

Online Appendices

for

Green new hiring

Online Appendix Table 1

Correlation matrix

This table reports the correlation matrix of the main variables. Pearson's correlation coefficients are shown in the lower triangle while Spearman's rank correlations appear above the diagonal. Detailed definitions of all variables are in Appendix B.

Main Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) <i>Green Score</i>	1.000	0.145	0.509	0.277	0.273	0.044	-0.218	-0.185	0.266	0.119	0.168	-0.114
(2) <i>Return on Assets</i>	0.127	1.000	0.285	0.092	-0.079	-0.223	-0.222	-0.589	0.364	0.151	0.144	0.091
(3) <i>Firm Size (Ln)</i>	0.350	0.347	1.000	0.242	0.440	0.018	-0.381	-0.354	0.441	0.198	0.143	-0.062
(4) <i>Property, Plant, & Equip.</i>	0.230	0.096	0.215	1.000	0.270	0.236	-0.403	-0.136	0.247	-0.065	0.750	-0.048
(5) <i>Leverage</i>	0.186	0.007	0.369	0.274	1.000	0.010	-0.326	-0.057	0.150	0.063	0.082	-0.058
(6) <i>Book-to-Market (Ln)</i>	0.049	-0.018	0.027	0.265	-0.058	1.000	-0.255	-0.005	0.018	-0.174	0.053	-0.149
(7) <i>R&D</i>	-0.058	-0.328	-0.133	-0.075	-0.067	-0.024	1.000	0.298	-0.299	-0.041	-0.262	-0.014
(8) <i>Loss</i>	-0.125	-0.558	-0.346	-0.063	-0.030	-0.021	0.159	1.000	-0.386	-0.154	-0.155	-0.040
(9) <i>Dividend</i>	0.188	0.332	0.440	0.185	0.117	0.024	-0.096	-0.386	1.000	-0.008	0.128	-0.039
(10) <i>Institutional Ownership</i>	0.081	0.158	0.181	-0.093	0.037	-0.185	-0.050	-0.153	0.004	1.000	-0.004	0.174
(11) <i>CapEx</i>	0.139	0.088	0.097	0.675	0.084	0.084	-0.057	-0.094	0.050	-0.036	1.000	0.044
(12) <i>Advertising</i>	-0.063	0.004	-0.030	-0.060	-0.038	-0.135	-0.031	0.018	-0.047	0.109	0.013	1.000

Online Appendix Table 2
Univariate analyses

This table reports the univariate analysis of the main variables. Each observation is at the firm-year level. We sort all firm-year observations by their *Green Score* into tertiles: *High*, *Mid*, and *Low*. Details of other variables are in Appendix B. Two-tailed *t*-statistics are in the last column.

Main Variables	Green Score			High - Low	<i>t</i> -stat
	High	Mid	Low		
<i>Return on Assets</i>	0.033	0.016	-0.029	0.062	(21.00)
<i>Firm Size (Ln)</i>	8.360	7.652	6.134	2.225	(70.46)
<i>Property, Plant, & Equip.</i>	0.299	0.211	0.192	0.107	(26.73)
<i>Leverage</i>	0.274	0.241	0.173	0.100	(30.22)
<i>Book-to-Market (Ln)</i>	-0.866	-1.077	-0.958	0.092	(5.40)
<i>R&D</i>	0.000	0.004	0.007	-0.007	(-9.00)
<i>Loss</i>	0.179	0.238	0.370	-0.191	(-23.13)
<i>Dividend</i>	0.628	0.476	0.326	0.302	(34.38)
<i>Institutional Ownership</i>	0.632	0.665	0.538	0.094	(14.05)
<i>CapEx</i>	0.050	0.040	0.039	0.011	(12.57)
<i>Advertising</i>	0.008	0.012	0.013	-0.005	(-9.77)

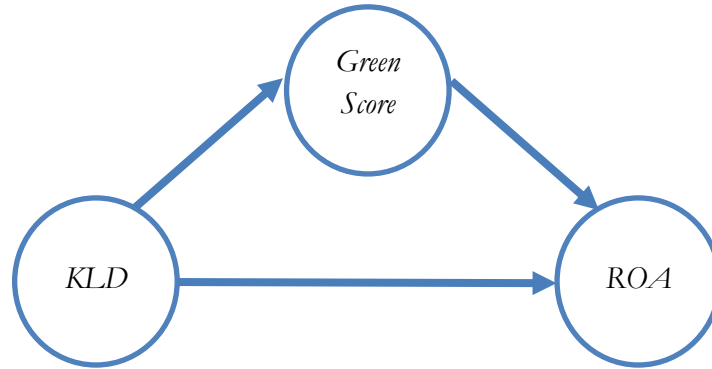
Online Appendix Table 3
KLD ratings without *Green Score*

