Ana Sina
ICMA Centre, Henley Business School
University of Reading (UK)
a.sina@pgr.reading.ac.uk
+39 3881506575

Reference contacts:

Simone Varotto (s.varotto@icmacentre.ac.uk)

Alfonso Dufour (a.dufour@icmacentre.ac.uk);

Monica Billio (billio@unive.it)

July 25, 2025

Object: Cover letter for the PhD Student Workshop on Climate Finance

To the esteemed members of the Selection Committee for the PhD Student Workshop on Climate Finance,

My name is Ana Sina, and I am writing to express my sincere interest in participating in the upcoming PhD Student Workshop on Climate Finance. I am a final-year PhD candidate in Finance at the University of Reading – Henley Business School (UK), and I expect to submit my dissertation by September 2025. Alongside my doctoral studies, I have been working for the past two years as a Research Fellow at Ca' Foscari University of Venice on the EU-funded GRINS project. Prior to academia, I worked as a second-level consultant in risk management at Deloitte Consulting and as a financial specialist at Pernod Ricard.

My research interests lie at the intersection of systemic risk, climate finance, and political economy. I have published on the systemic risk of leveraged and covenant-lite loan syndications (*Sina, Ana, et al., International Review of Financial Analysis*, 2025), and I am currently developing two other projects. The first, titled *"How Climate Risk Shapes U.S. Systemic Stability through Syndicated Lending"*, explores the role of climate risk in financial intermediation. The second, submitted for your consideration, is titled *"Broken Pledges: How Politics Undermined Net-Zero Ambitions in Banking"*. This project was inspired by recent news coverage highlighting the withdrawal of several major North American banks from the Net-Zero Banking Alliance (NZBA) following recent U.S. elections results.

Being selected for this workshop would be an incredible opportunity to receive expert feedback on my ongoing work and engage in meaningful dialogue with scholars and peers who share a strong interest in climate finance. I am sure this experience would meaningfully contribute to the development of my academic agenda.

Thank you very much for considering my application.

Sincerely,
Ana Sina

Ana Sina July 25, 2025

Contact Information

Ana Sina ICMA Centre
Henley Business School, University of Reading
Whiteknights Campus
Reading, UK, RG1 5JB

Mobile: +39 388 150 6575
Email: a.sina@pgr.reading.ac.uk

Research Interests

Systemic Risk, Climate Finance, Political Risk

Education

Henley Business School, University of Reading, Reading, UK 2018 – present
(including 3 years of maternity leave)
Ph.D. in Finance
Advisors: Simone Varotto, Alfonso Dufour and Monica Billio

AIX Marseille University, Marseille, France 2013 - 2015
(Double Master 2 Degree. First out of five students selected)
M.Sc.2 *Cum Laude* (Double 2 Degree) in Economics, Econometrics and Finance
Master 2 Dissertation: '*Relation between the Quantitative Easing and the Bank Liquidity Creation: the U.S. case'*

Universitá Cá Foscari of Venice, Venice, Italy
M.Sc. *Cum Laude* in Finance 2013 - 2015

B.S. in Economics and Business 2010 - 2013

Additional Education

I.S.E.O. Summer School in Economics (Top ten list of the best Summer School in Economics in the world - source: Inomics), Italy 2025
Summer School in Mathematics, University of Perugia, Italy 2019

Academic Research Fellows

Research Fellow (2023-2025): European Union - NextGenerationEU, in the framework of the GRINS - Growing Resilient, Inclusive and Sustainable project (GRINS PE00000018 - CUP H73C22000930001)

Published Papers

The systemic risk of leveraged and covenant-lite loan syndications, A. Sina et al. (2025)

Seminars, Workshops, Conferences and Poster Presentations

(*: poster presentation)

AFA Annual Meeting (American Finance Association) (San Diego - U.S.)*	2020
EDEEM Doctoral Summer Workshop in Economics (Venice - IT)*	2019
Credit Conference (Venice - IT)*	2021
ICMA Centre Ph.D. Workshop 2019 (UoR - UK)	2019
PhD Economics Series Seminar (Henley Business School - UK)	2020
3rd Systemic risks in the financial sector Int. Workshop (NRU HSE - Russia)	2020
World Finance Conference - Banking Symposium (Latvia)	2020
14th Int. Conference Computational and Financial Econometrics (King's College)	2021
CREDIT Conference	2021
World Finance Conference	2024
Nazarbayev University Seminar	

Discussant

World Finance Conference - Banking Symposium (Latvia) 2020

Academic Service

Scientific Committee
Royal Economic Society Symposium of Junior Researchers (Warwick - UK) 2019

Teaching Experience

Teaching Assistant in Bocconi University

Financial Econometrics and Empirical Finance — 2022 - Ongoing

Teaching Assistant in Henley Business School, University of Reading:

Credit Risk — 2021
QMF; Financial Markets; Securities, Futures and Options — 2020 - 2021
Introductory Securities and Markets — 2018 - 2021
Management of Risk — 2018 - 2019

The Brilliant Club, London, UK — 2020 - Ongoing
Ph.D. Tutor (Teaching program: Economics and Finance)

Industry Experience

UKEC United Kingdom Education Centre, UK — 2020-Ongoing
Temporary Academic Consultant

Pernod Ricard, Milan, Italy — 2018
Financial Planning & Control Specialist

Deloitte Consulting, Milan, Italy — 2015-2017
Promoted twice up to the second level consultant - Finance and Risk Service Line

Additional Industry Experience

Banca Popolare di Vicenza, Vicenza, Italy — 2014
Intern - Research Department (Planning Control)

Comune di Santa Maria di Sala, Venice, Italy — 2013
Intern - Taxation Office

During my B.S. I always worked to support myself financially. I also worked as a call receptionist in New York (Summer 2012)

Scholarships and Grants/Bonuses

I.S.E.O. Scholarship (2800$) — 2025
PhD Scholarship - ICMA Centre — 2018 - 2021
AFA Travel Grant (Annual Meeting) - The American Finance Association (1050$) — 2020
Summer School in Mathematics - University of Perugia (300€) — 2019
Deloitte Consulting Bonus - Twice 1st Range Bonus (4/4) — 2016; 2017
Grant "Bando Vinci" from Universite' Franco-Italienne — 2015
Erasmus Placement Scholarship — 2015

Programming Expertise

LaTeX, Stata, SAS, Matlab, RStudio and OxMetrics

Languages

English (IELTS C1), Italian (Native), Spanish (Fluent), Albanian (2nd language)

Honors, Challenges and Volunteering

- Mentor and Ambassador in Mentors4u Program — 2019 - Present
- Policlinico di Milano Hospital Volunteer — 2017 - 2018
- MENTORS4U and GenerAzioni — 2014 - 2015
- CFA FUND MANAGEMENT challenge participant — 2015
- BNP PARIBAS ACE MANAGER competition participant — 2015
  Ranking: 1st at Ca' Foscari University Level; 6th/140 across Italy; 134th/2508 at world level
- HARVARD NMUN participant (Boston, U.S.) — 2015
- CFA INSTITUTE RESEARCH CHALLENGE participant — 2013 - 2014
  Ranking: Finalist at a national level

Broken Pledges: How Politics Undermined Net-Zero Ambitions in Banking

A. Sina[a]*

[a]*University of Reading, ICMA Centre, Henley Business School, RG6 6BA Reading, United Kingdom*

Abstract

Using granular data on Net-Zero Banking Alliance (NZBA) members, this study shows that banks making tangible progress toward decarbonization financing targets exhibit significantly lower climate risk, as measured by the CRISK metric. However, between late 2024 and early 2025, several banks—primarily systemically important institutions based in North America and Japan—withdrew from the NZBA. Our analysis reveals that these withdrawals were driven exclusively by electoral outcomes in the United States, not financial or institutional factors. These findings highlight how vulnerable climate coalitions are to changes in the political landscape, casting doubt on the feasibility of achieving the 2050 net-zero decarbonization target. As political support for cutting emissions shifts, banks adjust accordingly, undermining confidence in the credibility of large banks' commitments to the global climate agenda.

JEL classification: G21, Q51, Q54.

Keywords: Climate risk, financial stability, Net-Zero Banking Alliance, Political

---

*Corresponding author e-mail address: a.sina@pgr.reading.ac.uk (Ana Sina)

I am grateful to the participants of the ISEO Summer School 2025 for their valuable comments and suggestions.

Ana Sina is thankful for the financial assistance provided through a research grant associated with the "GRINS - GROWING RESILIENT, INCLUSIVE AND SUSTAINABLE" (PE0000018 - CUP: H73C22000930001)" project, awarded by Ca' Foscari University of Venice.

1. Introduction

This study is motivated by the following event: in the wake of the recent U.S. election results, several major North American banks—including Citigroup, Bank of America, Morgan Stanley, Wells Fargo, and Goldman Sachs—announced their withdrawal from the Net-Zero Banking Alliance (NZBA). At first, this response seemed predictable, given the new administration's climate skepticism, withdrawal from the Paris Agreement, relaxation of environmental regulations, and support for fossil fuel investments. Banks faced a choice between maintaining their commitment to achieving net-zero emissions by 2050 or prioritizing short-term profits through renewed investment especially in the so-called "brown" sectors, especially fossil fuels. However, this explanation raised reasonable questions, because while the short-term financial incentives to reorient investments toward fossil fuels are clear; the long-term implications suggest an increased trajectory of emissions and worsening climate impacts, undermining global climate goals. This inherent tension between short-term profit motives, and medium-to-long-term climate risks, as reflected in rising emissions, forms the core focus of our inquiry. Specifically, this study asks: are political changes alone explaining these rapid strategic reversals? This question becomes even more curious considering that, a few months after their U.S. counterparts, Japanese banks enacted similar withdrawals. This pattern suggests that while these Japanese banks support domestic green transitions, they may be withdrawing from international commitments to invest in profitable but high-emission opportunities abroad.

Furthermore, we investigate whether banks that have met preliminary targets under the NZBA framework have realized tangible benefits in reducing their climate risk exposure. Our analysis engages with these questions by examining the relationship between banks' participation in the NZBA and their progress in meeting decarbonization targets. To our knowledge, this study represents the first effort to address these critical questions, probably because the NZBA—established only in 2021—is the first banking alliance to provide the data necessary for this type of analysis at banking level. Using the forward-looking CRISK metric (Jung et al., 2025), which quantifies banks' vulnerability to climate-induced financial risks, we find that banks that achieve early-stage NZBA targets demonstrate a tangible reduction in climate risk. However, the study also reveals that political shifts—especially changes in government leadership that are less supportive of climate action—pose a significant threat to the durability of these long-term commitments. This dynamic underscore a fundamental structural challenge for voluntary climate alliances within the financial sector.

