Consumers' Reaction to Corporate ESG Performance: Evidence from Store Visits

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Background

- The question of *whether and how ESG policies affect firm value and operating performance* attracts both practitioners and academics
  - Empirical evidence is inconclusive (Gillan, Koch, Starks, 2021)

Channels through which ESG polices affect firm value:

Cost of capital:

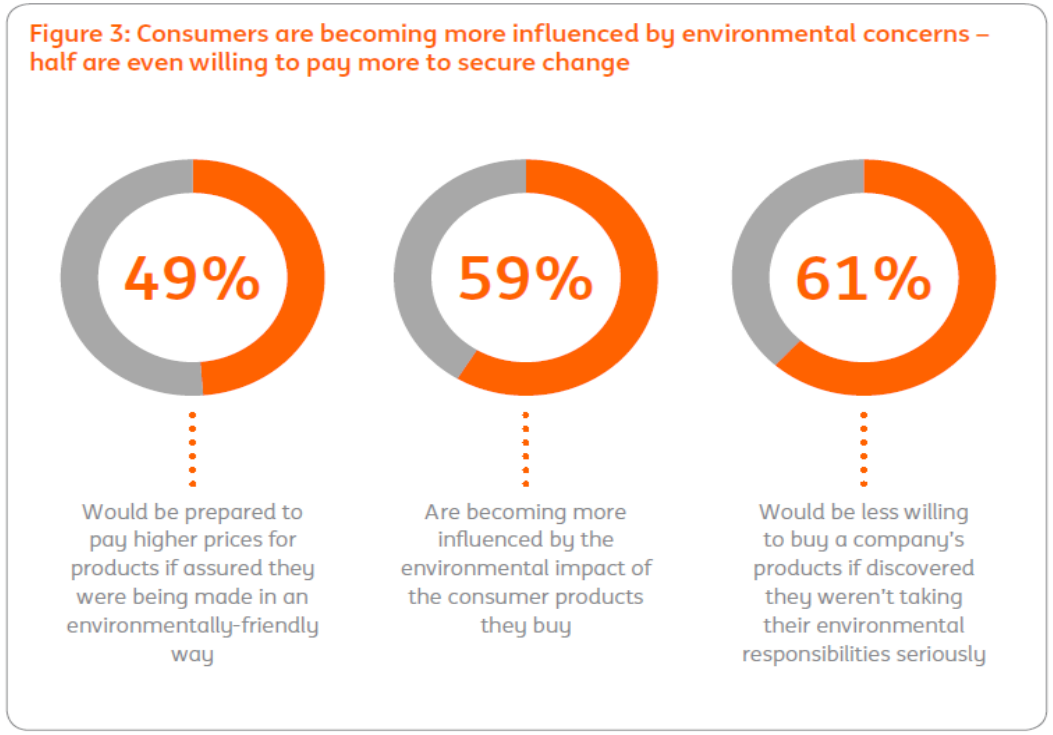
- *Risk exposure*: a firm's ESG practices affect its exposure to environmental regulatory risks (Bolton and Kacperczyk, 2021, 2023; Hsu, Li, and Tsou, 2023)
- *Price pressure*: ESG policies may affect demand of institutional investors that influencing stock prices (Heath et al., 2021; Pastor et al., 2022)

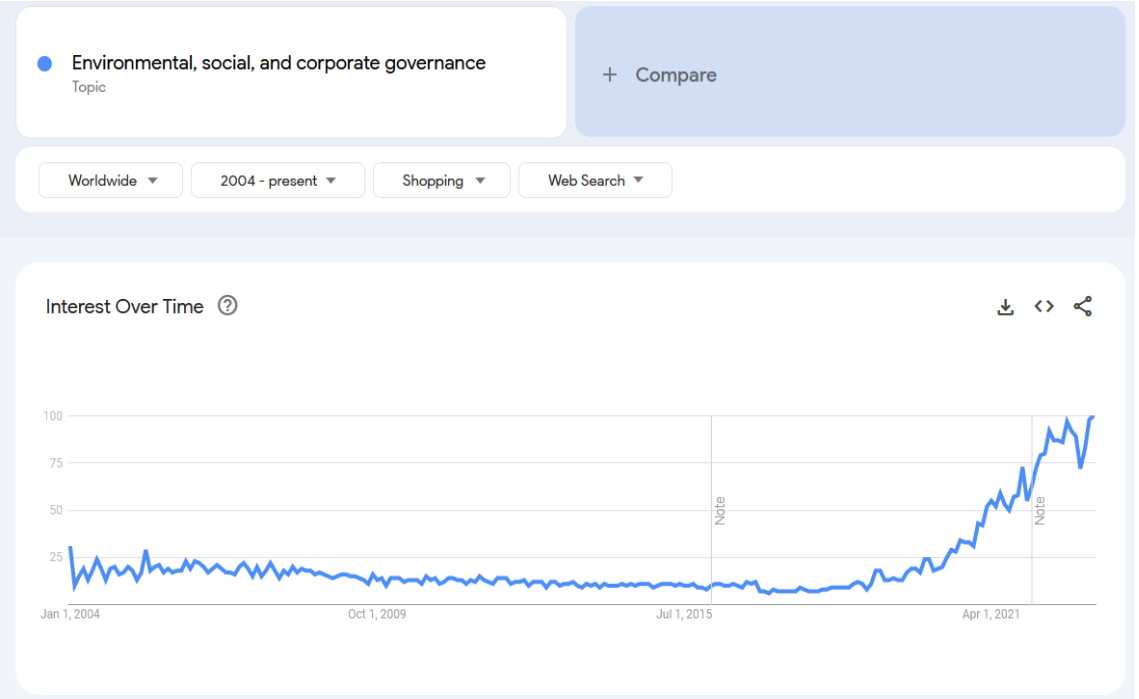
Cash flow:

- *Employee retention/productivity*: firms with better ESG reputation can attract/retain talents with lower wages (Edmans, 2011; Krueger et al., 2021)
- *Consumer demand*: a firm's ESG reputation may affect consumer demand for its products/services (Servaes and Tamayo, 2013)

