Climate disclosures and market valuation: A banking sector perspective

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Abstract

Climate-related disclosure has emerged as a crucial channel for banks to communicate their environmental commitments and strategies for managing associated risks to stakeholders. Yet there is a lack of understanding regarding how financial markets process the specificity of such disclosure. We utilize a panel dataset comprising 107 publicly listed banks from 27 countries from 2015 to 2024 and employ natural language processing techniques based on the CLIMATEBERT model to examine the relationship between the specificity of such disclosures and banks' market valuation. We document that a non-specific disclosure in the context of climate commitments is positively associated with banks' market valuation. Yet this relationship is no longer observed among banks that have committed to the United Nations Environment Programme Finance Initiative's Principles for Responsible Banking. Overall, our results suggest that the value of such disclosure depends on the specificity of the disclosure and the level of institutional commitments in the banking sector.

Introduction

While the risks of climate change have been increasing in recent times, so have the disclosures built across its effects on the performance and outcomes of businesses. The banking sector, being one of the major players influencing the transition to low-carbon economies (Campiglio, 2016), is encouraged to report its efforts and initiatives to manage climate risks, aligning its portfolios with sustainability and climate goals (Weber & Feltmate, 2018) with the objective of communicating their accurate commitments to addressing climate impacts to the stakeholders. The climate-related disclosures addressing risks and opportunities facilitate the evaluation of the alignment of banks' managerial actions with long-term value creation, conveying their climate-related engagements, actions, and performance to stakeholders (Friedrich et al., 2023; Schiemann & Sakhel, 2019), thus highlighting its significance in balancing

financial performance and broader societal goals by reducing information asymmetries and enhancing risk management (Boiral et al., 2019; Manes-Rossi et al., 2020).

A number of studies (Bolton et al., 2022; Engle et al., 2020; Hong et al., 2019; Hsu et al., 2023) on the non-financial sector suggest that financial markets have begun incorporating climate-related communication and commitments into the pricing of securities and hedging strategies. Flammer et al., (2021) find that high-quality climate disclosures enhance market valuations by reducing information asymmetry, strengthening investor confidence and enhancing market stability. However, evidence of the effect of climate-related disclosures on the market valuation of the banking sector is limited. The literature suggests that the climate-related disclosures in the banking sector suffer from reporting gaps (Loew et al., 2019), mainly due to the absence of standardised mandatory disclosure guidelines and frameworks. There have been attempts to regulate and improve nonfinancial disclosures, especially those related to environmental issues, through industry-led or voluntary market policy frameworks such as the Task Force on Climate-related Financial Disclosure (2015), the UNEP FI Principles for Responsible Banking (2019), and Global Reporting Initiatives (2023), among others. However, the mounting pressure to take active climate action and to ensure transparency in climate-related reporting provides an incentive to use generalised language in their climate disclosures to reduce the risk of misleading information (Bingler et al., 2024). We thus analyse the impact of using such generalised or non-specific climate-related disclosures on the market valuation of the banking sector across countries.

Using a panel of 107 banks across 27 countries from 2015-2024, we perform textual analysis employing the ClimateBert model (Webersinke et al., 2022) with a natural language processing (NLP) methodology developed by Bingler et al., (2024) on the annual reports of these banks. We focus on the disclosures in the annual reports as their legally binding nature imposes greater managerial accountability and enhances stronger incentives to provide accurate information (Lopez-Lira, 2021), enhancing its perceived credibility and acceptance among stakeholders compared to other, less regulated channels. We measure the proportion of non-specific disclosures across a range of climate-related commitments annually and

analyse their impact on the bank's market valuation, using the market-to-book ratio as the primary dependent variable.

We find a statistically significant and positive relationship between non-specific climate disclosures and banks' market valuation, suggesting that even when the disclosure is non-specific or generalised, it can convey information relevant to investors, potentially reducing information asymmetry, signalling managerial awareness or strategic intent regarding climate risk, and shaping market perceptions. Markets view these communications as an indicator of management's intent to incorporate climate change risks into their business operations and strategic decisions, rather than as evidence of greenwashing. However, market perceptions change when banks become official signatories to a policy initiative, such as the UNEP FI Principles of Responsible Banking (PRB). The findings indicate that adopter banks differ structurally in how their climate disclosures are interpreted by the market, especially after the formal adoption of PRB. The post-adoption effect of non-specific climate disclosures turns negative relative to the baseline, suggesting that adopting self-regulatory frameworks alters investors' expectations, triggering greater accountability and higher communication quality. Our results remain robust to alternative proxies and to potential endogeneity concerns arising from reverse causality and selection bias.

Our analysis provides a novel perspective on non-specific or generalised climate disclosures, demonstrating that markets perceive vague language as a positive signal of managerial awareness and strategic intent, thereby reducing information asymmetry .rather than dismissing it altogether as greenwashing. We provide new evidence on how financial markets process climate-related textual disclosure in the annual reports in environments characterised by limited standardisation and evolving reporting practices. Further, it reveals a structural shift in investor behaviour. The market's tolerance for non-specific disclosures changes as voluntary sustainability frameworks are adopted. It highlights the role of voluntary policy initiatives in shaping investor expectations and strengthening accountability in climate-related reporting.

Literature review

Climate-related disclosures

The financial institutions play a critical role in supporting the global transition toward a low-carbon and climate-resilient economy. By influencing capital allocation and investment decisions, they can significantly reduce greenhouse gas emissions, protect biodiversity, and strengthen resilience against climate risks, thereby reinforcing the collective commitment necessary to tackle the urgent challenge of climate change (Weber & Feltmate, 2018). Although banks typically have relatively low direct environmental footprints due to limited operational emissions and resource consumption, their indirect environmental impact is substantial and has significant multiplier effects (Loew et al., 2019). Through their lending, investment, and portfolio management decisions, financial institutions can channel capital toward environmentally responsible projects and integrate climate-related considerations into their risk assessment and portfolio allocation processes (Zahid et al., 2024). In doing so, they not only mitigate their own environmental exposure but also encourage firms across industries to adopt more sustainable practices by differentiating financing conditions between environmentally responsible firms and those with higher environmental risks (Raimo et al., 2025).