Financial institutions, and banks in particular, wield significant influence over capital allocation, environmental risk management, and corporate behavior through lending and investment decisions. Our results indicate that as long as political frameworks support projects aimed at carbon emission reduction, banks maintain strong commitments and invest in these profitable green initiatives. However, when political priorities shift toward fossil fuels, a corresponding realignment occurs within the banking sector. The Net-Zero Banking Alliance exemplifies this challenge. As one of the most ambitious and structurally rigorous initiatives targeted at banks, the NZBA—launched by the United Nations Environment Programme Finance Initiative (UNEP FI)—commits member banks to achieving net-zero greenhouse gas emissions across their lending and investment portfolios by 2050. Distinct from other voluntary frameworks, the NZBA requires banks to establish concrete interim targets, transparently disclose emissions and progress, and align their strategies with the internationally agreed goal of limiting global warming to 1.5°C. This framework is designed to foster institutional accountability and accelerate the financial sector's contribution to the global energy transition. Member banks are expected not only to report emissions data but also to demonstrate substantive progress in decarbonizing portfolios, particularly in high-emitting sectors such as fossil fuels, transportation, and heavy industry. This approach seeks to ensure that net-zero commitments translate into measurable actions rather than symbolic gestures.

Our results show that membership in the NZBA alone does not significantly reduce banks' exposure to climate risk. Rather, it is the achievement of interim decarbonization targets—those concrete milestones set within the NZBA framework—that correlates with a measurable decline in the banks' CRISK metric. While banks progress toward these short-term objectives at varying rates, the shared long-term goal of net-zero emissions by 2050 persists, reflecting a broad recognition of climate change's existential threat and the financial risks of inaction. Nonetheless, recent developments have exposed a central vulnerability when political risk is considered—here defined as the degree to which changes in government administrations can alter or reverse climate policies in favor of fossil fuel projects. Our findings indicate that the probability of withdrawal from the NZBA following the election of a climate-skeptical president is particularly pronounced among globally systemically important banks (G-SIBs), which are highly sensitive to reputational concerns and domestic political cues. The implications are profound: while voluntary frameworks can catalyze progress during periods of political alignment, they lack the structural resilience to sustain momentum through political cycles, often prioritizing short-term profits aligned with government policies at the expense of rising emissions.

The rest of the paper is structured as follows: Section 2 reviews the related literature, Section 3 outlines the methodology employed, Section 4 presents the data, Section 5 discusses the main results, while Section 6 addresses the robustness checks. Finally, Section 7 concludes the paper.

2. Related literature

By quantitatively examining the relationship between NZBA participation and banks' climate risk, this study seeks to fill a gap in the existing literature. While much of the scholarship on climate finance has focused on the Paris Agreement's broader influence or on firms' climate-related disclosures, fewer studies have explored how financial institutions themselves—particularly banks—adjust their risk profiles in response to structured climate commitments. For instance, Degryse et al. (2023) find that green banks adjust loan pricing in favor of environmentally friendly firms following the Paris Agreement. While Reghezza et al. (2022) demonstrate that European banks reallocate credit away from polluting firms. Yet the specific mechanisms through which climate alliances affect institutional risk remain underexplored. Recent scholarship highlights the growing role of central banks in promoting financial stability in the face of climate risks. Wang et al. (2025), for example, examine how climate change exacerbates financial vulnerabilities and assess the mitigating effects of central banks' green policy frameworks. Using panel data from 115 countries between 1984 and 2021, they find that extreme weather events—especially floods and wildfires—significantly elevate financial risk, with effects persisting for multiple years. Regulatory instruments and green finance policies can partially offset these effects, although the extent of mitigation is influenced by national credit market characteristics. While not solely responsible for solving environmental issues, central banks—especially in developing economies—can play a targeted role in promoting green finance where optimal policies are lacking (Dikau & Volz, 2018).

In parallel, a growing body of research has explored how climate-related policies and agreements influence financial markets, particularly corporate behavior. Due to the widespread availability of firm-level climate disclosures, this research has often focused on non-financial corporations. In contrast, the banking sector has historically lacked consistent and transparent reporting on climate alignment, making difficult empirical evaluations across banks. The establishment of the NZBA in 2021 marked a significant step forward by requiring member banks to adopt credible net-zero targets and disclose interim goals, thereby enhancing institutional accountability and enabling more rigorous data-driven assessments.

Multiple studies have assessed the transformative influence of the Paris Agreement—adopted in 2015 and enforced from 2016—on both corporate behavior and financial institutions. Its central aim is to limit global temperature rise to well below 2°C, with signatories committing to nationally determined contributions (NDCs). Reghezza et al. (2022), for instance, document a reallocation of European bank lending away from polluting firms toward greener borrowers, particularly among banks that are more capitalized or engaged in climate initiatives. Similarly, Aslan et al. (2022) analyze the Turkish banking sector, showing that banks reduce credit exposure in more polluted provinces following the Agreement's adoption, especially in regions with elevated climate risk. Bruno and Lombini (2023) further explore the effects of climate transition risks on bank lending behavior, finding that banks impose higher loan margins on polluting borrowers in countries with stronger climate awareness. However, they observe limited reductions in overall credit supply, highlighting the complex and non-linear dynamics between climate risk and credit allocation. Tolliver et al. (2019) investigate the rise of green bonds, noting a surge in issuances used to finance renewable energy, transportation, and water infrastructure projects aligned with both the Paris Agreement and the UN Sustainable Development Goals (SDGs). Their findings underscore the pivotal role of commercial banks and multilateral institutions in deploying green capital to facilitate decarbonization. Beyond credit and investment, climate risk also affects firm-level financial policy. Chang et al. (2024) examine the influence of climate risk on corporate payout strategies across 45 countries, finding that firms in high-risk environments reduce dividends and prefer share repurchases, which offer greater flexibility amid climate-induced volatility. The shift became more pronounced after the Paris Agreement, particularly in countries with cultural traits favoring uncertainty avoidance and long-term planning.

Climate-related disclosures have also become a focal point of governance and investor scrutiny. The Task Force on Climate-related Financial Disclosures (TCFD), established by the Financial Stability Board in 2015, has become a global benchmark for climate transparency. Empirical studies indicate a steady increase in TCFD-aligned reporting since 2017. Ding et al. (2023) develop a novel metric using textual analysis of annual reports from 2010 to 2018, finding that high-emission firms in carbon-intensive sectors voluntarily disclose more climate information, particularly in TCFD-recommended areas such as governance, risk management, and strategy. Disclosure patterns vary by jurisdiction: UK firms emphasize governance and strategy, while US firms' reporting is more strongly influenced by emissions levels. Xhindole et al. (2025) examine climate-related disclosures by listed firms in Italy and Spain over the period 2020–2023—two countries characterized by comparable institutional and financial structures.

Their analysis reveals widespread adoption of the Task Force on Climate-related Financial Disclosures (TCFD) framework, yet limited integration of climate risks into firms' broader risk management systems. The findings suggest that national regulatory contexts influence disclosure emphasis, with Italian firms prioritizing governance-related aspects and Spanish firms placing greater focus on both narrative and quantitatively disclosure of risk management information. In Asia, Gao et al. (2024) examine the impact of TCFD-aligned disclosures on green innovation in Chinese A-share companies. While disclosure generally supports innovation, excessive emphasis on governance is negatively associated with innovation, reflecting how institutional context can mediate the effectiveness of transparency efforts. Banks have increasingly endorsed the TCFD framework, though their motivations and disclosure quality vary. Lee et al. (2024) assess voluntary climate disclosures by the world's 100 largest banks, finding that those operating in common law countries with stronger investor protections and better environmental performance are more likely to adopt TCFD practices. Board independence and diversity positively affect disclosure quality, while board size and CEO power do not. Interestingly, in jurisdictions with high shareholder litigation risk, board independence may actually reduce disclosure levels—highlighting the nuanced and sometimes counterintuitive governance dynamics surrounding climate transparency.

Another significant initiative is the Principles for Responsible Banking (PRB), introduced in 2019 by the UNEP Finance Initiative to align banking activities with the Sustainable Development Goals (SDGs) and the Paris Agreement. Feridun and Talay (2023), examining data from 46 European countries, find that a higher proportion of wholesale banks adhering to the PRB is associated with greater progress toward achieving the SDGs, particularly in sectors such as renewable energy and sustainable agriculture. In contrast, retail banks appear to have a more constrained capacity to support these objectives, contributing less directly to SDG-related outcomes.

Taken together, these studies emphasize the growing influence of climate-related initiatives on financial decision-making, credit allocation, disclosure practices, and institutional risk management. However, while the effects of broad frameworks like the Paris Agreement and TCFD have been widely studied, the specific implications of voluntary alliances such as the NZBA on banks' climate risk profiles remain insufficiently explored. This study contributes to filling this gap by offering empirical evidence on whether NZBA participation—particularly meaningful progress on decarbonization targets—correlates with reductions in climate-related financial risk. In doing so, it also considers the political and institutional factors that may condition the durability and credibility of such voluntary commitments.

3. Methodology

3.1. Climate risk variables

We use $CRISK$ as the primary variable to assess monthly bank climate risk, as defined by Jung et al. (2025). The $CRISK$ measures the expected capital shortfall of a financial firm during a climate crisis, specifically when the value of the firm's stranded assets portfolio declines by more than 50% within a six-month period. The climate risk ($CRISK$) measure is defined as:

$$CRISK = k * Debt - (1 - k) * (1 - LRMES) * MV, \quad (1)$$

where: k is the prudential capital requirement (8% for firms in Africa, Asia, and the Americas; 5.5% for firms in Europe), $LRMES$ represents the expected fractional loss of equity when the stranded assets portfolio[1] experiences the crisis threshold (default set at 50%), MV is the market value of the firm.

3.2. Model

Our empirical analysis employs two distinct models. The first model evaluates whether membership in the NZBA, specifically through the attainment of initial targets, impacts changes in the bank's climate risk. Conversely, the second model investigates the reasons for exiting the NZBA Alliance, taking into account both political and economic factors.

