

ESG Shareholder Engagement and Downside Risk

3rd Social Impact Conference, Rome, December 5th 2019

Presented previously at

AFA 2018, CREDIT 2019, EFA 2019, European Commission, EU EBA, EU JRC, GRASFI 2019, IAF 2018, MFS, PRIAN 2019, Q-Group, SOAS, SSE & UCD

Andreas G. F. Hoepner	Smurfit Graduate Business School, University College Dublin
Ioannis Oikonomou	ICMA Centre, Henley Business School, University of Reading
Zacharias Sautner	Frankfurt School of Finance & Management
Laura T. Starks	McCombs School of Business, University of Texas at Austin
Xiao Y. Zhou	Smith School of Environment, University of Oxford

- Recipient of the PRI Academic Network Best Paper Award in 2019 -

ESG Engagement by Institutional Investors

- Institutional investors increasingly engage to improve firms' ESG profiles, often through private engagements (McCahery, Sautner & Starks, 2016; Krueger, Sautner & Starks, 2019)
- A goal is often the reduction of downside risks
 - Negative ESG exposure can imply substantial legal, reputational, operational, and financial risks
 - BP's Deepwater Horizon oil spill showed the importance of robust E policies (Dyck, Lins, Roth & Wagner, 2018)
- A number of large investors engage firms on E&S as well as G (Dimson, Karakas & Li, 2016)
 - Firms with better E&S performed better during the crisis (Lins, Servaes & Tamayo, 2017)
 - Investors also collaborate on their ESG engagements (Dimson, Karakas & Li, 2019)

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<https://blogs.wsj.com/riskandcompliance/2015/03/03/pension-funds-point-man-on-improving-corporate-behavior/>

RISK & COMPLIANCE JOURNAL.

Pension Funds' Point Man on Improving Corporate Behavior

By Gregory J. Millman

Mar 3, 2015 7:55 am ET



HERMES EOS Colin Melvin, chief executive officer, Hermes EOS

Colin Melvin is chief executive of Hermes Equity Ownership Services, which engages companies on environmental, social and governance issues that its pension fund clients expect will influence long-term shareholder value. Its report for 2014 cites engagements with Rolls Royce Holdings PLC on audit issues, J.P.Morgan Chase & Co. on director issues, and News Corp., where it co-sponsored a shareholder resolution calling for elimination of the dual-class share structure. Mr. Melvin spoke with Risk & Compliance Journal about criteria for such engagement and the ESG issues expected to be the focus of engagement in the coming year.

Getting to know you: Sharing practical governance viewpoints

By F. William McNabb III

Vanguard Chairman and CEO

Speech at University of Delaware.

John Weinberg Center for Corporate Governance.



“Vanguard investors collectively own about 5% of every publicly traded company in the United States and about 1% of nearly every public company outside of the U.S... At Vanguard, we’ve been on a journey toward increased engagement over the past decade or so. Our peers in the mutual fund industry have as well.”

Engagement process

Milestone 1 (completed by Agent):

Concern raised with target company management

Milestone 2 (completed by Target Company):

Issue acknowledged by target company management

Milestone 3 (completed by Target Company):

Action/strategy taken by management to solve the issue

Milestone 4 (completed by Target Company):