Given the pivotal role of the banks in the facilitation of the transition to a low-carbon economy, climate-related disclosures have become a crucial mechanism for communicating transparent and comprehensive information about banks' environmental strategies and risk management practices to stakeholders to help them evaluate the alignment of managerial actions with long-term value creation (Friedrich et al., 2023; Schiemann & Sakhel, 2019). Although empirical research on banks' sustainability reporting is relatively limited compared with other industries, the literature has grown rapidly in recent years. Emerging research suggests that climate-related financial disclosures contribute to greater transparency, lower levels of information asymmetry, and that they can be an important mechanism for corporate governance in the transition to sustainable business models (Mougenot & Doussoulin, 2024; Sengupta et al., 2023).

The existing literature on climate-related disclosures in the banking sector has addressed various aspects, including the nature of the disclosed information, the motivations for disclosing climate-related

information, compliance with voluntary disclosure standards, and a number of factors that influence climate-related disclosures. Factors influencing climate-related disclosures include bank-specific factors and institutional factors (Brescia et al., 2026; Caby et al., 2020; Cosma et al., 2022; Kılıç & Kuzey, 2019). While the banks have slowly improved the extent of climate-related reporting in recent years (Moreno-Ureba et al., 2022), several studies highlight persistent challenges in the quality and forward-looking analyses of climate risks across different time horizons, which frequently result in generalised or non-specific climate-related disclosures rather than detailed, measurable, and verifiable commitments.

Despite the growing attention to climate disclosures in banking, very little is known about how financial markets interpret the quality and specificity of such communications. The paper thus examines whether non-specific climate-related disclosures influence the market valuation of banks.

Principles of responsible banking

Principles of responsible banking, introduced in 2019 by the United Nations Environment Programme-Finance Initiative (UNEP FI), constitute a banking-sector specific framework intended to ensure that the strategies and practices of signatory banks align with the Sustainable Development Goals (SDGs) and the objectives of the 2015 Paris Climate Agreement. Encompassing six core principles, the initiative engages over 350 banks representing about half of global banking assets to systematically evaluate their impacts and establish forward-looking targets. Specifically, the principles mandate that signatory banks assess and reduce risks to people and the environment, formulate and publish specific targets to achieve meaningful impact, operationalise them through effective, robust governance structures and organisational culture, engage stakeholders, and ensure transparency and accountability through periodic public disclosures.

Emerging as the first comprehensive self-regulatory mechanism for responsible banking since the Equator Principles (EP) of 2003, the PRB framework guides holistic consideration of social and environmental consequences across banking strategies, operations, and portfolios.

Despite the increasing importance of voluntary sustainability initiatives in the banking sector, the empirical evidence on their effectiveness remains mixed. On the one hand, Bernad et al., (2026) finds a positive effect associated with participation in such initiatives, including the appointment of specific environmental managers that report directly to senior management, the development of specific climate risk management approaches, and the integration of environmental screening into loan approvals. They suggest that the banks' environmental commitments are not merely symbolic but may also serve as reliable signals of actual environmental intent. In this context, climate initiative signatory status constitutes a discrete and publicly observable signal reflecting banks' internal capabilities, external positioning, and, potentially, their client-acquisition strategies. Similarly, Green & Vallee, (2025) find evidence that voluntary coal exit policies adopted by banks contribute to a reduction in carbon emissions.

On the other hand, several studies report limited evidence of substantive behavioural change following the adoption of voluntary climate initiatives. Sastry et al., (2024) and Berg et al., (2024) find that neither the membership in the Net Zero Banking Alliance nor the Equator Principles has led to meaningful changes in banks' lending patterns or borrower engagement. Consistent with this view, Giannetti et al., (2023) find that European banks characterised by extensive environmental rhetoric often continue to maintain significant exposure to carbon-intensive industries.

Taken together, the existing literature provides inconclusive evidence regarding the effectiveness of voluntary sustainability commitments for the banking sector signatories. Consequently, the market's perception and reaction to disclosures by banks participating in such initiatives remain unclear. The study thus analyses the impact of non-specific climate disclosures on market valuation for PRB adopters and non-adopters, and further assesses valuation effects following PRB adoption.

Research design

We collect 1347 annual reports from 135 publicly listed banks across different countries, based on publicly available English-language versions. Our final sample comprises 107 banks from 27 countries,

after excluding banks with missing or unextractable annual report information, representing diverse bank sizes across the global financial sector. The wide range of samples enables broader coverage of investor perception across heterogeneous regulatory environments with different economic growth trajectories and levels of financial sector development. The final sample of country-wise banks is reported in Table 1.

Independent variable

The primary independent variable is the proportion of the non-specific climate-related disclosures (ns_disclosure). This variable is constructed employing the natural language processing (NLP) model $\text{CLIMATEBERT}_{\text{CTI}}$, trained by Bingler et al., (2024) and built on the CLIMATEBERT language model of Webersinke et al., (2022). We process the annual reports through trained models to classify paragraphs into climate-related and non-climate-related disclosures. The climate-related paragraphs are further labelled as commitment disclosures if they describe current or future actions or establish targets related to corporate climate mitigation and adaptation. The climate-related commitments were subsequently classified as either specific or non-specific based on the level of detail and verifiability of the disclosures. A paragraph is categorised as specific if it provides detailed information on performance, action, or measurable and verifiable targets. Conversely, paragraphs lacking such information are considered non-specific.

To measure the non-specific climate-related disclosures for each bank annually, we calculate the annual proportion of non-specific commitment paragraphs by dividing the number of non-specific paragraphs by the total number of climate-related paragraphs. This ratio serves as our main independent variable and captures the extent to which banks rely on generalised or non-specific climate-related disclosures in their communication.

Dependent variable

The primary dependent variable is the market-to-book ratio, defined as the ratio of the market value of equity to its book value. The measure captures the market valuation of banks at the consolidated level and

is widely used in the banking literature (Zheng & Wu, 2023). As an additional robustness check, we also employ Tobin's Q, defined as the ratio of the market value of a firm to the replacement cost of its assets, as a proxy for bank valuation (Fu et al., 2014; Huizinga & Laeven, 2012).

