

Corporate ESG Profiles and Investor Horizons

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Institutional investors may prefer firms w/ better Environmental, Social and Governance profiles?

- Firm ESG profiles can:
 - Attract more or higher paying customers (Baron)
 - Increase employee productivity (Baron, Benabou & Tirole)
 - Decrease firm risk (Albuquerque et al)
 - Reduce litigation risk (Eccles, Ioannou, and Serafeim)
 - Help managers avoid myopic decisions
 - Benabou and Tirole (2010)

Long term horizons

- *Over the long-term, ESG issues - ranging from climate change to diversity to board effectiveness - have real and quantifiable financial impacts.* - Larry Fink, CEO, Blackrock
 - Bolton, Scheinkman, and Xiong: Model short-term investors can encourage managers to boost short-term earnings, even at the expense of long-term value
 - Froot, Perold and Stein: Short-term investors may learn more from day-to-day trading and know less about long-term projects
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Hypotheses tested

- Is there a relation between investor horizon and a firm's ESG profile?
 - Investors with longer horizons may prefer higher ESG firms because ESG may be associated with long-term value
 - Shorter term investors may believe that ESG policies sacrifice earnings in the near term
 - Do investors show more patience toward higher ESG firms?
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Major findings

- *Fund level*: Longer term investors weight their portfolios towards high ESG firms (relative to short term investors)
 - *Firm level*: High ESG firms have higher proportions of longer-term investors
 - *Investor patience*: Within their portfolios, investors are less likely to sell a high ESG firm rather than a low ESG firm after that firm misses earnings or has poor stock returns
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Sample and ESG Measures

- Samples of institutional investors for 2000-2014
 - Mutual funds (actively managed) (3,367 funds)
 - Institutional investor aggregate holdings from 13F filings (5,955 investors)
 - Measures of firms' ESG profiles
 - MSCI ESG (KLD) scores
 - Inclusion in FTSE4Good USA Index
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Portfolio level: Holdings ESG-Score and Investment horizon

- **Measures of Investment Horizon**

- **CRSP Reported Portfolio turnover:** Percentage of portfolio bought and sold over a year
- **Holdings Calculated Churn ratio:** measures how frequently mutual funds or other institutional investors rotate their portfolio positions

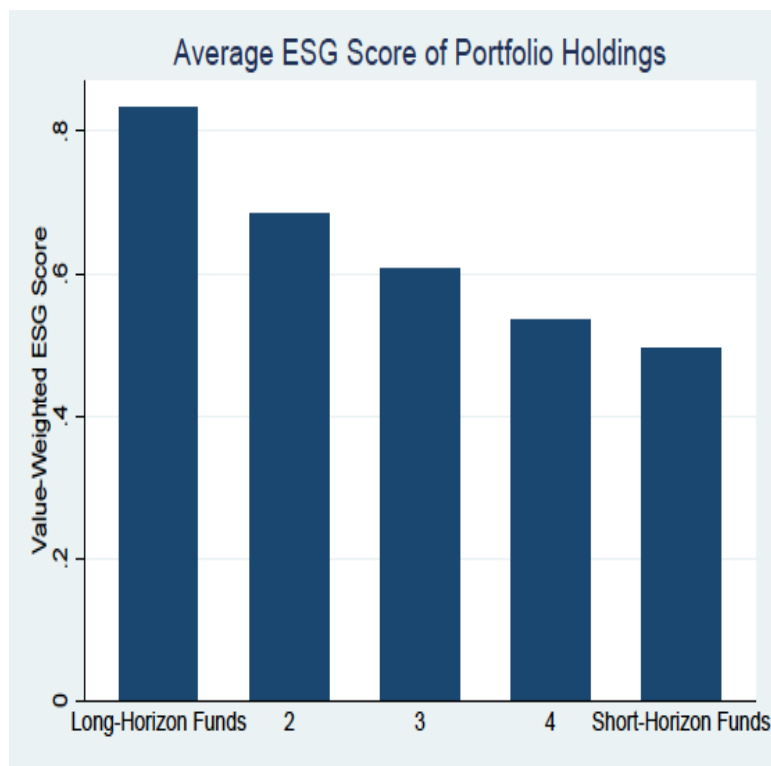
$$CR_{i,t} = \frac{\sum_{j \in Q} |N_{j,i,t} P_{j,t} - N_{j,i,t-1} P_{j,t}|}{\sum_{j \in Q} (N_{j,i,t} P_{j,t} + N_{j,i,t-1} P_{j,t-1}) / 2}$$

where P_{jt} and N_{jit} represent the price and the number of shares, respectively, of company j held by investor i at quarter t