[1] As explained in detail by Jung et al. (2025), stranded assets are evaluated using a "stranded asset factor" that reflects the risk of fossil fuel reserves becoming economically unviable due to climate policies, with research indicating that significant portions of oil, gas, and coal reserves must remain untapped to keep global warming below 2 degrees Celsius. The stranded asset portfolio, developed by Litterman (2021) and the World Wildlife Fund, includes a 70% long position in the VanEck Vectors Coal ETF (KOL), a 30% long position in the Energy Select Sector SPDR ETF (XLE), and a short position in the SPDR S&P 500 ETF Trust (SPY); after KOL's closure, it uses the average returns of the top five coal companies. This portfolio serves as a proxy for market expectations about future climate risks. To assess stranded asset risks, a scenario is created where the factor declines by 50% over six months, representing a severe stress test aligned with the 1% quantile of past returns. Such scenarios help banks evaluate their exposure to potential market value losses during the transition to a low-carbon economy, highlighting the necessity for effective measurement and management of stranded asset risks.

3.2.1. Climate Risk and the NZBA Alliance

To examine the potential connection between climate risk and NZBA membership, we introduce the following econometric model:

$$\begin{aligned}
&\Delta CRISK_{i,t} = \alpha + \beta_1\left(Joining\ NZBA_{i,t}\right) \\
&+\beta_2\left(Distance\ from\ NZBA's\ first\ target_{i,t}\right) \\
&+\beta_3\left(NZBA\ first\ target\ completion_{i,t}\right) \\
&+\beta_4(USA\ presidential\ election\ results_t) \\
&+\beta_5(Global\ financial\ crisis_t) \\
&+\beta_6(Paris\ Agreement_t) \\
&+\beta_7(Covid\ pandemic_t) \\
&+\beta_8\left(Total\ assets_{i,t-1}\right) \\
&+\beta_9(Leverage_{i,t-1}) \\
&+\beta_{10}(ROA_{i,t-1}) \\
&+\beta_{11}\left(Loan\ loss\ reserves\ relative\ to\ gross\ customer\ loans\ \&\ advances_{i,t-1}\right) \\
&+\beta_{12}(Non-interest\ income\ relative\ to\ Operating\ revenues_{i,t-1}) \\
&+\beta_{13}\left(LaggedCRISK_{i,t}\right) \\
&+Fixed\ Effects_i + Fixed\ Effects_t + \varepsilon_{i,t} \qquad (2)
\end{aligned}$$

Where $\Delta CRISK_{i,t}$ represents the change in credit risk for institution i at time t, with the observation being the last daily data point in the reference month as indicated by V-lab; $LaggedCRISK_{i,t}$, the lagged value of climate risk for institution i at time t, included to account for persistent effects; $Joining\ NZBA_{i,t}$, a dummy variable that equals 1 if institution i has joined the National Banking Association (NZBA) at time t; $Distance\ from\ NZBA's\ first\ target_{i,t}$ representing the monthly distance to the first target set by bank i at time t, aimed at progressively aligning with the NZBA's final target; and $NZBA\ first\ target\ completion_{i,t}$ indicates whether institution i has completed the first NZBA target at time t. The $USA\ presidential\ election_t$ denotes the election, at time t, of a U.S. president characterized by a skeptical stance toward climate change policies. Additional dummy variables represent the $Global\ financial\ crisis_t$, $Paris\ Agreement_t$, and $Covid\ pandemic_t$, each equal to 1

during their respective event. The accounting-based variables include: $Total\ assets_{i,t}$[2], which represents the total assets on the balance sheet of institution i at time t; $Loan\ loss\ reserves\ relative\ to\ gross\ customer\ loans\ \&\ advances_{i,t}$, the ratio of loan loss reserves to gross customer loans and advances for institution i at time t; $Leverage_{i,t}$ indicating the leverage level of institution i at time t; $ROA_{i,t}$ is the return on assets for institution i at time t; $Non-interest\ income\ relative\ to\ operating\ revenues_{i,t}$ is the ratio of non-interest income to operating revenues for institution i at time t. Finally, we include fixed effects specific to institution i and time t; and $\varepsilon_{i,t}$ is the error term for institution i at time t.

We propose alternative versions of this model to investigate how the exclusion or inclusion of additional variables influences the robustness of the coefficients. To address the non-stationarity of CRISK, we define our dependent variable in first differences[3].

3.2.2. Analysis of political and financial factors influencing withdrawal from the NZBA alliance

To examine the factors that affect a bank's decision to withdraw from the NZBA (Net Zero Banking Alliance), we employ the following logit model:

$$
\begin{aligned}
&Logit(P)_{i,t} = \alpha + \beta_1\left(CRISK_{i,t}\right) \\
&+\beta_2\left(Distance\ from\ NZBA's\ first\ target_{i,t}\right) \\
&+\beta_3(USA\ presidential\ election\ results_t) \\
&+\beta_4\left(Total\ Assets_{i,t-1}\right) \\
&+\beta_5(Leverage_{i,t-1} \\
&+\beta_6(ROA_{i,t-1}) \\
&+\beta_7(Loan\ loss\ reserves\ relative\ to\ gross\ customers\ loans\ \&\ advances_{i,t-1})
\end{aligned}
\tag{3}
$$

[2] We employ quarterly data whenever available and project them to the following months until the next available data point. In cases where quarterly accounting information is not available, we rely on semi-annual or annual data instead.

[3] However, the results remain consistent in both interpretation and statistical significance when the variable is expressed in millions of US dollars.

$$+\beta_8(Non\ -\ interest\ income\ relative\ to\ operating\ revenues_{i,t-1})$$
$$+\varepsilon_{i,t}$$

In this model, the dependent variable is a binary outcome that indicates whether a bank has withdrawn from the alliance (1) or not (0). The remaining variables correspond to those employed in the previously specified model.

4. Data

Our empirical analysis utilizes a comprehensive set of data sources, which are categorized into institutional data related to the Net-Zero Banking Alliance (NZBA), climate indicators, political variables, macroeconomic data reflecting the impact of global shocks such as the 2008 financial crisis and the COVID-19 pandemic, and bank-specific financial information. Table 1 details these sources, outlining the variables employed in the study alongside concise descriptions of each. Table 2 presents the correlation matrix for the key variables, providing preliminary insights consistent with the patterns observed in the empirical results. Notably, there is a negative correlation between the achievement of initial NZBA targets and a bank's exposure to climate risk (-0.026), suggesting that progress in sustainability commitments generally corresponds with reduced climate-related vulnerabilities. Conversely, the political variable—measuring the election of a climate-skeptical president—exhibits a positive correlation with climate risk (0.015), suggesting that market participants interpret political developments as significant signals concerning a bank's environmental strategy and risk exposure. Regarding bank-specific financial indicators, the data indicate that climate risk shows relatively low sensitivity to traditional balance sheet variables. However, there is the positive correlation between bank size and NZBA membership (0.067), implying that larger institutions are more inclined to participate in international climate initiatives.

4.1. Climate and political data

Among the key climate-related variables incorporated in our empirical analysis is the Climate Risk Index (CRISK), as defined by Jung et al. (2025) and obtained from the Volatility Laboratory at the NYU Stern Volatility and Risk Institute (https://vlab.stern.nyu.edu). Figure 1 presents the monthly average of the bank-level Climate Risk Index (Average CRISK), measured in millions of U.S. dollars, spanning the period from June 2000 to March 2025. The data reveal a sustained increase in climate-related risks over this timeframe. To contextualize this trend, we highlight the political landscape by shading in gray the periods corresponding to U.S. Republican presidential administrations in the USA. For clarity on this characterization, Table 3 provides an overview of these administrations, including their climate policies, instances of rolling back predecessor initiatives, and withdrawals from international agreements, all of which significantly influenced the trajectory of climate risk.

Figure 1 indicates an initial peak in climate risk in December 2008, primarily attributable to the global financial crisis. This surge reflects heightened uncertainty and volatility within financial markets during this period. The lead-up to this peak coincides with the presidency of George W. Bush, whose administration implemented several notable actions impacting climate risk. Notably, the United States' withdrawal from the Kyoto Protocol in 2001 marked a reduction in international climate commitments. Additionally, the launch of the Climate Change Science Program (CCSP) in 2002 sought to coordinate climate research across federal agencies to enhance understanding of global climate change and its potential consequences. The Energy Policy Act of 2005 further shaped the landscape by providing subsidies favoring fossil fuels while offering limited support for renewable energy. Collectively, these policies did not facilitate a course of action aimed at mitigating climate change over the years.

During Barack Obama's presidency (2009–2016), climate risk experienced notable fluctuations but remained relatively stable between 2013 and 2016, fluctuating within an approximate range of -10 billion to +10 billion. This period of stabilization appears to be the result of several significant climate initiatives, including the American Recovery and Reinvestment Act (2009), which allocated substantial funding for renewable energy projects; the implementation of stringent national fuel economy standards (2009); the signing of the Paris Agreement (2015); and the introduction of the Clean Power Plan (2015). Collectively, these measures likely helped moderate the trajectory of climate risk, with their effects extending into the subsequent administration until around mid-2019.

During President Donald Trump's tenure (2017–2020), climate risk reached a marked peak, probably partly reflecting market uncertainty associated with the COVID-19 pandemic. The administration's policy decisions—including the 2017 announcement of withdrawal from the Paris Agreement, the expansion of oil and gas drilling beginning in 2017, approval of the Keystone XL pipeline in 2019, the formal initiation of the Paris Agreement withdrawal process in 2019 (completed in 2020), and the rollback of the Clean Power Plan in 2019—contributed to an environment of heightened climate vulnerability. Collectively, these measures intensified climate-related risks throughout this period.

In contrast, the period following President Joe Biden's inauguration is characterized by a gradual decline in climate risk, largely driven by a series of ambitious policy initiatives. Notable measures include rejoining the Paris Agreement in 2021, issuing executive orders focused on addressing climate change and advancing environmental justice, re-establishing the National Climate Task Force, and committing the federal government to achieving net-zero emissions by 2050. Additionally, the passage of the Inflation Reduction Act in 2022, which allocated $370 billion for climate-related investments, has significantly contributed to this favorable shift in the trajectory of climate risk. The final section of the chart corresponds to the return of the President Donald Trump administration, marked by a renewed skeptical approach to climate change and the announcement of several major actions, including the immediate withdrawal from the Paris Agreement.

