grantham Research Institute. Finally, we also rely on the Climate Policy Database maintained by NewClimate Institute. In this paper, we focus on the first-adopted national-level climate change laws in the following categories within each country: regulations regarding greenhouse gas emissions, national climate strategy, and the establishment of supervisory a committee for combating climate change.[5] A list of these laws is provided in the Internet Appendix. As shown in Figure 2, there is a large cross-country variation in the adoption time climate laws. This variation allows us to identify the effects of climate laws on cross-border acquisition activity in a difference-in-differences design.

[Insert Figure 2 Here]

In addition, we obtain other country-level characteristics from various sources. The GDP per capita and annual GDP growth rate are from Penn World Table. This database also provides the exchange rate of local currency to US dollars. The information on bilateral trade is from UN Comtrade. We also collect the data on institutions in each country from International Country Risk Guide (ICRG).

After removing observations with missing control variables, we obtain a sample of 37,235 country-pair-year observations for 103 unique countries. In the list of countries, 91 and 100 countries serve as acquirer and target countries, respectively. Table 1 presents the summary statistics. There is

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[4] Dollar values in this paper are in 2017 constant dollar.

[5] Other types of climate laws, such as those specifically aiming to reduce deforestation, are likely not influential for firms in the business sector.

an average of 0.63 deals for each acquirer-target country pair in a year. The mean value is small because there are a large number of country-pair years with zero cross-border deals.

[Insert Table 1 Here]

4 Results

4.1 Baseline Regressions

To investigate how climate laws affect cross-border acquisition activities, we start with estimating the following regression:

$$y_{i,j,t} = \alpha + \beta_1 Climate\ Law_{i,t} + \beta_2 Climate\ Law_{j,t} + \mathbf{X}_{i,j,t-1}\gamma + \tau_t + \tau_{i,j} + \epsilon_{i,j,t}, \qquad (1)$$

where i denotes the target country, j denotes the acquirer country, and t denotes year. The outcome variable, $y_{i,j,t}$, is the measure of cross-border acquisition activity. In the baseline analysis, we focus on the incidence of cross-border acquisition deals. It is calculated as the logarithm of one plus the total number of cross-border deals between acquirer country j and target country i in year t. *Climate Law$_{i,t}$* (*Climate Law$_{j,t}$*) is an indicator variable that equals one if the target country i (the acquirer country j) has adopted a climate change-related law in year t, and zero otherwise. $\mathbf{X}$ represents a set of control variables. τ_t and $\tau_{i,j}$ denote year fixed effects and acquirer-target country-pair fixed effects, respectively. Standard errors are clustered at the country-pair and year level.

The control variables include several determinants of cross-border mergers that are identified in prior studies (e.g., Erel, Liao, and Weisbach, 2012). First, macroeconomic conditions in both target and acquirer countries may affect the propensity of firms from one country to acquire firms from another country. In order to account for this effect, we include the difference in log GDP per capita of the acquirer and target countries (Δ*(log GDP per capita)$_{acq\text{-}tgt}$*), as well as the difference in annual growth rates of real GDP between the two countries (Δ*(GDP Growth)$_{acq\text{-}tgt}$*). Second, we include the maximum of bilateral import and export between a country pair (*Max(Import, Export)*) to control for the volume of general business activities between the two countries. A bilateral import (export) in a given year is calculated as the dollar value of annual imports (exports) in the target country from (to) the acquirer country as a percent of all imports (exports) from (to) all foreign nations. Third, the val-

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ue of the target firm for the acquiring firm may vary depending upon the relative value of their local currencies. Therefore, the difference between the exchange rates of the acquirer's and target's local currencies to the US dollar (Δ(Exchange Rate)$_{acq\text{-}tgt}$) is incorporated in the regression. Furthermore, the regressions control for the difference in country-level investment environment as proxied by the investment profile subcomponent in the International Country Risk Guide (ICRG) political risk ratings (Δ(Investment Profile)$_{acq\text{-}tgt}$). We also take into account the difference in the acquirer and target countries' institutional quality (Δ(Quality of Institution)$_{acq\text{-}tgt}$). As in Bekaert, Harvey, Lundblad, and Siegel (2007), the quality of a country's institutions is measured as the sum of three ICRG political risk subcomponents: Corruption, Law and Order, and Bureaucratic Quality. To control for the effects of availability of potential acquisition targets, we incorporate the difference in the annual growth rate of the number of domestic acquisition deals between the acquirer country and the target country.

The results from baseline regressions are reported in Table 2. In Column (1), the number of cross-border acquisition is regressed on climate law dummies, year fixed effects and country fixed effects. The inclusion of year fixed effects absorbs potential time-trends in aggregate merger activity. Country fixed effects control for the effects of any time-invariant country-specific factor such as language and the legal origin. The estimated coefficient on Climate Law$_{tgt}$ is negative and statistically significant. This result suggests that passing climate laws in a target country reduces the number of cross-border deals between firms in the country and acquiring firms in other countries. The evidence is consistent with the view that climate laws induce regulatory costs for firms.

[Insert Table 2 Here]

Column (2) in Table 2 incorporates control variables. Column (3) replaces the country fixed effects with country-pair fixed effects. This regression specification accounts for any observed or unobserved time-invariant country-pair-specific factors that may affect cross-border merger activity such as the geographic distance of the two countries. The results from both specifications confirm the negative effects of climate laws in target countries on cross-border merger activity. According to the full specification in Column (3), the passage of climate laws in a country is associated with a 2.8% reduction in the number of cross-border deals where a firm in the given country is acquired by foreign firms. On average, a target country receives 15 acquisition bids per year. Therefore, the

average drop is roughly 0.4 deals per country per year.

4.2 Dynamic Estimation

One potential threat to our identification strategy is that the adoption of climate laws in a country is not a random event but rather correlates with some omitted factors that are related to M&A activity. To mitigate this concern, we examine the pre-trends by estimating the dynamic effects of adopting climate laws. In this analysis, we replace the single law adoption dummy in the target country with multiple indicator variables for each year relative to the adoption year. Specifically, we estimate the following regression:

$$y_{i,j,t} = \alpha + \beta_1 Climate\ Law_{i,t}^{-5} + \beta_2 Climate\ Law_{i,t}^{-4} + \beta_3 Climate\ Law_{i,t}^{-3} + \beta_4 Climate\ Law_{i,t}^{-2} +$$

$$\beta_5 Climate\ Law_{i,t}^{0} + \cdots + \beta_{10} Climate\ Law_{i,t}^{+5} + \delta Climate\ Law_{j,t} + \mathbf{X}_{i,j,t-1}\gamma + \tau_t + \tau_{i,j} + \epsilon_{i,j,t}, (2)$$

where $Climate\ Law_{i,t}^{-5}$ is equal to one for years at least five years prior to target country i's adoption of the climate law; $Climate\ Law_{i,t}^{-4}$, $Climate\ Law_{i,t}^{-3}$ and $Climate\ Law_{i,t}^{-2}$ are equal to one for the fourth, third and the second year, respectively, prior to the event; $Climate\ Law_{i,t}^{0}$ is equal to one for the year when target country i adopts the climate law; $Climate\ Law_{i,t}^{+k}$ is equal to one for the kth year after the adoption, with $k = 1, 2, \cdots, 4$; $Climate\ Law_{i,t}^{+5}$ is equal to one for years at least five years after the event. Other notations are the same as specified in Equation (1).

[Insert Figure 3 Here]

If the timing of adopting climate laws is endogenous to the cross-border acquisition activity between two countries, one would expect that the indicators for pre-event years are likely statistically significant. However, as shown in Figure 3, the coefficients on pre-event year dummies are not statistically different from zero, indicating that there is almost no difference in acquisition activity between two given countries across years before the target country adopts the climate law. The acquisition activity is reduced only after the adoption of climate laws in the target country. Figure 3 also reveals that the effect of climate laws on cross-border acquisition activity is long-lasting, as evidenced by the significantly negative coefficient on the indicator for five or more years after the event.

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4.3 Placebo Tests

As another attempt to validate the empirical design, we conduct placebo tests. If our baseline results reflect a truly negative effect of climate laws on cross-border acquisition activity, we should observe no significant effects using artificial adoption time of climate laws. Therefore, in the placebo tests, we randomly assign an adoption year to each country in the sample while maintaining the initial distribution of adoption years. We construct 1,000 random samples and rerun the baseline regression. The coefficient of interest is the coefficient on the climate law indicator in the target country.

[Insert Figure 4 Here]

Figure 4 illustrates the histogram of coefficient estimates on the target country's climate law dummy obtained from the 1,000 random samples. It shows that the distribution of these fake coefficient estimates is centered around zero. The mean coefficient is very close to zero and is statistically insignificant: the coefficient estimates have a mean of -0.0003 with a standard error of 0.0005. On the other hand, the true estimate, represented by the red dashed line, is far away from zero. The evidence suggests that our previous findings are unlikely driven by chance.

4.4 Heterogeneity Analysis

In this subsection, we conduct heterogeneity analysis in order to further support our main findings. First, we consider the variation in law exposure and enforcement. Moreover, we investigate the role of acquiring firms' attitude towards climate change. We then exploit the variation in acquiring firms' experience with climate disasters. Finally, we show that the effects of climate laws are intensified after two salient events related to climate change.

4.4.1 Law Exposure and Enforcement

The passage of climate laws itself does not necessarily exert an influence on the acquisition activity. Whether climate laws have a significant impact on corporate decisions depends on the firms' exposure to these regulations and on whether they are effectively implemented. A firm's exposure to climate regulations is greatly determined by the nature of its business. For example, compared to a firm

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in service industry, one company operating coal power plants is likely to emit more greenhouse gas and thus has greater exposure to climate regulations. To exploit the variation in law exposure, we rerun our baseline regression using the number of cross-border mergers and acquisitions calculated separately based on targets in industries with high and low exposure to climate laws. High-exposure industries refer to mining, manufacturing, transportation, and public utilities.

Columns (1) and (2) of Table 3 report the results. Although coefficients on $Climate\ Law_{tgt}$ are negative in both regressions, the estimate based on firms in high-exposure industries is larger in magnitude and stronger in statistical significance. The results suggest that climate laws impose more pronounced effects on M&As when the target firm is more exposed to such regulations.

[Insert Table 3 Here]

Next, we consider the variation in the degree of law enforcement across countries. To do so, we split the sample based on strength of the legal system in the target country, which is measured by the Law and Order subcomponent in the ICRG data. Countries with stronger legal systems have a higher score in this subcomponent. Each year, target countries in the sample are classified into two groups based on the median value of this score. We then reestimate the baseline regression using each subsample.

