To investigate a larger sample of companies we drew data from the Refinitiv database. This data base consists of 10,296 companies that Refinitiv assigns an ESG score to, as of October 2022. Among the ESG related data provided by Refinitiv, we obtained information on (1) whether the company has an emission target or not, (2) the CEO's age, (3) the duration of the CEO tenure as an officer of the company, (4) the company's age, (5) the company's non-executive director ratio, and (6) the value of a company's total assets, ROA and D/E ratio. To analyze this data, we removed companies (a) with missing data, (b) with CEO who has served less than 1 year and (c) outliers, the top and bottom 1 percentile based on the CEO age or tenure.

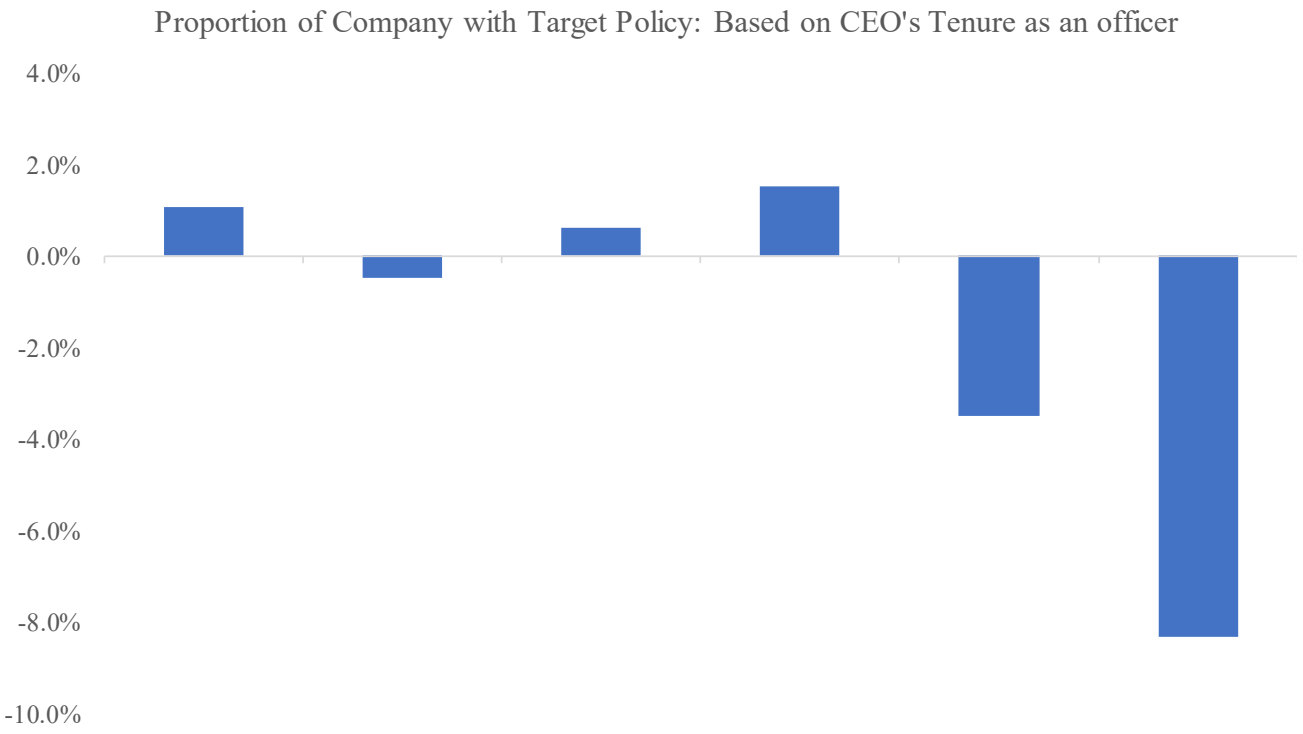
This resulted in 1,810 companies being analyzed and of these we found that; 39% have a carbon reduction target, the average age of the CEO is 56, the average tenure is just under 10 years, 34% did not have the CEO and Chairperson role separated, the average percentage of non-executive directors is 81% and the average age of a company is 28 years.