Action/strategy successfully completed

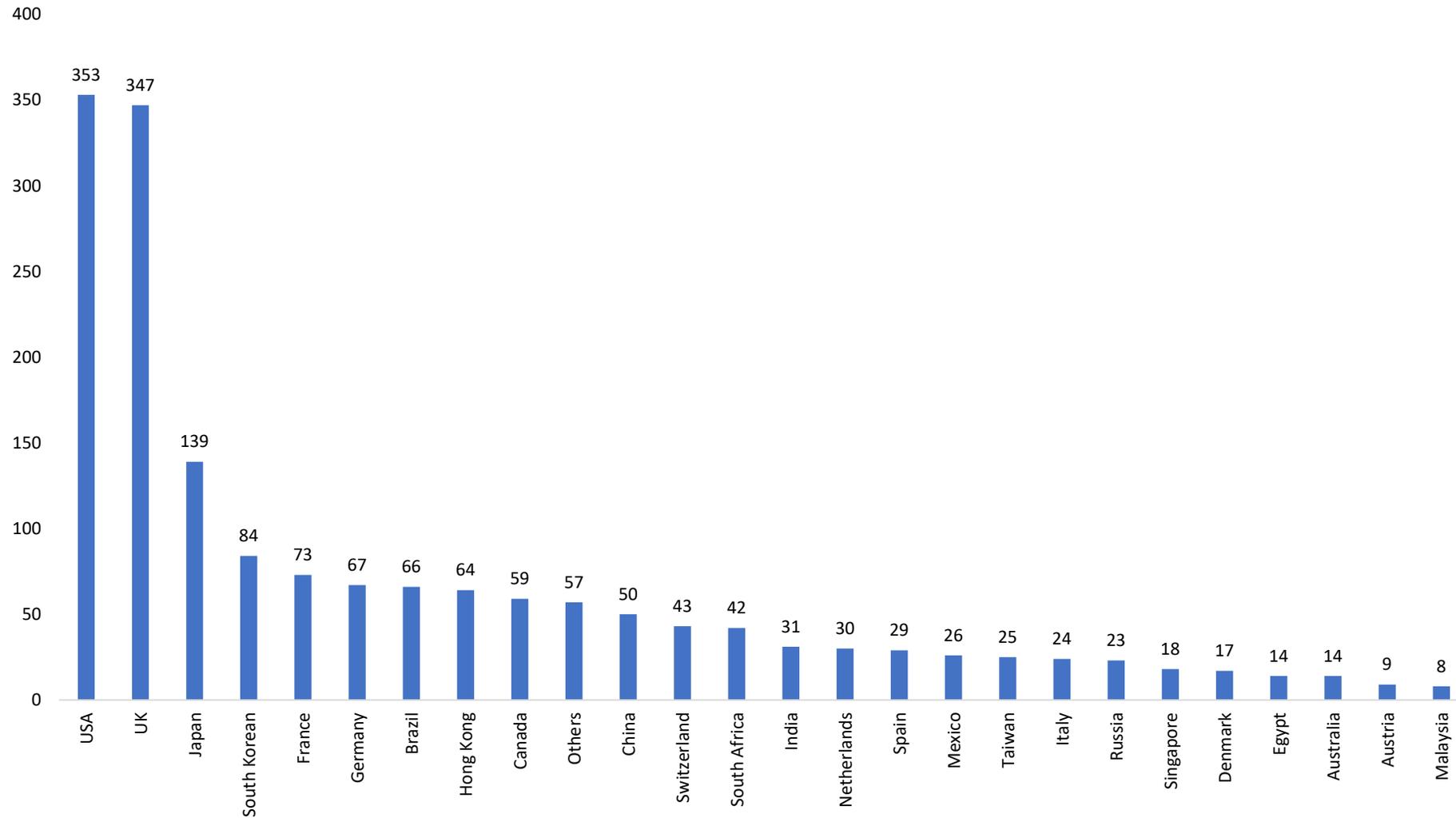
Engagement Data

- ESG engagement data from a specialised shareholder engagement agent
- Represents institutional investors with currently more than \$500bn assets under engagement advise
- Investor provided full access to its engagement database, including action reports, engagement activities, and measures of success
- 1712 engagements targeting 573 firms from 2005-2018

Engagement Themes

- Top 5 engagement concerns: Executive Remuneration, Board Structure & Climate Change, Board Diversity, Human Rights
- ESG engagement themes (with example issue)
 - Environmental: Carbon Intensity, Climate Change
 - Governance: Board Structure, Board Diversity, Remuneration
 - Social and Ethical: Health and Safety, Human Rights
 - Strategy and Risk: Capital Structure, Risk Management