Columns (3) and (4) of Table 3 present the results. The coefficient on the indicator for climate laws in the target country is negative (-0.041) and highly significant ($t = $ -3.19) in the group of countries with strong law enforcement. By contrast, the coefficient estimate is statistically insignificant among countries with weak law enforcement. Taken together, the evidence suggests that the effects of climate laws are concentrated in countries with strong law enforcement.

4.4.2 Acquirers' Attitudes About Climate Change

According to our baseline results, climate laws result in a decline in the number of inbound cross-border acquisition deals. This is consistent with the view that the increased regulatory costs associated with climate laws may keep foreign companies away. One may expect that the impacts of climate laws on acquisitions become weaker if the acquiring firm is more concerned about the global climate crisis and is more willing to take on these regulatory costs. To test this conjecture,

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we measure acquirers' attitudes about climate change using the attitudes of people in the acquirer country. The public attitudes towards climate change in each country is assessed based on two global surveys. For each country, we calculate people's average perception of the seriousness of global warming using the World Values Survey and compute the portion of people who think global climate change is harming people around the world now or will harm people in the next few years using the Pew Research Center's Global Attitudes Survey.[6] Then, we estimate the following regression:

$$y_{i,j,t} = \alpha + \beta_1 Climate\ Law_{i,t} \times High\ Climate\ Concerns_j + \beta_2 Climate\ Law_{i,t} + \beta_3 Climate\ Law_{j,t}$$
$$+ \quad \mathbf{X}_{i,j,t-1}\gamma + \tau_t + \tau_{i,j} + \epsilon_{i,j,t}, \tag{3}$$

where $High\ Climate\ Concerns_{j,t}$ is an indicator variable that takes one if the climate concern measure in the acquirer country is above the sample median, and zero otherwise. We expect β_1 to be positive.

[Insert Table 4 Here]

The results are shown in Table 4. Columns (1) and (2) report the results based on the climate change attitude measure from the World Values Survey. Regardless of whether to include country-pair level control variables, the coefficients on $Climate\ Law_{tgt}$ are negative (-0.064 and -0.066) and statistically significant (t = -3.90 and -4.10). The results suggest strong negative effects of climate laws on cross-border acquisition decisions for acquirers who do not much care about climate issues. Interestingly, we find this effect becomes much weaker for acquirers with high climate change concerns, as evidenced by the significantly positive coefficients on the interaction term (0.040 and 0.064). We obtain similar results using the measure from the Global Attitudes Survey (Columns (3) and (4)). Overall, the results show that acquirers' views about global climate change affect the impacts of climate laws on acquisition decisions.

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[6] World Values Survey Wave 5 asked the respondents whether they think the global warming is very serious, somewhat serious, not very serious or not serious at all. The Global Attitudes Survey in 2015 asked the respondents whether they think global climate change is harming people around the world now, will harm people in the next few years, will not harm people for many years or will never harm people. The surveys provide cross-sectional data rather than panel data regarding the relevant question. We therefore apply a constant measure to all years in the sample.

4.4.3 Acquirers' Disaster Experience

In this subsection, we provide further suggestive evidence that regulatory costs likely explain our results by exploiting acquirer's experience with climate disasters. The idea is that experiencing significant climate catastrophes recently may increase firms' motivation to address climate change and their willingness to accept regulatory costs. Therefore, we examine whether the effects of climate laws will vary with the acquirer's experience of climate disasters. To do so, we estimate a regression specified as follows:

$$
y_{i,j,t} = \alpha + \beta_1 Climate\ Law_{i,t} \times Disaster_{j,t} + \beta_2 Climate\ Law_{i,t} + \beta_3 Disaster_{j,t}
$$

$$
+ \ \beta_4 Climate\ Law_{j,t} + \mathbf{X}_{i,j,t-1}\gamma + \tau_t + \tau_{i,j} + \epsilon_{i,j,t}, \tag{4}
$$

where $Disaster_{j,t}$ is an indicator variable that takes one if the acquirer country experienced significant climate disasters within three years before the deal announcement. Climate disasters refer to natural disasters that can be attributable to climate change.[7] Other notations are the same as specified in Equation (1). The coefficient on the interaction term, β_1, is of our interest.

[Insert Table 5 Here]

Table 5 presents the results. We first consider disasters with more than 100 injuries or fatalities. As shown in Columns (1) and (2), the coefficient on the law indicator for the target country is significantly negative (-0.056 and -0.048), which is consistent with our baseline result. More importantly, the coefficients on the interaction between the law indicator for the target country and the disaster indicator for acquirer country are positive (0.048 and 0.041) and statistically significant ($t = 3.85$ and 3.36). The results imply that the negative effects of climate laws are weakened after acquiring firms experienced major climate disasters. The results are similar if we only include disasters with a total damage of more than \$100 million (Columns (3) and (4)). Overall, the evidence supports the interpretation that climate laws reduce cross-border acquisition activity due to regulatory costs.

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[7] The information on worldwide climate disasters is from EM-DAT. The types of climate disasters include drought, extreme temperature, flood, landslide, storm, and wildfire.

4.4.4 Climate Awareness

In spite of climate laws, if decision-makers are unaware of the laws and the corresponding costs, they may not affect corporate acquisitions. If firms are taking costs of climate laws into account, one would expect stronger effects when the public awareness of climate issues increases. To test this idea, we employ two salient events that substantially raise the public awareness of climate crisis (e.g., Bolton and Kacperczyk, 2021a), namely, the release of the Stern Review and the signature of the Paris Agreement. The Stern Review is a report prepared by economist Nicholas Stern for the UK government. This 700-page report, which was released on 30 October 2006, discusses in detail the effects of global warming on the world economy. The Paris Agreement, which was signed on 22 April 2016, is a landmark international agreement that aims to combat climate change through international cooperation.

[Insert Table 6 Here]

Table 6 presents the results. In Column (1), we incorporate the interaction term between the law indicator for the target country and an indicator for deals announced after 2006. In Column (2), we incorporate the interaction terms between the law indicator for the target country and the indicators for whether the acquisition deal was announced between 2007 and 2016 or after 2016. We find that the adoption of climate laws in a target country is associated with a significantly higher decline in cross-border acquisition activity after the release of the Stern Review and the signature of the Paris Agreement. These results indicate that firms became more aware of the costs of climate laws following both salient events and began adjusting their acquisition decisions.

4.5 Merger Synergies

We now examine the effects of climate change laws on expected merger synergies. The synergy gains generated by mergers and acquisitions are supposed to enhance value of the combined firm. Assuming equity market participants could correctly anticipate the change in firm value, prior studies (e.g., Dessaint, Golubov, and Volpin, 2017) use combined cumulative abnormal returns (CAR) to measure expected synergies. In our analysis, cumulative abnormal returns of the combined firm are calculated as the weighted average of CAR[-3, +3] of the acquirer and the target firms

where the weight is the market capitalization of the acquirer and the target firms four trading days prior to the deal announcement. Abnormal returns are firms' stock returns adjusted by returns of the market index in the corresponding country. Since this test requires information about stock returns, the sample is restricted to deals involving both public acquirer and public target.

Table 7 reports the estimation results. Column (1) shows that the passage of climate laws in the target country is associated with a 5.6 percentage point reduction in merger synergies. The coefficient estimate is statistically significant. The magnitude is also economically significant compared with the mean value of combined cumulative abnormal returns (3.3%). These results are obtained after absorbing factors that are specific to a year, a acquirer-target country pair, the acquirer's industry, or the target's industry. Column (2) controls for deal characteristics that are relevant to merger synergies, including deal size, deal value relative to the value of acquirer's total assets, whether the acquirer and the target share the same two-digit SIC industry, whether all the consideration offered by the acquirer to the target is in the form of cash, whether the target employs defensive tactics, whether the merger is friendly, whether the merger is friendly, and whether the acquisition is in the form of a tender offer. Column (3) further incorporates country-level control variables as specified in the baseline regression. It turns out that the inclusion of additional control variables does not materially change the negative relationship between climate laws in the target country and merger synergies.

[Insert Table 7 Here]

Overall, the results in Table 7 suggest that synergy gains from cross-border mergers and acquisitions become lower after the target country passes climate change laws. As discussed when developing the hypothesis, the reduction in merger synergies could be a result of increased operational frictions, the loss of potential customers and suppliers, the increase in financial costs, and/or the rise in tax costs. Since firms typically merge to seek synergy gains, the negative effects of climate laws on merger synergies are consistent with our baseline finding that climate laws in the target country reduces cross-border acquisition activity.

4.6   Offer Premium

Merger synergy is divided between the acquirer and the target. In the case of lower expected synergy gains, the acquiring firm is likely to obtain smaller benefits from the acquisition. Hence, the acquirer may only be willing to buy the target at a lower price or premium when merger synergy is reduced by climate laws. To test this conjecture, we regress offer premium on climate law dummies and control variables. Offer premium is calculated as offer price scaled by the target firm's stock price one day prior to the deal announcement.

[Insert Table 8 Here]

Table 8 presents the results. The control variables included in Column (1) are deal-level characteristics: whether the acquirer and the target share the same two-digit SIC industry, whether all the consideration offered by the acquirer to the target is in the form of cash, whether the merger is friendly, whether the acquisition is in the form of a tender offer, and whether there exists a competing bidder. The regression also incorporates acquirer-target country pair fixed effects, acquirer firm's industry by year fixed effects, and target firm's industry by year fixed effects. The coefficient estimate on the indicator for climate laws in the target country (Climate Law$_{\text{tgt}}$) is negative and significant, which supports the conjecture that climate laws lead to lower offer premiums.

Column (2) in Table 8 adds firm-level control variables such as firm size of the acquirer and the target as well as an indicator for whether the acquirer firm is publicly traded. In Column (3), we further incorporate country-level control variables that are specified in the baseline regression. The results are similar in alternative specifications. Even after controlling for deal-level, firm-level, and country-level characteristics, the implementation of climate laws in the target country continues to have a significantly negative effect on offer premiums. The economic magnitude is large: adopting climate laws in the target country reduces offer premiums by 12.6 percentage points, which corresponds to 34% of the average offer premiums. The reduction in offer premiums is consistent with the decline in the number and synergy gains of cross-border acquisitions.