Table 1: Descriptive statistics

	obs	mean	min	max	std	skew	kurtosis
Target Emission	1,810	0.39	0	1	0.49	0.45	1.21
CEO Age (yr)	1,810	55.74	39.00	74.33	6.61	-0.09	2.86
CEO Tenure (yr)	1,810	9.82	1.16	32.81	6.78	0.96	3.27
CEO & Chair NotSeparated	1,810	0.34	0	1	0.47	0.68	1.46
% of NonExecutive Board	1,810	81.41	10.00	100.00	12.45	-1.46	6.32
Company Agev (yr)	1,810	27.92	1.04	186.12	24.07	1.88	7.35
Asset (million USD)	1,810	21,909.01	2.56	3,271,901.00	127,434.20	17.57	391.27
ROA (%)	1,810	-2.82	-645.39	86.78	29.52	-12.03	224.76
D/E Ratio (%)	1,810	178.11	0.00	29,705.97	1,090.46	21.50	535.08

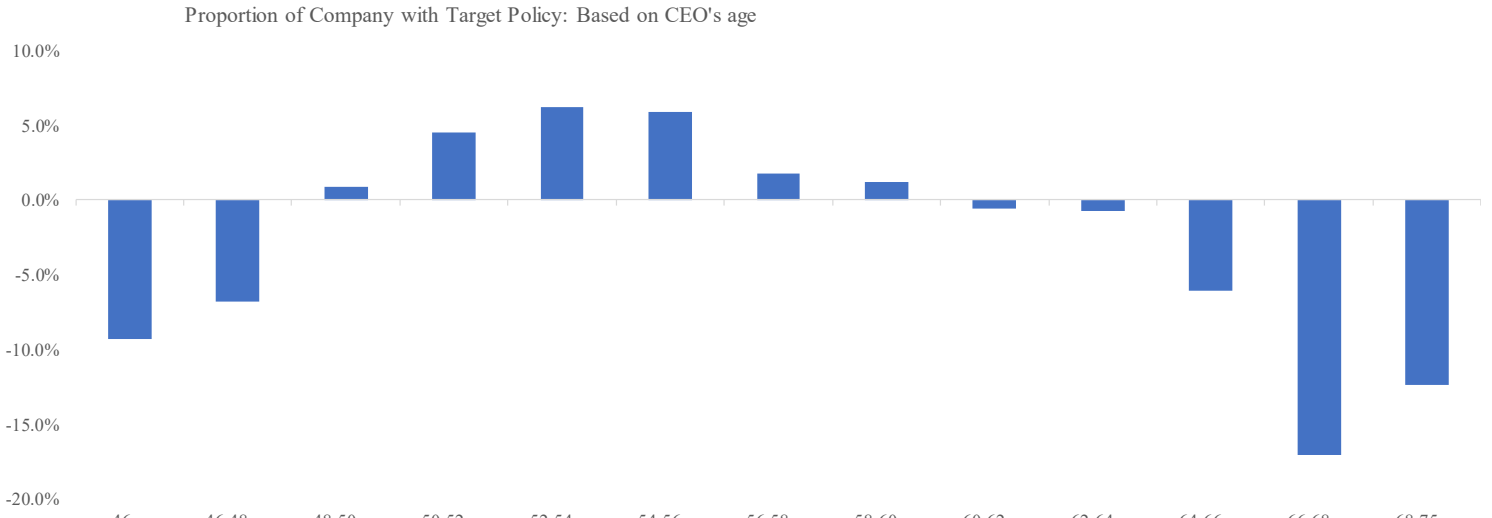
Note: The companies with a CEO age or tenure length being top and bottom 1 percentile of the original sample are removed. Target Emission takes a value of 1 if the company has an emission target and 0 otherwise. Target emission is defined by Refinitiv as "Has the company set targets or objectives to be achieved on emission reduction? - in scope are the short-term or long-term reduction target to be achieved on emissions to land, air or water from business operations". It is as of December 2021. Other static variables such age and tenure of CEO is as of October 2022. For this reason, company with a CEO with a tenure shorter than 1 year is removed from the sample. CEO Tenure is measured from the day that the CEO has become the officer of the company. CEO & Chair Not Separated takes a value of 1 if the CEO is also the chairperson of the company and 0 otherwise. Asset is the total asset, ROA is the return on asset and D/E Ratio is the debt to equity ratio of the company. For these variables, we use the average value for FY2019, 2020 and 2021.