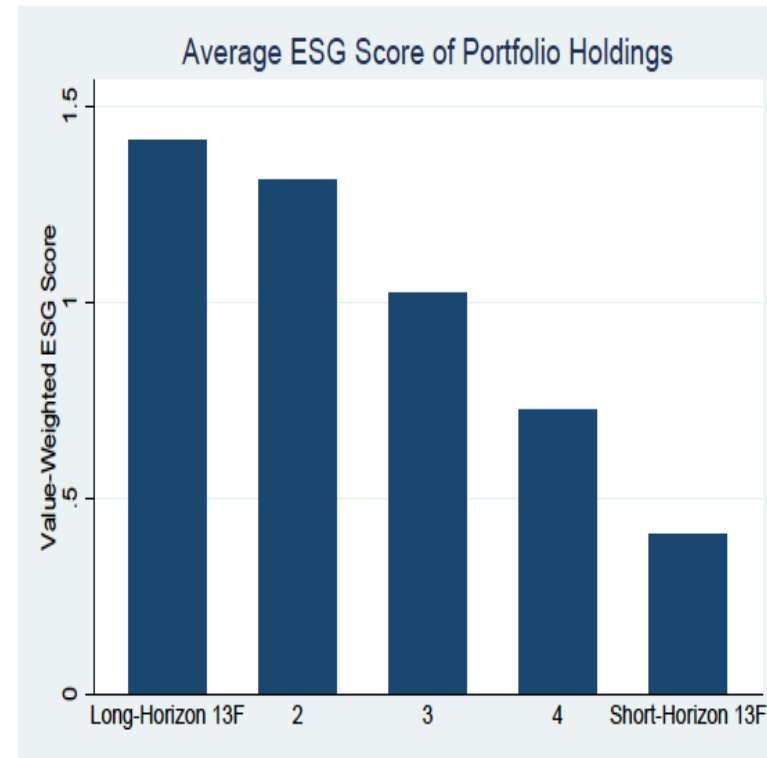
- **Bushee measure (13F Institutions):** Transient, Dedicated or Quasi-Indexer
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Portfolio-level view: ESG and investor horizon

Mutual Funds



13F Institutions



Relationship between portfolio ESG scores and investor horizons

Dependent variable: Fund-level ESG Score							
Sample	Mutual Funds						13f Institutions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fund Churn Ratio	-0.350*** (-4.90)		-0.208*** (-2.89)		-0.325*** (-4.60)		-0.279*** (-9.21)
Fund Turnover Ratio		-0.194*** (-4.38)		-0.181*** (-3.04)		-0.177*** (-4.05)	
Fund Churn Ratio * SRI Fund					-0.785* (-1.96)		
Fund Turnover Ratio * SRI Fund						-0.539** (-2.45)	
Ln(Fund TNA)	-0.00315 (-0.38)	-0.00550 (-0.68)	-0.00687 (-0.21)	-0.0115 (-0.36)	-0.000493 (-0.06)	-0.00282 (-0.35)	
Holdings Ln(Market Cap)	0.622*** (12.26)	0.626*** (12.26)	0.560*** (9.86)	0.559*** (9.83)	0.627*** (12.39)	0.630*** (12.38)	0.621*** (10.34)
Holdings Book-to-Market	0.199 (0.61)	0.202 (0.62)	1.159** (2.20)	1.191** (2.29)	0.217 (0.67)	0.219 (0.68)	-0.324** (-2.47)
Holdings 12-Month Return	0.813*** (2.95)	0.806*** (2.97)	0.795** (2.65)	0.783** (2.64)	0.815*** (2.96)	0.809*** (2.98)	-0.111 (-0.96)
SRI Fund					0.831*** (3.82)	0.885*** (4.22)	
Ln(Total Holdings Value)							-0.0234*** (-3.75)
Observations	84480	84480	84408	84408	84480	84480	129905
Adjusted R ²	0.506	0.506	0.613	0.613	0.508	0.509	0.669
Quarter FE	Y	Y	Y	Y	Y	Y	Y
Investment Objective FE	Y	Y	Y	Y	Y	Y	N
Fund FE	N	N	Y	Y	N	N	N