Control variables

All regression specifications control for relevant bank-level characteristics and macroeconomic variables to account for heterogeneity across banks and countries. Bank-specific variables, obtained from Moody's Bank Focus database, include measures related to profitability (return on assets, non-interest income to total assets ratio), asset quality and credit risk (loan loss provisions to total loans ratio and change in non-performing loans ratio), efficiency (cost-to-income ratio), capital adequacy (capital ratio), growth (five-year compounded annual asset growth), market risk (price volatility) and bank size.

Macroeconomic characteristics, obtained from the World Development Indicators database of the World Bank, include the carbon intensity-to-GDP ratio, energy use, GDP growth rate, regulatory quality, inflation rate, and average capital adequacy ratio.

We employ the following model to analyse the impact of non-specific climate disclosures on the bank valuation-

$$MTB_t = \beta_0 + \beta_1 NS_Disclosure_{i,t-1} + \beta_2 Bank_controls_{i,t-1} + \beta_3 Macro_controls_{i,t} + \mu_i + \lambda_t + \theta_c + \varepsilon_{i,t}$$

where '*i*', '*t', and 'c'* are bank, time, and country identifiers.

All models control for bank, year and country fixed effects, and the standard errors are robust to heteroskedasticity and clustered at the bank and country levels.

Results and discussion

Descriptive analysis

Table 2 presents the descriptive statistics for all the variables used in the sample. The table provides both a full-sample overview and a comparison between PRB adopters and non-adopters. The results indicate that the average market valuation, measured by the market-to-book ratio, of adopters remains significantly higher than that of non-adopters, while the average proportion of non-specific climate disclosures is lower among adopters. Tables 3a and 3b present the correlation analysis and variance inflation factor (VIF) analysis, respectively.

Fig. 1 illustrates the evolution of climate disclosures among sampled banks over the period of analysis. The figure shows that although the volume of climate-related and climate-commitment disclosures has increased over the years, their specificity has declined. This pattern is evident in both climate disclosures and climate-related commitments. The decline in specificity occurs despite growing regulatory emphasis on climate policies and initiatives to improve disclosure quality. This divergence raises an important question regarding the banks' increasing reliance on less specific climate-related communication. It also motivates our primary analysis into how investors interpret and respond to such disclosures.

Climate disclosures and market valuation

Table 4 reports the results of the estimated relationship between banks' non-specific climate disclosures and their market value, under a comprehensive set of alternative fixed-effects specifications to assess robustness and the sources of identification. The coefficients of the non-specific climate disclosures remain positive and statistically significant across most specifications.

It suggests that even when climate-related disclosures lack specificity, they may still convey information relevant to investors, potentially reducing information asymmetry, signalling managerial awareness or strategic intent regarding climate risk, and shaping market perceptions. Thus, incorporating the corporate communication into market pricing at the bank level. The findings are consistent with the prior literature, suggesting that the environmental disclosures often tend to have positive sentiment (Giannetti et al., 2023), and can influence investor perceptions. Moreover, prior studies highlight that banks' engagement

on climate issues may create beneficial outcomes for the bank, leading to lower loan risk and agency costs and enhancing alignment between managerial actions and shareholder interests (Birindelli et al., 2022; Schiemann & Sakhel, 2019).

Robustness analysis

Table 4 presents several robustness analyses that support the validity of our baseline findings. In column 1, we employ an alternative proxy for market valuation, Tobin's Q, rather than the MTB ratio. Columns 2 and 3 re-estimate the relationship using the System GMM estimator for both valuation measures, the MTB ratio and Tobin's Q, respectively, thereby addressing potential endogeneity concerns arising from dynamic effects and reverse causality. Columns 4 to 6 estimate a first-difference specification to examine whether changes in climate disclosures are associated with contemporaneous changes in market valuation.

The coefficient of climate disclosures remains positive and statistically significant across all specifications. The consistency of these results across alternative valuation measures, estimation techniques, and dynamic specification provides strong evidence supporting the robustness and validity of our baseline results.

The role of the Principles of Responsible Banking (PRB)

The introduction of the UNEP FI Principles for Responsible Banking (PRB) in 2019 represents an important shift toward voluntary self-regulation, signalling a bank's formal commitment to integrating social and environmental considerations into its strategic and operational decisions, including credit portfolio decisions. In Table 5, we investigate whether PRB adoption alters the value relevance of climate disclosures by estimating a series of interaction models in a panel framework with bank, year, and country fixed effects, and standard errors clustered at the bank and country levels.

Column 1 introduces an interaction between climate disclosures and a 2019-year dummy to examine whether the 2019 launch of the PRB framework induced a global structural shift in the market pricing of climate disclosures. The insignificance of the interaction term suggests that introducing the PRB

framework did not, by itself, lead to a broader market-wide repricing of disclosure disclosures. The investor perceptions of the non-specific climate disclosures remain positive, consistent with the baseline results, suggesting that introducing policy initiatives alone does not alter investor perceptions.

We next examine whether disclosures are valued differently between PRB adopters and non-adopters. In Column 2, we examine the interaction between disclosures and the time-invariant PRB adopter dummy to capture cross-sectional differences between signatories and non-signatories. The negative and statistically significant interaction coefficient indicates that the valuation effect of disclosures is weaker and potentially negative for adopters relative to non-adopters. As a time-invariant measure, this shows that adopter banks differ structurally in how their climate disclosures are interpreted by the market. Such differences may reflect higher exposure to transition risk, more scrutinised environments, or higher investor expectations regarding climate commitments. Consequently, the market may view the non-specific climate disclosures issued by these banks more skeptically, viewing them as a potential indicator of underlying risk rather than as signals of value-enhancing transparency.

To isolate the causal effect of institutional commitment to the PRB framework on disclosure valuation, we employ a triple interaction among disclosures, the PRB adopter dummy, and bank-specific adoption years dummies in Column 3. This specification represents a difference-in-differences slopes model that allows assessing the market valuation sensitivity for adopters post-commitment, relative to both their pre-adoption period and non-adopters over the same time horizon.

The negative and statistically significant coefficient for the triple interaction term indicates that, after the formal adoption of PRB, the valuation sensitivity of non-specific climate disclosures declines significantly for adopting banks. This suggests that adopting voluntary self-regulatory frameworks alters investor expectations and increases accountability for climate-related communication quality. Prior to adoption, climate disclosures may function as voluntary signals of strategic awareness, even when they are relatively broad or non-specific, associating them with higher valuations. However, post-adoption, the

investors appear to expect more detailed, specific, measurable, and verifiable communication regarding transition risk management and transition strategies.