Motivation

- We focus on the consumer demand channel
  - Survey evidence (ING 2019)
  - Google Search
  - Experimental studies from marketing literature (Sen and Bhattacharya, 2001)





Motivation

- Not clear whether consumers consider a firm's ESG reputation in their purchasing decision in the real world
  - Consumers may not "walk the talk"
  - Heterogeneous ESG preferences of consumers may not be captured by aggregate sales
- Gurun, Nickerson, and Solomon (2022)
  - Starbucks stores experienced a 7% decrease in visits after the enactment of nationwide policy that anyone was welcome to sit in Starbucks stores and use the bathrooms

- We fill the gap by providing direct **evidence from the field** to the "consumer demand" channel

Research Question and Empirical Challenges

- *Whether firms' ESG reputation affect consumer demand in the real world?*
- *If Yes, what are the implications for firm value and ESG behavior?*

- Key empirical challenges:

1. firm sales reported in financial statements is an aggregate and coarse measure of consumer demand
   - Sales can increase (decrease) due to store open (closure)
   - Mask heterogeneity in consumers' response to ESG performance
2. difficult to attribute change in consumer behaviors to change in ESG reputation
   - ESG reputation is persistent and may correlate with unobservable firm characteristics

What We Do

We overcome these challenges by:

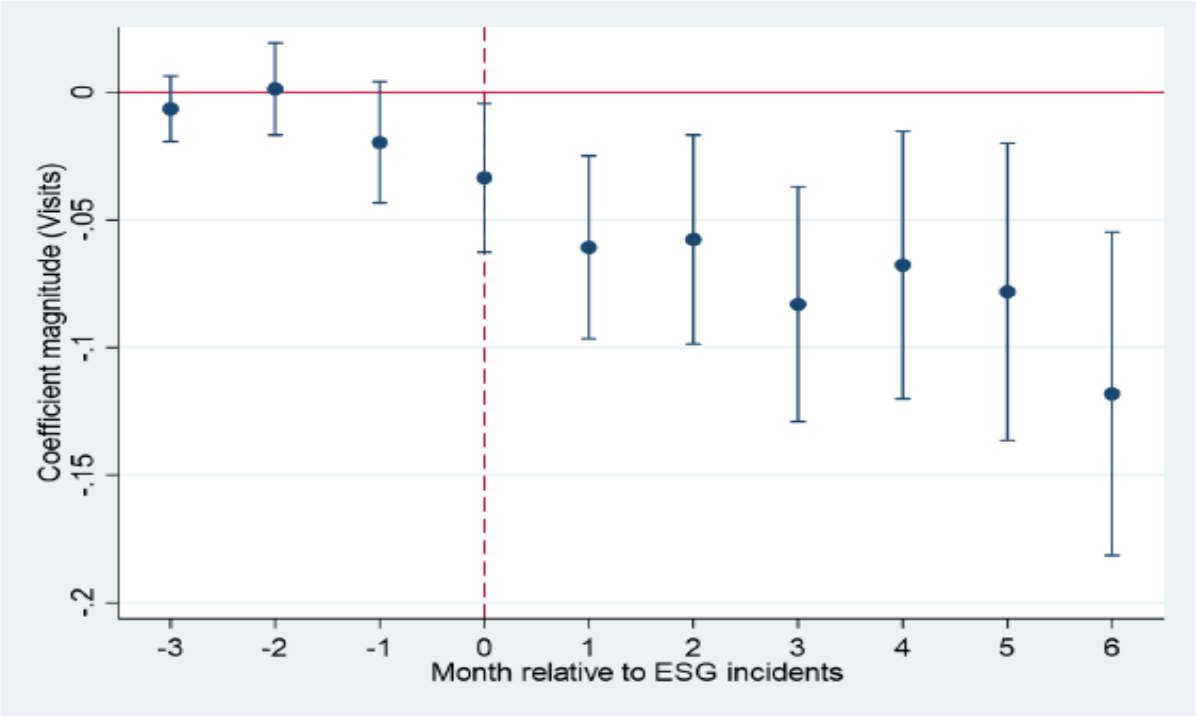
1. Use foot-traffic data at store-level to proxy for consumer demand
   - More granular and higher frequency measure of consumer demand

2. Use ESG incidents from RepRisk to measure corporate ESG performance
   - Reported by external sources and less subject to firm manipulation
   - Capture shocks to firms' ESG reputation that consumers likely pay attention to
   - Not subject to ESG rating inconsistencies across different rating providers (Berg, Koelbel, and Rigobon, 2022)

3. Using a rich set of fixed effects to control for unobservables

Preview of Main Findings

- Foot-traffic to firms' stores **decreases** in the month following ESG incidents
  - Increase in # of ESG incidents from 0 to 1 leads to **1.1%** decrease in monthly store visits
  - Similar results for online shopping (proxied by Google search volume of brand names)
  - Effect stronger for E&S incidents than for G incidents



Preview of Main Findings

- **Identification strategy**: using local hot temperatures as a shock to consumers' concern about environmental issues
  - Consumers experiencing hot temperature respond more negatively to the **same** E incidents relative to those without temperature shock