Figure 1: Proportion of companies with an emission target – CEO tenure



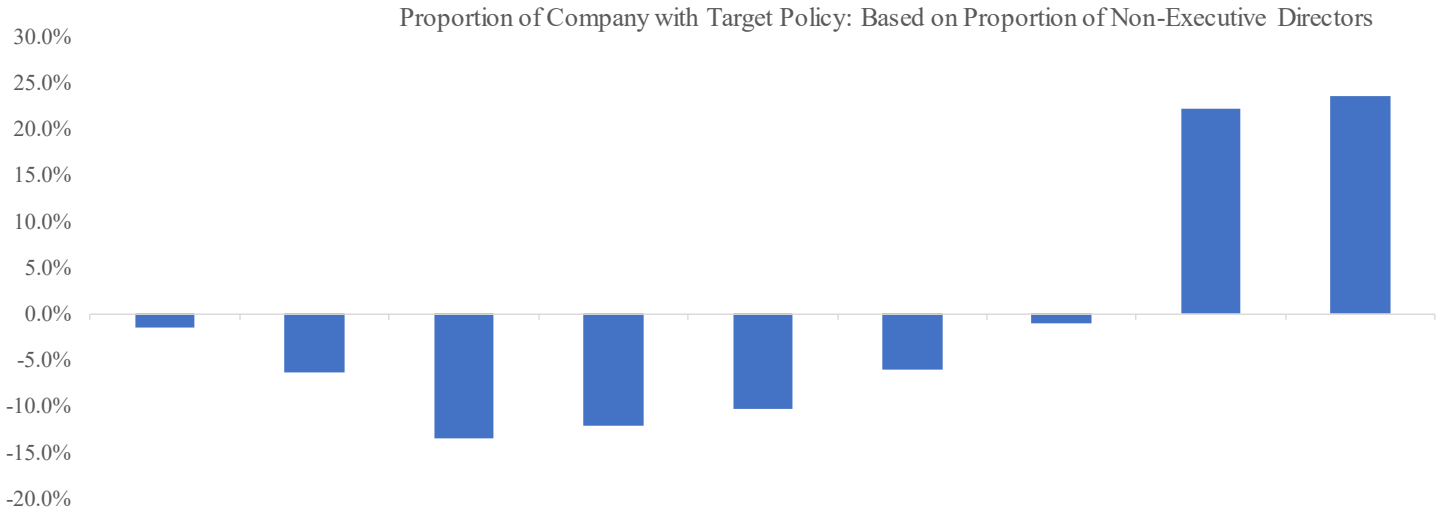
	-5yrs	5-10yrs	10-15yrs	15-20yrs	20-25yrs	25-35yrs	Overall
Total no. of company: (a)	555	533	331	215	127	49	1,810
Company with target policy: (b)	222	205	131	87	45	15	705
% of company with target policy: (b) / (a) = (d)	40.0%	38.5%	39.6%	40.5%	35.4%	30.6%	39.0%
% points difference from average: (d)/(c) -1	1.0%	-0.5%	0.6%	1.5%	-3.5%	-8.3%	(c)