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4.7   Likelihood of Withdrawals

Our results so far are based on completed acquisition deals. In reality, merger negotiations typically last for some time and, announced bids may be withdrawn during the course of negotiations. We now include deals that are cancelled after announcement to investigate whether climate laws affect the likelihood of withdrawals. Specifically, we consider deals that are announced before the adoption date of climate laws in the target country and become complete or withdrawn after the adoption date. For each deal in this sample, we identify a matched deal where the target country has not adopted climate laws based on propensity score matching. Deals are matched on target country's characteristics, including logarithm of GDP per capita, GDP growth, sum of total imports and exports scaled by GDP, exchange rate, investment profile, quality of institution, and the annual growth rate of the number of domestic deals. We further require that the treated deal and the matched control deal share the same target industry, acquirer industry, acquirer country, and announcement year.

[Insert Table 9 Here]

Table 9 presents the results from linear probability model of the likelihood of a withdrawn bid using the matched sample. We find a positive and significant coefficient on the climate law indicator in the target country. Compared to the control group, the likelihood of withdrawal experiences an increase of roughly 18 percentage points after a target country adopts climate laws. This effect is economically significant given that the average probability of deal withdrawal before the adoption of climate laws is around 11%. The evidence shows that firms are more likely to cancel announced bids after the target country adopts climate laws. This finding is consistent with our baseline result that climate laws reduce cross-border merger activity.

4.8   Robustness

This subsection presents a number of robustness tests. First, we replace indicators for climate change laws with a measure of the stringency of climate policies in a country based on the climate policy component of the Climate Change Performance Index (CCPI). The CCPI is an index developed by Germanwatch to measure individual countries' climate protection efforts and progress. The overall

CCPI is constructed using fourteen indicators in four categories: GHG emissions, renewable energy, energy use, and climate policy. The climate policy component of CCPI assesses the stringency of climate protection regulations implemented by governments. In order to facilitate comparability of the measure across time, we use percentile ranks of the index in each year instead of raw scores.[8] The percentile ranks are transformed to one minus the percentile ranks scaled by one hundred for ease of interpretation. After the transformation, higher values indicate stricter climate policies. We rerun the baseline regressions with the climate policy index. As shown in Table 10, stricter climate policies in target countries are associated with declined cross-border acquisition activity. The evidence corroborates our main finding.

[Insert Table 10 Here]

Second, we employ two alternative measures of cross-border acquisition activity: the acquisition volume of cross-border deals between the acquirer and target countries and an indicator for whether any cross-border deal occurs between two countries in a given year. Consistent with the baseline results, we find a significantly negative relation between climate laws and cross-border merger activity. In particular, Table 11 shows that the volume (likelihood) of acquisitions between two given countries decreases by 13.4% (2.6%) after the target country adopts a climate law.

[Insert Table 11 Here]

Finally, we focus on alternative subsamples to test whether our results are driven by large or small countries. Specifically, we exclude the United States which is both the most active acquirer country and the most popular target country in the sample. In order to avoid outliers in small countries, we restrict the sample to OECD and BRICS countries, as well as the Group of Twenty (G20). As shown in Table 11, our conclusion is robust to alternative samples.

5   Conclusion

This paper investigates whether laws aimed at mitigating climate change affect cross-border mergers and acquisitions. Using cross-country variations in the adoption time of climate laws, we show

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[8] Raw scores are not comparable across time because the underlying methodology of the CCPI was revised in 2017.

that the volume of acquisitions between two given countries decreases significantly after the target country adopts a climate law. This negative relation does not exist before the adoption of climate laws in the target country and it disappears in placebo tests with random adoption time. The negative relation also holds with a climate policy stringency index.

The effects of climate laws are not uniform across all industries, countries or time. In particular, the reduction in cross-border acquisition activity is stronger if the target firm is more exposed to climate regulations such as firms in mining, manufacturing, transportation, public utilities industries. The effects are also more pronounced in countries with stronger law enforcement and when the public awareness about climate issues increases. Interestingly, our results are weaker if the acquiring firm comes from a country where more people regard climate change as a serious issue or a country that recently experiences significant climate disasters.

Consistent with the view that merger activity declines due to lower synergy gains, we find that climate laws in the target country are associated with lower combined abnormal announcement returns of the target and acquirer. In addition, the acquirer offers a lower premium for the target if the target country has adopted climate change laws. Furthermore, climate laws in the target country are associated with a significant increase in the likelihood of withdrawals.

Findings in this paper suggest that climate laws could have significant impacts on corporate decisions and thereby affect capital allocation. Laws that combat climate change are essential for the global community; however, policymakers should be aware of potential unintended consequences of these laws.

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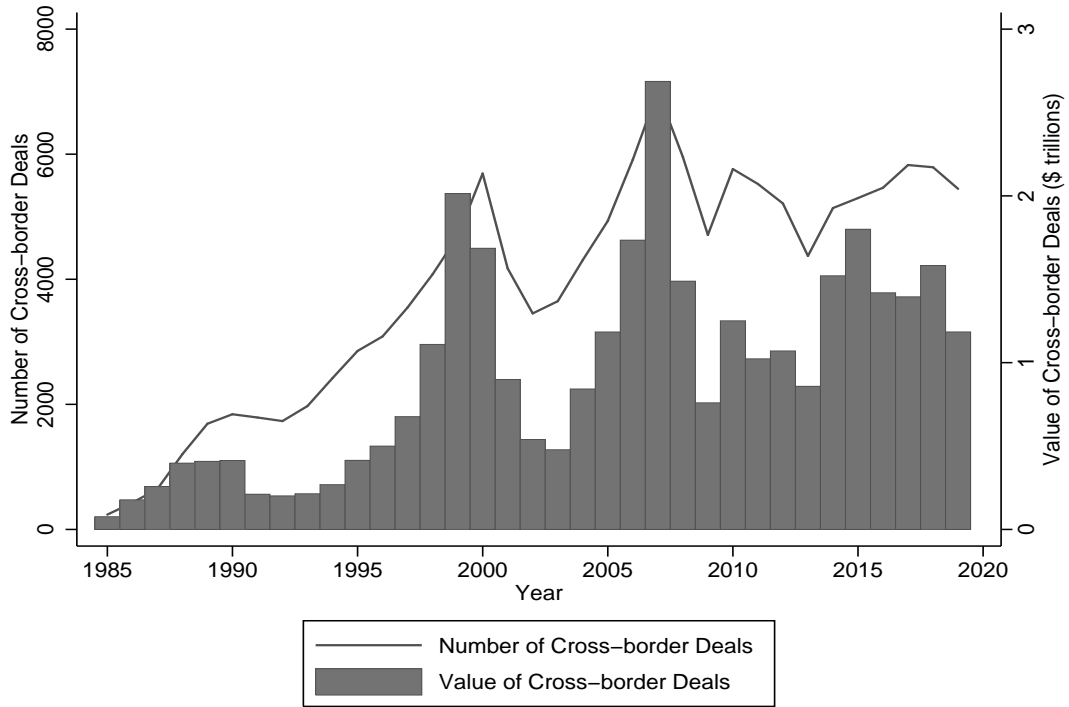
Figure 1

Time-series of Aggregate Cross-border M&A Activity

This figure plots the total number and transaction value of cross-border M&A deals announced in each year between 1985 and 2019. The data includes all cross-border deals in the SDC database. The deal value is adjusted for inflation.
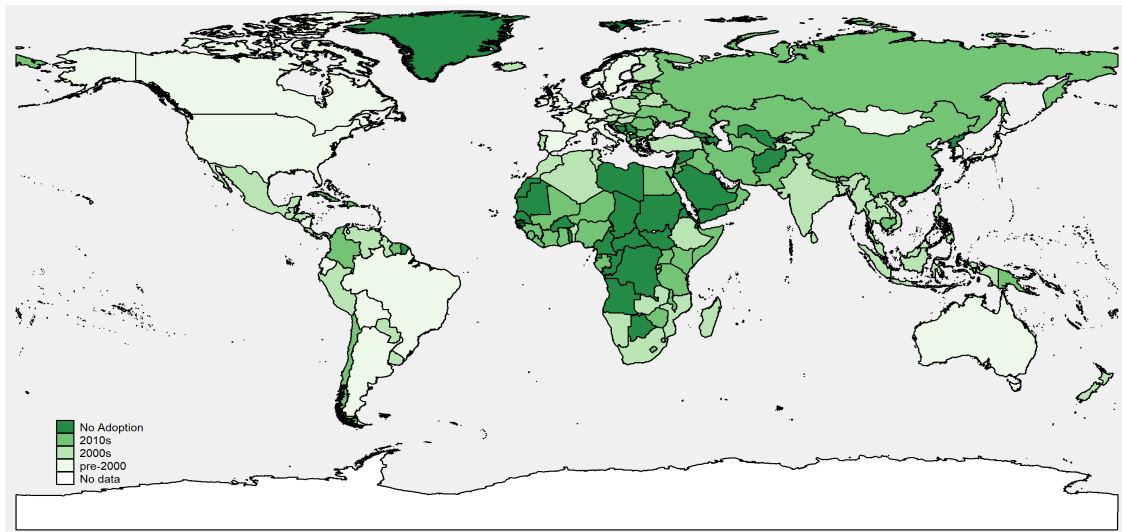
Figure 2

Adoption Time of Climate Laws

This graph illustrates the adoption year of national-level climate change-related law used in the paper for countries around the world. Darker color indicates later adoption. Information on climate change laws is collected from ECOLEX, Climate Change Laws of the World, and the Climate Policy Database.
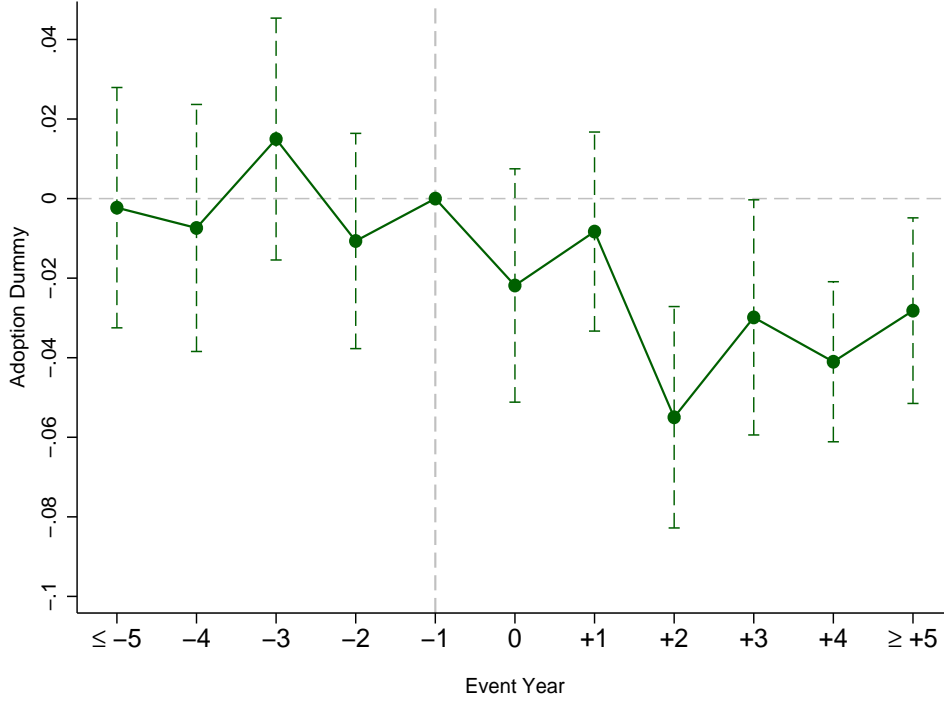
Figure 3