4.2. NZBA Alliance

This analysis focuses on banks participating in the Net-Zero Banking Alliance (NZBA), comprising a total of 85 institutions selected based on the availability of all relevant variables required for the study. Table 4 presents a detailed overview of regional participation in the NZBA from 2021 to 2026. European banks consistently represent the highest share of participants, reaching a peak of 38% in 2021 and maintaining a significant presence with 11% in 2022. This pattern highlights the strong and sustained commitment of European banks to net-zero objectives. Cumulatively, banks from the Asia-Pacific and North American regions followed, contributing 16% and 13% to total participation, respectively. Importantly, banks typically set their initial NZBA targets within one to two years of joining, suggesting a high level of short-term engagement. However, recent years have witnessed a noticeable wave of withdrawals. In North America, 12% of the banks exited the alliance between December 2024 and

January 2025, while the Asia-Pacific region experienced a 5% reduction in March 2025. These withdrawals have been widely linked to the political shift following the 2024 U.S. presidential election. For instance, *The Guardian* (8 January 2025) reported that "Six big US banks quit net zero alliance before Trump inauguration," suggesting expectations over impending regulatory rollbacks. Similarly, the *Financial Times* (7 April 2025) raised questions about the alliance's future in its article, "Can the Net-Zero Banking Alliance retain its sole Japanese member?"

5. Results

Our primary regression model investigates the relationship between climate risk, measured by ΔCRISK, in banks within the NZBA Alliance and several other variables. Table 5 reports the results of panel regressions examining the determinants of monthly changes in banks' climate risk (ΔCRISK), using data from June 2000 to March 2025 for 85 banks. The analysis consists of six model specifications that progressively integrate institutional (NZBA-related) and political dimensions, while controlling for financial and economic factors. Across model specifications [1] to [6], the coefficients for the $Joining\ NZBA$ dummy variable e $Distance\ from\ NZBA\ first\ target$ are consistently statistically insignificant, indicating no evidence that either joining the alliance or merely setting targets has an immediate effect on climate risk. In contrast, the coefficient for the $NZBA\ first\ target\ completion$ dummy is negative and statistically significant in specifications [3], [5], and [6], with estimates ranging from -0.793 to -1.034. These results suggest that the actual fulfillment of initial NZBA targets is associated with a reduction in climate risk, highlighting the credibility and potential signaling effect of concrete progress in decarbonization.

The $USA\ presidential\ election\ results$ dummy is highly significant and positive, with coefficients around 4.7. This indicates that when a climate-skeptical president is elected in the U.S., banks' climate risk increases sharply, likely reflecting anticipations of regulatory rollbacks and reduced climate policy support. Financial control variables reveal that higher leverage is associated with increased climate risk, possibly because more highly leveraged banks may have less financial flexibility to manage or adapt to climate-related exposures. Conversely, greater profitability (as measured by ROA) is linked to lower climate risk, likely reflecting that well-performing banks have more resources and stronger risk management practices. Other financial indicators show no significant impact, suggesting their influence on climate risk is either indirect or relatively minor.

Global events demonstrate differentiated impacts on banks' climate risk. The variable capturing the global financial crisis is associated with a pronounced increase in climate risk, likely reflecting heightened systemic vulnerabilities. In contrast, the $COVID\ pandemic$ variable corresponds to a significant decrease in risk, potentially due to lower emissions and reduced economic activity. The $Paris\ Agreement$ variable shows a strong negative effect in specifications including political controls (models [5] and [6]), suggesting that global policy commitments can contribute to climate risk mitigation. This may also signal heightened market sensitivity to climate policies during periods of political transition, particularly under climate-skeptical leadership. The $Lagged\ CRISK$ variable is strongly negative and significant in all specifications, suggesting a degree of mean reversion in climate risk over time.

Table 6 presents the results of a logit regression (Equation 3), where the dependent variable captures a bank's decision to withdraw from the Net-Zero Banking Alliance (NZBA). The analysis incorporates political, climate-related, and financial variables to identify the main drivers of this decision. In specifications [1] and [3], the coefficient on $CRISK$ is negative and statistically significant, suggesting that banks with higher exposure to climate risk are less likely to exit the NZBA. This may reflect a stronger reputational or strategic incentive for more exposed institutions to remain aligned with climate-focused initiatives. However, this relationship loses statistical significance when the political variable is included, implying that political context may moderate or override the effect of climate risk on withdrawal decisions. The $USA\ presidential\ election\ results$ variable consistently shows a positive and significant effect in specifications (2), (3), and (5), indicating that banks are more likely to withdraw when a president skeptical of climate change is elected. This highlights the importance of political signals in shaping institutional climate commitments.

The variable measuring $Distance\ from\ NZBA's\ first\ target$ shows a negative and significant effect in one model but lacks robustness across specifications, limiting the strength of the inference. The $Total\ assets$ coefficient is positively and significantly associated with withdrawal across all models, suggesting that larger banks may be more prone to exit, potentially due to their greater institutional flexibility, regulatory exposure, or influence over public discourse. Other financial controls, do not exhibit consistent or significant effects, indicating a limited role in explaining withdrawal behavior.

Overall, our results suggest that while joining the NZBA Alliance does not affect banks' climate risk, achieving initial climate targets reduces risk, and political leadership significantly influences both climate

risk and withdrawal likelihood, highlighting the dominance of political factors over traditional financial metrics in shaping banks' climate strategies.

6. Robustness

To assess the robustness of our findings, we employed a series of regression models incorporating various fixed effects. Table A.1 in the appendix reports the results for various model specifications: specifications [1] and [2] include regional fixed effects; specifications [3] and [4] incorporate country fixed effects; specifications [5] and [6] introduce interactions between bank-specific and regional fixed effects; and specifications [7] and [8] include interactions between bank-specific and country fixed effects. Across all these models, the main findings concerning the relationship between banks' climate risk exposure and the key explanatory variables remain consistent, thereby confirming the main results. However, the effects of the balance sheet control variables appear less stable, indicating limited robustness in some specifications.

We incorporate the bank environmental pillar score into our analysis to examine its influence on our primary findings. This inclusion allows us to assess whether a bank's environmental performance impacts its exposure to climate-related risks. However, due to limited availability of environmental scores across the entire sample and time frame, our dataset is consequently reduced. As presented in Table A.2, our analysis does not reveal a statistically significant relationship between the environmental pillar score and climate risk. This outcome, while seemingly counterintuitive, suggests that a bank's climate risk profile may already embed environmental considerations. Therefore, the environmental pillar score does not exhibit an additional, distinct effect in our model. Looking at the probability of withdrawal from the Alliance, Table A.3 indicates that banks with higher environmental scores appear more likely to exit the program. However, this association loses statistical significance upon the inclusion of additional institutional and political variables. This finding implies that the decision to withdraw is not primarily driven by a bank's environmental performance, but rather by broader political factors.

To deepen our analysis, we narrow the focus to Globally Systemically Important Banks (GSIBs) that are members of the Net-Zero Banking Alliance (NZBA). This targeted approach allows us to better understand how major financial institutions with explicit sustainability commitments respond to climate-related risks and political dynamics. Given their size and regulatory exposure, these institutions are particularly sensitive to shifts in political leadership and policy direction. The results of this focused

analysis are presented in Tables A.4 and A.5, which report, respectively, the outcomes of a panel regression and a panel logit model. In Table A.4, we observe that the main findings from our broader sample are robust within this subgroup. Notably, the coefficient associated with the election of a climate-skeptical president is larger for globally systemically important banks (G-SIBs), with a value of 9.626. This indicates that political developments significantly shape institutional decisions on climate strategy, highlighting the susceptibility of largest banks to political influence.

The logit model results in Table A.5 reinforce the robustness of our conclusions. Within the G-SIB sample, political variables again emerge as decisive. In particular, model specification (6) shows that when the variable capturing the election of a climate-skeptical leader is introduced, it dominates the model, rendering other explanatory variables insignificant. This provides strong evidence that political context is a primary driver behind banks' decisions to disengage from climate initiatives like the NZBA.

7. Conclusion

This study analysis climate risk, institutional responses to climate change, and the political and financial factors influencing these dynamics, with a particular focus on the Net-Zero Banking Alliance (NZBA). Our findings advance the literature on climate-related financial risks by delivering several key insights. Firstly, we find that mere membership in the NZBA does not produce a statistically significant short-term reduction in banks' climate risk exposure. This suggests that affiliation with voluntary climate initiatives alone is insufficient to mitigate climate-related financial vulnerabilities. Instead, our results highlight the critical importance of translating commitments into concrete actions and achieving clearly defined interim targets. Banks that meet their early NZBA milestones demonstrate a measurable decrease in climate risk, underscoring the value of substantive progress in stabilizing financial institutions' risk profiles. Among the various factors examined, political leadership emerges as a particularly powerful driver of climate risk. The election of climate-skeptical leaders is consistently associated with heightened climate risk exposure, particularly among Global Systemically Important Banks (G-SIBs). This finding emphasizes the outsized influence of political developments relative to traditional financial metrics in shaping banks' climate risk landscapes. Moreover, our analysis of NZBA withdrawal patterns reveals that political alignment serves as the predominant determinant, corroborating recent observations of withdrawals by major U.S. and Japanese banks following political transitions. These dynamics underscore the vulnerability of voluntary climate coalitions to shifts in political environments.

The implications of our findings carry significant weight for policymakers and financial regulators: political shifts have the potential to undermine large banks priorities. While these withdrawals may not immediately jeopardize the stability of the banks themselves—and indeed, a change in government could potentially prompt re-engagement with initiatives such as the NZBA—one conclusion is difficult to avoid: for many globally systemically important banks, the ambition to reduce emissions and align portfolios with a net-zero trajectory by 2050 no longer appears to be a foremost priority.

Several avenues for future research emerge from this analysis. Notably, the withdrawals observed to date have predominantly involved large, globally systemic banks. It is reasonable to question whether smaller financial institutions will eventually follow this trend. If smaller banks maintain their commitments, this raises a compelling question: why do political dynamics exert a stronger influence on the climate strategies of major banks while smaller institutions appear more resilient in upholding net-zero targets through 2050? Possible explanations include reduced political pressure on smaller banks, or a longer timeline for meeting interim targets that intensifies in the medium term, allowing these banks to adopt a more relaxed stance in the short run. Furthermore, the behavior of Japanese banks—seemingly choosing to withdraw from the NZBA to capitalize on short-term profit opportunities in the U.S. market—may become clearer in the near future.

References

[1] Aslan, C., Bulut, E., Cepni, O., and Yilmaz, M. H. (2022). Does climate change affect bank lending behavior?. *Economics Letters*, *220*, 110859.