Figure 2: Proportion of companies with an emission target – CEO age



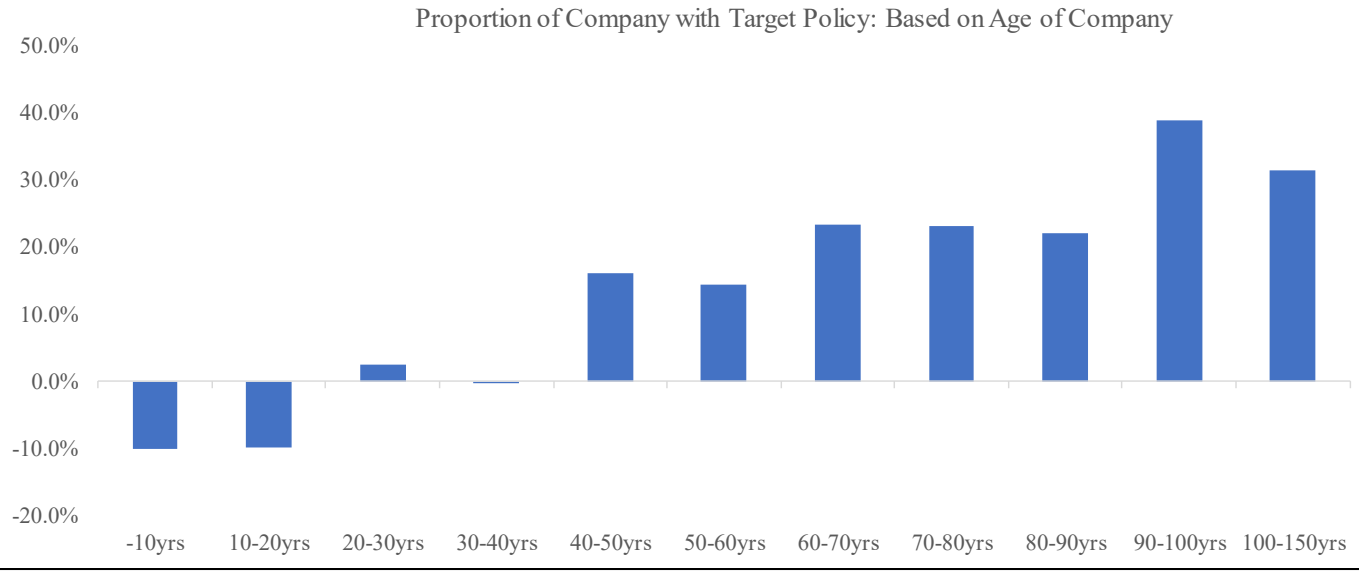
	-46yrs	46-48yrs	48-50yrs	50-52yrs	52-54yrs	54-56yrs	56-58yrs	58-60yrs	60-62yrs	62-64yrs	64-66yrs	66-68yrs	68-75yrs	Overall
Total no. of company: (a)	172	81	128	161	195	203	221	219	172	110	67	32	49	1,810
Company with target policy: (b)	51	26	51	70	88	91	90	88	66	42	22	7	13	705
% of company with target policy: (b) / (a) = (d)	29.7%	32.1%	39.8%	43.5%	45.1%	44.8%	40.7%	40.2%	38.4%	38.2%	32.8%	21.9%	26.5%	39.0%
% points difference from average: (d)/(c) -1	-9.3%	-6.9%	0.9%	4.5%	6.2%	5.9%	1.8%	1.2%	-0.6%	-0.8%	-6.1%	-17.1%	-12.4%	(c)

Figure 3: Proportion of companies with an emission target – % of non-executive directors



	0-60%	60-65%	65-70%	70-75%	75-80%	80-85%	85-90%	90-95%	95-100%	Overall
Total no. of company: (a)	115	49	98	164	234	292	485	245	128	1,810
Company with target policy: (b)	43	16	25	44	67	96	184	150	80	705
% of company with target policy: (b) / (a) = (d)	37.4%	32.7%	25.5%	26.8%	28.6%	32.9%	37.9%	61.2%	62.5%	39.0%
% points difference from average: (d)/(c) -1	-1.6%	-6.3%	-13.4%	-12.1%	-10.3%	-6.1%	-1.0%	22.3%	23.5%	(c)

Figure 4: Proportion of companies with an emission target – Company's age



	-10yrs	10-20yrs	20-30yrs	30-40yrs	40-50yrs	50-60yrs	60-70yrs	70-80yrs	80-90yrs	90-100yrs	100-150yrs	Overall
Total no. of company: (a)	382	455	394	227	89	90	45	37	18	27	44	1,810
Company with target policy: (b)	110	132	163	88	49	48	28	23	11	21	31	705
% of company with target policy: (b) / (a) = (d)	28.8%	29.0%	41.4%	38.8%	55.1%	53.3%	62.2%	62.2%	61.1%	77.8%	70.5%	39.0%
% points difference from average: (d)/(c) -1	-10.2%	-9.9%	2.4%	-0.2%	16.1%	14.4%	23.3%	23.2%	22.2%	38.8%	31.5%	(c)

Figure 5: Proportion of a company with the emission target (if CEO takes a chairperson role)