Geographic Distribution of Engagements



Engagement Actions

- Actions with the intention to enhance ESG characteristics
 - 5117 meetings
 - 2055 emails
 - 1748 calls
 - 1524 letters
- Contacts within target companies
 - 2042 contacts with senior executives
 - 1495 contacts with the boards of directors
 - 1527 contacts with the chairman of the board

Measures of Downside Risk

- Lower partial moments (below 0%)
 - Second order (square root of semi-variance below 0%) - *Main Risk Measure*
 - Markowitz (1959)
- Value at risk (at 5% percentile)
 - Worst historical loss over the post-engagement period
 - Duffie and Pan (1997), Jorion (2002)

Two Empirical Approaches

- Average treatment effect on the treated with monthly (!) data
 - Difference in Differences design based on Engagement Milestone time stamps
 - Potential Selection Bias in Engagement Targets controlled via Inverse Mills Ratio extracted from first step of Heckmann 2 step procedure
 - Entropy Balancing to align control variable distributions between treated and untreated group and thereby minimize noise in interactions between key IVs and control IVs
- Stock return analysis (with weekly data)

In both approaches: *Matched Sample*

- Matching based on country, industry and size within FTSE All-World index
 - *1:1* matching in stock return analysis

DiD + Inverse Mills Ratio + Entropy Balancing

- Inverse Mills Ratio (hereafter: Lambda) accounts for selection bias in the engagement decisions, to extract causal effects from observational data (Wooldridge, 2010)
- DiD setting compares changes of downside risks between the target and control groups before and after engagement time stamps, while employing Entropy Balancing to control for time-invariant differences between engagement targets and controls that result from unobserved variables.

- Outcome and selection equation, for targets and control firms:

$$Downside Risk_{i,t} = \alpha_1 + \beta_1 Target_{i,t} + \beta_2 Post_{i,t} + \beta_3 Target_{i,t} \times Post_{i,t} + \beta_4 Lambda_{i,t} + \beta_5 x_{i,t} + FEs + \varepsilon_{i,t}$$

$$Engagement Target_{i,t} = \alpha_2 + z_{i,t-1}\gamma + u_{i,t},$$

Entropy balancing is applied in the outcome regression to enhance covariate balance by reweighting the control observations in such a way that the controls satisfy pre-specified balancing requirements - same mean and variance of conditioning variables as in the treatment group (Hainmueller 2012)

- Downside risk measured over 24 months period post engagement

Summary Statistics **pre** vs. **post** Entropy Balancing

Summary Statistics pre Entropy Balancing	Treated		Control	
	Mean	St. Dev.	Mean	St. Dev.
<i>Log(MV)</i>	9.58	1.39	8.05	1.28
<i>Market-to-book ratio</i>	3.63	20.32	3.04	9.01
<i>Leverage</i>	35.62	21.21	33.60	23.28
<i>Investment</i>	11.55	27.56	10.51	26.40
<i>Profit margin</i>	16.00	14.31	11.46	26.37
<i>Dividend</i>	2.37	2.25	2.15	2.99
<i>Freefloat</i>	78.79	22.64	74.25	24.79

Summary Statistics post Entropy Balancing	Treated		Control	
	Mean	St. Dev.	Mean	St. Dev.
<i>Log(MV)</i>	9.58	1.39	9.58	1.39
<i>Market-to-book ratio</i>	3.63	20.32	3.63	20.32
<i>Leverage</i>	35.62	21.21	35.62	21.21
<i>Investment</i>	11.55	27.56	11.55	23.57
<i>Profit margin</i>	16.00	14.31	16.00	14.34
<i>Dividend</i>	2.37	2.25	2.37	2.25
<i>Freefloat</i>	78.79	22.64	78.79	22.64