[2] Bruno, B., and Lombini, S. (2023). Climate transition risk and bank lending. *Journal of Financial Research*, *46*, S59-S106.

[3] Chang, Y., He, W., and Mi, L. (2024). Climate risk and payout flexibility around the world. *Journal of Banking & Finance*, *166*, 107233.

[4] Degryse, H., Goncharenko, R., Theunisz, C., and Vadasz, T. (2023). When green meets green. *Journal of Corporate Finance*, *78*, 102355.

[5] Dikau, S., and Volz, U. (2018). Central banking, climate change and green finance.

[6] Ding, D., Liu, B., and Chang, M. (2023). Carbon emissions and TCFD aligned climate-related information disclosures. *Journal of Business Ethics*, *182*(4), 967-1001.

[7] Feridun, M., and Talay, I. (2024). Principles for responsible banking and sustainable development goals: an empirical investigation on European wholesale and retail banks. *Applied Economics Letters*, *31*(19), 2077-2080.

[8] Gao, Y., Saleh, N. M., Abdullah, A. M., and Adznan, S. (2024). Climate-related disclosures under the TCFD framework and business green innovation: Evidence from China A-share companies. *Finance Research Letters*, *63*, 105310.

[9] Jung, H., Engle, R. F., and Berner, R. (2025). CRISK: measuring the climate risk exposure of the financial system. *Journal of Financial Economics*, *171*, 104076.

[10] Xhindole, C., Tarquinio, L., and Sierra-García, L. (2025). Climate change and Task Force on Climate-related Financial Disclosures (TCFD) reports. A comparison between Italy and Spain. *Journal of Accounting & Organizational Change*, *21*(7), 1-28.

[11] Lee, A., Kim, J. D., and Bae, S. M. (2024). Determinants of Global Banks' Climate Information Disclosure with the Moderating Effect of Shareholder Litigation Risk. *Sustainability*, *16*(6), 2344.

[12] Litterman, R. (2023). Selling stranded assets: Profit, protection, and prosperity. *Retrieved from*.

[13] Reghezza, A., Altunbas, Y., Marques-Ibanez, D., and D'Acri, C. R., and Spaggiari, M., "Do banks fuel climate change?," Journal of Financial Stability 62, 101049 (2022).

[14] Tolliver, C., Keeley, A. R., and Managi, S. (2019). Green bonds for the Paris agreement and sustainable development goals. *Environmental Research Letters*, *14*(6), 064009.

[15] Wang, J. Z., Narayan, P. K., Gunadi, I., and Hermawan, D. (2025). Climate change and financial risk: Is there a role for central banks?. *Energy Economics*, *144*, 108320.

Figures and tables

Figure 1. Average Climate Risk Index (CRISK) across U.S. presidential administrations from 2000 to 2025

This graph shows the monthly average bank-level Climate Risk Index (CRISK) from June 2000 to March 2025, measured in millions of U.S. dollars (left axis). The gray shaded areas indicate periods of Republican presidential administrations in the U.S., while the unshaded areas represent Democratic presidential administrations.

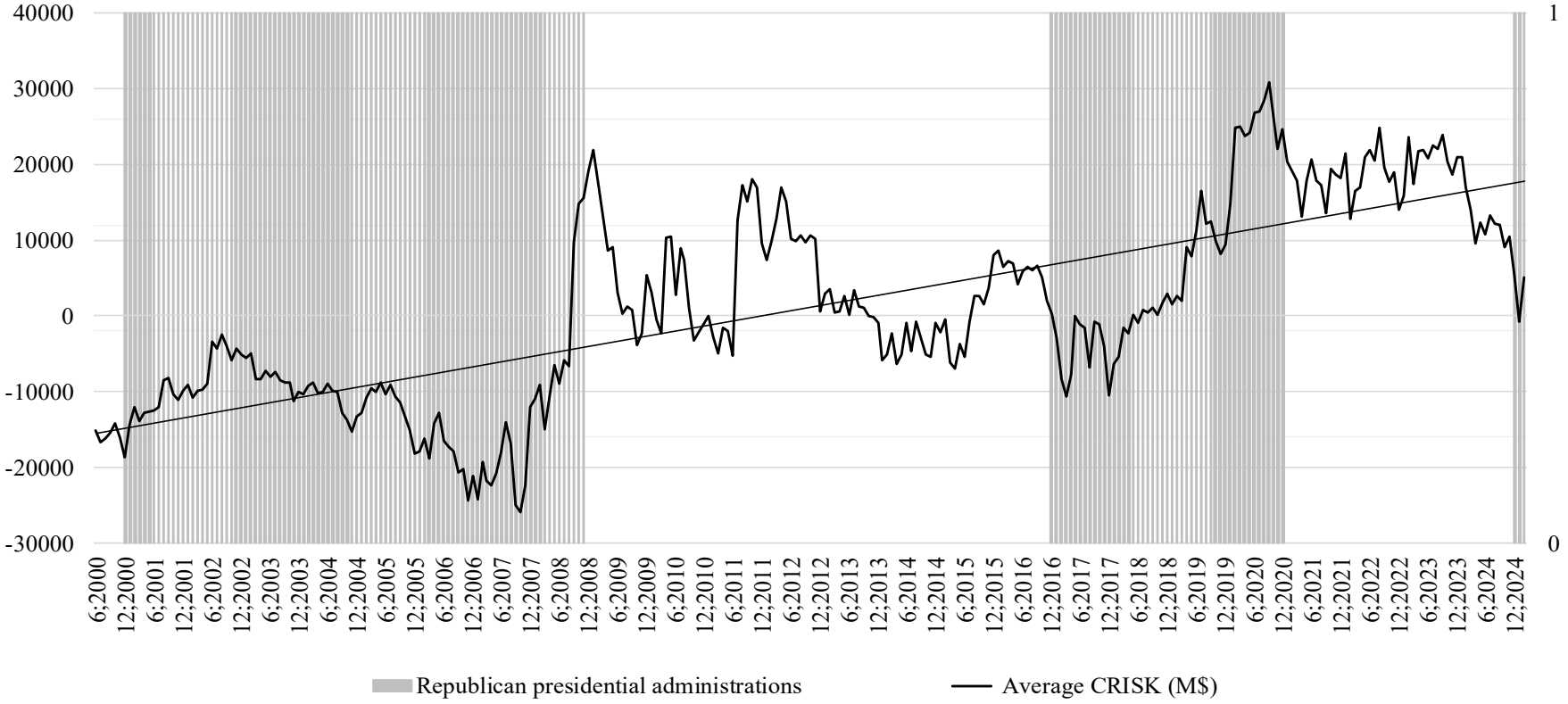


Table 1
Variables sources and descriptions

This table outlines the key variables used in this analysis, along with the sources from which they were obtained or defined.

Variable name	Source	Description
CRISK	The Volatility Laboratory of the NYU Stern Volatility and Risk Institute (https://vlab.stern.nyu.edu)	CRISK is the expected capital shortfall of a financial firm in a climate crisis where the stranded assets portfolio falls by more than 50% in a six-month period (Jung et al., 2025).
Joining NZBA	Variable defined according to the information available on the Net-Zero Banking Alliance website (https://www.unepfi.org/net-zero-banking/ website)	Dummy variable equal to 1 from the month and year the bank joins the Net-Zero Banking Alliance.
Distance from NZBA first target	Variable defined according to the information available on the Net-Zero Banking Alliance website (https://www.unepfi.org/net-zero-banking/ website)	The number of months remaining to achieve the NZBA's first target, as defined by the bank.
NZBA first target completion	Variable defined according to the information available on the Net-Zero Banking Alliance website (https://www.unepfi.org/net-zero-banking/ website)	Dummy variable equal to 1 starting from the month in which the first NZBA target is achieved.
USA presidential election results	The https://www.whitehousehistory.org/the-presidents-timeline	Dummy variable equal to 1 when a climate change-skeptical president is elected.
Total Assets (B$)	Orbis	Banks' total assets on the balance sheet, which represent the overall size of the bank.
Leverage	Orbis	Banks' leverage on the balance sheet, which represents the ratio of total assets to equity.
ROA	Orbis	Non-interest income relative to operating revenues, which represents the proportion of a bank's revenues generated from sources other than interest, such as fees and commissions.
Non-interest income relative to operating revenues	Orbis	Proportion of a company's total operating revenues that comes from non-interest income sources.
Loan loss reserves relative to gross customer loans & advances	Orbis	Proportion of a bank's reserves set aside for potential loan losses relative to its total gross customer loans and advances.
G-SIBs	The https://www.fsb.org/	Dummy variable equal to 1 if the financial institution is classified as a Globally Systemically Important Bank (G-SIB). Data are updated annually based on the latest FSB list. For periods not covered, the most recent available G-SIB composition is assumed.
Global financial crisis	The NBER (https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions)	Dummy variable that equals 1 during the U.S. recession triggered by the Global Financial Crisis, specifically from January 2008 to June 2009.
Paris agreement	Self-defined	Dummy variable that equals 1 from January 2016, considering that the Paris Agreement was signed in December 2015.
Covid pandemic	The https://www.who.int/europe/emergencies/situations/covid-19	Dummy variable equal to 1 during the COVID-19 peak period (March 2020 to mid-2021), aligned with declining cases and increased vaccination efforts.

Table 2
Correlation matrix

This table presents the correlation matrix for the key variables employed in this study, including ΔCRISK, Joining NZBA, Distance from NZBA first target, NZBA first target completion, Withdraw from NZBA, USA presidential election results, Total assets, Leverage, ROA, Loan loss reserves relative to gross customers loans & advances, Non - interest income relative to Operating revenues, Global financial crisis, Paris Agreement, and the Covid pandemic.