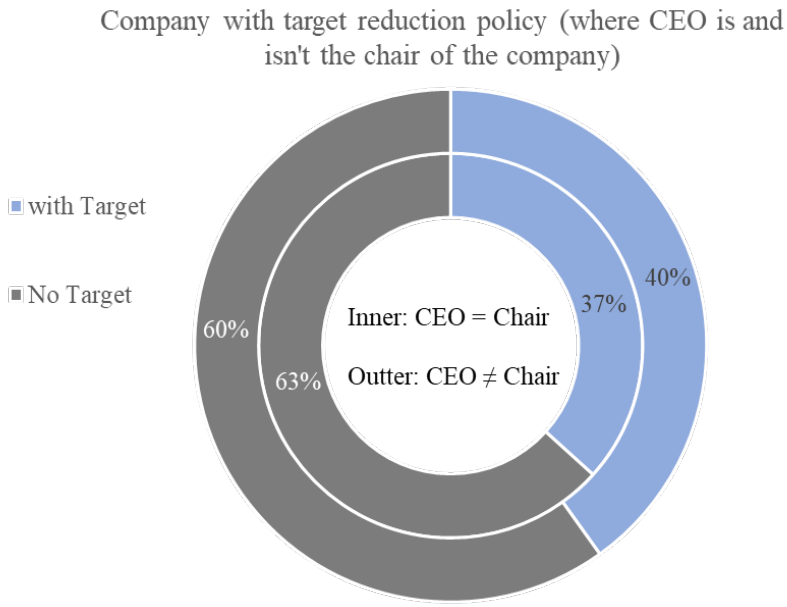


Figure 6: Proportion of a company with the emission target (if CEO is likely be dead by 2050)

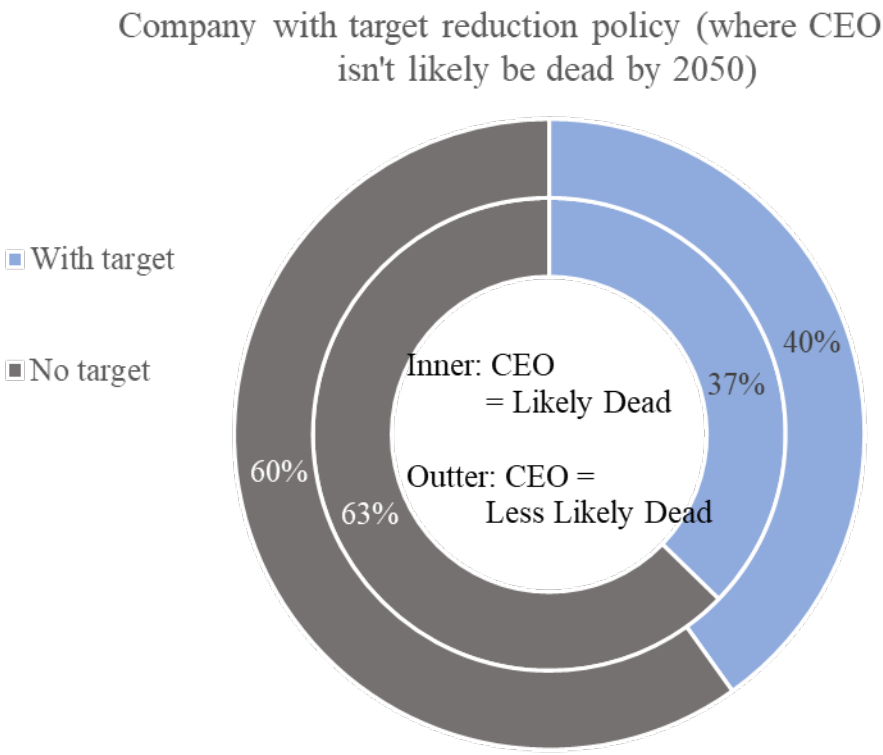


Figure 7: Proportion of a company with target emission within a region (the number within the bar represents the number of companies)