Placebo tests and parallel trend analysis

To further assess the validity of the causal interpretation of PRB adoption on the disclosure-valuation relationship, we conduct two falsification tests: (i) random reassignment of adoption years across banks, (ii) artificial backwards-shifting of the adoption year by three years. The results for the falsification studies are presented in Table 6. The statistically insignificant interaction term coefficient in both cases provides additional support for the reliability of our baseline findings. These results indicate that the valuation effects are linked to the actual adoption of voluntary policy initiatives and are not driven by random correlations or underlying trends in the data.

Fig 2 presents the results of the parallel trends analysis, which reports the estimated coefficient for the interaction term between time indicators relative to the adoption year and the non-specific disclosures variable. The pre-treatment coefficient at t = -2 is statistically insignificant, indicating that there are no differential pre-treatment effects between adopters and non-adopters. This finding supports the parallel trends assumption, implying that in the absence of PRB adoption, both adopters and non-adopters would have continued to evolve at comparable valuations.

In the year of adoption, the coefficients show a negative and significant relationship, indicating the contemporaneous effect of PRB adoption on the perception of market valuation of the banks' climate-related disclosures. This validates our previous findings indicating the investors' preference for greater accountability through specific communication following institutional commitments to sustainability frameworks. However, the effect appears to be short-lived, as evidenced by the insignificant post-adoption coefficient, indicating that the adjustment in investor perception is concentrated around the adoption period.

Addressing selection: Propensity score matching

The structural heterogeneity documented above in Table 7 raises the possibility that the observed differential valuation effects reflect selection rather than treatment effects, suggesting that the general signalling premium in the non-specific climate disclosures is driven by who chooses to disclose. This implies that the adopter banks may differ systematically from non-adopters, leading to the differential valuation effects of the disclosures.

To address potential selection bias, we perform propensity score matching (PSM) based on bank adopter status and re-estimate the post-match regressions comparing observationally similar adopters and non-adopters.

Following the matching procedure, the previously documented positive association between non-specific disclosures and valuation becomes statistically insignificant, suggesting that a portion of the valuation premium observed in the unmatched sample reflects structural differences between adopters and non-adopters rather than the disclosures' informational content alone.

However, the persistence of the statistically significant negative coefficient of the post-adoption interaction indicates that even among the matched banks, the market discounts non-specific disclosures following formal commitment to PRB by adopters. Taken together, these results indicate that while selection effects explain part of the general disclosure premium, the post-adoption discount is consistent with a credibility-based mechanism rather than being driven purely by compositional differences between adopters and non-adopters.

Conclusion

The study examines how financial markets interpret non-specific climate-related bank disclosures and how these perceptions evolve when banks commit to voluntary sustainability frameworks. We find that non-specific disclosures are positively associated with banks' market valuation, suggesting that even when climate communication lacks specificity, investors interpret them as signals of managerial awareness and strategic intent with climate-related risks, thereby reducing information asymmetry and

influencing market perceptions. However, perceptions shift after formal commitment to the voluntary sustainability framework. Our study provides new evidence on how financial markets process textual climate disclosures in environments characterized by evolving regulatory frameworks and limited standardization.

Table 1: Sample distribution

Country	Observations	Banks
United States of America	148	21
Norway	25	9
United Kingdom	58	8
India	59	7
Switzerland	46	7
Italy	38	7
Poland	40	6
Greece	36	4
Spain	35	4
Ireland	25	3
Germany	6	3
Denmark	27	3
Sweden	24	3
Slovak Republic	14	2
Netherlands	12	2
Finland	17	2
France	18	2
Malta	11	2
Austria	18	2
Croatia	14	2
Hungary	15	2
Bulgaria	3	1
Ukraine	2	1
Portugal	7	1
Russia	4	1
Belgium	9	1
Lithuania	8	1
27 countries	719	107

Note: The table presents the country-wise sample distribution.