	ΔCRISK	Joining NZBA	Distance from NZBA first target	NZBA first target completion	Withdraw from NZBA	USA presidential election results	Total assets	Leverage	ROA	Loan loss ratio (*1)	Non - interest ratio (*2)	Global financial crisis	Paris Agreement	Covid pandemic
ΔCRISK	1													
Joining NZBA	-0.021*	1												
Distance from NZBA first target	0.019*	-0.172*	1											
NZBA first target completion	-0.026*	0.702*	-0.717*	1*										
Withdraw from NZBA	0.027*	-0.019*	-0.191*	0.139*	1									
USA presidential election results	0.015*	-0.159*	-0.064*	-0.07*	0.073*	1								
Total assets	0.000	0.067*	-0.069*	0.083*	0.068*	-0.026*	1							
Leverage	-0.001	-0.021*	0.026*	-0.03*	-0.017*	-0.031*	-0.212*	1						
ROA	0.002	0.041*	0.002	0.024*	-0.007	-0.066*	-0.246*	0.171*	1					
Loan loss ratio (1)	-0.002	-0.065*	0.044*	-0.063*	-0.018*	0.066*	-0.184*	0.236*	0	1				
Non - interest ratio (2)	0.004	0.000	-0.02*	0.012	0.022*	-0.009	0.278*	-0.188*	-0.125*	-0.206*	1			
Global financial crisis	0.047*	-0.118*	0.023*	-0.085*	-0.012	-0.139*	0.012	0.008	0.041*	-0.06*	-0.002	1		
Paris Agreement	-0.006	0.475*	-0.093*	0.342*	0.047*	0.563*	-0.014	-0.029*	-0.017*	0.061*	-0.022*	-0.247*	1	
Covid pandemic	-0.016*	-0.073*	0.070*	-0.083*	-0.011	0.287*	0.002	-0.008	-0.067*	0.03*	-0.005	-0.069*	0.280*	1

** indicates significance at least at the 5% level*

(1) Loan loss reserves relative to gross customers loans & advances

(2) Non - interest income relative to Operating revenues

Table 3

USA presidential election and actions on climate change

This table summarizes U.S. presidential elections from 2000 to 2025, highlighting the distinction between Republican and Democratic administrations. It also indicates which party held control of the House of Representatives and the Senate during each presidency. Additionally, it outlines key climate change initiatives for each year, providing a comprehensive overview of environmental actions during this period.

Year	President	Rep./Dem. President	Rep./Dem. House of Representatives	Rep./Dem. Senate	Actions on climate change
2000	Bill Clinton	Dem	Rep	Rep	Signed the Kyoto Protocol (not ratified) and supported environmental protection initiatives (1993–2001).
2001	George W. Bush	Rep	Rep	Rep	Withdrew from the Kyoto Protocol (2001).
2002	George W. Bush	Rep	Rep	Rep	Introduced the Climate Change Science Program (2002): The CCSP was a federal initiative designed to coordinate and integrate climate research across multiple U.S. government agencies. Its primary goal was to improve the understanding of global climate change, including its causes, impacts, and potential responses.
2003	George W. Bush	Rep	Rep	Rep	
2004	George W. Bush	Rep	Rep	Rep	
2005	George W. Bush	Rep	Rep	Rep	Passed the Energy Policy Act (2005): provided subsidies for fossil fuels and some support for renewable energy.
2006	George W. Bush	Rep	Dem	Rep	
2007	George W. Bush	Rep	Dem	Dem	
2008	George W. Bush	Rep	Dem	Dem	
2009	Barack Obama	Dem	Dem	Dem	Stimulus funding for renewable energy through the American Recovery and Reinvestment Act (ARRA) of 2009 included major clean energy investments. In May 2009, President Obama announced the first national greenhouse gas emissions and fuel economy standards for cars and light trucks. These regulations aimed to raise average fuel efficiency to 35.5 miles per gallon (mpg) by 2016. This represented a historic agreement between automakers, the federal government, and California, which maintained its own stricter standards.
2010	Barack Obama	Dem	Dem	Dem	
2011	Barack Obama	Dem	Rep	Dem	
2012	Barack Obama	Dem	Rep	Dem	In August 2012, President Obama finalized a second round of standards covering model years 2017–2025. The target was an average fuel efficiency of 54.5 miles per gallon by 2025 (measured under laboratory conditions; real-world values are expected to be lower). These regulations also aimed to reduce greenhouse gas emissions from vehicles by approximately 50% compared to 2010 levels.
2013	Barack Obama	Dem	Rep	Dem	
2014	Barack Obama	Dem	Rep	Dem	
2015	Barack Obama	Dem	Rep	Rep	Signing of the Paris Agreement (2015). Introduction of the Clean Power Plan (2015), aiming to reduce carbon emissions from power plants by 32% by 2030 compared to 2005 levels.
2016	Barack Obama	Dem	Rep	Rep	

(continues in the next page)

(Table 3 – continued)

2017	Donald Trump	Rep	Rep	Rep	The announcement of withdrawal from the Paris Agreement occurred in 2017. During President Donald Trump's administration, primarily between 2017 and 2020, there was a notable expansion of oil and gas drilling, alongside the approval of the Keystone XL pipeline.
2018	Donald Trump	Rep	Rep	Rep	
2019	Donald Trump	Rep	Dem	Rep	The formal withdrawal process from the Paris Agreement began in 2019. The Clean Power Plan was officially rolled back by the President Donald Trump's administration in June 2019.
2020	Donald Trump	Rep	Dem	Rep	Completion of the withdrawal process from the Paris Agreement (2020).
2021	Joe Biden	Dem	Dem	Dem	Rejoining the Paris Agreement (2021). Several executive orders aimed at tackling climate change were issued, including measures to address environmental justice, re-establish the National Climate Task Force, and direct the federal government to achieve net-zero emissions by 2050.
2022	Joe Biden	Dem	Rep	Dem	Enacted the Inflation Reduction Act (2022), allocating $370 billion for climate-related investments.
2023	Joe Biden	Dem	Rep	Dem	
2024	Joe Biden	Dem	Rep	Dem	
2025	Donald Trump	Rep	Rep	Rep	On January 20, 2025, President Trump signed the Executive Order 14162 to immediately withdraw the U.S. from the Paris Agreement. Rolled back Environmental Protection Agency (EPA) regulations and canceled $3.7 billion in clean energy project grants. Declared a national energy emergency to accelerate fossil fuel infrastructure development.

Table 4
Annual Shares of signature, first target, and withdrawal for NZBA members

This table provides an overview of participation levels among the final sample of banks analyzed within the context of the Net-Zero Banking Alliance (NZBA) from 2021 to 2026. The sample includes a total of 85 banks. It shows annual participation rates, calculated by dividing the number of banks in each region and category (including signatories, initial targets, and withdrawals) by the total number of banks in the sample. The table is organized by regions as defined by the NZBA: Europe, Asia-Pacific, North America, and Others, which includes Africa & the Middle East and Latin America & the Caribbean.

Year	Region	Signature share	First target share	Withdrawal share
2021	Europe	38%	-	-
	Asia Pacific	9%	-	-
	North America	13%	-	-
	Other	8%	-	-
2022	Europe	11%	26%	-
	Asia Pacific	5%	4%	-
	North America	-	5%	-
	Other	1%	4%	-
2023	Europe	8%	18%	-
	Asia Pacific	1%	7%	-
	North America	-	8%	-
	Other	2%	5%	-
2024	Europe	2%	7%	-
	Asia Pacific	1%	4%	-
	North America	-	-	5%
	Other	-	1%	-
2025	Europe	-	8%	-
	Asia Pacific	-	1%	5%
	North America	-	-	7%
	Other	-	2%	-
2026	Europe	-	-	-
	Asia Pacific	-	1%	-
	North America	-	-	-
	Other	-	-	-

Table 5

Determinants of climate risk — institutional, political, economic, and financial factors

This table presents the estimation results from the panel regression specified in Equation (2), where ΔCRISK is the dependent variable, measuring the monthly change in the climate risk indicator developed by Jung et al. (2021). The explanatory variables include institutional factors related to NZBA membership: a dummy variable for Joining NZBA (equal to 1 starting from the month the bank joins), Distance from NZBA first target (indicating the number of months to the initial target), and a dummy for NZBA first target completion (equal to 1 from the month the bank meets its initial goals). The variable USA presidential election results is a dummy equal to 1 when a president skeptical of climate change is elected. Additional dummy variables represent the Global Financial Crisis, Paris Agreement, and COVID-19 pandemic, each equal to 1 during their respective event periods. Financial control variables include Total assets, Leverage, Return on Assets (ROA), Loan loss reserves relative to gross customer loans, and Non-interest income relative to operating revenues. The model also includes Lagged CRISK to capture persistence in climate risk. All regressions include fixed effects for financial institutions and use monthly data from June 2000 to March 2025. At the bottom of the table, we report the number of observations, bank and year fixed effects, the number of clusters (financial institutions), and adjusted R-squared values. Robust standard errors are clustered at the bank level. Asterisks denote statistical significance: * at the 10% level, ** at the 5% level, and *** at the 1% level.

Dependent variable: ΔCRISK	(1)	(2)	(3)	(4)	(5)	(6)
Joining NZBA	0.140			0.381		0.536
	(0.429)			(0.660)		(0.666)
Distance from NZBA first target		0.020		-0.013		-0.010
		(0.013)		(0.024)		(0.024)
NZBA first target completion			-0.793**	-1.034*		-1.005*
			(0.320)	(0.523)		(0.522)
USA presidential election results					4.644***	4.743***
					(0.758)	(0.781)
Global financial crisis	2.820***	2.819***	2.817***	2.819***	2.819***	2.820***
	(0.923)	(0.922)	(0.922)	(0.923)	(0.922)	(0.923)
Paris agreement	-0.721	-0.225	0.117	-0.243	-5.245***	-5.090***
	(1.086)	(0.733)	(0.692)	(1.236)	(1.146)	(1.532)
Covid pandemic	-2.372***	-2.350***	-2.404***	-2.357***	-2.844***	-2.767***
	(0.463)	(0.459)	(0.474)	(0.460)	(0.515)	(0.498)
Total assets	1.093	1.099	1.106	1.104	1.099	1.107
	(0.795)	(0.792)	(0.790)	(0.791)	(0.794)	(0.791)
Leverage	0.119**	0.114**	0.110**	0.112**	0.118**	0.113**
	(0.056)	(0.054)	(0.054)	(0.056)	(0.055)	(0.056)
ROA	-0.244**	-0.248**	-0.253**	-0.250**	-0.238*	-0.241**
	(0.120)	(0.122)	(0.122)	(0.121)	(0.120)	(0.120)
Loan loss reserves relative to gross customers loans & advances	0.029	0.031	0.032	0.032	0.029	0.032
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Non - interest income relative to Operating revenues	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)
Lagged CRISK	-0.093***	-0.093***	-0.093***	-0.093***	-0.093***	-0.093***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Constant	-2.798***	-2.778***	-2.750***	-2.768***	-2.803***	-2.790***
	(0.687)	(0.691)	(0.693)	(0.691)	(0.689)	(0.691)
Observations	19,552	19,552	19,552	19,552	19,552	19,552
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R-squared	0.0540	0.0541	0.0541	0.0541	0.0547	0.0547
Number of banks	85	85	85	85	85	85

Table 6
Factors influencing withdrawal from the Net Zero Banking Alliance (NZBA)

This table presents the estimation results from the logit regression specified in Equation (3), where the dependent variable is the decision to withdraw from the Net-Zero Banking Alliance (NZBA). The explanatory variables include the bank's CRISK measure, the distance from NZBA's first target (measured in months), and a dummy variable for U.S. presidential election results, which equals 1 when a president skeptical of climate change is elected. The model also incorporates financial variables such as Total Assets, Leverage, Return on Assets (ROA), Loan Loss Reserves relative to Gross Customer Loans, and Non-Interest Income relative to Operating Revenues. The analysis covers the period from 2021—when most banks joined the Alliance—through March 2025. At the bottom of the table, the number of observations, the number of clusters (financial institutions), and the pseudo R-squared values are reported. Asterisks denote statistical significance: * at the 10% level, ** at the 5% level, and *** at the 1% level.