Firm level: Firm ESG-Score and Institutional Shareholder Base

Dependent variable(%)	MF Turnover (1)	MF Churn (2)	13f Churn (3)	$TRA_{t+1}/13fOwn$ (4)
ESG Score	-0.192** (-2.47)	-0.118*** (-3.98)	-0.163*** (-7.24)	-0.164*** (-4.70)
Log(Market Cap)	1.403*** (6.92)	0.164* (1.86)	-0.427*** (-6.64)	-0.703*** (-6.94)
Book-to-Market Ratio	-3.092*** (-7.13)	-0.921*** (-5.01)	-0.115 (-0.78)	-0.725*** (-3.11)
Dividend Yield	-1.079*** (-11.30)	-0.588*** (-14.12)	-0.458*** (-13.27)	-0.348*** (-6.76)
Profitability Ratio	-0.0309** (-2.05)	0.0106* (1.69)	-0.00191 (-0.36)	-0.00108 (-0.13)
Past 12-month Return	0.0938*** (32.51)	0.0347*** (25.61)	0.0150*** (15.84)	0.0237*** (13.91)
Return Volatility	0.413*** (12.47)	0.232*** (15.69)	0.230*** (21.43)	0.240*** (13.14)
Stock Turnover	4.734*** (7.83)	1.581*** (6.34)	2.281*** (9.04)	2.675*** (7.65)
SP500 Dummy	-3.561*** (-5.12)	-2.076*** (-7.56)	-0.870*** (-4.45)	-1.104*** (-3.49)
Underlying Fund Flow Volatility	4.633*** (17.92)	1.761*** (15.37)		
Observations	21870	21870	21870	21870
Adjusted R^2	0.310	0.303	0.378	0.485
Year Fixed-Effects	Y	Y	Y	Y

FTSE4Good U.S. Index rebalances

- FTSE4GOOD Reconstruction - equals 1 for firm-years in which a firm is added or subtracted to the index for "GOOD" related instances (not size or industry)
- D(Long-term Investors) are institutions with bottom 30 percentile churn ratios
- For firms included or excluded to the index, we compare two quarters before the event to two quarters after and interact D(Long-term Investors)

$$Ownership_{i,j,t} = \alpha + \beta_1 LongTerm_j * After_t + \beta_2 LongTerm_j + \beta_3 After_t + \epsilon$$

where both *LongTerm* and *After* are indicator variables.

Shock to firms' ESG standing

Panel A: Inclusion events

Dependent variable(%) Investor type	Portfolio level		Stock level	
	$Holdings_{i,j,t}/SharesOut_j$		$\sum_i Holdings_{i,j,t}/SharesOut_j$	
	Mutual funds (1)	13f Institutions (2)	Mutual funds (3)	13f Institutions (4)
D(Long-term Investors)*After Index Rebalance	0.00211* (0.000785)	0.00239* (0.000856)	0.233** (0.0663)	1.332** (0.603)
After Index Rebalance	-0.000429 (0.000325)	-0.0000729 (0.000748)	-0.165 (0.144)	-1.382*** (0.487)
D(Long-term Investors)			3.089*** (0.0510)	-9.370*** (1.530)
Observations	140079	238894	1202	1202
Adjusted R^2	0.962	0.924	0.069	0.114
Fund-by-event FE	Y	Y	N/A	N/A