Fig 1. Climate-related disclosures over the years

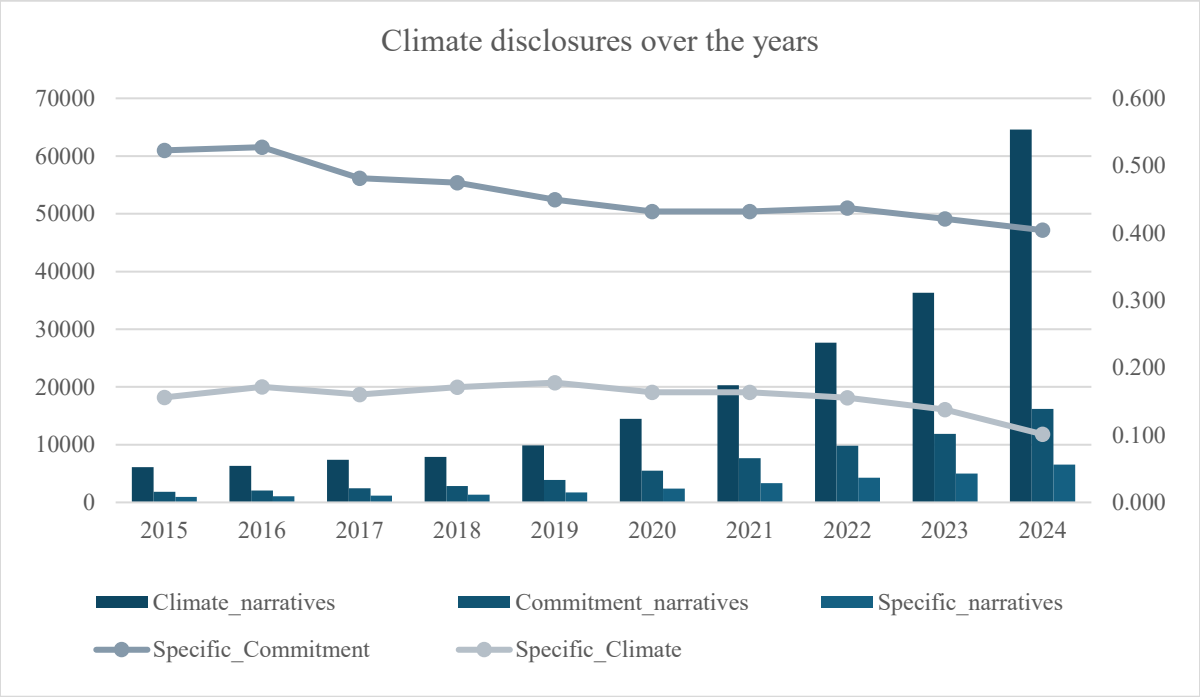


Fig 2. Climate-related disclosures over the years- PRB vs Non-PRB adopters

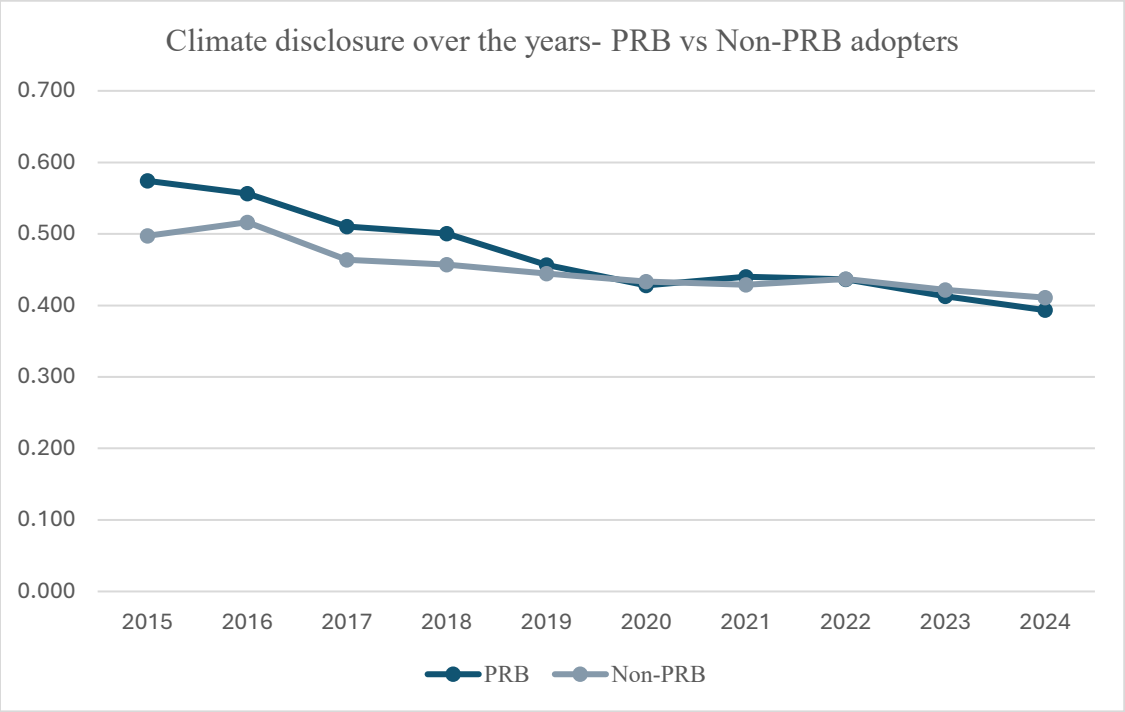


Table 2: Descriptive Statistics

						UNEP FI PRB adopters			UNEP FI PRB non-adopters				
Variable	N	Mean	Std. dev.	Min	Max	N	Mean	Std. dev.	N	Mean	Std. dev.	Mean diff	t-stat
mtbratio	719	1.109	0.622	0.069	4.523	402	1.317	0.656	317	0.846	0.456	0.471***	10.868
ns_disclosure	719	0.507	0.233	0.000	1.000	402	0.479	0.268	317	0.543	0.173	-0.064***	-3.729
size_assets	719	19.193	2.090	14.163	24.454	402	18.618	2.086	317	19.923	1.857	-1.305***	-8.735
pric_vol	719	25.322	10.842	3.690	71.800	402	21.883	7.617	317	29.683	12.623	-7.800***	-10.248
nii_ta	719	0.014	0.008	-0.009	0.062	402	0.015	0.009	317	0.013	0.008	0.002***	2.689
roa_ni	719	0.007	0.009	-0.063	0.066	402	0.009	0.008	317	0.004	0.009	0.005***	7.515
llp_tl	719	0.006	0.014	-0.013	0.174	402	0.006	0.014	317	0.006	0.014	0.000	-0.153
cti	719	3.820	2.846	0.856	11.345	402	3.218	2.352	317	4.582	3.214	-1.364***	-6.567
capitalratio	719	0.086	0.029	0.024	0.190	402	0.097	0.025	317	0.071	0.027	0.026***	13.584
changeinnpl	719	-0.020	0.462	-2.253	4.545	402	0.027	0.501	317	-0.081	0.401	0.108***	3.131
assetgrowth_5	719	0.049	0.058	-0.142	0.399	402	0.065	0.055	317	0.027	0.053	0.038***	9.381
ci_gdp	719	0.149	0.066	0.047	0.361								
energyuse	719	67.985	23.721	20.937	144.572								
gdpgrowthrate	719	2.706	4.064	-10.940	24.624								
regulatoryquality	719	72.673	10.027	40.796	86.730								
inflation	719	0.031	0.036	-0.017	0.487								
car_country	719	0.077	0.019	0.046	0.131								

Note: The table presents the descriptive statistics of the variables used in the analysis for the full sample as well as the sample classified on the basis of UNEP FI Principles of Responsible Banking adoption.