Dependent variable: Withdraw from NZBA	(1)	(2)	(3)	(4)	(5)
CRISK	-0.047***		-0.032***		-0.013
	(0.006)		(0.011)		(0.011)
Distance from NZBA first target				-1.858***	-0.798
				(0.205)	(0.529)
USA presidential election results		7.704***	7.618***		7.985**
		(1.089)	(1.353)		(3.262)
Total Assets (B$)	5.578**	4.643***	3.840**	3.110**	5.003*
	(2.379)	(1.224)	(1.530)	(1.542)	(2.843)
Leverage	-0.189	-1.301	-0.747	0.698	0.061
	(0.779)	(0.804)	(0.847)	(0.864)	(1.320)
ROA	-2.731**	0.077	-1.946	-0.761	-3.695
	(1.202)	(1.270)	(2.018)	(3.494)	(4.854)
Loan loss reserves relative to gross customers loans & advances	-1.535	-3.146**	-2.701	-1.548	-2.538
	(1.262)	(1.400)	(1.672)	(2.190)	(2.097)
Non - interest income relative to Operating revenues	0.108***	0.037	0.069*	0.043	0.066
	(0.035)	(0.026)	(0.036)	(0.044)	(0.048)
Constant	-21.552***	-11.404***	-14.915***	-70.264***	-41.008**
	(4.773)	(3.937)	(5.389)	(8.635)	(18.829)
Observations	4,270	4,270	4,270	4,270	4,270
Pseudo R-squared	0.258	0.596	0.678	0.678	0.678
Number of banks	85	85	85	85	85

Appendix

Table A.1

Determinants of climate risk with geographic fixed effects — institutional, political, economic, and financial factors

This table reports the estimation results from the panel regression specified in Equation (2), with ΔCRISK as the dependent variable, which quantifies the monthly change in the climate risk indicator developed by Jung et al. (2021). Differently from the main results, we include regional and country-based fixed effects. The explanatory variables encompass institutional factors associated with NZBA membership, including a dummy variable for Joining NZBA (set to 1 from the month the bank joins), Distance from NZBA first target (representing the monthly distance to the first target), and a dummy for NZBA first target completion (equal to 1 from the month the bank achieves its initial goals). The variable USA presidential election results is a dummy that takes the value of 1 when a president skeptical of climate change is elected. Additionally, the Global Financial Crisis, Paris Agreement, and COVID Pandemic are dummy variables that equal 1 during their respective periods. The model further incorporates financial variables, including Total assets, Leverage, ROA, Loan loss reserves relative to gross customer loans, and Non-interest income relative to operating revenues. The Lagged CRISK variable is included to account for persistent effects, and all regressions control for fixed effects related to financial institutions, utilizing monthly observations from June 2000 to March 2025. At the bottom of the table, the number of observations, fixed effects, the number of clusters (financial institutions), and adjusted R-squared values are provided, with robust standard errors clustered at the bank level. Asterisks denote significance levels: * indicates significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Dependent variable: ΔCRISK	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Joining NZBA	-0.339	-0.206	-0.101	0.040	0.086	0.235	0.275	0.426
	(0.454)	(0.450)	(0.540)	(0.542)	(0.674)	(0.679)	(0.643)	(0.649)
Distance from NZBA first target	-0.001	0.003	-0.009	-0.006	-0.005	-0.001	-0.010	-0.007
	(0.017)	(0.017)	(0.019)	(0.019)	(0.024)	(0.024)	(0.024)	(0.024)
NZBA first target completion	-0.902**	-0.875**	-0.971**	-0.943**	-1.038**	-1.009**	-1.038**	-1.008*
	(0.417)	(0.417)	(0.442)	(0.441)	(0.509)	(0.508)	(0.524)	(0.523)
USA presidential election results		4.553***		4.576***		4.654***		4.725***
		(0.713)		(0.737)		(0.767)		(0.782)
Global financial crisis	1.736***	1.737***	1.947***	1.948***	2.634***	2.635***	2.813***	2.815***
	(0.508)	(0.508)	(0.630)	(0.630)	(0.895)	(0.895)	(0.924)	(0.925)
Paris agreement	0.261	-4.367***	-0.020	-4.683***	0.157	-4.593***	-0.094	-4.919***
	(0.858)	(0.918)	(0.933)	(1.150)	(1.204)	(1.450)	(1.212)	(1.507)
Covid pandemic	-3.058***	-3.455***	-2.917***	-3.314***	-2.510***	-2.913***	-2.373***	-2.782***
	(0.563)	(0.613)	(0.503)	(0.551)	(0.462)	(0.501)	(0.460)	(0.497)
Total assets	0.400*	0.400*	0.242	0.242	0.528	0.529	1.101	1.105
	(0.230)	(0.230)	(0.307)	(0.307)	(0.668)	(0.669)	(0.793)	(0.793)
Leverage	0.015	0.015	0.040	0.040	0.054	0.054	0.079	0.079
	(0.029)	(0.029)	(0.039)	(0.039)	(0.060)	(0.060)	(0.054)	(0.054)
ROA	-0.087	-0.083	-0.132*	-0.125*	-0.350**	-0.342**	-0.257**	-0.248**
	(0.061)	(0.061)	(0.074)	(0.073)	(0.147)	(0.146)	(0.122)	(0.121)
Loan loss reserves / gross customers loans & advances	0.013	0.014	0.011	0.011	0.035	0.035	0.030	0.030
	(0.016)	(0.016)	(0.015)	(0.015)	(0.027)	(0.027)	(0.026)	(0.026)
Non - interest income / Operating revenues	-0.000	0.000	-0.004	-0.004	0.005	0.005	-0.002	-0.002
	(0.009)	(0.009)	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)	(0.009)
Lagged CRISK	-0.021***	-0.021***	-0.035***	-0.035***	-0.080***	-0.081***	-0.093***	-0.093***
	(0.005)	(0.005)	(0.009)	(0.009)	(0.019)	(0.019)	(0.020)	(0.020)
Constant	-0.912**	-0.925**	-1.428***	-1.436***	-1.294*	-1.294*	-2.192***	-2.207***
	(0.422)	(0.421)	(0.546)	(0.548)	(0.725)	(0.725)	(0.603)	(0.606)
Observations	19,552	19,552	19,552	19,552	19,552	19,552	19,552	19,552
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	No	No	No	No	No	No
Country FE	No	No	Yes	Yes	No	No	No	No
Bank FE*Country FE	No	No	No	No	No	No	Yes	Yes
Bank FE*Region FE	No	No	No	No	Yes	Yes	No	No
Adj R-squared	0.032	0.032	0.042	0.042	0.053	0.054	0.054	0.055
Number of banks	85	85	85	85	85	85	85	85

Table A.2

Determinants of climate risk with banks' environmental score — institutional, political, economic, and financial factors

This table reports the estimation results from the panel regression specified in Equation (2), with ΔCRISK as the dependent variable, which quantifies the monthly change in the climate risk indicator developed by Jung et al. (2021). Differently from the main results, we include the bank's environmental score as an additional explanatory variable. The explanatory variables encompass institutional factors associated with NZBA membership, including a dummy variable for Joining NZBA (set to 1 from the month the bank joins), Distance from NZBA first target (representing the monthly distance to the first target), and a dummy for NZBA first target completion (equal to 1 from the month the bank achieves its initial goals). The variable USA presidential election results is a dummy that takes the value of 1 when a president skeptical of climate change is elected. Additionally, the Global Financial Crisis, Paris Agreement, and COVID Pandemic are dummy variables that equal 1 during their respective periods. The model further incorporates financial variables, including Total assets, Leverage, ROA, Loan loss reserves relative to gross customer loans, and Non-interest income relative to operating revenues. The Lagged CRISK variable is included to account for persistent effects, and all regressions control for fixed effects related to financial institutions, utilizing monthly observations from January 2006 to March 2025. At the bottom of the table, the number of observations, fixed effects, the number of clusters (financial institutions), and adjusted R-squared values are provided, with robust standard errors clustered at the bank level. Asterisks denote significance levels: * indicates significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Dependent variable: ΔCRISK	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bank environmental score	0.245	0.264	0.200	0.160	0.196	0.245	0.208
	(0.368)	(0.361)	(0.369)	(0.370)	(0.359)	(0.368)	(0.359)
Joining NZBA		0.264			0.451		0.632
		(0.514)			(0.810)		(0.819)
Distance from NZBA first target			0.024*		-0.012		-0.009
			(0.014)		(0.030)		(0.030)
NZBA first target completion				-0.902**	-1.098*		-1.066*
				(0.342)	(0.567)		(0.567)
USA presidential election results						5.124***	5.250***
						(0.866)	(0.895)
Global financial crisis	4.220***	4.222***	4.221***	4.218***	4.222***	4.221***	4.225***
	(1.471)	(1.472)	(1.470)	(1.470)	(1.472)	(1.471)	(1.473)
Paris agreement	0.346	0.104	0.846	1.232	0.769	-4.784***	-4.634***
	(0.974)	(1.158)	(0.948)	(0.901)	(1.394)	(1.113)	(1.561)
Covid pandemic	-2.346***	-2.287***	-2.283***	-2.349***	-2.281***	-2.821***	-2.721***
	(0.523)	(0.511)	(0.504)	(0.523)	(0.511)	(0.556)	(0.540)
Total assets	1.032	1.031	1.035	1.044	1.044	1.041	1.054
	(1.575)	(1.576)	(1.574)	(1.570)	(1.571)	(1.575)	(1.572)
Leverage	0.130	0.131	0.125	0.120	0.122	0.129	0.122
	(0.101)	(0.103)	(0.100)	(0.099)	(0.102)	(0.101)	(0.103)
ROA	-0.235	-0.232	-0.240	-0.247*	-0.242*	-0.226	-0.230
	(0.143)	(0.142)	(0.144)	(0.145)	(0.143)	(0.141)	(0.141)
Loan loss reserves relative to gross customers loans & advances	0.048	0.048	0.052	0.054	0.054	0.048	0.053
	(0.035)	(0.036)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
Non - interest income relative to Operating revenues	-0.009	-0.009	-0.009	-0.009	-0.009	-0.009	-0.008
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Lagged CRISK	-0.111***	-0.111***	-0.111***	-0.111***	-0.111***	-0.111***	-0.111***
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Constant	-4.813***	-4.904***	-4.627***	-4.439**	-4.603***	-4.830***	-4.679***
	(1.729)	(1.710)	(1.749)	(1.744)	(1.739)	(1.728)	(1.744)
Observations	14,685	14,685	14,685	14,685	14,685	14,685	14,685
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R-squared	0.0646	0.0645	0.0646	0.0646	0.0645	0.0652	0.0652
Number of banks	78	78	78	78	78	78	78