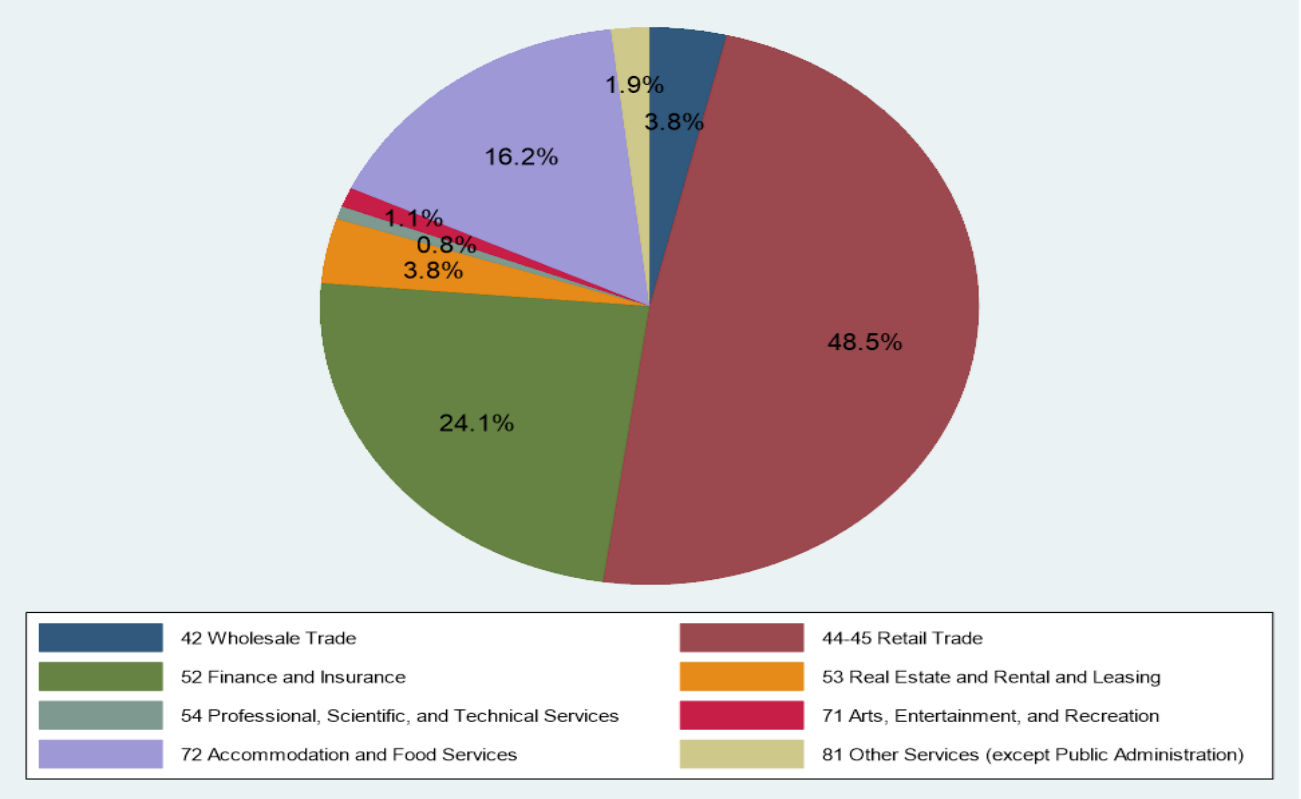
- Differentiating the preference vs. information channels:
  - Effect stronger among ESG-conscious consumers
  - Democratic counties with a higher fraction of educated and younger residents

Data

- Consumer foot-traffic data at store-level from SafeGraph
  - SafeGraph collects anonymized GPS data from users' mobile phone apps and matches these GPS coordinates with commercial locations
  - We select stores that are owned by publicly listed firms in US and track monthly visits and unique visitors at store level
- Firm-level ESG incidents data from RepRisk
  - RepRisk screens over 100,000 media and stakeholder sources every day to look for **negative** ESG incidents
  - Incident is rated based on severity (harshness), reach (influence), and novelty (newness)
  - ESG incidents affect subsequent changes in ESG ratings (Derrien et al., 2021)
- Compustat and CRSP: firm financial and stock market data
  - Final sample contains 11,361,099 store-month observations from 266 unique firms
  - Sample period is from January 2018 to September 2020

Industry Composition of SafeGraph data

- The chart below shows the industry composition of our sample firms disaggregated at the 2-digit NAICS code level
  - It covers several granular categories within the retail industry (e.g., fashion, furniture, appliances, movie theatres, restaurants, coffee shops, and car dealerships)



Classification of ESG Incidents by RepRisk

- RepRisk classifies ESG incidents into 28 distinct issues
  - Environmental issues include GHG emissions, pollution, waste disposal, etc.
  - Social issues include child labor, human rights abuses, etc.
  - Governance issues include executive compensation issues, corruption, tax evasion etc.

Environmental	Social	Governance
Animal mistreatment	Child labor	Anti-competitive practices
Climate change, GHG emissions, and global pollution	Controversial products and services	Corruption, bribery, extortion and money laundering
Impacts on landscapes, ecosystems and biodiversity	Discrimination in employment	Executive compensation issues
Local pollution	Forced labor	Fraud
Other environmental issues	Freedom of association and collective bargaining	Misleading communication
Overuse and wasting of resources	Human rights abuses and corporate complicity	Other issues
Waste issues	Impacts on communities	Tax evasion
	Local participation issues	Tax optimization
	Occupational health and safety issues	
	Other social issues	
	Poor employment conditions	
	Products (health and environmental issues)	
	Social discrimination	
	Supply chain issues	
	Violation of international standards	
	Violation of national legislation	

Do Store Visits Capture Consumer Demand?

- The foot-traffic data captures consumer interests (not actual sales)
- We first validate whether consumer store visit is a reasonable proxy for firm sales by correlating with firm sales reported in Compustat
  - Aggregating the number of visits at store-month level to firm-quarter level

Variables	Ln(Sales)		Sales growth		Stock return	
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(Firm visits)	0.435***				0.012**	
	(7.146)				(2.296)	
Ln(Firm visitors)		0.487***				0.009*
		(8.551)				(1.722)
Firm visits growth			0.420***			
			(10.857)			
Firm visitors growth				0.440***		
				(12.323)		
Cash	-0.171	-0.146	-0.061	-0.047	0.046	0.045
	(-1.017)	(-0.857)	(-0.426)	(-0.327)	(0.737)	(0.726)
Market-to-book	0.024	0.022	0.021	0.020	-0.014***	-0.014***
	(0.841)	(0.777)	(1.581)	(1.580)	(-3.326)	(-3.344)
Leverage	-0.052	-0.049	0.163**	0.160**	0.086**	0.087**
	(-0.442)	(-0.429)	(2.074)	(2.061)	(2.002)	(2.012)
ROA	-0.044	-0.003	-0.122	-0.143	0.030	0.029
	(-0.107)	(-0.008)	(-0.463)	(-0.565)	(0.384)	(0.372)
Ln(Sales)					-0.013	-0.013
					(-0.507)	(-0.508)
Return_12m	0.110***	0.105***	0.035***	0.031**	-0.048***	-0.047***
	(5.601)	(5.327)	(2.797)	(2.564)	(-6.841)	(-6.806)
Firm FEs	YES	YES	YES	YES	YES	YES
Year-Quarter FEs	YES	YES	YES	YES	NO	NO
Year-Month FEs	NO	NO	NO	NO	YES	YES
Adjusted R2	0.988	0.989	0.366	0.384	0.365	0.365
Observations	2,668	2,668	2,399	2,399	8,298	8,298