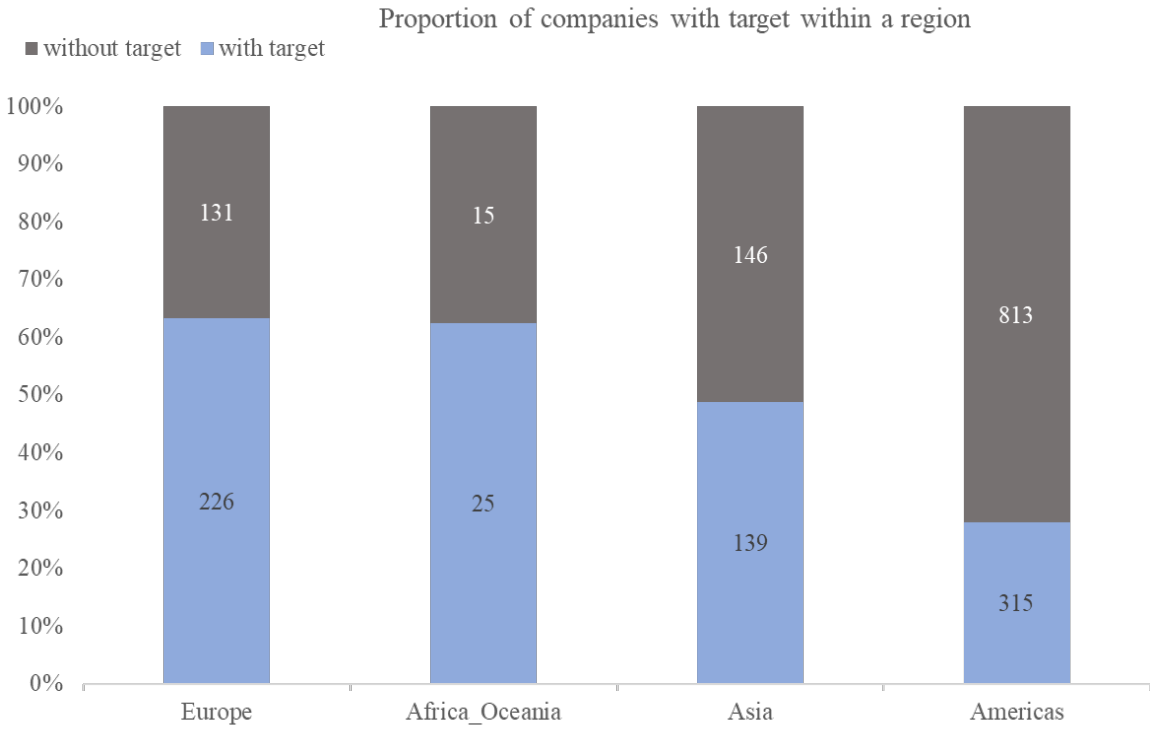


Figure 8: Proportion of a company with target emission within a sector (the number within the bar represents the number of companies)

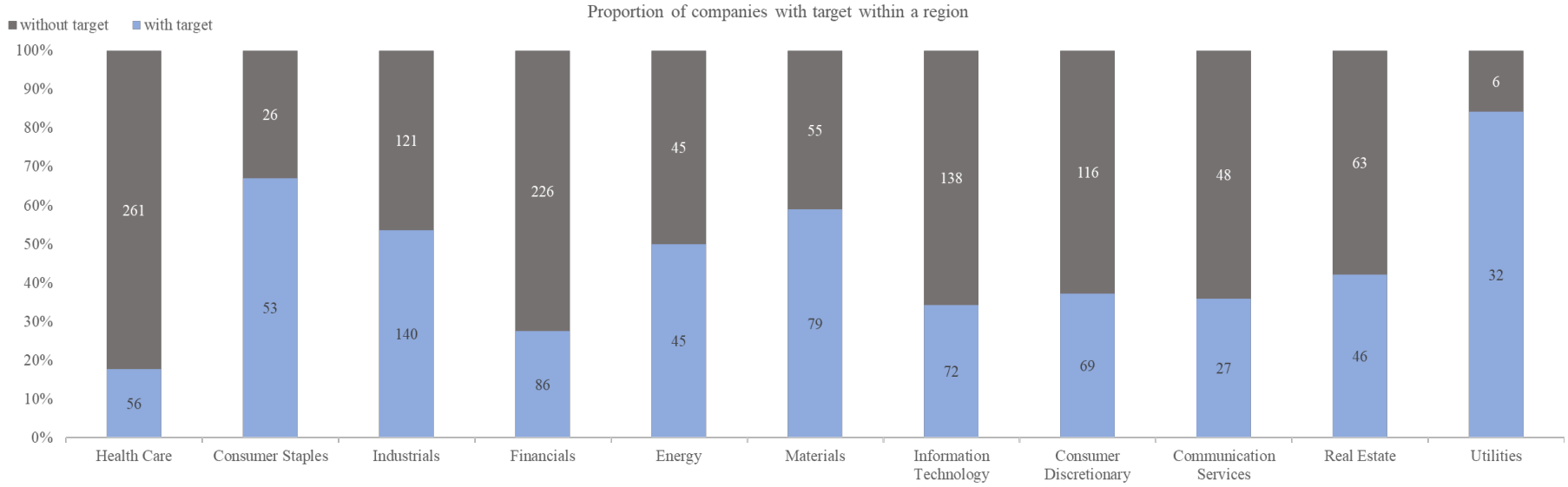


Table 2: Probit regression, Dependent variable = Emission Target Dummy

ln_ceo_age	-0.541*	
p-value	0.05	
ceo potentially dead by 2050		-0.149**
p-value		0.01
ln_ceo_tenure	-0.114*	-0.114*
p-value	0.05	0.05
CEO & Chair NotSeparated	-0.202**	-0.195**
p-value	0.02	0.03
% of NonExecutive Board	0.011**	0.011**
p-value	0.04	0.04
ln_company_age	0.171***	0.169***
p-value	0.00	0.00
ln_asset	0.417***	0.416***
p-value	0.00	0.00
ROA	0.024***	0.024***
p-value	0.00	0.00
D/E Ratio	-0.012**	-0.012**
p-value	0.02	0.02
Industry Fixed Effect	Yes	Yes
Observations	1,810	1,810
Pseudo_r2	0.32	0.32