Dynamic Estimation

This figure demonstrates the responses in cross-border merger activity around the adoption of climate laws in target countries. Specifically, it plots the $\hat{\beta}$s (dots) and the corresponding 90% confidence intervals (dashed lines) estimated from the following regression:

$$y_{i,j,t} = \alpha + \beta_1 Climate\ Law_{i,t}^{-5} + \beta_2 Climate\ Law_{i,t}^{-4} + \beta_3 Climate\ Law_{i,t}^{-3} + \beta_4 Climate\ Law_{i,t}^{-2} +$$
$$\beta_5 Climate\ Law_{i,t}^{0} + \cdots + \beta_{10} Climate\ Law_{i,t}^{+5} + \delta Climate\ Law_{j,t} + \mathbf{X}_{i,j,t-1}\gamma + \tau_t + \tau_{i,j} + \epsilon_{i,j,t},$$

where i denotes the target country, j denotes the acquirer country, and t denotes year. $y_{i,j,t}$ is the logarithm of one plus the total number of cross-border deals between acquirer country j and target country i in year t. $Climate\ Law_{i,t}^{-5}$ is equal to one for years at least five years prior to target country i's adoption of the climate law; $Climate\ Law_{i,t}^{-4}$, $Climate\ Law_{i,t}^{-3}$ and $Climate\ Law_{i,t}^{-2}$ are equal to one for the fourth, third and the second year, respectively, prior to the adoption; $Climate\ Law_{i,t}^{0}$ is equal to one for the year when target country i adopts the climate law; $Climate\ Law_{i,t}^{+k}$ is equal to one for the kth year after the adoption, with $k = 1, 2, \cdots, 4$; $Climate\ Law_{i,t}^{+5}$ is equal to one for years at least five years after the adoption. $Climate\ Law_{j,t}$ is an indicator variable that equals one if the acquirer country j has adopted a climate change-related law in year t, and zero otherwise. $\mathbf{X}$ represents the set of control variables. τ_t and $\tau_{i,j}$ denote year fixed effects and acquirer-target country-pair fixed effects, respectively. Standard errors are clustered at the country-pair and year level. The sample period is from 1985 to 2019.

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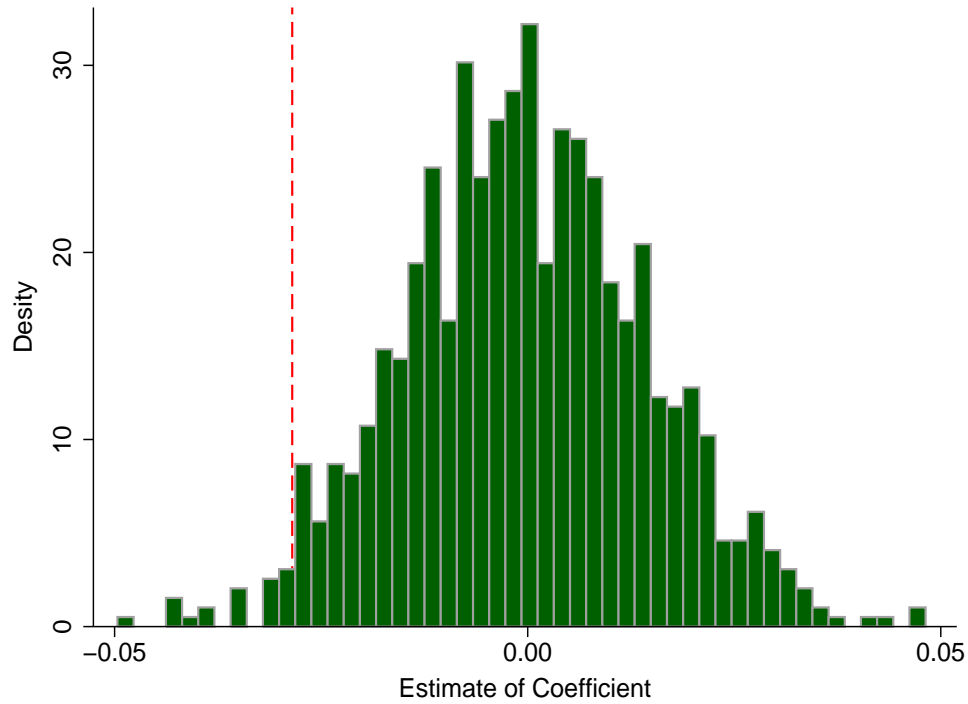
Figure 4

Distribution of Coefficient Estimates from Placebo Tests

This figure plots a histogram of the distribution of the estimated coefficient on the climate law indicator in the target country from 1,000 placebo tests. The regression specification is the same as in Equation (1). The x-axis represents the coefficient estimates from the placebo tests that randomly assign an adoption year to each country in the sample while maintaining the initial distribution of adoption years. The red dashed line represents the true coefficient estimate using the correct adoption time of climate laws. The sample period is from 1985 to 2019.

Table 1
Summary Statistics
This table reports the summary statistics. Country-pairs are included if there is at least one cross-border merger between the acquirer country and the target country over the period from 1985 to 2019. Detailed definitions are provided in Appendix Table A.1. Continuous variables are winsorized at the 1% and 99% level.

	Mean	SD	Q1	Median	Q3
Number of Cross-border Deals	0.631	1.464	0.000	0.000	1.000
Climate Law$_{tgt}$	0.628	0.483	0.000	1.000	1.000
Climate Law$_{acq}$	0.642	0.479	0.000	1.000	1.000
Δ(log GDP per capita)$_{acq\text{-}tgt}$	0.146	1.063	-0.427	0.123	0.789
Δ(GDP Growth)$_{acq\text{-}tgt}$	-0.001	0.039	-0.024	-0.002	0.021
Max(Import, Export)$_{acq,tgt}$	0.033	0.053	0.005	0.013	0.036
Δ(Exchange Rate)$_{acq\text{-}tgt}$	-186.7	1361.2	-6.064	0.000	4.745
Δ(Investment Profile)$_{acq\text{-}tgt}$	0.299	2.337	-1.000	0.083	1.708
Δ(Quality of Institution)$_{acq\text{-}tgt}$	0.681	4.221	-2.083	0.500	3.875
Δ(Growth of Domestic Deals)$_{acq\text{-}tgt}$	0.014	1.217	-0.500	0.023	0.574
CCPI Policy$_{tgt}$	0.492	0.296	0.230	0.480	0.750
CCPI Policy$_{acq}$	0.466	0.300	0.190	0.410	0.730
Combined CAR[-3, +3]	0.033	0.075	-0.009	0.023	0.070
Offer Premium (%)	36.521	44.525	11.900	28.965	52.000
Log(Deal Value)	5.690	2.083	4.226	5.629	7.233
Relative Size	0.544	1.822	0.029	0.123	0.415
Target Size	5.170	1.844	3.875	5.050	6.411
Acquirer Size	7.650	2.164	6.189	7.865	9.238
Public Acquirer	0.633	0.482	0.000	1.000	1.000
Related Industry	0.619	0.486	0.000	1.000	1.000
All Cash	0.613	0.487	0.000	1.000	1.000
Friendly Merger	0.936	0.246	1.000	1.000	1.000
Tender Offer	0.499	0.500	0.000	0.000	1.000
Defensive Tactics	0.015	0.122	0.000	0.000	0.000
Competing Bidder	0.064	0.245	0.000	0.000	0.000

Table 2

Baseline Regressions

This table reports the effects of climate laws on cross-border acquisition activities. The dependent variable is the incidence of cross-border deals between the acquirer and target countries in a given year, which is defined as the logarithm of one plus the annual number of cross-border deals between acquirer country and the target country. Climate Law$_{tgt}$ (Climate Law$_{acq}$) is a dummy variable that takes one if the target (acquirer) country has adopted a climate change-related law in a given year, and zero otherwise. The control variables include the difference in the acquirer and target countries' log GDP per capita, GDP growth, exchange rates of local currencies to the US dollar, investment profile, quality of institutions, and annual growth rate of the number of domestic acquisition deals. The maximum of bilateral import and export between the acquirer and target countries is also included as a control variable. Detailed definitions are provided in Appendix Table A.1. Columns (1) and (2) include both year fixed effects and country fixed effects, while Column (3) includes year fixed effects and acquirer-target country-pair fixed effects. The sample period is from 1985 to 2019. t-statistics based on standard errors clustered at the country-pair and year level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
Climate Law$_{tgt}$	-0.022**	-0.021**	-0.028**
	(-2.33)	(-2.14)	(-2.41)
Climate Law$_{acq}$	0.019	0.000	-0.007
	(1.32)	(0.03)	(-0.53)
Δ(log GDP per capita)$_{acq\text{-}tgt}$		0.038	0.081***
		(1.32)	(2.97)
Δ(GDP Growth)$_{acq\text{-}tgt}$		0.057	0.029
		(0.64)	(0.29)
Max(Import, Export)$_{acq,tgt}$		3.038***	1.217***
		(14.42)	(3.07)
Δ(Exchange Rate)$_{acq\text{-}tgt}$		-0.000*	-0.000
		(-1.80)	(-1.29)
Δ(Investment Profile)$_{acq\text{-}tgt}$		0.003	0.002
		(1.52)	(0.83)
Δ(Quality of Institution)$_{acq\text{-}tgt}$		-0.000	-0.001
		(-0.05)	(-0.56)
Δ(Growth of Domestic Deals)$_{acq\text{-}tgt}$		-0.003**	-0.003**
		(-2.46)	(-2.11)
Year FE	Yes	Yes	Yes
Acquirer Country FE	Yes	Yes	No
Target Country FE	Yes	Yes	No
Country-pair FE	No	No	Yes
Obs	37,235	37,235	37,235
Adjusted R^2	0.338	0.395	0.605