- A 1% growth in firm-level store visits nowcasts a 0.4% growth in quarterly sales

Empirical Specification

$$FootTraffic_{s,i,m} = \beta_0 + \beta_1 Ln(ESG\ incidents + 1)_{i,m-1} + \Sigma\beta_i Controls_{i,y-1} + \gamma' FEs + \varepsilon_{s,i,m}$$

- $FootTraffic_{s,i,m}$: the log # of visits (visitors) to a store s owned by firm i in month m
- $Ln(ESG\ incidents + 1)_{i,m-1}$: the log of 1 plus the # of ESG incidents of firm i in month m-1
- $Controls_{i,y-1}$ indicates lagged firm-level variables following Bizjak et al. (JF 2022)
  - Cash holdings, leverage, market-to-book ratio, ROA, Ln(Sales), and past 12-month stock return
- $\beta_1 < 0$ indicates consumers consider firm ESG performance when making purchase decisions

High-dimensional fixed effects

- The granular data allows us to insert a rich set of fixed effects to account for many unobservables (Gormley and Matsa, 2014)
- Store FEs
  - Time-invariant store characteristics
  - E.g., the brand name and the location of the store
- County*Year-month FEs
  - The impact of local economic conditions on consumer demand
- Industry*Year-month FEs
  - Industry-specific trends in consumer demand
- Industry*County*Year-month FEs
  - Heterogeneous impacts of local economic conditions on consumer demand across different sectors

The consumer side--Is firm's "misbehavior" in E, S, or G costly?

Baseline Results

Variables	Ln(Visits)				Ln(Visitors)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln(ESG incidents+1)	-0.019***	-0.020***	-0.016***	-0.017***	-0.018***	-0.019***	-0.016***	-0.017***
	(-33.934)	(-35.515)	(-28.844)	(-30.377)	(-34.757)	(-36.098)	(-29.742)	(-31.027)
Cash			0.132***	0.129***			0.134***	0.128***
			(20.780)	(19.772)			(22.485)	(20.649)
Market-to-book			0.039***	0.038***			0.036***	0.035***
			(47.709)	(47.180)			(46.412)	(45.774)
Leverage			0.039***	0.044***			0.056***	0.060***
			(14.679)	(16.571)			(22.396)	(24.036)
ROA			-0.249***	-0.235***			-0.196***	-0.183***
			(-28.515)	(-26.695)			(-23.172)	(-21.352)
Ln(Sales)			0.075***	0.067***			0.050***	0.042***
			(31.363)	(27.681)			(21.687)	(18.305)
Return_12m			0.087***	0.088***			0.090***	0.090***
			(35.201)	(34.440)			(35.939)	(35.230)
Store FEs	YES	YES	YES	YES	YES	YES	YES	YES
County-YM FEs	YES	NO	YES	NO	YES	NO	YES	NO
Industry-YM FEs	YES	NO	YES	NO	YES	NO	YES	NO
Industry-County-YM FEs	NO	YES	NO	YES	NO	YES	NO	YES
Adjusted R^2	0.933	0.933	0.933	0.933	0.941	0.941	0.942	0.942
Observations	11,361,099	11,361,099	11,361,099	11,361,099	11,361,099	11,361,099	11,361,099	11,361,099

- Economic effect: Increase in # of ESG incidents from 0 to 1 leads to **1.2%** decrease in monthly store visits/visitors

Separate Effects of E, S, and G Incidents

Panel A: Using environmental, social and governance incidents separately

Variables	Ln(Visits)			Ln(Visitors)		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(E incidents+1)	-0.022***			-0.022***		
	(-24.678)			(-24.653)		
Ln(S incidents+1)		-0.014***			-0.014***	
		(-25.236)			(-25.455)	
Ln(G incidents+1)			-0.006***			-0.007***
			(-8.092)			(-10.367)
Controls	YES	YES	YES	YES	YES	YES
Store FEs	YES	YES	YES	YES	YES	YES
Industry-County-YM FEs	YES	YES	YES	YES	YES	YES
Adjusted R^2	0.933	0.933	0.933	0.942	0.942	0.942
Observations	11,361,099	11,361,099	11,361,099	11,361,099	11,361,099	11,361,099

- Consumers react more strongly to E&S incidents than to governance-related incidents

Long-run Effect of ESG Incidents on Store Visits

Variables	Ln(Visits) over Month 1 to 4 (1)	Ln(Visits) over Month 5 to 9 (2)	Ln(Visitors) over Month 1 to 4 (3)	Ln(Visitors) over Month 5 to 9 (4)
Ln(ESG incidents+1)	-0.005***	-0.001**	-0.005***	-0.001
	(-12.430)	(-2.269)	(-12.550)	(-1.490)
Controls	YES	YES	YES	YES
Store FEs	YES	YES	YES	YES
Industry-County-YM FEs	YES	YES	YES	YES
Adjusted R^2	0.953	0.954	0.960	0.961
Observations	11,106,513	11,008,873	11,106,513	11,008,873

- The impacts of ESG incidents on consumer store visits diminish gradually
- The initial reduction in consumer store visits seems to be permanent
  - No reversal over a longer horizon