Table 3a: Correlation analysis

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	mtbratio	1.000																
2	ns_disclosure	-0.055	1.000															
3	size_assets	0.207	-0.005	1.000														
4	pric_vol	-0.306	-0.054	0.077	1.000													
5	nii_ta	0.264	-0.091	0.182	0.018	1.000												
6	roa_ni	0.424	-0.079	-0.028	-0.326	0.165	1.000											
7	llp_tl	-0.102	-0.064	0.091	0.364	0.209	-0.576	1.000										
8	cti	-0.280	-0.015	0.133	0.220	0.191	-0.135	0.029	1.000									
9	capitalratio	0.286	-0.271	-0.223	0.056	0.124	0.377	0.138	-0.221	1.000								
10	changeinnpl	0.165	-0.017	-0.011	-0.137	0.086	-0.016	0.067	0.032	0.009	1.000							
11	assetgrowth_5	0.430	-0.067	0.030	-0.274	0.065	0.308	-0.042	-0.114	0.159	0.237	1.000						
12	ci_gdp	0.301	-0.375	0.173	0.172	0.187	0.111	0.240	-0.069	0.455	0.054	0.265	1.000					
13	energyuse	0.330	-0.306	0.244	-0.041	0.139	0.179	0.095	-0.166	0.307	0.034	0.208	0.839	1.000				
14	gdpgrowthrate	0.203	0.007	0.065	0.054	0.000	0.158	-0.110	-0.082	0.115	-0.089	0.105	0.103	-0.016	1.000			
15	regulatoryquality	-0.088	0.134	-0.196	-0.407	-0.247	0.078	-0.449	-0.182	-0.269	-0.007	-0.218	-0.515	-0.259	-0.112	1.000		
16	inflation	0.057	0.084	0.167	-0.020	0.045	0.070	0.077	-0.068	0.017	0.003	0.235	0.113	0.099	0.091	-0.204	1.000	
17	car_country	0.008	-0.252	-0.275	0.219	-0.080	0.058	0.058	-0.090	0.509	-0.057	-0.038	0.335	0.194	0.125	-0.134	-0.125	1.000

Note: The table presents the pairwise correlation matrix of the variables analysed.

Table 3b: VIF

Variable	VIF
ci_gdp	8.02
energyuse	6.22
roa_ni	3.14
llp_tl	2.9
capitalratio	2.35
regulatoryquality	2.29
pric_vol	1.66
car_country	1.62
assetgrowth_5	1.51
size_assets	1.48
cti	1.38
nii_ta	1.38
cheaptalk	1.28
inflation	1.2
gdpgrowthrate	1.18
changeinnpl	1.11
Mean VIF	2.42

Note: The table presents the variance inflation factor of the variables used in the analysis.

Table 4: Main regression

Variables	(1) mtbratio	(5) mtbratio	(6) mtbratio	(7) mtbratio	(2) mtbratio	(3) mtbratio	(4) mtbratio	(8) mtbratio
ns_disclosure	0.129***	0.129***	0.152***	0.038	0.152***	0.033	0.209*	0.185*
	(0.043)	(0.043)	(0.044)	(0.039)	(0.044)	(0.047)	(0.119)	(0.106)
size_assets	-0.394*	-0.394*	-0.481**	0.014	-0.481**	0.013	0.069*	0.067*
	(0.219)	(0.219)	(0.194)	(0.036)	(0.194)	(0.035)	(0.036)	(0.034)
pric_vol	0.002	0.002	0.004	-0.004	0.004	-0.003	-0.010***	-0.010***
	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)	(0.003)	(0.003)
nii_ta	5.762*	5.762*	7.269*	15.338***	7.269*	15.640***	13.652***	14.256***
	(2.935)	(2.935)	(3.646)	(3.382)	(3.646)	(3.018)	(4.256)	(3.501)
roa_ni	5.515*	5.515*	6.633*	12.123**	6.633*	13.287**	9.464	11.086*
	(2.713)	(2.713)	(3.307)	(5.112)	(3.307)	(5.321)	(6.488)	(6.435)
llp_tl	-3.168***	-3.168***	-2.490*	-4.113***	-2.490*	-3.212**	-1.249	-0.759
	(0.934)	(0.934)	(1.396)	(1.420)	(1.396)	(1.311)	(2.676)	(2.451)
cti	-0.026***	-0.026***	-0.023**	-0.043***	-0.023**	-0.039***	-0.050***	-0.047***
	(0.009)	(0.009)	(0.008)	(0.011)	(0.008)	(0.011)	(0.011)	(0.011)
capitalratio	-6.298***	-6.298***	-5.630***	1.904	-5.630***	1.778	3.006	2.943
	(1.794)	(1.794)	(1.637)	(2.276)	(1.637)	(2.075)	(2.317)	(2.171)
changeinnpl	-0.021	-0.021	-0.015	0.019	-0.015	0.025	0.096*	0.118*
	(0.026)	(0.026)	(0.026)	(0.035)	(0.026)	(0.039)	(0.054)	(0.061)
assetgrowth_5	1.627	1.627	1.762**	1.971	1.762**	1.900	2.858**	2.500*
	(0.957)	(0.957)	(0.772)	(1.303)	(0.772)	(1.262)	(1.381)	(1.250)
ci_gdp	2.330	2.330	3.752	-0.045	3.752	3.384	0.330	0.846
	(2.752)	(2.752)	(3.331)	(3.087)	(3.331)	(4.160)	(1.060)	(1.068)
energyuse	-0.005	-0.005	-0.002	-0.003	-0.002	0.011	0.001	0.001
	(0.013)	(0.013)	(0.015)	(0.015)	(0.015)	(0.014)	(0.003)	(0.003)
gdpgrowthrate	0.003	0.003	0.008*	-0.001	0.008*	0.005	0.023***	0.019***
	(0.007)	(0.007)	(0.004)	(0.010)	(0.004)	(0.004)	(0.008)	(0.006)
regulatoryquality	0.024**	0.024**	0.032***	0.012	0.032***	0.020*	0.000	0.000
	(0.011)	(0.011)	(0.009)	(0.015)	(0.009)	(0.011)	(0.008)	(0.008)
inflation	0.449	0.449	0.370	1.647	0.370	1.034	-1.048	-1.841*
	(1.283)	(1.283)	(0.870)	(1.679)	(0.870)	(1.348)	(1.002)	(0.943)
car_country	0.392	0.392	0.452	0.255	0.452	-1.211	-0.106	-0.389
	(2.485)	(2.485)	(2.508)	(2.165)	(2.508)	(2.536)	(2.274)	(2.261)
Constant	7.209	7.209	7.708	-0.233	7.708	-2.108*	-0.717	-0.689
	(5.158)	(5.158)	(4.522)	(1.682)	(4.522)	(1.219)	(0.869)	(0.868)
Bank FE	Yes	Yes	Yes		Yes			
Time FE	Yes	Yes		Yes			Yes	

Country FE	Yes		Yes	Yes		Yes		
Bank-level clustering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-level clustering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	719	719	719	719	719	719	719	719
Adjusted R-squared	0.805	0.814	0.792	0.639	0.802	0.628	0.489	0.477

Note: The table presents the results of the baseline regression analysing the impact of non-specific climate-related disclosures on the market valuation under different specifications.