Effect of ESG Engagement on Downside Risk

Dependent variable	LPM	VaR
	All	All
Engagement success	(1)	(5)
<i>Target x Post</i>	-0.004 (-0.15)	-0.009 (-0.15)
<i>Target</i>	1.022*** (8.39)	2.124*** (8.72)
<i>Post</i>	0.038 (1.53)	0.073 (1.48)
<i>Log(MV)</i>	-0.362*** (-15.09)	-0.741*** (-15.45)
<i>Market-to-book ratio</i>	-0.001*** (-5.12)	-0.003*** (-4.45)
<i>Leverage</i>	0.001 (0.72)	0.001 (0.55)
<i>Investment</i>	0.000 (0.20)	0.001 (0.51)
<i>Profit margin</i>	-0.001 (-0.36)	-0.001 (-0.26)
<i>Dividend</i>	0.019 (1.17)	0.019 (1.25)
<i>Free float</i>	-0.002*** (-2.60)	-0.005*** (-3.08)
<i>Inverse Mills Ratio</i>	-0.484*** (-7.12)	-1.020*** (-7.50)
<i>Constant</i>	4.289*** (14.18)	8.930*** (15.05)
Model	Heckman	Heckman
Matched sample	Yes	Yes
Country FE	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
Entropy balancing	Yes	Yes
Obs.	89,970	89,970
adj. R-sq.	0.303	0.276

Effect of ESG Engagement on Downside Risk

Engagement Success:

Low: The target company does not acknowledge the concern of the leading shareholder activist. Views do NOT align and remain opposed. *Milestone 2 has not been achieved*

High: The target company acknowledges the concern of the leading shareholder activist. Their views commence to align.

- *At least Milestone 2 has been achieved*

Dependent variable	LPM			VaR		
	All	Below Milestone 2	Milestone 2 and above	All	Below Milestone 2	Milestone 2 and above
	(1)	(2)	(3)	(5)	(6)	(7)
Engagement success						
<i>Target x Post</i>	-0.004 (-0.15)	0.038 (1.05)	-0.080* (-1.83)	-0.009 (-0.15)	0.066 (0.89)	-0.151* (-1.69)
<i>Target</i>	1.022*** (8.39)	1.100*** (6.97)	1.043*** (5.54)	2.124*** (8.72)	2.318*** (7.46)	2.094*** (5.46)
<i>Post</i>	0.038 (1.53)	0.031 (0.99)	0.069** (2.30)	0.073 (1.48)	0.079 (1.23)	0.102 (1.60)
<i>Log(MV)</i>	-0.362*** (-15.09)	-0.359*** (-12.21)	-0.383*** (-9.44)	-0.741*** (-15.45)	-0.746*** (-12.84)	-0.770*** (-9.31)
<i>Market-to-book ratio</i>	-0.001*** (-5.12)	-0.002*** (-4.78)	-0.017*** (-3.07)	-0.003*** (-4.45)	-0.003*** (-4.37)	-0.029** (-2.08)
<i>Leverage</i>	0.001 (0.72)	0.001 (0.80)	0.000 (0.07)	0.001 (0.55)	0.001 (0.78)	-0.000 (-0.12)
<i>Investment</i>	0.000 (0.20)	0.001 (1.56)	-0.001** (-1.98)	0.001 (0.51)	0.002* (1.87)	-0.001 (-1.34)
<i>Profit margin</i>	-0.001 (-0.36)	-0.001 (-0.62)	0.000 (0.07)	-0.001 (-0.26)	-0.002 (-0.41)	-0.000 (-0.01)
<i>Dividend</i>	0.019 (1.17)	0.029 (1.28)	0.005 (0.42)	0.019 (1.25)	0.027 (1.47)	0.016 (0.66)
<i>Free float</i>	-0.002*** (-2.60)	-0.002*** (-2.65)	-0.002 (-1.62)	-0.005*** (-3.08)	-0.005*** (-3.12)	-0.006* (-1.89)
<i>Inverse Mills Ratio</i>	-0.484*** (-7.12)	-0.566*** (-6.58)	-0.431*** (-4.30)	-1.020*** (-7.50)	-1.209*** (-7.04)	-0.862*** (-4.22)
<i>Constant</i>	4.289*** (14.18)	3.831*** (10.52)	6.903*** (18.52)	8.930*** (15.05)	8.161*** (11.46)	14.183*** (18.78)
Model	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman
Matched sample	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Entropy balancing	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	89,970	56,644	33,326	89,970	56,644	33,326
adj. R-sq.	0.303	0.285	0.367	0.276	0.252	0.348