Table 3

Law Exposure and Enforcement

This table presents results about how firms' exposure to climate laws and the strength of law enforcement affect the impacts of climate laws on cross-border acquisition activity. In Columns (1) and (2), the dependent variable is the logarithm of one plus the number of cross-border mergers and acquisitions calculated based on targets in industries with high and low exposure to climate laws, respectively. High-exposure industries refer to mining, manufacturing, and transportation & public utilities. Columns (3) and (4) report results for countries with a high and low level of law enforcement, respectively. Each year, target countries in the sample are classified into two groups based on the median value the Law and Order subcomponent in the ICRG data. A higher score in the subcomponent indicates a stronger legal system. The dependent variable is the logarithm of one plus the total number of cross-border deals between acquirer country and the target country. Climate Law$_{tgt}$ (Climate Law$_{acq}$) is a dummy variable that takes one if the target (acquirer) country has adopted a climate change-related law in a given year, and zero otherwise. The control variables include the difference in the acquirer and target countries' log GDP per capita, GDP growth, exchange rates of local currencies to the US dollar, investment profile, quality of institutions, and annual growth rate of the number of domestic acquisition deals. The maximum of bilateral import and export between the acquirer and target countries is also included as a control variable. Detailed definitions are provided in Appendix Table A.1. Regressions include both year fixed effects and acquirer-target country-pair fixed effects. The sample period is from 1985 to 2019. t-statistics based on standard errors clustered at the country-pair and year level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Industry-level Law Exposure		Country-level Law Enforcement	
	High	Low	High	Low
	(1)	(2)	(3)	(4)
Climate Law$_{tgt}$	-0.022**	-0.011	-0.041***	-0.032
	(-2.09)	(-1.46)	(-3.19)	(-1.59)
Climate Law$_{acq}$	-0.006	-0.003	-0.004	-0.012
	(-0.55)	(-0.39)	(-0.27)	(-0.54)
Δ(log GDP per capita)$_{acq\text{-}tgt}$	0.062***	0.031**	0.100***	0.059
	(3.12)	(2.14)	(3.29)	(1.55)
Δ(GDP Growth)$_{acq\text{-}tgt}$	0.027	0.008	0.087	0.017
	(0.37)	(0.17)	(0.82)	(0.15)
Max(Import, Export)$_{acq,tgt}$	1.156***	0.228	1.243**	1.007***
	(3.84)	(0.97)	(2.47)	(2.77)
Δ(Exchange Rate)$_{acq\text{-}tgt}$	-0.000*	-0.000	-0.000	-0.000
	(-1.71)	(-0.36)	(-1.46)	(-0.91)
Δ(Investment Profile)$_{acq\text{-}tgt}$	0.001	0.001	0.003	0.002
	(0.45)	(0.93)	(1.20)	(0.60)
Δ(Quality of Institution)$_{acq\text{-}tgt}$	-0.000	-0.000	0.006*	-0.010*
	(-0.05)	(-0.05)	(1.95)	(-1.98)
Δ(Growth of Domestic Deals)$_{acq\text{-}tgt}$	-0.002*	-0.000	-0.001	-0.005
	(-1.73)	(-0.61)	(-1.06)	(-1.62)
Year FE	Yes	Yes	Yes	Yes
Country-pair FE	Yes	Yes	Yes	Yes
Obs	37,235	37,235	28,730	8,505
Adjusted R^2	0.513	0.506	0.635	0.443

Table 4

Acquirers' Attitudes About Climate Change

This table presents results about how acquiring firms' attitudes about climate change affects the relation between climate laws and cross-border acquisition activity. The dependent variable is the logarithm of one plus the annual number of cross-border deals between acquirer country and the target country. Climate Law$_{tgt}$ (Climate Law$_{acq}$) is a dummy variable that takes one if the target (acquirer) country has adopted a climate change-related law in a given year, and zero otherwise. High Climate Concerns$_{acq}$ is an indicator that equals one if the climate concern measure in the acquirer country is above the sample median. In Columns (1) and (2), the degree of climate concerns in the acquirer country is measured by people's average perception of the seriousness of global warming using the World Values Survey. In Columns (3) and (4), the degree of climate concerns in the acquirer country is measured by the portion of people who think global climate change is harming people around the world now or will harm people in the next few years using the Global Attitudes Survey. The control variables include the difference in the acquirer and target countries' log GDP per capita, GDP growth, exchange rates of local currencies to the US dollar, investment profile, quality of institutions, and annual growth rate of the number of domestic acquisition deals. The maximum of bilateral import and export between the acquirer and target countries is also included as a control variable. Detailed definitions are provided in Appendix Table A.1. Regressions include both year fixed effects and acquirer-target country-pair fixed effects. The sample period is from 1985 to 2019. t-statistics based on standard errors clustered at the country-pair and year level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	World Values Survey		Global Attitudes Survey	
	(1)	(2)	(3)	(4)
Climate Law$_{tgt}$×High Climate Concerns$_{acq}$	0.040**	0.064***	0.041*	0.054**
	(2.38)	(3.71)	(1.92)	(2.49)
Climate Law$_{tgt}$	-0.064***	-0.066***	-0.057***	-0.056***
	(-3.90)	(-4.10)	(-3.53)	(-3.55)
Climate Law$_{acq}$	0.039*	0.017	0.027	0.002
	(1.92)	(0.96)	(1.18)	(0.09)
Δ(log GDP per capita)$_{acq-tgt}$		0.145***		0.125***
		(4.55)		(3.37)
Δ(GDP Growth)$_{acq-tgt}$		-0.038		-0.054
		(-0.28)		(-0.36)
Max(Import, Export)$_{acq,tgt}$		1.166**		1.412***
		(2.65)		(3.43)
Δ(Exchange Rate)$_{acq-tgt}$		-0.000		-0.000
		(-0.93)		(-1.47)
Δ(Investment Profile)$_{acq-tgt}$		0.001		0.005
		(0.29)		(1.45)
Δ(Quality of Institution)$_{acq-tgt}$		-0.001		-0.002
		(-0.38)		(-0.64)
Δ(Growth of Domestic Deals)$_{acq-tgt}$		-0.001		-0.003
		(-0.70)		(-1.57)
Year FE	Yes	Yes	Yes	Yes
Country-pair FE	Yes	Yes	Yes	Yes
Obs	22,103	22,103	21,167	21,167
Adjusted R^2	0.596	0.599	0.625	0.629

Table 5

Climate Disaster Experience of Acquirers

This table presents results about how acquiring firms' experience of climate disasters affects the relation between climate laws and cross-border acquisition activity. The dependent variable is the incidence of cross-border deals between the acquirer and target countries in a given year, which is defined as the logarithm of one plus the annual number of cross-border deals between acquirer country and the target country. Climate Law$_{tgt}$ (Climate Law$_{acq}$) is a dummy variable that takes one if the target (acquirer) country has adopted a climate change-related law in a given year, and zero otherwise. Disaster$_{acq}$ is an indicator that equals one if the acquirer country experienced significant climate disasters within three years before the deal announcement. Climate disasters include drought, extreme temperature, flood, landslide, storm, and wildfire. Columns (1) and (2) include disasters with more than 100 injuries or fatalities, while Columns (3) and (4) include disasters with a total damage of more than \$100 million. The control variables include the difference in the acquirer and target countries' log GDP per capita, GDP growth, exchange rates of local currencies to the US dollar, investment profile, quality of institutions, and annual growth rate of the number of domestic acquisition deals. The maximum of bilateral import and export between the acquirer and target countries is also included as a control variable. Detailed definitions are provided in Appendix Table A.1. Regressions include both year fixed effects and acquirer-target country-pair fixed effects. The sample period is from 1985 to 2019. t-statistics based on standard errors clustered at the country-pair and year level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Disasters with High Injuries or Fatalities		Disasters with High Dollar Damage	
	(1)	(2)	(3)	(4)
Climate Law$_{tgt}$×Disaster$_{acq}$	0.048***	0.041***	0.028**	0.031**
	(3.85)	(3.36)	(2.47)	(2.70)
Climate Law$_{tgt}$	-0.056***	-0.048***	-0.053***	-0.050***
	(-4.03)	(-3.33)	(-4.35)	(-3.82)
Disaster$_{acq}$	-0.038***	-0.033***	-0.001	-0.005
	(-3.51)	(-3.29)	(-0.15)	(-0.62)
Climate Law$_{acq}$	0.004	-0.005	0.000	-0.009
	(0.27)	(-0.41)	(0.02)	(-0.67)
Δ(log GDP per capita)$_{acq-tgt}$		0.076***		0.079***
		(2.80)		(2.92)
Δ(GDP Growth)$_{acq-tgt}$		0.022		0.028
		(0.23)		(0.29)
Max(Import, Export)$_{acq,tgt}$		1.210***		1.229***
		(3.07)		(3.11)
Δ(Exchange Rate)$_{acq-tgt}$		-0.000		-0.000
		(-1.29)		(-1.27)
Δ(Investment Profile)$_{acq-tgt}$		0.002		0.002
		(0.99)		(0.80)
Δ(Quality of Institution)$_{acq-tgt}$		-0.001		-0.001
		(-0.38)		(-0.34)
Δ(Growth of Domestic Deals)$_{acq-tgt}$		-0.003**		-0.003**
		(-2.13)		(-2.29)
Year FE	Yes	Yes	Yes	Yes
Country-pair FE	Yes	Yes	Yes	Yes
Obs	37,235	37,235	37,235	37,235
Adjusted R^2	0.603	0.605	0.603	0.605