Using Local Hot Temperature as Shock to Consumer Environmental Awareness

- The effect of ESG incidents could be confounded by non-ESG news/information
- We exploit a setting where consumers' concern about sustainability issues increased exogenously
  - Abnormally hot temperatures increase residents' environmental awareness(Choi et al., 2021; Duan and Li, 2023)

Variables	Ln(Visits)		Ln(Visitors)	
	(1)	(2)	(3)	(4)
Ln(ESG incidents+1)*High temperature shock	-0.002***		-0.002***	
	(-4.915)		(-5.243)	
Ln(E incidents+1)*High temperature shock		-0.004***		-0.004***
		(-3.526)		(-3.924)
Ln(S incidents+1)*High temperature shock		0.000		0.001
		(0.337)		(0.879)
Ln(G incidents+1)*High temperature shock		0.000		-0.001
		(0.153)		(-0.554)
Controls	YES	YES	YES	YES
Store FEs	YES	YES	YES	YES
Industry-County-YM FEs	YES	YES	YES	YES
Firm-YM FEs	YES	YES	YES	YES
Adjusted R^2	0.941	0.941	0.950	0.950
Observations	11,295,944	11,295,944	11,295,944	11,295,944

- With Firm-YM fixed effects, the result suggests consumers experiencing hot temperature respond more negatively to the **same** incidents relative to those without temperature shock

The Channels - Why do Consumers Reduce Store Visits After They Learn about Firms' ESG Incidents?

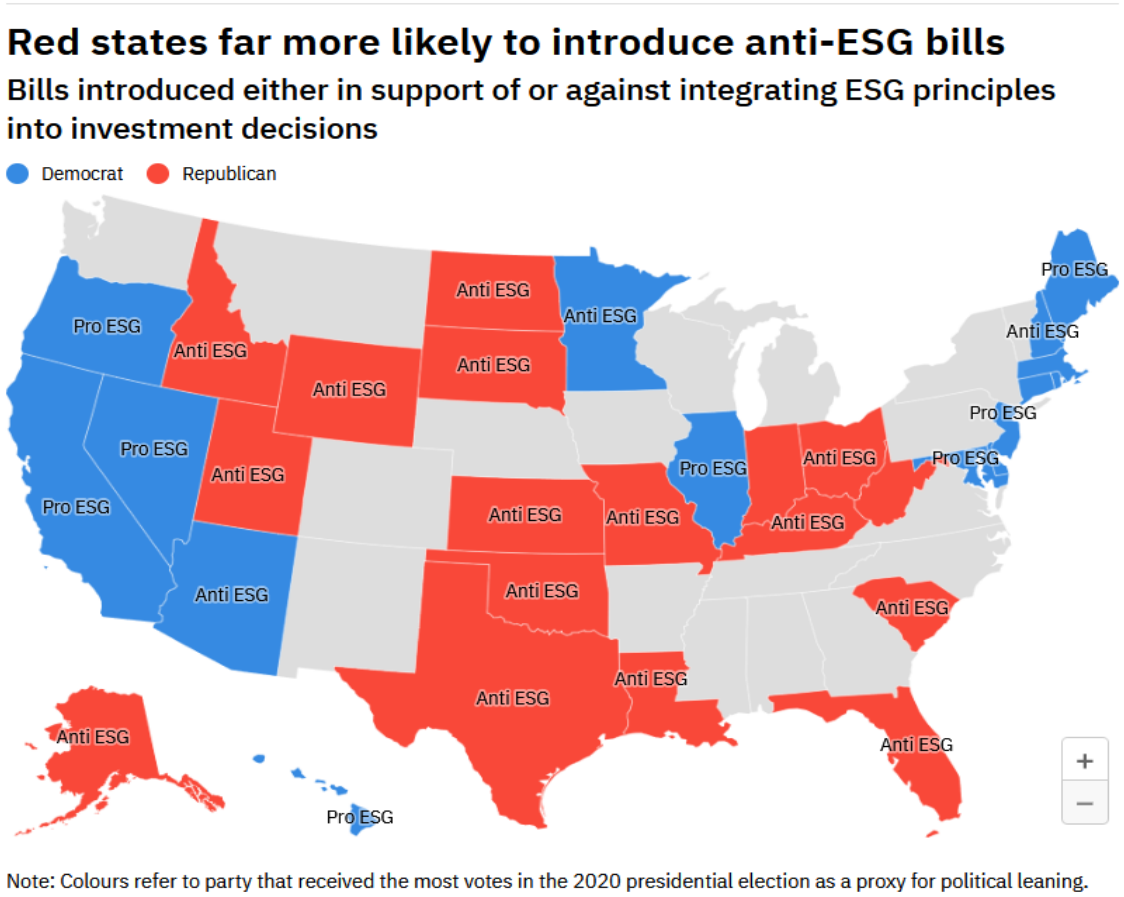
Testing the Channels

- The "Preference" Channel
  - Consumers with preferences for corporate sustainability are less willing to buy products from firms with poorer ESG reputation
- The "Information" Channel
  - 'Bad ESG' behavior is a negative signal about the overall quality of firm conduct

- We exploit geographic variation in individual **sustainability preference** to evaluate the two explanations

Subsample Tests Conditional on County-level Political Leanings

- Our first measure of ESG preference is a county's political leanings
- Greater support for sustainability issues among Democrats than republicans (Hong and Kostovetsky, 2012)
- Measured by the share of the presidential vote in a county that went to Hilary Clinton in the 2016 election