Panel B: Exclusion events

Dependent variable(%) Investor type	Portfolio level		Stock level	
	$Holdings_{i,j,t}/SharesOut_j$		$\sum_i Holdings_{i,j,t}/SharesOut_j$	
	Mutual funds (1)	13f Institutions (2)	Mutual funds (3)	13f Institutions (4)
D(Long-term Investors)*After Index Rebalance	-0.00118* (0.000394)	-0.00322 (0.00254)	-0.358* (0.131)	-0.0652 (0.480)
After Index Rebalance	0.00133* (0.000455)	-0.00169 (0.00187)	-0.219 (0.398)	-0.201 (0.366)
D(Long-term Investors)			3.304*** (0.123)	-7.560*** (1.847)
Observations	111938	186450	918	918
Adjusted R^2	0.957	0.920	0.086	0.077
Fund-by-event FE	Y	Y	N/A	N/A

Shock to firms' ESG standing

Panel B: Triple difference results

Dependent variable(%) Investor type	Inclusion events		Exclusion events	
	Mutual funds (1)	$\sum_i Holdings_{i,j,t} / SharesOut_j$ 13f Institutions (2)	Mutual funds (3)	13f Institutions (4)
D(Long-term)*After Index Rebalance*Treated	2.040*** (0.687)	0.949*** (0.323)	-1.068* (0.588)	-0.730 (1.641)
D(Long-term Investors)*After Index Rebalance	-1.472*** (0.550)	0.0922 (1.129)	0.763 (0.466)	0.523 (1.141)
D(Long-term Investors)*Treated	0.727 (0.628)	1.820 (1.563)	0.676 (0.738)	1.292 (1.377)
After Index Rebalance*Treated	-0.705 (0.583)	0.907 (1.363)	0.423 (0.491)	0.161 (1.379)
D(Long-term Investors)	2.383*** (0.650)	11.81*** (1.663)	-3.279*** (0.567)	-12.87*** (1.363)
After Index Rebalance	0.850** (0.382)	-1.229 (0.926)	-0.485 (0.323)	0.00157 (0.808)
Observations	2360	2360	1780	1780
Adjusted R^2	0.043	0.172	0.103	0.259

Trading Behavior

- A common critique is that investors can be myopic and chase returns and earnings in the short-term.
- Does a firm's ESG profile impact this dynamic?
- Institutions within their own portfolios may be more patient with high ESG firms
 - Reaction to Past Stock Returns
 - Reaction to Earnings (Growth and Misses)

$$Dummy(Sell)_{i,j,t} = \alpha_{i,t} + \beta_1 ExcessReturn_{j,t} + \beta_2 ESG_{j,t} * ExcessReturn_{j,t} + \gamma X_{j,t} + \varepsilon_{i,j,t}$$

Investor selling on past returns

Dependent Variable	$Dummy(Sell)_{i,j,t}$		$-\frac{\Delta Holdings_{i,j,t}}{Holdings_{i,j,t-1}}$	
	(1)	(2)	(3)	(4)
Past 12-month Excess Return(-)	-0.124*** (-45.42)	-0.132*** (-46.58)	-0.398*** (-64.30)	-0.412*** (-63.54)
ESG Score*Past Excess Return(-)	0.00156*** (2.85)	0.00192*** (3.63)	0.00550*** (4.74)	0.00642*** (5.20)
ESG Score	-0.000214** (-2.12)	0.000154 (1.35)	0.000438** (2.30)	0.0000814 (0.34)
Return Volatility	-0.0502*** (-5.06)	-0.0324*** (-2.98)	-0.708*** (-33.87)	-0.587*** (-21.86)
Stock Turnover	3.575*** (11.09)	5.172*** (12.90)	-2.378*** (-4.72)	-2.782*** (-2.69)
Ln(Market Cap)	0.0129*** (23.39)	0.0166*** (15.92)	0.0193*** (24.99)	0.0133*** (5.92)
Book-to-Market Ratio	-0.0104*** (-8.51)	-0.0133*** (-7.66)	0.00781*** (3.69)	-0.00269 (-0.62)
Dividend Yield	0.0555** (2.09)	0.240*** (6.13)	0.362*** (6.74)	0.342*** (3.42)