Table 6

Stern Review and Paris Agreement

This table presents results about how the relation between climate laws and cross-border acquisition activity changes after salient events that raise the public awareness of climate issues. The dependent variable is the logarithm of one plus the annual number of cross-border deals between acquirer country and the target country. Climate Law$_{tgt}$ (Climate Law$_{acq}$) is a dummy variable that takes one if the target (acquirer) country has adopted a climate change-related law in a given year, and zero otherwise. I(year>2006) is an indicator for deals announced after the release of the Stern Review in 2006. I(2016<year) is an indicator for deals announced after the signature of the Paris Agreement in 2016. I(2006<year≤2016) is an indicator for deals announced between 2007 and 2016. The control variables include the difference in the acquirer and target countries' log GDP per capita, GDP growth, exchange rates of local currencies to the US dollar, investment profile, quality of institutions, and annual growth rate of the number of domestic acquisition deals. The maximum of bilateral import and export between the acquirer and target countries is also included as a control variable. Detailed definitions are provided in Appendix Table A.1. Regressions include both year fixed effects, acquirer and target country fixed effects. The sample period is from 1985 to 2019. t-statistics based on standard errors clustered at the country-pair and year level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)
Climate Law$_{tgt}$×I(year>2006)	-0.066***	
	(-4.26)	
Climate Law$_{tgt}$×I(2006<year≤2016)		-0.067***
		(-4.32)
Climate Law$_{tgt}$×I(2016<year)		-0.047**
		(-2.67)
Climate Law$_{tgt}$	0.002	0.002
	(0.19)	(0.19)
Climate Law$_{tgt}$	0.002	0.002
	(0.19)	(0.19)
Climate Law$_{acq}$	-0.000	-0.000
	(-0.01)	(-0.01)
Δ(log GDP per capita)$_{acq\text{-}tgt}$	0.051*	0.051*
	(1.72)	(1.73)
Δ(GDP Growth)$_{acq\text{-}tgt}$	0.068	0.068
	(0.76)	(0.77)
Max(Import, Export)$_{acq,tgt}$	3.034***	3.034***
	(14.41)	(14.41)
Δ(Exchange Rate)$_{acq\text{-}tgt}$	-0.000*	-0.000*
	(-1.80)	(-1.80)
Δ(Investment Profile)$_{acq\text{-}tgt}$	0.003	0.003
	(1.45)	(1.46)
Δ(Quality of Institution)$_{acq\text{-}tgt}$	0.000	0.000
	(0.10)	(0.08)
Δ(Growth of Domestic Deals)$_{acq\text{-}tgt}$	-0.002**	-0.002**
	(-2.22)	(-2.17)
Year FE	Yes	Yes
Acquirer Country FE	Yes	Yes
Target Country FE	Yes	Yes
Obs	37,235	37,235
Adjusted R^2	0.396	0.396

Table 7

Combined Cumulative Abnormal Returns

This table presents the estimated effects of climate change laws on combined firms' cumulative abnormal returns (CAR) around a seven-day window around the deal announcement. The dependent variable is the weighted average of CAR[-3, +3] of the acquirer and the target firms where the weight is the market capitalization of the acquirer and the target firms four trading days prior to the deal announcement. Abnormal returns are firms' stock returns adjusted by returns of the market index of the corresponding country. Climate Law$_{tgt}$ (Climate Law$_{acq}$) is a dummy variable that takes one if the target (acquirer) country has adopted a climate change-related law in a given year, and zero otherwise. Control variables are defined in Appendix Table A.1. Regressions include year fixed effects, acquirer-target country-pair fixed effects, acquirer firm's industry fixed effects and target firm's industry fixed effects. Industries are defined at the two-digit SIC codes level. The sample period is from 1985 to 2019. t-statistics based on standard errors clustered at the country-pair and year level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
Climate Law$_{tgt}$	-0.056**	-0.043**	-0.061**
	(-2.25)	(-2.21)	(-2.19)
Climate Law$_{acq}$	-0.087**	-0.089**	-0.039
	(-2.46)	(-2.58)	(-0.77)
log(Deal Value)		0.003	0.004
		(1.48)	(1.50)
Relative Size		0.004	0.004
		(0.91)	(0.78)
Related Industry		-0.003	-0.000
		(-0.34)	(-0.04)
All Cash		0.008	0.010
		(0.68)	(0.83)
Defensive Tactics		-0.012	-0.009
		(-0.45)	(-0.31)
Friendly Merger		-0.039**	-0.040
		(-2.27)	(-1.63)
Tender Offer		-0.002	-0.003
		(-0.26)	(-0.29)
Δ(log GDP per capita)$_{acq-tgt}$			-0.014
			(-0.12)
Δ(GDP Growth)$_{acq-tgt}$			-0.227
			(-0.87)
Max(Import, Export)$_{acq,tgt}$			-0.680*
			(-2.10)
Δ(Exchange Rate)$_{acq-tgt}$			0.000
			(1.58)
Δ(Investment Profile)$_{acq-tgt}$			0.009**
			(2.79)
Δ(Quality of Institution)$_{acq-tgt}$			-0.002
			(-0.14)
Δ(Growth of Domestic Deals)$_{acq-tgt}$			-0.003
			(-0.29)
Year FE	Yes	Yes	Yes
Country-pair FE	Yes	Yes	Yes
Acquirer Industry FE	Yes	Yes	Yes
Target Industry FE	Yes	Yes	Yes
Obs	639	639	639
Adjusted R^2	0.059	0.056	0.063

Table 8

Offer Premium

This table presents the estimated effects of climate change laws on offer premium. Offer premium (in percentage points) is calculated as offer price scaled by the target firm's stock price one day prior to the deal announcement. Climate Law$_{tgt}$ (Climate Law$_{acq}$) is a dummy variable that takes one if the target (acquirer) country has adopted a climate change-related law in a given year, and zero otherwise. Control variables are defined in Appendix Table A.1. Regressions include acquirer-target country-pair fixed effects, acquirer firm's industry by year fixed effects and target firm's industry by year fixed effects. Industries are defined at the two-digit SIC codes level. The sample period is from 1985 to 2019. t-statistics based on standard errors clustered at the country-pair and year level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
Climate Law$_{tgt}$	-15.650***	-13.010***	-12.591***
	(-11.28)	(-3.82)	(-2.83)
Climate Law$_{acq}$	3.850	5.113	4.905
	(0.50)	(0.71)	(0.66)
Related Industry	6.110	11.120***	10.908**
	(1.53)	(2.83)	(2.71)
All Cash	0.552	-1.025	-0.720
	(0.16)	(-0.27)	(-0.19)
Friendly Merger	0.899	-0.879	-1.522
	(0.11)	(-0.11)	(-0.18)
Tender Offer	7.401*	5.365	5.386
	(1.97)	(1.33)	(1.27)
Competing Bidder	34.595***	36.196***	36.170***
	(3.06)	(3.43)	(3.35)
Target Size		-6.339***	-6.384***
		(-4.32)	(-4.37)
Acquirer Size		1.913	1.841
		(1.53)	(1.46)
Public Acquirer		15.976**	16.144**
		(2.08)	(2.06)
Δ(log GDP per capita)$_{acq-tgt}$			5.214
			(0.10)
Δ(GDP Growth)$_{acq-tgt}$			-135.899
			(-0.88)
Max(Import, Export)$_{acq,tgt}$			-36.386
			(-0.46)
Δ(Exchange Rate)$_{acq-tgt}$			0.155
			(1.70)
Δ(Investment Profile)$_{acq-tgt}$			-1.278
			(-0.49)
Δ(Quality of Institution)$_{acq-tgt}$			1.030
			(0.39)
Δ(Growth of Domestic Deals)$_{acq-tgt}$			1.716
			(0.53)
Country-pair FE	Yes	Yes	Yes
Acquirer Industry-Year FE	Yes	Yes	Yes
Target Industry-Year FE	Yes	Yes	Yes
Obs	1,728	1,728	1,728
Adjusted R^2	0.221	0.169	0.181

Table 9

Likelihood of Deal Withdrawals

This table reports results about the effects of climate laws on the likelihood of deal withdrawals. The sample includes deals that are announced before the adoption date of climate laws in the target country and become complete or withdrawn after the adoption date. For each deal in this sample, we identify a matched deal where the target country has not adopted climate laws based on propensity score matching. Deals are matched on target country's characteristics, including logarithm of GDP per capita, GDP growth, sum of total imports and exports scaled by GDP, exchange rate, investment profile, quality of institution, and the annual growth rate of the number of domestic deals. The treated and matched deals are further required to share the same target industry, acquirer industry, acquirer country, and announcement year. The dependent variable is a dummy that equals one if a deal is withdrawn, and zero otherwise. Climate Law$_{tgt}$ (Climate Law$_{acq}$) is a dummy variable that takes one if the target (acquirer) country has adopted a climate change-related law in a given year, and zero otherwise. Control variables are defined in Appendix Table A.1. Regressions include year fixed effects, acquirer and target country fixed effects, acquirer firm's industry fixed effects and target firm's industry fixed effects. Industries are defined at the two-digit SIC codes level. The sample period is from 1985 to 2019. t-statistics based on standard errors clustered at the acquirer country and year level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
Climate Law$_{tgt}$	0.232***	0.182***	0.179***
	(3.70)	(4.44)	(3.01)
Climate Law$_{acq}$	-0.138*	0.028	0.126
	(-1.84)	(0.23)	(0.76)
log(Deal Value)		0.024**	0.019
		(2.24)	(1.72)
Related Industry		-0.057	-0.065
		(-0.68)	(-0.84)
All Cash		-0.053	-0.050
		(-1.15)	(-0.81)
Friendly Merger		-0.325*	-0.396**
		(-1.75)	(-2.33)
Tender Offer		-0.214***	-0.201*
		(-3.18)	(-2.07)
Competing Bidder		0.475	0.830
		(1.69)	(1.65)
Δ(log GDP per capita)$_{acq\text{-}tgt}$			-0.081
			(-0.17)
Δ(GDP Growth)$_{acq\text{-}tgt}$			-1.806
			(-0.51)
Max(Import, Export)$_{acq,tgt}$			0.360
			(0.86)
Δ(Exchange Rate)$_{acq\text{-}tgt}$			-0.011
			(-1.50)
Δ(Investment Profile)$_{acq\text{-}tgt}$			0.002
			(0.04)
Δ(Quality of Institution)$_{acq\text{-}tgt}$			0.028
			(0.73)
Δ(Growth of Domestic Deals)$_{acq\text{-}tgt}$			0.130
			(1.61)
Year FE	Yes	Yes	Yes
Acquirer Country FE	Yes	Yes	Yes
Target Country FE	Yes	Yes	Yes
Acquirer Industry FE	Yes	Yes	Yes
Target Industry FE	Yes	Yes	Yes
Obs	186	186	186
Adjusted R^2	0.591	0.667	0.642