Note: This analysis examines the relationship between the CEO's age/tenure and whether the company has CO2 emissions reduction target or not. ceo potentially dead by 2050 variable takes a value of 1 if the CEO is reaching an age of 85 by 2050 (we follow the OECD's life expectancy at age of 65 to determine this age of 85). The coefficients for D/E ratio are multiplied by 100. CEO & Chair NotSeparated variable takes value of 1 if these roles are not separated. "ln" indicates the variable has been converted to a nature log form. The standard errors are clustered by country. ***, ** and * indicate whether the coefficient is statistically significant at the 1, 5 and 10% level.

Table 3: Post-probit regression: Change in probability due to change in explanatory variable

ln_ceo_age	-0.139**	
p-value	0.02	
ceo potentially dead by 2050		-0.039***
p-value		0.00
ln_ceo_tenure	-0.029**	-0.028*
p-value	0.04	0.05
CEO & Chair NotSeparated	-0.052**	-0.053**
p-value	0.02	0.02
% of NonExecutive Board	0.003**	0.003**
p-value	0.02	0.02
ln_company_age	0.044***	0.045***
p-value	0.00	0.00
ln_asset	0.107***	0.107***
p-value	0.00	0.00
ROA	0.006***	0.006***
p-value	0.00	0.00
D/E Ratio	-0.003***	-0.003***
p-value	0.00	0.00

Note: This table shows the relationship between the probability of a company to have the emission target due to one unit change in the explanatory variable. For example, for the CEO's age, 1% increase in the age is associated with approximately 0.14% points decrease in the probability of the company to have the emission target. The probability for D/E ratio is multiplied by 100. Following the result of the probit regression analysis, we have conducted a one-tail test and thereby the p-values on this table are for the one-tail test. ***, ** and * indicate whether the coefficient is statistically significant at the 1, 5 and 10% level.

Figure 9: Summary of Table 3, order of the relationship between the probability and change in the explanatory variables (note: we take the average value of the two results displayed on Table 3 except for ln_ceo_age and ceo potentially dead by 2050)