Subsample Tests Conditional on County-level Political Leanings

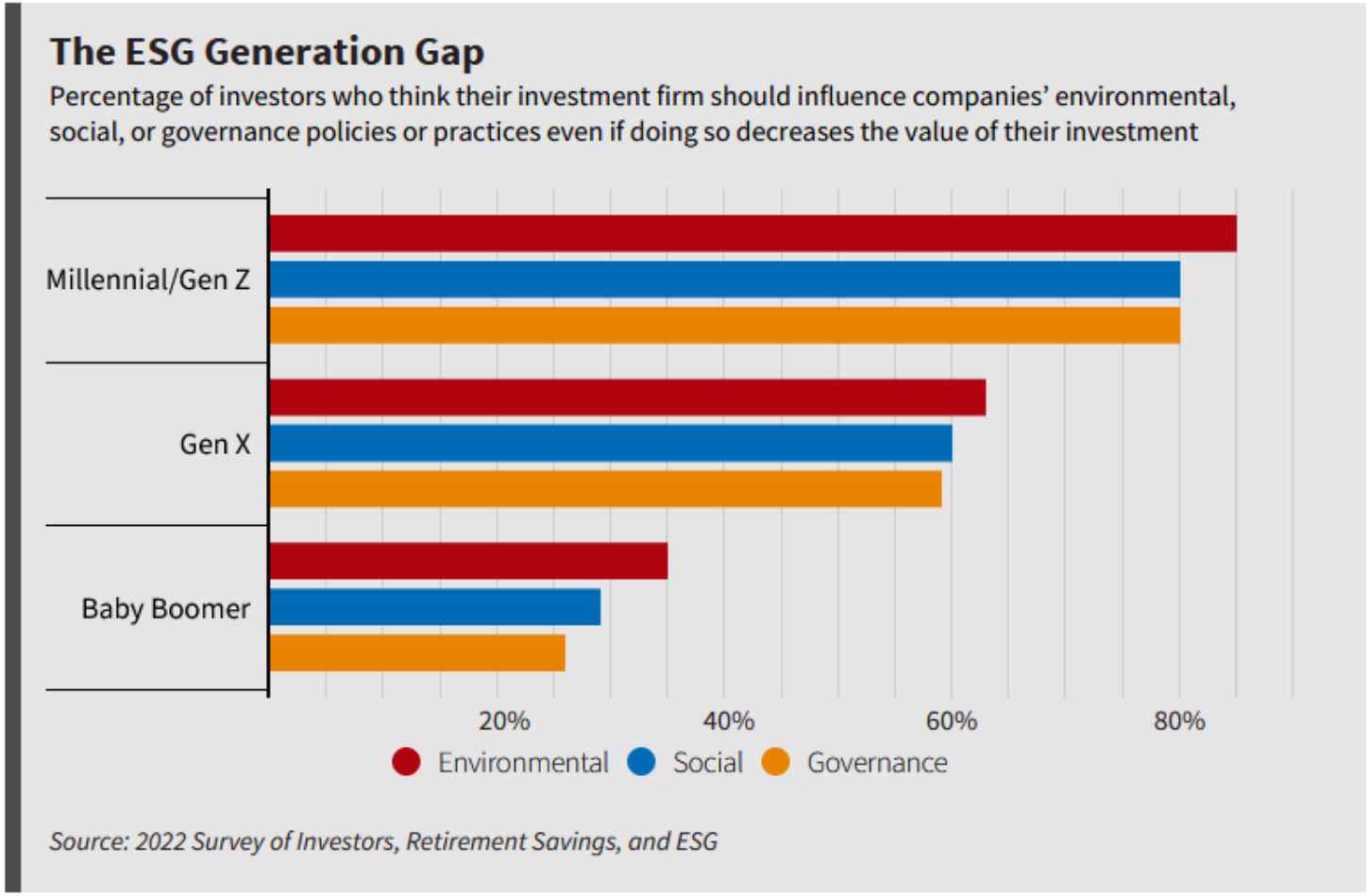
Panel A: ESG incidents and store visits conditional on county-level political leaning

Variables	Ln(Visits)		Ln(Visitors)	
	Democratic counties	Republican counties	Democratic counties	Republican counties
	(1)	(2)	(3)	(4)
Ln(ESG incidents+1)	-0.018***	-0.015***	-0.017***	-0.014***
	(-27.574)	(-14.566)	(-28.301)	(-14.410)
Controls	YES	YES	YES	YES
Store FEs	YES	YES	YES	YES
Industry-County-YM FEs	YES	YES	YES	YES
Adjusted R^2	0.934	0.930	0.942	0.941
Observations	9,531,725	1,802,710	9,531,725	1,802,710
F test for Ln(ESG incidents+1)	0.034		0.003	

- Consumers living in democratic counties respond more negatively to ESG incidents than those living in republican counties

Subsample Tests Conditional on Demographic Characteristics

- The **younger and more educated** people generally care more about sustainability issues



Subsample Tests Conditional on County-level Education and Age

- Measured by the percentage of adults with bachelor's degree and older than 60 years in a county

Panel B: ESG incidents and store visits conditional on visitor education

Variables	Ln(Visits)		Ln(Visitors)	
	High education	Low education	High education	Low education
	(1)	(2)	(3)	(4)
Ln(ESG incidents+1)	-0.018***	-0.014***	-0.017***	-0.013***
	(-27.858)	(-14.373)	(-28.521)	(-14.592)
Controls	YES	YES	YES	YES
Store FEs	YES	YES	YES	YES
Industry-County-YM FEs	YES	YES	YES	YES
Adjusted R^2	0.934	0.928	0.942	0.940
Observations	9,554,227	1,806,095	9,554,227	1,806,095
F test for Ln(ESG incidents+1)	0.003		0.001	

Panel C: ESG incidents and store visits conditional on visitor age

Variables	Ln(Visits)		Ln(Visitors)	
	Young	Old	Young	Old
	(1)	(2)	(3)	(4)
Ln(ESG incidents+1)	-0.017***	-0.015***	-0.017***	-0.014***
	(-26.765)	(-14.741)	(-27.479)	(-14.580)
Controls	YES	YES	YES	YES
Store FEs	YES	YES	YES	YES
Industry-County-YM FEs	YES	YES	YES	YES
Adjusted R2	0.934	0.931	0.942	0.940
Observations	9,110,855	2,231,158	9,110,855	2,231,158
F test for Ln(ESG incidents+1)	0.083		0.019	

The Moderating Effect of Firms' Past ESG Standings

- ESG incidents incurred by firms with good past ESG standings should be more surprising and hence elicit stronger consumer reaction (Serafeim and Yoon, 2022)
  - Measured by whether the firm has any ESG incidents **over the past 12 months**