Table 10

Climate Policy Index and Cross-border Merger Activity

This table reports the results from regressing cross-border acquisition activities on climate policy index. The dependent variable is the incidence of cross-border deals between the acquirer and target countries in a given year, which is defined as the logarithm of one plus the annual number of cross-border deals between acquirer country and the target country. CCPI Policy$_{tgt}$ (CCPI Policy$_{acq}$) is a measure of the stringency of climate policies in the target (acquirer) country based on the climate policy component of the Climate Change Performance Index (CCPI). For countries in a given year, the raw score of CCPI climate policy component is transformed to one minus percentile ranks of the score scaled by one hundred. The control variables include the difference in the acquirer and target countries' log GDP per capita, GDP growth, exchange rates of local currencies to the US dollar, investment profile, quality of institutions, and annual growth rate of the number of domestic acquisition deals. The maximum of bilateral import and export between the acquirer and target countries is also included as a control variable. Detailed definitions are provided in Appendix Table A.1. Columns (1) and (2) include both year fixed effects and country fixed effects, while Column (3) includes year fixed effects and acquirer-target country-pair fixed effects. The sample period starts from 2007 due to data availability and ends in 2020. t-statistics based on standard errors clustered at the country-pair and year level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)
CCPI Policy$_{tgt}$	-0.039***	-0.035***	-0.032**
	(-5.24)	(-3.47)	(-2.11)
CCPI Policy$_{acq}$	-0.022	-0.016	-0.018
	(-1.63)	(-0.82)	(-0.90)
Δ(log GDP per capita)$_{acq\text{-}tgt}$		0.123*	0.179**
		(1.96)	(2.65)
Δ(GDP Growth)$_{acq\text{-}tgt}$		-0.107	-0.165
		(-0.98)	(-1.18)
Max(Import, Export)$_{acq,tgt}$		4.001***	1.041
		(13.68)	(1.64)
Δ(Exchange Rate)$_{acq\text{-}tgt}$		0.000	0.000
		(1.04)	(0.83)
Δ(Investment Profile)$_{acq\text{-}tgt}$		0.001	0.001
		(0.64)	(0.43)
Δ(Quality of Institution)$_{acq\text{-}tgt}$		-0.020***	-0.022***
		(-3.71)	(-3.54)
Δ(Growth of Domestic Deals)$_{acq\text{-}tgt}$		0.002	0.002
		(0.96)	(0.63)
Year FE	Yes	Yes	Yes
Acquirer Country FE	Yes	Yes	No
Target Country FE	Yes	Yes	No
Country-pair FE	No	No	Yes
Obs	15,209	15,209	15,209
Adjusted R^2	0.367	0.429	0.645

Table 11

Robustness Tests

This table presents results from robustness tests. Columns (1) and (2) rerun the baseline regression with alternative measures of cross-border acquisition activity, whereas Columns (3) to (5) reestimate the baseline model using alternative samples. The dependent variable in Column (1) is the logarithm of one plus the total dollar amount of cross-border deals between the between acquirer country and the target country in a given year. The dependent variable in Column (2) is an indicator variable that equals one if any cross-border deal occurs between an acquirer country and a target country in a given year, and zero otherwise. The dependent variable in Columns (3) to (5) is the logarithm of one plus the annual number of cross-border deals between acquirer country and the target country. The sample Column (3) excludes deals involving firms from the United States. The sample in Column (4) only includes deals that involve firms from the OECD countries and the BRICS countries. The sample in Column (5) only includes deals that involve firms from the Group of Twenty (G20). Climate Law$_{tgt}$ (Climate Law$_{acq}$) is a dummy variable that takes one if the target (acquirer) country has adopted a climate change-related law in a given year, and zero otherwise. The control variables include the difference in the acquirer and target countries' log GDP per capita, GDP growth, exchange rates of local currencies to the US dollar, investment profile, quality of institutions, and annual growth rate of the number of domestic acquisition deals. The maximum of bilateral import and export between the acquirer and target countries is also included as a control variable. Detailed definitions are provided in Appendix Table A.1. Regressions include both year fixed effects and acquirer-target country-pair fixed effects. The sample period is from 1985 to 2019. t-statistics based on standard errors clustered at the country-pair and year level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Alternative Measures		Alternative Samples		
	Ln(1+$ Amount of Cross-border Deals)	I(Cross-border Deals)	Non-US	OECD and BRICS	G20
	(1)	(2)	(3)	(4)	(5)
Climate Law$_{tgt}$	-0.134***	-0.026***	-0.024**	-0.068***	-0.057***
	(-2.84)	(-3.04)	(-2.39)	(-3.62)	(-3.08)
Climate Law$_{acq}$	0.005	0.002	-0.007	-0.019	-0.015
	(0.10)	(0.19)	(2.92)	(2.62)	(2.49)
Δ(log GDP per capita)$_{acq\text{-}tgt}$	0.345***	0.073***	0.006	0.029	-0.007
	(3.27)	(3.21)	(0.06)	(0.21)	(-0.05)
Δ(GDP Growth)$_{acq\text{-}tgt}$	0.372	0.050	0.006	0.029	-0.007
	(0.91)	(0.55)	(0.06)	(0.21)	(-0.05)
Max(Import, Export)$_{acq,tgt}$	4.764***	1.092***	1.016**	1.957***	2.230***
	(3.34)	(4.76)	(2.52)	(3.21)	(3.22)
Δ(Exchange Rate)$_{acq\text{-}tgt}$	-0.000	-0.000	-0.000	-0.000	0.000
	(-0.67)	(-1.01)	(-1.58)	(-0.72)	(0.05)
Δ(Investment Profile)$_{acq\text{-}tgt}$	0.004	0.002	0.002	0.004	0.006
	(0.44)	(0.86)	(1.07)	(1.39)	(1.65)
Δ(Quality of Institution)$_{acq\text{-}tgt}$	-0.004	-0.001	-0.001	0.002	0.001
	(-0.36)	(-0.41)	(-0.58)	(0.57)	(0.21)
Δ(Growth of Domestic Deals)$_{acq\text{-}tgt}$	-0.007	-0.003**	-0.002	-0.003	-0.003
	(-1.15)	(-2.28)	(-1.60)	(-1.56)	(-1.22)
Year FE	Yes	Yes	Yes	Yes	Yes
Country-pair FE	Yes	Yes	Yes	Yes	Yes
Obs	37,235	37,235	34,646	22,727	19,443
Adjusted R^2	0.476	0.380	0.477	0.674	0.681

Appendix

Variable	Definition	Source
Cross-border M&A Activities		
Ln(1+Number of Cross-border Deals$_{ijt}$)	Logarithm of one plus the total number of cross-border deals between acquirer country j and target country i in year t	SDC
Ln(1+$ Amount of Cross-border Deals$_{ijt}$)	Logarithm of one plus the total dollar amount of cross-border deals between acquirer country j and target country i in year t	SDC
I(Cross-border Deals$_{ijt}$)	A dummy variable that takes one if any cross-border deal occurs between acquirer country j and target country i in year t, and zero otherwise	SDC
Country-level Variables		
Climate Law$_{tgt}$	A dummy variable that takes one if the target country has adopted climate laws in a given year, and zero otherwise	ECOLEX, CCLW, and CPD
Climate Law$_{acq}$	A dummy variable that takes one if the acquirer country has adopted climate laws in a given year, and zero otherwise	ECOLEX, CCLW, and CPD
Δ(log GDP per capita)$_{acq-tgt}$	Difference in log GDP per capita between the acquirer and target countries	Penn World Table
Δ(GDP Growth)$_{acq-tgt}$	Difference in annual growth rates of real GDP between the acquirer and target countries	Penn World Table
Max(Import, Export)$_{acq,tgt}$	The maximum of bilateral import and export between a country pair, where bilateral import (export) is calculated as the value of imports (exports) by the target country from (to) the acquirer country as a percentage of total imports (exports) by the target country	UN Comtrade
Δ(Exchange Rate)$_{acq-tgt}$	Difference in exchange rates of local currencies to the US dollar between the acquirer and target countries	Penn World Table
Δ(Investment Profile)$_{acq-tgt}$	Difference in investment profile between the acquirer and target countries, where the investment profile is a ICRG Political Risk component, and is calculated based on an assessment of three factors affecting the risk to investment: contract viability/expropriation, profits repatriation, and payment delays. Each subcomponent is scored on a scale from zero to four, with higher score indicating lower risk.	ICRG
Δ(Quality of Institution)$_{acq-tgt}$	Difference in the quality of institution between the acquirer and target countries, where quality of institution is measured by the sum of three ICRG Political Risk subcomponents: Corruption, Law and Order, and Bureaucratic Quality	ICRG
Δ(Growth of Domestic Deals)$_{acq-tgt}$	Difference in the annual growth rate of the number of domestic acquisition deals between the acquirer country and the target country	SDC
CCPI Policy$_{tgt}$	Measure of the stringency of climate policies in the target country based on the climate policy component of the Climate Change Performance Index (CCPI). For countries in a given year, the raw score of CCPI climate policy component is transformed to one minus percentile ranks of the score scaled by one hundred.	SDC, CCPI

Variable	Definition	Source
CCPI Policy$_{acq}$	Measure of the stringency of climate policies in the acquirer country based on the climate policy component of the Climate Change Performance Index (CCPI). For countries in a given year, the raw score of CCPI climate policy component is transformed to one minus percentile ranks of the score scaled by one hundred.	SDC, CCPI
Deal-level Variables		
Combined CAR[-3, +3]	Cumulative abnormal returns of the combined firm over a seven-day window around the deal announcement. It is calculated as the weighted average of CAR[-3, +3] of the acquirer and the target firms where the weight is the market capitalization of the acquirer and the target firms four trading days prior to the deal announcement. Abnormal returns are firms' stock returns adjusted by returns of the market index of the corresponding country.	SDC, Datastream
Offer Premium	Offer price relative to the target firm's stock price one day prior to the deal announcement	SDC
log(Deal Value)	Logarithm of the dollar value (in millions USD) of acquisition deals	SDC
Relative Size	Deal value divided by the value of the acquirer firm's total assets	SDC
Related Industry	A dummy variable that equals one if the acquirer and the target share the same two-digit SIC industry, and zero otherwise	SDC
All Cash	A dummy variable that equals one if all the consideration offered by the acquirer to the target is in the form of cash, and zero otherwise	SDC
Defensive Tactics	A dummy variable that equals one if SDC classifies the target as employing defensive tactics, and zero otherwise	SDC
Friendly Merger	A dummy variable that equals one if SDC classifies the merger as friendly, and zero otherwise	SDC
Tender Offer	A dummy variable that equals one if the acquisition is in the form of a tender offer, and zero otherwise	
Competing Bidder	A dummy variable that equals one if there exists a competing bidder in an acquisition deal, that is, a third party launched an offer for the target while this original bid was pending, and zero otherwise	SDC
Firm-level Variables		
Target Size	Logarithm of book value of the target firm's total assets before the acquisition	SDC
Acquirer Size	Logarithm of book value of the acquirer firm's total assets before the acquisition	SDC
Public Acquirer	A dummy variable that equals one if the acquirer firm is a public firm, and zero otherwise	SDC

Internet Appendix:
Climate Laws and Cross-border Mergers and Acquisitions

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Not for Publication

Table IA.1
List of Climate Laws
This table lists climate laws for each country. The information is collected from ECOLEX, Climate Change Laws of the World, and the Climate Policy Database.