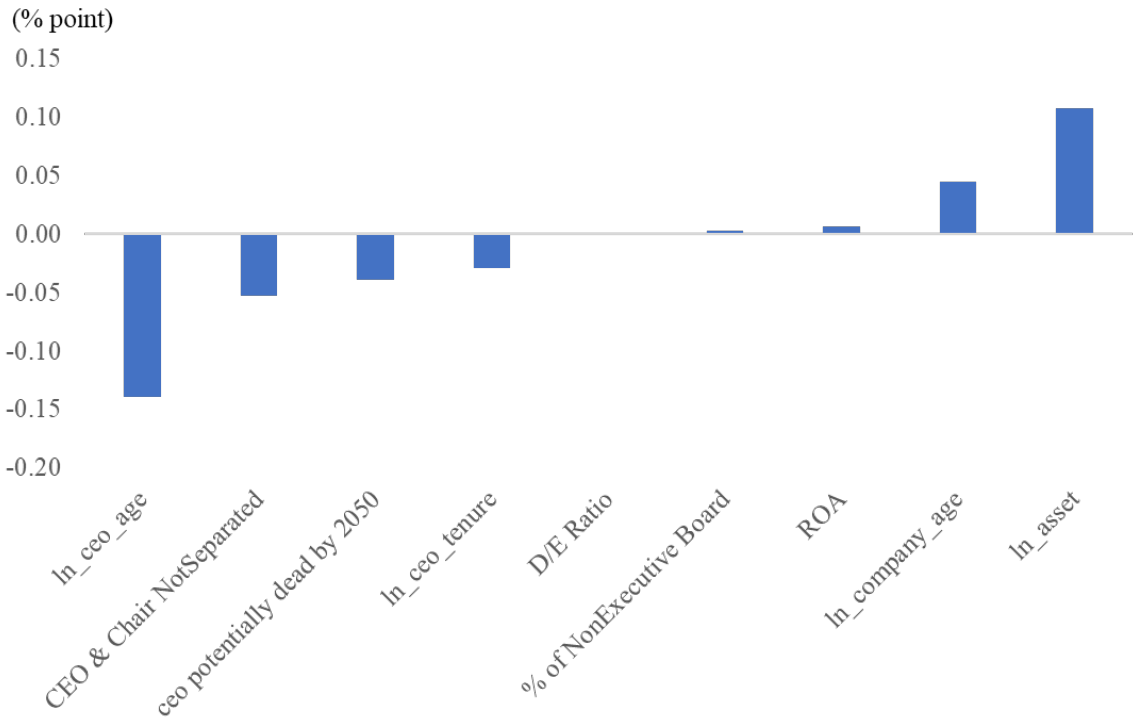


Figure 10: Probability of a company to have target emission and the age of CEO

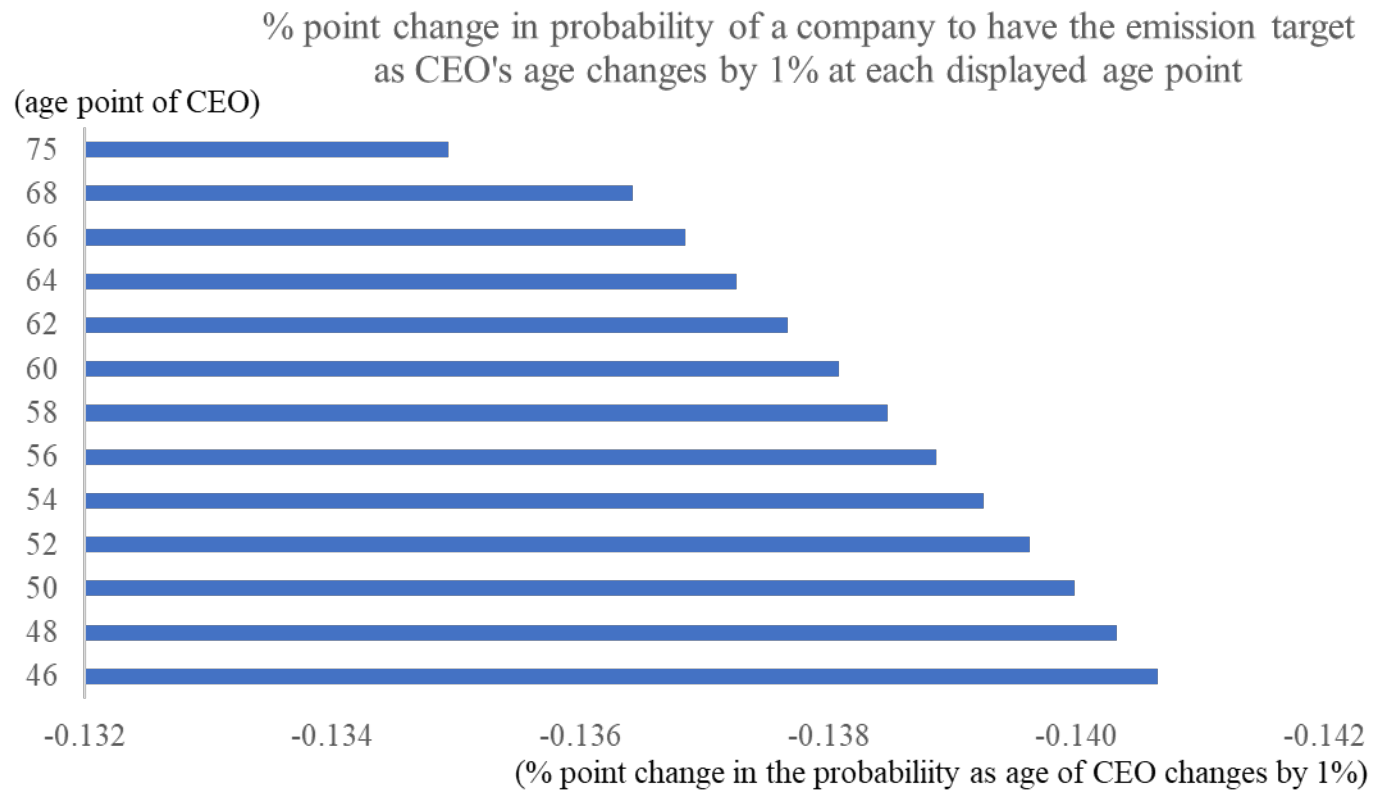


Figure 11: Probability of a company to have target emission and the tenure of CEO