Variables	Ln(Visits)		Ln(Visitors)	
	Good ESG Behavior	Poor ESG Behavior	Good ESG Behavior	Poor ESG Behavior
	(1)	(2)	(3)	(4)
Ln(ESG incidents+1)	-0.054***	-0.017***	-0.057***	-0.017***
	(-9.548)	(-29.507)	(-10.053)	(-30.107)
Controls	YES	YES	YES	YES
Store FEs	YES	YES	YES	YES
Industry-County-YM FEs	YES	YES	YES	YES
Adjusted R^2	0.941	0.931	0.953	0.939
Observations	1,380,383	9,980,716	1,380,383	9,980,716
F test for Ln(ESG incidents+1)	0.000		0.000	

The Moderating Effect of Local Product Market Competition

- Consumer response to ESG incidents should be stronger when peer stores selling similar products are available in the same county
  - Less costly to switch to peer stores in such cases
- Use the Text-based Network Industry Classification approach to identify product market peers (Hoberg and Phillips, 2016)

Variables	Ln(Visits)		Ln(Visitors)	
	Peer stores available	No peer stores	Peer stores available	No peer stores
	(1)	(2)	(3)	(4)
Ln(ESG incidents+1)	-0.014***	-0.008***	-0.013***	-0.007***
	(-21.053)	(-7.081)	(-21.142)	(-7.107)
Controls	YES	YES	YES	YES
Store FEs	YES	YES	YES	YES
Industry-County-YM FEs	YES	YES	YES	YES
Adjusted R^2	0.933	0.942	0.939	0.954
Observations	8,103,796	2,472,056	8,103,796	2,472,056
F test for Ln(ESG incidents+1)	0.000		0.000	

Does Consumer Reaction Trigger Adjustments to Firms' Future ESG Performance?

Implications for Firms' Future ESG Performance

- Use the RepRisk Index (RRI) to measure firm ESG performance, with a higher value indicating poorer ESG performance

Variables	Ln(RRI+1)	
	(1)	(2)
Decline of firm visits*Ln (ESG incidents+1)	-0.042***	
	(-2.662)	
Decline of firm visitors*Ln (ESG incidents+1)		-0.040**
		(-2.590)
Decline of firm visits	0.042**	
	(2.073)	
Decline of firm visitors		0.042**
		(2.225)
Ln (ESG incidents+1)	0.377***	0.376***
	(11.327)	(11.318)
Controls	YES	YES
Firm FEs	YES	YES
YM FEs	YES	YES
Adjusted R^2	0.704	0.704
Observations	7,957	7,957

- Incident firms under the threat of losing consumers (larger decline of store visits) improve their ESG performance more relative to those facing less pressure from consumers

Conclusion & Implication

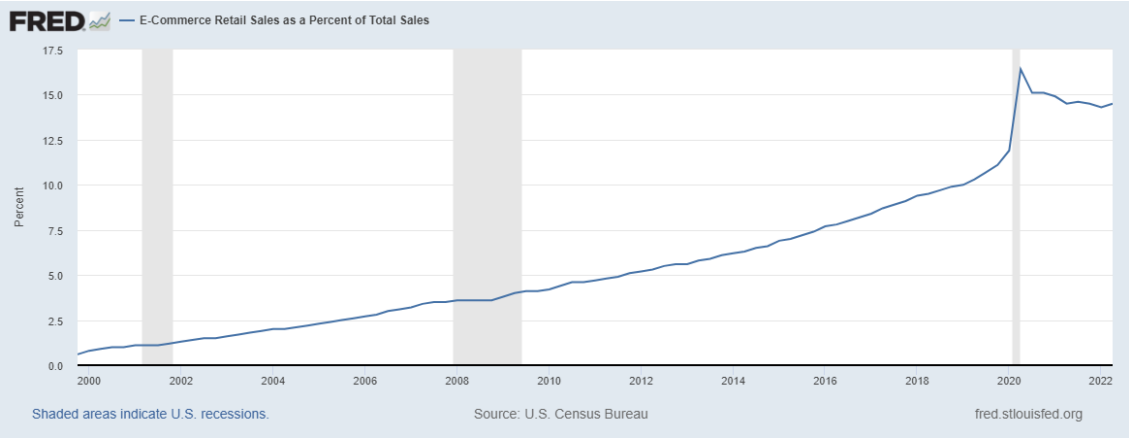
- Consumer store visits significantly decrease in the month following negative ESG incidents
  - Effects stronger among stores located in areas with a greater percentage of more educated and younger individuals, and for consumers living in democratic counties
  - ESG performance affect the demand of consumers with a preference for corporate sustainability
  - Firms under the threat of losing consumers improve their ESG performance
- Implication: consumers could be an important group of stakeholders that help improve corporate ESG practices

Thank you for your comments! ☺

Additional Analyses & Robustness

ESG Incidents and Online Consumer Interest

- Foot-traffic data does not capture consumers shopping activities completely
  - Online shopping is an increasing (although still small) fraction of total sales for retailors in US



- We use shopping-related search volume of brand names from Google Trends to capture online shopping interests from consumers
  - Marketing studies use Google searches to measure prepurchase information acquisition by consumers (Hu, Du, and Damangir, 2014)
  - Focus on SVI of brand names and select the “shopping” category to isolate consumer interest from other types of online interest

ESG Incidents and Online Consumer Interest

Variables	SVI_adjusted			
	(1)	(2)	(3)	(4)
Ln(ESG incidents+1)	-0.257***	-0.262***	-0.176*	-0.180*
	(-2.767)	(-2.809)	(-1.803)	(-1.835)
Controls	NO	YES	NO	YES
Brands FEs	YES	YES	YES	YES
YM FEs	YES	YES	NO	NO
Industry-YM FEs	NO	NO	YES	YES
Adjusted R2	0.070	0.070	0.107	0.107
Observations	75,908	75,908	75,908	75,908