Investor selling on earnings shortfalls

Measurement of Earnings Surprise Dependent Variable	Seasonal-adjusted Earnings Growth				Deviation from Analyst Forecast			
	$Dummy(Sell)_{i,j,t}$		$-\frac{\Delta Holdings_{i,j,t}}{Holdings_{i,j,t-1}}$		$Dummy(Sell)_{i,j,t}$		$-\frac{\Delta Holdings_{i,j,t}}{Holdings_{i,j,t-1}}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy(Neg. Earnings Surprise)	0.0108*** (0.000650)		0.0372*** (0.00154)		0.0120*** (0.000666)		0.0421*** (0.00160)	
Dummy(Neg. Earnings Surprise)*ESG Score	-0.000370*** (0.000126)		-0.00152*** (0.000296)		-0.000400*** (0.000133)		-0.00137*** (0.000318)	
Max(-Earnings Surprise,0)		0.359*** (0.0287)		1.082*** (0.0706)		1.019*** (0.0713)		3.187*** (0.173)
Max(-Earnings Surprise,0)*ESG Score		-0.0119** (0.00528)		-0.0378*** (0.0134)		-0.0241* (0.0136)		-0.0742** (0.0335)
ESG Score	-0.0000643 (0.000104)	-0.000127 (0.0000937)	0.000986*** (0.000222)	0.000676*** (0.000194)	-0.0000602 (0.0000991)	-0.000138 (0.0000938)	0.000912*** (0.000217)	0.000633*** (0.000190)
Return Volatility	0.000909 (0.0102)	-0.00812 (0.0102)	-0.546*** (0.0224)	-0.570*** (0.0225)	-0.000314 (0.0103)	-0.0111 (0.0101)	-0.551*** (0.0223)	-0.581*** (0.0224)
Stock Turnover	4.700*** (0.333)	4.631*** (0.335)	1.223** (0.517)	1.033** (0.517)	4.676*** (0.335)	4.599*** (0.338)	1.128** (0.515)	0.918* (0.519)
Ln(Market Cap)	0.0113*** (0.000551)	0.0112*** (0.000544)	0.0142*** (0.000865)	0.0139*** (0.000860)	0.0114*** (0.000550)	0.0113*** (0.000543)	0.0145*** (0.000860)	0.0141*** (0.000851)
Book-to-Market Ratio	-0.00406*** (0.00118)	-0.00469*** (0.00120)	0.0279*** (0.00228)	0.0265*** (0.00233)	-0.00422*** (0.00118)	-0.00522*** (0.00122)	0.0273*** (0.00226)	0.0247*** (0.00233)
Dividend Yield	0.0746*** (0.0266)	0.0899*** (0.0266)	0.418*** (0.0542)	0.475*** (0.0542)	0.0688*** (0.0267)	0.0870*** (0.0266)	0.395*** (0.0542)	0.465*** (0.0538)

Fund trading and earnings shortfalls: Before and after FTSE4GOOD USA Index change

Measurement of Earnings Surprise Dependent Variable	Seasonal-adjusted Earnings Growth		Deviation from Analyst Forecast	
	$Dummy(Sell)_{i,j,t}$ (1)	$-\frac{\Delta Holdings_{i,j,t}}{Holdings_{i,j,t-1}}$ (2)	$Dummy(Sell)_{i,j,t}$ (3)	$-\frac{\Delta Holdings_{i,j,t}}{Holdings_{i,j,t-1}}$ (4)
D(Neg. Earnings Surprise)	0.0199*** (0.00330)	0.0315*** (0.00332)	0.0324*** (0.00370)	0.0420*** (0.00372)
D(Neg. Earnings Surprise)*Post Event	-0.00658 (0.00460)	-0.00760* (0.00459)	-0.0101* (0.00532)	-0.0145*** (0.00540)
Post FTSE4GooD Reconstitution Event	-0.000864 (0.00233)	-0.00294 (0.00229)	-0.000432 (0.00211)	-0.00215 (0.00209)
Observations	286587	286587	286587	286587
Event-Stock Fixed Effects	Y	Y	Y	Y

Conclusions and implications

- If companies would like to attract longer-term investors, one way they could do so is by improving their ESG profiles.
 - Since having a longer-term oriented shareholder base is often claimed to be desirable, companies may have strong incentives to do “good” to have the “right” investors.
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