Country/Region	Year	Title of Climate Law
Albania	2014	Regulation on the Reduction and Stabilization of Discharges of Fluorinated Greenhouse Gases
Algeria	2003	National Plan of Action and Adaptation to Climate Change
Andorra	2014	Andorra's Adaptation Process to Climate Change (PAACC)
Argentina	1991	Establishment of the National Commission for Global Change of the Terrestrial Climate System
Australia	1989	Ozone Protection and Synthetic Greenhouse Gas Management Act
Austria	2002	Climate Strategy
Bahamas	2005	National Policy for the Adaptation to Climate Change
Bahrain	2007	Establishment of the Joint Committee on Climate Change
Bangladesh	2009	Bangladesh Climate Change Strategy and Action Plan
Barbados	2012	National Climate Change Policy
Belarus	2010	Regulation on Some GHG Emission Reduction Issues
Belgium	2010	National Climate Change Adaptation Strategy
Belize	2014	National Climate Change Policy, Strategy and Action Plan
Benin	2003	Establishment, powers and functioning of the National Committee on Climate Change
Bhutan	2012	National Strategy and Action Plan for Low Carbon Development
Bolivia	1999	Establishment of the Interinstitutional Council on Climate Change
Brazil	1991	National Programme for Energy Efficient Use of Petroleum and Natural Gas Derivatives
Brunei Darussalam	2019	Brunei Darussalam National Climate Change Policy
Bulgaria	2014	Climate Change Mitigation Act
Burundi	2013	National Strategy and Action Plan on Climate Change
Cabo Verde	2017	Implement of the Agreement on Climate Change
Cambodia	2013	Cambodia Climate Change Strategic Plan
Canada	1999	GHG Emission Reduction Trading Pilot
Chile	2014	National Climate Change Adaptation Plan
China	2013	The National Strategy for Climate Change Adaptation
Colombia	2012	National Plan for Climate Change Adaptation
Cook Islands	2013	Climate and Disaster Compatible Development Policy
Costa Rica	2009	National Climate Change Strategy
Côte d'Ivoire	2014	National Climate Change Program
Croatia	2013	Regulation on the Adoption of the Plan for the Air Protection, Protection the Ozone layer and Climate Change Mitigation
Cuba	2017	Tarea Vida Plan to Face Climate Change
Cyprus	2020	Cyprus' Integrated National Energy and Climate Plan
Czechia	2004	National Programme to Abate the Climate Change Impacts
Denmark	1999	Carbon Tax/Green Tax System
Dominica	2002	National Climate Change Adaptation Policy

Country/Region	Year	Title of Climate Law
Dominican Republic	2011	Strategic Plan for Climate Change
Ecuador	1999	Establishment of the National Climate Committee
Egypt	2011	Egypt's National Strategy for Adaptation to Climate Change and Disaster Risk Management
El Salvador	2013	The National Climate Change Strategy
Estonia	2017	Climate Change Adaptation Plan
Eswatini	2014	National Climate Change Strategy and Action Plan
Ethiopia	2010	Ethiopian Programme of Adaptation to Climate Change
Fiji	2012	National Climate Change Policy
Finland	2005	National Adaptation Strategy
France	2000	National Programme for Combating Climate Change
Gabon	2012	National Climate Plan
Gambia	2016	Climate Change National Policy
Georgia	2021	Georgia's Action Plan for Climate Change Mitigation
Germany	2000	National Climate Protection Program
Ghana	2012	National Climate Change Adaptation Strategy
Greece	2003	National Program for the Reduction of Greenhouse Gas Emissions
Grenada	2007	National Climate Change Policy and Action Plan
Guatemala	2009	Climate Change Policy
Guinea	2019	National Strategy on Climate Change of Guinea
Guyana	2001	Climate Change Action Plan
Haiti	2019	National Policy to Fight Climate Change
Honduras	2010	National Climate Change Strategy
Hungary	2005	Act No. XV of 2005 on Greenhouse Gas Emission Allowance Trading
Iceland	2007	Act no. 65/2007 on the Emission of Greenhouse Gases
India	2008	National Action Plan on Climate Change
Indonesia	2004	Green Energy Policy
Iran	2015	Regulation on Measures Regarding a Common National Program to Reduce Greenhouse Gas Emissions
Iraq	2013	Oil and Gas Corporate Tax
Ireland	2000	National Climate Change Strategy
Israel	2008	The Israeli' Emissions Reduction National Plan
Italy	1998	Provisions on GHG Emissions Reduction
Jamaica	2015	Climate Change Policy Framework for Jamaica
Japan	1998	Act on Promotion of Global Warming Countermeasures
Jordan	2013	National Climate Change Policy of the Hashemite Kingdom of Jordan
Kazakhstan	2012	Regulation on Issuance of Quotas for Emissions of Greenhouse Gases
Kenya	2012	National Climate Change Response Strategy
Kiribati	2013	National Framework for Climate Change and Climate Change Adaptation
Korea	1999	First Comprehensive Action Plan for Climate Change Policy
Kosovo	2014	Strategy on Climate Change
Kyrgyzstan	2007	State Regulation and Policy in the Field of Emission and Absorption of Greenhouse Gases
Laos	2010	National Strategy on Climate Change
Latvia	2019	Latvia's Strategy to Achieve Climate Neutrality by 2050
Lesotho	2018	National Climate Change Policy
Liberia	2018	National Policy and Response Strategy on Climate Change
Liechtenstein	2007	Climate Protection Strategy
Lithuania	2012	The Strategy for the National Climate Change Management Policy
Luxembourg	2000	National Strategy to Reduce GHG Emissions
Madagascar	2010	National Climate Change Policy
Malawi	2012	National Climate Change Policy
Malaysia	2010	National Policy on Climate Change

Country/Region	Year	Title of Climate Law
Maldives	2010	Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation
Mali	2011	National Policy on Climate Change
Malta	2009	National Strategy for Policy and Abatement Measures Relating to the Reduction of Greenhouse Gas Emissions
Marshall Islands	2006	Climate Change Strategic Plan
Mauritius	2020	Climate Change Act
Mexico	2007	National Climate Change Strategy
Micronesia	2009	Nationwide Climate Change Policy
Moldova	2014	Climate Change Adaptation Strategy
Mongolia	2000	National Action Programme on Climate Change
Montenegro	2015	National Strategy in the Field of Climate Change
Morocco	2009	National Plan Against Climate Change
Mozambique	2010	National Strategy for Climate Change
Myanmar	2009	National Sustainable Development Strategy
Namibia	2010	National Policy on Climate Change for Namibia
Nauru	2015	Framework for Climate Change Adaptation and Disaster Risk Reduction
Nepal	2011	Climate Change Policy
Netherlands	2007	National Programme for Spatial Adaptation to Climate Change
New Zealand	2002	Climate Change Response Act
Nicaragua	1999	Establishment of the Climate Change Commission
Niger	2012	National Policy on Climate Change
Nigeria	2012	Nigeria Climate Change Policy Response and Strategy
Niue	2009	National Climate Change Policy
Norway	1991	CO2 Tax
Oman	2016	Regulations on Climate Change Management
Pakistan	2012	National Climate Change Policy
Palau	2015	Palau Climate Change Policy
Panama	2007	National Climate Change Policy
Papua New Guinea	2014	National Climate Change Compatible Development Management Policy
Paraguay	2001	National Climate Change Program
Peru	2003	National Strategy on Climate Change
Philippines	2009	The Climate Change Act
Poland	2003	Polish Climate Policy - Strategy for Greenhouse Gas Emissions Reduction
Portugal	2005	National Plan for Climate Change
Romania	2013	National Climate Change Strategy
Russia	2013	Regulation on Greenhouse Gas Emission Reduction
Rwanda	2011	Green Growth and Climate Resilience National Strategy on Climate Change and Low Carbon Development
Saint Lucia	2005	National Climate Change Adaptation Policy
Samoa	2007	National Policy of Combating Climate Change
Seychelles	2009	Seychelles National Climate Change Strategy
Sierra Leone	2015	Climate Change Strategy and Action Plan
Singapore	2016	Climate Action Plan
Slovakia	2004	Act on Trading of Emission Quotas
Solomon Islands	2012	National Climate Change Policy
Somalia	2020	National Climate Change Policy
South Africa	2004	A National Climate Change Response Strategy
Spain	1998	Establishment of the National Climate Council
Sri Lanka	2010	National Climate Change Policy
Suriname	2015	National Climate Change Policy, Strategy and Action Plan
Sweden	1991	Carbon Tax and Related Regulations

Country/Region	Year	Title of Climate Law
Switzerland	2000	CO2 Act
Taiwan	2015	Greenhouse Gas Emission Reduction and Administration Act
Tajikistan	2003	National Action Plan for Climate Change Mitigation
Tanzania	2012	National Climate Change Strategy
Thailand	2007	Establishment of the Greenhouse Gas Management Organization
Timor-Leste	2011	National Programme for the Adaptation to Climate Changes
Tonga	2010	Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management
Tunisia	2007	National Sustainable Development Strategy
Turkey	2010	National Climate Change Strategy
Turkmenistan	2012	National Climate Change Strategy
Tuvalu	2012	Te Kaniva: Tuvalu National Climate Change Policy
Uganda	2015	National Climate Change Policy
Ukraine	2014	Emissions Trading Scheme
United Arab Emirates	2017	National Climate Change Plan 2050
United Kingdom	2000	UK Climate Change Programme
United States	1990	Clean Air Act Amendments of 1990
Uruguay	2010	National Climate Change Response Strategy
Vanuatu	2015	Vanuatu Climate Change and Disaster Risk Reduction Policy
Venezuela	2008	Tax on Oil Sales
Viet Nam	2008	National Target Programme to Respond to Climate Change
Zambia	2006	Zambia Vision 2030
Zimbabwe	2015	National Climate Change Response Strategy