- *SVI_adjusted* is the SVI of the brand name in month *t* minus its past 3 months average
- Sample period from February 2007 to September 2020
- Unit of obs. is at brand-month level
- Control for the same set of variables and brand and industry*year-month fixed effects
- Increase in *# of ESG incidents* from 0 to 1 leads to 0.12 decrease in *SVI_adjusted* (1% of its STD)

ESG Incidents and Firm-level Sales and Profits

Variables	Sales growth (1)	ROA (2)
Ln(ESG incidents+1)	-0.005**	-0.002***
	(-2.079)	(-2.622)
Cash	0.062	-0.006
	(1.416)	(-0.766)
Market-to-book	0.013***	0.007***
	(3.308)	(10.313)
Leverage	0.008	0.004*
	(0.895)	(1.852)
ROA	-0.177***	
	(-3.286)	
Ln(Sales)		0.002***
		(3.832)
Return_12m	0.019*	0.015***
	(1.894)	(10.155)
Industry-YQ FEs	YES	YES
Adjusted R^2	0.287	0.437
Observations	2,631	2,643

- Firm-level sales growth and profitability decline following ESG incidents, consistent with store-level evidence

Controlling non-ESG News

- The effect of ESG incidents could be confounded by non-ESG news

- Similar results after we control several proxies of non-ESG news, including:
- earnings surprises (SUE)
- analyst forecast revision (FREV)
- short interest ratio

Variables	Ln(Visits) (1)	Ln(Visitors) (2)
Ln(ESG incidents+1)	-0.016***	-0.016***
	(-22.898)	(-23.165)
Cash	0.190***	0.197***
	(27.479)	(29.986)
Market-to-book	0.036***	0.034***
	(44.871)	(45.242)
Leverage	0.049***	0.063***
	(16.380)	(22.647)
ROA	-0.316***	-0.287***
	(-34.369)	(-32.386)
Ln(Sales)	0.082***	0.064***
	(25.079)	(20.174)
Return_12m	0.063***	0.064***
	(32.379)	(33.304)
SUE	0.017***	0.018***
	(17.149)	(18.781)
EAM	0.000	-0.000
	(0.106)	(-0.417)
FREV	0.261***	0.266***
	(25.145)	(25.257)
Short ratio	-0.441***	-0.445***
	(-62.959)	(-64.630)
Store FEs	YES	YES
Industry-County-YM FEs	YES	YES
Adjusted R^2	0.938	0.946
Observations	9,414,594	9,414,594

Appendix 1: Alternative Measures of ESG Performance

- Results hold for alternative measures of ESG performance including
  - RepRisk Index (RRI)
  - ESG risk ratings provided by Sustainalytics

Panel B: RRI increase

Variables	Ln(Visits) (1)	Ln(Visitors) (2)
Ln(RRI increase+1)	-0.008***	-0.008***
	(-27.603)	(-28.976)
Controls	YES	YES
Store FEs	YES	YES
Industry-County-YM FEs	YES	YES
Adjusted R^2	0.933	0.942
Observations	11,361,099	11,361,099

Panel C: Using firm ESG scores from Sustainalytics as a proxy for ESG performance

Variables	Ln(Visits)		Ln(Visitors)	
	(1)	(2)	(3)	(4)
Ln(ESG_Sustainalytics)	-0.107***	-0.034***	-0.027***	-0.004
	(-13.387)	(-3.997)	(-3.727)	(-0.493)
Controls	NO	YES	NO	YES
Store FEs	YES	YES	YES	YES
Industry-County-YM FEs	YES	YES	YES	YES
Adjusted R^2	0.959	0.959	0.966	0.966
Observations	6,287,509	6,287,509	6,287,509	6,287,509

Appendix 2: Other Robustness Tests

- Control for advertising expenses
- Remove COVID-19 period
- Exclude product-related ESG incidents

Panel A: Controlling for advertising expense

Variables	Ln(Visits) (1)	Ln(Visitors) (2)
Ln(ESG incidents+1)	-0.016***	-0.016***
	(-28.635)	(-29.126)
Controls	YES	YES
Store FEs	YES	YES
Industry-County-YM FEs	YES	YES
Adjusted R2	0.933	0.942
Observations	11,231,243	11,231,243

Panel B: Excluding the sample period after COVID-19

Variable	Ln(Visits) (1)	Ln(Visitors) (2)
Ln(ESG incidents+1)	-0.007***	-0.006***
	(-15.491)	(-15.262)
Controls	YES	YES
Store FEs	YES	YES
Industry-County-YM FEs	YES	YES
Adjusted R^2	0.954	0.962
Observations	8,992,949	8,992,949

Panel C: Excluding product related ESG incidents

Variables	Ln(Visits) (1)	Ln(Visitors) (2)
Ln(ESG incidents+1)	-0.007***	-0.007***
	(-11.162)	(-10.974)
Controls	YES	YES
Store FEs	YES	YES
Industry-County-YM FEs	YES	YES
Adjusted R^2	0.933	0.942
Observations	11,361,099	11,361,099

Appendix 3: Heterogeneity based on ESG Incidents Severity

- Consumers react more strongly to more severe ESG incidents

Variables	Ln(Visits) (1)	Ln(Visitors) (2)
High severity Ln(ESG incidents+1)	-0.018***	-0.017***
	(-19.717)	(-19.152)
Low severity Ln(ESG incidents+1)	-0.009***	-0.008***
	(-14.589)	(-14.789)
Cash	0.131***	0.130***
	(20.120)	(20.994)
Market-to-book	0.038***	0.035***
	(47.522)	(46.135)
Leverage	0.043***	0.059***
	(16.052)	(23.472)
ROA	-0.240***	-0.188***
	(-27.380)	(-21.995)
Ln(Sales)	0.067***	0.042***
	(27.730)	(18.370)
Return_12m	0.088***	0.091***
	(34.574)	(35.345)
Store FEs	YES	YES
Industry-County-YM FEs	YES	YES
Adjusted R^2	0.933	0.942
Observations	11,361,099	11,361,099