This table reports the coefficient estimates of ordinary least squares regressions. The sample period is from 2011 to 2018 (the last year of KLD data). Each observation is at the firm-year level. *Return on Assets* is the net income or loss divided by total assets. *CSR 1*, *CSR 2*, *CSR 3*, *ENV 1*, and *ENV 2* are all net differences between KLD strengths and concerns. Details of these variables are in Appendix B. Only observations with non-missing KLD are included. Standard errors are clustered at the firm level, and *t*-statistics are in parentheses. Intercepts are included for estimation but not tabulated. ***, **, and * indicate two-tailed *t*-statistics with statistical significance at the 1%, 5%, and 10% level, respectively.

Independent Variables	Dependent Variable: <i>Return on Assets</i> (<i>t</i> +1)				
	(1)	(2)	(3)	(4)	(5)
<i>CSR 1</i>	0.004 (0.32)				
<i>CSR 2</i>		0.004 (0.20)			
<i>CSR 3</i>			0.001 (0.66)		
<i>ENV 1</i>				-0.002 (-0.27)	
<i>ENV 2</i>					-0.006 (-0.54)
Control Variables	Identical to those in Table 4, column 2				
<i>Firm Fixed Effects</i>	Yes	Yes	Yes	Yes	Yes
<i>Year Fixed Effects</i>	Yes	Yes	Yes	Yes	Yes
# Observations	9,759	9,759	9,759	9,759	9,759
Adjusted-R ²	0.710	0.710	0.710	0.710	0.710

Online Appendix Table 4
Green Score as a mediator?

The following analyses examine whether the effect of KLD ratings on future profitability is mediated through *Green Score*. The dependent variable is *Return on Assets* (ROA). The independent variable is one of the following five KLD measures: *CSR 1*, *CSR 2*, *CSR 3*, *ENV 1*, and *ENV 2*. And the mediator is *Green Score*. The following model illustrates the mediation model that we examine.



Before reporting the results of mediation analyses, we tabulate (below) the correlations between *Green Score* and each of these five KLD measures. Pearson's correlation coefficients are in the lower triangle, while Spearman's rank correlations appear above the diagonal.

	<i>Green Score</i>	<i>CSR 1</i>	<i>CSR 2</i>	<i>CSR 3</i>	<i>ENV 1</i>	<i>ENV 2</i>
Variables	(1)	(2)	(3)	(4)	(5)	(6)
<i>Green Score</i>	1.00	0.16	0.18	0.11	0.18	0.21
<i>CSR 1</i>	0.10	1.00	0.98	0.87	0.55	0.57
<i>CSR 2</i>	0.11	0.98	1.00	0.85	0.57	0.60
<i>CSR 3</i>	0.06	0.85	0.84	1.00	0.40	0.40
<i>ENV 1</i>	0.09	0.67	0.69	0.46	1.00	0.97
<i>ENV 2</i>	0.12	0.67	0.72	0.46	0.97	1.00

All mediation analyses include all control variables and *Year Fixed Effects* in Table 4, column 2. *Firm Fixed Effects* are not included because mediation analysis cannot handle high-dimensional fixed effects. The results in the table below show that only a small fraction of the effect of KLD ratings is mediated by *Green Score*. For example, 11% of the effect of *CSR 1* on *Return on Assets* is mediated by *Green Score*, and 4.3% of the effect of *CSR 2* on *Return on Assets* is mediated by *Green Score*.

Descriptions	KLD Measures				
	<i>CSR 1</i>	<i>CSR 2</i>	<i>CSR 3</i>	<i>ENV 1</i>	<i>ENV 2</i>
	(1)	(2)	(3)	(4)	(5)
Proportion of total effect that is mediated	0.110	0.043	0.016	0.002	0.004
Ratio of indirect to direct effect	0.124	0.045	0.016	0.002	0.004
Ratio of total to direct effect	1.124	1.045	1.016	1.002	1.004

Online Appendix Table 5
Interaction between *Green Score* and KLD

This table reports the coefficient estimates of ordinary least squares regressions. The sample period is from 2011 to 2018 (the last year of KLD data). Each observation is at the firm-year level. *Return on Assets* is the net income or loss divided by total assets. *CSR 1*, *CSR 2*, *CSR 3*, *ENV 1*, and *ENV 2* are all net differences between KLD strengths and concerns. Details of these variables are in Appendix B. Standard errors are clustered at the firm level, and *t*-statistics are in parentheses. Intercepts are included for estimation but not tabulated. ***, **, and * indicate two-tailed *t*-statistics with statistical significance at the 1%, 5%, and 10% level, respectively.