Table 5: Robustness

Variables	(1) tobinsq	(2) mtbratio	(3) tobinsq	(4) IV DV change	(5) Change in firm controls	(6) Change in all controls
ns_disclosure	0.010**	1.531**	0.128**	0.077**	0.101**	0.099**
	(0.004)	(0.683)	(0.683)	(0.034)	(0.037)	(0.036)
size_assets	-0.043*	0.013	0.004*	-0.201**	-0.273	-0.360*
	(0.023)	(0.039)	(0.039)	(0.075)	(0.203)	(0.190)
pric_vol	-0.000	0.001	0.000	0.005	-0.003	-0.004
	(0.000)	(0.013)	(0.013)	(0.006)	(0.007)	(0.007)
nii_ta	0.605**	7.621	0.738	3.418	-1.321	0.116
	(0.270)	(13.155)	(13.155)	(2.852)	(2.478)	(2.251)
roa_ni	0.345	3.784	1.262	-4.176	0.000	0.000
	(0.349)	(15.084)	(15.084)	(2.964)	(0.000)	(0.000)
llp_tl	-0.381***	-2.091	0.211	-5.465***	-1.937**	-1.852*
	(0.117)	(10.685)	(10.685)	(1.764)	(0.902)	(1.075)
cti	-0.003***	-0.005	-0.002	-0.010	-0.009	-0.009
	(0.001)	(0.011)	(0.011)	(0.006)	(0.005)	(0.005)
capitalratio	-0.606***	4.143	0.053	-3.694***	-5.143***	-6.564***
	(0.136)	(5.087)	(5.087)	(1.259)	(1.576)	(1.634)
changeinnpl	-0.002	0.057	0.007	-0.006	-0.011	-0.017
	(0.003)	(0.066)	(0.066)	(0.023)	(0.021)	(0.025)
assetgrowth_5	0.175*	1.432	0.173**	0.533	1.351**	1.557***
	(0.097)	(0.853)	(0.853)	(0.473)	(0.614)	(0.556)
ci_gdp	0.343	-0.378	0.227	1.382	-1.032	7.463
	(0.202)	(9.678)	(9.678)	(3.222)	(3.463)	(8.023)
energyuse	-0.001	0.008	0.000	-0.001	0.001	-0.015
	(0.001)	(0.02)	(0.02)	(0.015)	(0.016)	(0.019)
gdpgrowthrate	0.001	0.022**	0.002**	0.005	0.008	0.004
	(0.001)	(0.01)	(0.01)	(0.009)	(0.009)	(0.008)
regulatoryquality	0.003**	0.000	0.000	-0.000	-0.004	0.008
	(0.001)	(0.016)	(0.016)	(0.015)	(0.017)	(0.012)
inflation	0.041	-1.946	-0.248**	-1.521	-1.125	-3.865
	(0.146)	(1.51)	(1.51)	(3.215)	(3.012)	(2.703)
car_country	0.003	-4.06	0.012	1.480	2.582	7.814**
	(0.226)	(6.632)	(6.632)	(3.352)	(3.130)	(3.184)
Lag		0.525***	0.376**	3.854**	0.179	0.040
		(0.184)	(0.184)	(1.704)	(2.013)	(0.037)
Constant	1.633***	-1.275	0.44***			
	(0.558)	(1.179)	(1.179)			
AR(1)		0.000	0.002			
AR(2)		0.179	0.149			
Sargan-J test		0.000	0.000			
Observations	719	719	719	607	588	572
Adjusted R-squared	0.801			0.111	0.139	0.185

Note: The table presents the results of robustness check analysis using alternate proxies and methods of analysis.

Table 6: UNEPFI all interactions

Variables	(1) mtbratio	(2) mtbratio	(3) mtbratio
ns_disclosure	0.117**	0.195**	0.122***
	(0.045)	(0.084)	(0.042)
ns_disclosure x year_2019	0.027		
	(0.064)		
ns_disclosure x adopters		-0.279**	
		(0.120)	
ns_disclosure x adopters x postadoption			-0.333***
			(0.110)
size_assets	-0.391*	-0.387*	-0.477**
	(0.220)	(0.218)	(0.228)
pric_vol	0.002	0.001	-0.000
	(0.004)	(0.004)	(0.005)
nii_ta	5.711*	5.212*	6.062**
	(2.909)	(2.949)	(2.710)
roa_ni	5.573*	5.958**	5.305**
	(2.770)	(2.645)	(2.533)
llp_tl	-3.147***	-2.969***	-2.896***
	(0.956)	(1.001)	(0.928)
cti	-0.026***	-0.026***	-0.026***
	(0.009)	(0.009)	(0.008)
capitalratio	-6.318***	-6.294***	-6.367***
	(1.813)	(1.788)	(1.599)
changeinnpl	-0.022	-0.026	-0.022
	(0.026)	(0.026)	(0.024)
assetgrowth_5	1.621	1.661*	1.877*
	(0.960)	(0.958)	(0.970)
ci_gdp	2.278	2.674	3.711
	(2.729)	(2.701)	(2.924)
energyuse	-0.005	-0.005	-0.005
	(0.013)	(0.013)	(0.013)
gdpgrowthrate	0.003	0.003	0.004
	(0.007)	(0.007)	(0.007)
regulatoryquality	0.024**	0.024**	0.028**
	(0.011)	(0.010)	(0.010)
inflation	0.452	0.553	0.615
	(1.282)	(1.268)	(1.303)
car_country	0.427	0.209	-0.367
	(2.520)	(2.438)	(2.381)
Constant	7.190	7.080	8.511
	(5.168)	(5.110)	(5.287)
Observations	719	719	719
Adjusted R-squared	0.804	0.806	0.811

Note: The table presents the results of the effect of the Principles of Responsible Banking on the impact of non-specific climate-related disclosures on market valuation.