Table A.3
Probability of withdrawal from the NZBA with banks' environmental score

This table presents the estimation results from the logit regression outlined in Equation (3), with the dependent variable being the decision to withdraw from the Net Zero Banking Alliance (NZBA). Differently from the main results, we include the bank's environmental score as an additional explanatory variable. The explanatory variables include the bank's CRISK measure, the Distance from NZBA's first target (indicating the monthly distance to that target), and a dummy variable for USA presidential election results, which equals 1 when a president skeptical of climate change is elected. Additionally, the model incorporates financial variables such as Total Assets, Leverage, Return on Assets (ROA), Loan Loss Reserves relative to Gross Customer Loans, and Non-Interest Income relative to Operating Revenues. The analysis covers the period from 2021, the year when most banks joined the Alliance, until March 2025. At the bottom of the table, the number of observations, the number of clusters (financial institutions), and adjusted R-squared values are displayed. Asterisks indicate significance levels: * for the 10% level, ** for the 5% level, and *** for the 1% level.

Dependent variable: Withdraw from NZBA	(1)	(2)	(3)	(4)	(5)
CRISK	-0.046***		-0.032***		-0.013
	(0.007)		(0.010)		(0.011)
Bank environmental score	-7.847***	-3.462	-0.564	-12.532	3.200
	(0.981)	(5.325)	(7.243)	(16.769)	(16.916)
Distance from NZBA first target				-2.236***	-0.785
				(0.292)	(0.495)
USA presidential election results		7.622***	7.586***		7.856***
		(1.066)	(1.347)		(2.971)
Total Assets (B$)	5.176***	4.533***	3.748**	7.797***	4.229**
	(1.373)	(1.162)	(1.545)	(1.407)	(1.705)
Leverage	-0.158	-1.282*	-0.776	-0.051	0.788
	(0.599)	(0.756)	(0.891)	(1.258)	(1.109)
ROA	-2.668**	0.082	-1.914	-2.237	-2.173
	(1.238)	(1.293)	(2.076)	(5.530)	(3.282)
Loan loss reserves relative to gross customers loans & advances	-1.514	-3.028**	-2.646	-4.581**	-2.073
	(1.212)	(1.418)	(1.717)	(2.325)	(2.288)
Non - interest income relative to Operating revenues	0.107***	0.035	0.068**	0.129*	0.057
	(0.031)	(0.026)	(0.034)	(0.071)	(0.042)
Constant	14.067	4.371	-11.972	-27.017	-60.081
	(0.000)	(24.385)	(34.364)	(83.127)	(82.480)
Observations	3,903	3,903	3,903	3,903	3,903
Pseudo R-squared	0.263	0.596	0.638	0.674	0.674
Number of banks	78	78	78	78	78

Table A.4
Determinants of climate risk of G-SIBs — institutional, political, economic, and financial factors

This table reports the estimation results from the panel regression specified in Equation (2), with ΔCRISK as the dependent variable, which quantifies the monthly change in the climate risk indicator developed by Jung et al. (2021). Differently from the main results, we restrict the analysis to Globally Systemically Important Banks (G-SIBs). The explanatory variables encompass institutional factors associated with NZBA membership, including a dummy variable for Joining NZBA (set to 1 from the month the bank joins), Distance from NZBA first target (representing the monthly distance to the first target), and a dummy for NZBA first target completion (equal to 1 from the month the bank achieves its initial goals). The variable USA presidential election results is a dummy that takes the value of 1 when a president skeptical of climate change is elected. Additionally, the Global Financial Crisis, Paris Agreement, and COVID Pandemic are dummy variables that equal 1 during their respective periods. The model further incorporates financial variables, including Total assets, Leverage, ROA, Loan loss reserves relative to gross customer loans, and Non-interest income relative to operating revenues. The Lagged CRISK variable is included to account for persistent effects, and all regressions control for fixed effects related to financial institutions, utilizing monthly observations from June 2000 to March 2025. At the bottom of the table, the number of observations, fixed effects, the number of clusters (financial institutions), and adjusted R-squared values are provided, with robust standard errors clustered at the bank level. Asterisks denote significance levels: * indicates significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Dependent variable: ΔCRISK	(1)	(2)	(3)	(4)	(5)	(6)
Joining NZBA	-2.575			-1.172		-0.216
	(1.825)			(3.312)		(3.334)
Distance from NZBA first target		-0.118**		-0.129		-0.109
		(0.046)		(0.143)		(0.143)
NZBA first target completion			-1.604*	-2.672*		-2.486*
			(0.897)	(1.336)		(1.337)
USA presidential election results					10.471***	9.626***
					(1.449)	(1.286)
Global financial crisis	7.034**	7.061**	7.053**	7.049**	7.054**	7.055**
	(2.761)	(2.763)	(2.759)	(2.766)	(2.760)	(2.767)
Paris agreement	-0.067	-4.830	-0.068	-1.672	-12.179***	-11.575*
	(3.144)	(3.026)	(2.451)	(6.584)	(2.120)	(6.456)
Covid pandemic	-5.963***	-5.560***	-5.147***	-5.974***	-6.139***	-6.513***
	(1.395)	(1.509)	(1.454)	(1.406)	(1.496)	(1.464)
Total assets	0.632	0.717	0.651	0.669	0.687	0.692
	(1.672)	(1.672)	(1.689)	(1.642)	(1.683)	(1.642)
Leverage	0.676	0.646	0.665	0.659	0.650	0.646
	(0.539)	(0.546)	(0.549)	(0.525)	(0.547)	(0.525)
ROA	-1.583	-1.590	-1.581	-1.586	-1.556	-1.560
	(0.987)	(0.997)	(0.991)	(0.993)	(0.982)	(0.985)
Loan loss reserves / gross customers loans & advances	0.291	0.294	0.295	0.292	0.293	0.292
	(0.227)	(0.228)	(0.228)	(0.229)	(0.225)	(0.228)
Non - interest income / Operating revenues	-0.014	-0.015	-0.014	-0.014	-0.014	-0.014
	(0.020)	(0.019)	(0.020)	(0.019)	(0.020)	(0.019)
Lagged CRISK	-0.102***	-0.103***	-0.103***	-0.103***	-0.103***	-0.103***
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
Constant	-5.584*	-5.430*	-5.560*	-5.501*	-5.510*	-5.477*
	(3.045)	(3.101)	(3.075)	(3.007)	(3.077)	(3.005)
Observations	5,478	5,478	5,478	5,478	5,478	5,478
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R-squared	0.0677	0.0677	0.0675	0.0679	0.0686	0.0689
Number of banks	23	23	23	23	23	23

Table A.5
Probability of withdrawal from the NZBA of G-SIBs

This table presents the estimation results from the panel logit regression outlined in Equation (3), with the dependent variable being the decision to withdraw from the Net Zero Banking Alliance (NZBA). Differently from the main results, we restrict the analysis to Globally Systemically Important Banks (G-SIBs). The explanatory variables include the bank's CRISK measure, the Distance from NZBA's first target (indicating the monthly distance to that target), and a dummy variable for USA presidential election results, which equals 1 when a president skeptical of climate change is elected. Additionally, the model incorporates financial variables such as Total Assets, Leverage, Return on Assets (ROA), Loan Loss Reserves relative to Gross Customer Loans, and Non-Interest Income relative to Operating Revenues. The analysis covers the period from 2021, the year when most banks joined the Alliance, until March 2025. At the bottom of the table, the number of observations, the number of financial institutions, and pseudo R-squared values are displayed. Asterisks indicate significance levels: * for the 10% level, ** for the 5% level, and *** for the 1% level.

Dependent variable: Withdraw from NZBA	(1)	(2)	(3)	(4)	(5)
CRISK	-0.044***		-0.036***		-0.017
	(0.008)		(0.010)		(0.016)
Distance from NZBA first target				-2.923***	-0.886
				(0.543)	(0.701)
USA presidential election results		6.991***	6.496***		5.425**
		(1.163)	(1.214)		(2.562)
Total Assets (B$)	0.663	3.088**	0.648	3.459	1.270
	(1.176)	(1.463)	(1.197)	(3.672)	(1.761)
Leverage	0.335	-0.812	0.111	10.516***	4.423*
	(0.802)	(0.957)	(0.848)	(3.085)	(2.665)
ROA	-2.258*	0.230	-2.696	3.318	-2.579
	(1.215)	(1.507)	(1.676)	(15.014)	(7.009)
Loan loss reserves relative to gross customers loans & advances	-0.912	-2.906**	-1.848	-3.888	-0.631
	(1.171)	(1.427)	(1.376)	(4.649)	(2.158)
Non - interest income relative to Operating revenues	0.027	-0.026	-0.005	-0.144	-0.062
	(0.033)	(0.036)	(0.038)	(0.115)	(0.064)
Constant	-7.990	-6.252	-6.515	-134.262***	-51.177
	(5.518)	(5.315)	(5.452)	(31.020)	(35.796)
Observations	1,070	1,070	1,070	1,070	1,070
Pseudo R-squared	0.275	0.534	0.625	0.703	0.703
Number of banks	21	21	21	21	21