Independent Variables	Dependent Variable: <i>Return on Assets</i> (<i>t</i> +1)				
	(1)	(2)	(3)	(4)	(5)
<i>Green Score</i>	0.043*** (3.45)	0.043*** (3.39)	0.042*** (3.50)	0.042*** (3.27)	0.042*** (3.23)
<i>CSR 1</i>	0.016 (0.84)				
<i>CSR 1</i> × <i>Green Score</i>	-0.012 (-0.13)				
<i>CSR 2</i>		0.028 (0.83)			
<i>CSR 2</i> × <i>Green Score</i>		-0.033 (-0.20)			
<i>CSR 3</i>			0.002 (0.62)		
<i>CSR 3</i> × <i>Green Score</i>			0.009 (0.60)		
<i>ENV 1</i>				-0.005 (-0.47)	
<i>ENV 1</i> × <i>Green Score</i>				0.026 (0.51)	
<i>ENV 2</i>					-0.007 (-0.41)
<i>ENV 2</i> × <i>Green Score</i>					0.031 (0.34)
Control Variables	Identical to those in Table 4, column 2				
<i>Firm Fixed Effects</i>	Yes	Yes	Yes	Yes	Yes
<i>Year Fixed Effects</i>	Yes	Yes	Yes	Yes	Yes
# Observations	12,802	12,802	12,802	12,802	12,802
Adjusted-R ²	0.700	0.700	0.700	0.700	0.700

Online Appendix Table 6

Hiring intensity?

This table reports the coefficient estimates of ordinary least squares regressions. Each observation is at the firm-year level. *Green Score* is the average *Green Score per Job* of a firm in a given year. In panel A, *# Jobs* is the number of job postings of a firm in the first three months of the fiscal year $t+1$. *# Green Jobs* is the number of green jobs of a firm in a given year. In panel B, *# Green Jobs (Titles)* is the number of jobs with titles containing the term(s) “climate,” “nuclear,” “recycling,” “biofuel,” “energy,” “hydrolo,” or “solar” of a firm in a given year. *# Green Jobs (O*NET)* is the number of jobs with titles that match any O*NET green job titles in Online Appendix Table 4 of a firm in a given year. *# Public Relations* is the number of jobs with titles containing the term(s) “public relations,” “public affairs,” “media relations,” or “corporate communications.” Details of other variables are in Appendix B. Standard errors are clustered at the firm level, and t -statistics are in parentheses. Intercepts are included for estimation but not tabulated. ***, **, and * indicate two-tailed t -statistics with statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Jobs				
Dependent Variable: <i>Return on Assets</i> ($t+1$)				
Independent Variables	(1)	(2)	(3)	(4)
<i>Green Score</i>		0.039*** (3.36)		0.044*** (3.47)
<i># Jobs (Ln)</i>	0.004*** (5.88)	0.004*** (5.88)		
<i># Green Jobs (Ln)</i>			0.001 (0.52)	-0.002 (-1.23)
Control Variables	Identical to those in Table 4, column 2			
<i>Firm Fixed Effects</i>	Yes	Yes	Yes	Yes
<i>Year Fixed Effects</i>	Yes	Yes	Yes	Yes
# Observations	14,583	14,583	14,583	14,583
Adjusted-R ²	0.682	0.683	0.681	0.682

Online Appendix Table 6
Hiring intensity? – *Continued*

Panel B: Alternative measures				
<u>Independent Variables</u>	Dependent Variable: <i>Return on Assets</i> ($t+1$)			
	(1)	(2)	(3)	(4)
<i>Green Score</i>	0.040*** (3.37)	0.041*** (3.41)	0.040*** (3.40)	0.040*** (3.39)
<i># Green Jobs (Titles) Ln</i>	-0.001 (-0.66)		-0.001 (-0.36)	
<i># Green Jobs (O*NET) Ln</i>		-0.001 (-0.79)	-0.001 (-0.66)	
<i># Public Relations (Ln)</i>				-0.003 (-1.54)
Control Variables	Identical to those in Table 4, column 2			
<i>Firm Fixed Effects</i>	Yes	Yes	Yes	Yes
<i>Year Fixed Effects</i>	Yes	Yes	Yes	Yes
# Observations	14,583	14,583	14,583	14,583
Adjusted-R ²	0.682	0.682	0.682	0.682

Online Appendix Table 7

O*NET Standard Occupational Classification (SOC) codes for green jobs

The O*NET SOC codes of green jobs are identified and provided by Burning Glass.