Table 7: Placebo tests

`	(1)	(2)
Variables	Random year	Actual – 3
ns_disclosure	0.003	-0.065
	(0.116)	(0.122)
ns_disclosure x unepfi x adoption year	0.103	0.108
	(0.072)	(0.063)
size_assets	-0.459***	-0.466***
	(0.121)	(0.120)
pric_vol	0.004	0.005
	(0.006)	(0.006)
nii_ta	4.725*	4.946*
	(2.713)	(2.676)
roa_ni	4.833	4.554
	(4.308)	(4.228)
llp_tl	-3.256**	-3.532**
	(1.303)	(1.264)
cti	-0.015**	-0.015**
	(0.007)	(0.007)
capitalratio	-5.136**	-5.192**
	(1.937)	(1.931)
changeinnpl	-0.005	-0.005
	(0.026)	(0.027)
assetgrowth_5	2.657***	2.644***
	(0.855)	(0.857)
ci_gdp	-1.586	-1.192
	(2.921)	(2.933)
energyuse	0.009	0.008
	(0.007)	(0.007)
gdpgrowthrate	0.004	0.004
	(0.006)	(0.006)
regulatoryquality	0.026***	0.026***
	(0.009)	(0.009)
inflation	0.910	0.978
	(0.637)	(0.661)
car_country	2.144	2.177
	(1.889)	(1.893)
Constant	7.707***	7.809***
	(2.472)	(2.509)
Observations	317	317
Adjusted R-squared	0.860	0.860

Note: The table presents the results of placebo tests for validation of baseline results.

Fig 2. Parallel trend

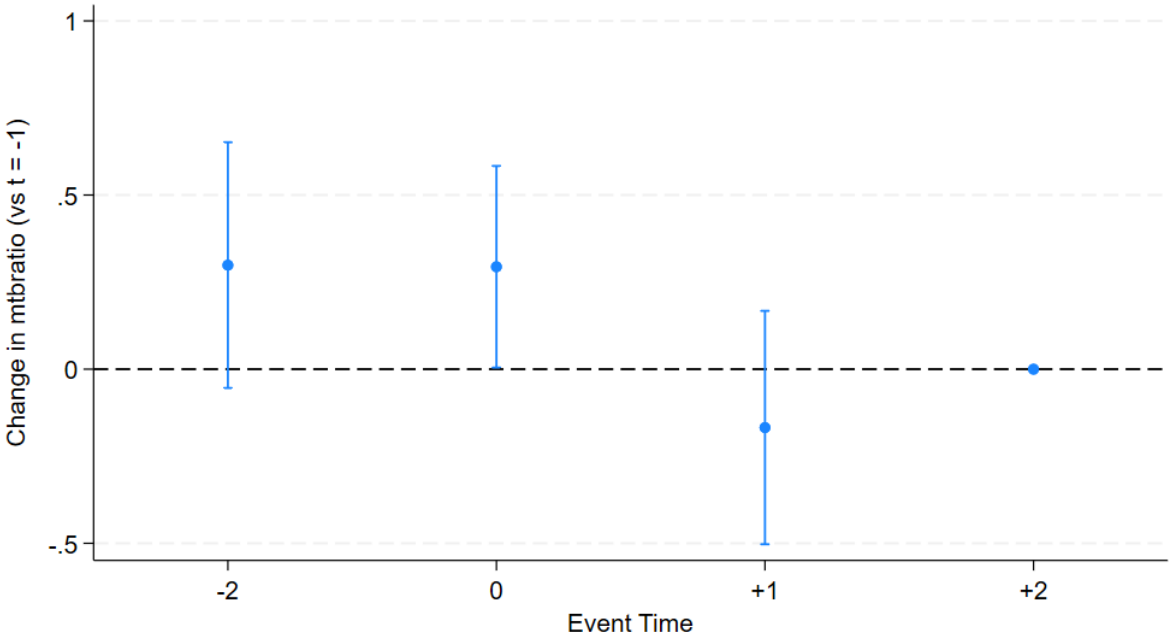


Table 8a: PSM-Post match regression

Variables	(1) mtbratio
ns_disclosure	0.123
	(0.084)
ns_disclosure x adopters x postadoption	-0.280*
	(0.144)
size_assets	-0.615**
	(0.221)
pric_vol	0.016
	(0.010)
nii_ta	5.471**
	(2.085)
roa_ni	4.517
	(4.104)
llp_tl	-2.433
	(2.044)
cti	-0.020**
	(0.009)
capitalratio	-2.954
	(2.120)
changeinnpl	-0.025
	(0.023)
assetgrowth_5	3.173**
	(1.333)
ci_gdp	3.588
	(4.900)
energyuse	0.001
	(0.014)
gdpgrowthrate	0.005
	(0.005)
regulatoryquality	0.029**
	(0.014)
inflation	-1.678
	(1.260)
car_country	-1.149
	(2.590)
Constant	10.331**
	(3.819)
Observations	332
Adjusted R-squared	0.895

Note: The table presents the results of post-match regression on the impact of non-specific climate-related disclosures on market valuation for adopters and non-adopters.

Table 8b: PSM Summary statistics

	Mean		t-test	
Variables	Treated	Control	t-test	p>t
size_assets	19.433	19.333	0.660	0.507
nii_ta	0.013	0.013	0.240	0.810
cti	4.620	4.325	1.240	0.216
roa_ni	0.004	0.004	0.300	0.765
capitalratio	0.076	0.076	-0.170	0.865
assetgrowth_5	0.030	0.035	-1.180	0.240
ci_gdp	0.134	0.138	-0.780	0.434
energyuse	60.066	61.155	-0.660	0.509
regulatoryquality	71.728	69.599	2.450	0.015

Note: The table presents the summary statistics and the mean difference between the treat and control group classified on the basis of adoption and non-adoption of the PRB framework.

Table 8c: PSM Average treatment effect: Nearest neighbor

	Sample	Treated	Controls	Difference	t-stat
mtbratio	ATT	0.824	1.088	-0.263***	-3.28

Note: The table presents the average treatment effect of the PSM using nearest neighbor matching.

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