O*NET Codes	Green Job Titles
11-1011.03	Chief Sustainability Officers
11-2011.01	Green Marketers
11-3051.02	Geothermal Production Managers
11-3051.03	Biofuels Production Managers
11-3051.04	Biomass Power Plant Managers
11-3051.05	Methane/Landfill Gas Collection System Operators
11-3051.06	Hydroelectric Production Managers
11-9041.01	Biofuels/Biodiesel Technology and Product Development Managers
11-9121.00	Natural Sciences Managers
11-9121.02	Water Resource Specialists
11-9199.09	Wind Energy Operations Managers
11-9199.10	Wind Energy Project Managers
13-1041.01	Environmental Compliance Inspectors
13-1199.01	Energy Auditors
13-1199.05	Sustainability Specialists
17-2081.00	Environmental Engineers
17-2081.01	Water/Wastewater Engineers
17-2141.01	Fuel Cell Engineers
17-2161.00	Nuclear Engineers
17-2199.03	Energy Engineers
17-2199.10	Wind Energy Engineers
17-2199.11	Solar Energy Systems Engineers
17-3025.00	Environmental Engineering Technicians
17-3029.10	Fuel Cell Technicians
19-1013.00	Soil and Plant Scientists
19-1023.00	Zoologists and Wildlife Biologists
19-1031.00	Conservation Scientists
19-1031.01	Soil and Water Conservationists
19-1031.02	Range Managers
19-1031.03	Park Naturalists
19-1032.00	Foresters
19-2021.00	Atmospheric and Space Scientists
19-2041.00	Environmental Scientists and Specialists, Including Health
19-2041.01	Climate Change Analysts
19-2041.02	Environmental Restoration Planners

Online Appendix Table 7
O*NET Standard Occupational Classification (SOC) codes
for green jobs – *Continued*

SOC Codes	Green Job Titles
19-2041.03	Industrial Ecologists
19-2042.00	Geoscientists, Except Hydrologists and Geographers
19-2043.00	Hydrologists
19-3011.01	Environmental Economists
19-4051.00	Nuclear Technicians
19-4091.00	Environmental Science and Protection Technicians, Including Health
19-4093.00	Forest and Conservation Technicians
25-1043.00	Forestry and Conservation Science Teachers, Postsecondary
25-1051.00	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary
25-1053.00	Environmental Science Teachers, Postsecondary
33-1021.02	Forest Fire Fighting and Prevention Supervisors
33-2022.00	Forest Fire Inspectors and Prevention Specialists
33-3031.00	Fish and Game Wardens
41-4011.07	Solar Sales Representatives and Assessors
45-4011.00	Forest and Conservation Workers
47-1011.03	Solar Energy Installation Managers
47-2231.00	Solar Photovoltaic Installers
47-4041.00	Hazardous Materials Removal Workers
47-4071.00	Septic Tank Servicers and Sewer Pipe Cleaners
47-4099.02	Solar Thermal Installers and Technicians
47-4099.03	Weatherization Installers and Technicians
49-2092.00	Electric Motor, Power Tool, and Related Repairers
49-3091.00	Bicycle Repairers
49-9081.00	Wind Turbine Service Technicians
49-9099.01	Geothermal Technicians
51-8011.00	Nuclear Power Reactor Operators
51-8031.00	Water and Wastewater Treatment Plant and System Operators
51-8099.01	Biofuels Processing Technicians
51-8099.02	Methane/Landfill Gas Generation System Technicians
51-8099.03	Biomass Plant Technicians
51-8099.04	Hydroelectric Plant Technicians
51-9199.01	Recycling and Reclamation Workers
53-1021.01	Recycling Coordinators
53-7081.00	Refuse and Recyclable Material Collectors

Online Appendix Table 8
Examples of firms with divergent KLD-*Green Scores*

This table lists some examples of firms with a *Green Score* that diverges significantly from their KLD environmental strengths.

High KLD-Low <i>Green Score</i> Firms	KLD Environmental Strength	<i>Green Score</i> (vs. industry mean)
Texas Instruments 2012	4 (max of 5)	0.000 (vs. 0.035)
Clorox 2016	6 (max of 6)	0.058 (vs. 0.126)

Low KLD-High <i>Green Score</i> Firms	KLD Environmental Strength	<i>Green Score</i> (vs. industry mean)
Shake Shack 2018	0 (max of 5)	0.165 (vs. 0.073)
Nordstrom 2013	0 (max of 6)	0.147 (vs. 0.065)