Effect of ESG Engagement on Downside Risk

Engagement Success:

Low: The target company does not acknowledge the concern of the leading shareholder activist. Views do NOT align and remain opposed. *Milestone 2 has not been achieved*

High: The target company acknowledges the concern of the leading shareholder activist. Their views commence to align.

- *At least Milestone 2 has been achieved*
- *Better if Milestone 3 has been achieved too*

Dependent variable	LPM				VaR			
	All	Below Milestone 2	Milestone 2 and above	Milestone 3 and above	All	Below Milestone 2	Milestone 2 and above	Milestone 3 and above
Engagement success	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Target x Post</i>	-0.004 (-0.15)	0.038 (1.05)	-0.080* (-1.83)	-0.419*** (-3.05)	-0.009 (-0.15)	0.066 (0.89)	-0.151* (-1.69)	-0.799*** (-2.95)
<i>Target</i>	1.022*** (8.39)	1.100*** (6.97)	1.043*** (5.54)	2.607*** (3.79)	2.124*** (8.72)	2.318*** (7.46)	2.094*** (5.46)	5.502*** (3.74)
<i>Post</i>	0.038 (1.53)	0.031 (0.99)	0.069** (2.30)	0.176** (2.39)	0.073 (1.48)	0.079 (1.23)	0.102 (1.60)	0.249* (1.70)
<i>Log(MV)</i>	-0.362*** (-15.09)	-0.359*** (-12.21)	-0.383*** (-9.44)	-0.666*** (-4.61)	-0.741*** (-15.45)	-0.746*** (-12.84)	-0.770*** (-9.31)	-1.396*** (-4.38)
<i>Market-to-book ratio</i>	-0.001*** (-5.12)	-0.002*** (-4.78)	-0.017*** (-3.07)	-0.014 (-1.21)	-0.003*** (-4.45)	-0.003*** (-4.37)	-0.029** (-2.08)	-0.005 (-0.26)
<i>Leverage</i>	0.001 (0.72)	0.001 (0.80)	0.000 (0.07)	0.000 (0.08)	0.001 (0.55)	0.001 (0.78)	-0.000 (-0.12)	-0.001 (-0.13)
<i>Investment</i>	0.000 (0.20)	0.001 (1.56)	-0.001** (-1.98)	-0.001 (-0.21)	0.001 (0.51)	0.002* (1.87)	-0.001 (-1.34)	0.003 (0.35)
<i>Profit margin</i>	-0.001 (-0.36)	-0.001 (-0.62)	0.000 (0.07)	0.001 (0.25)	-0.001 (-0.26)	-0.002 (-0.41)	-0.000 (-0.01)	0.001 (0.18)
<i>Dividend</i>	0.019 (1.17)	0.029 (1.28)	0.005 (0.42)	0.000 (0.00)	0.019 (1.25)	0.027 (1.47)	0.016 (0.66)	0.007 (0.09)
<i>Free float</i>	-0.002*** (-2.60)	-0.002*** (-2.65)	-0.002 (-1.62)	-0.009** (-2.32)	-0.005*** (-3.08)	-0.005*** (-3.12)	-0.006* (-1.89)	-0.017** (-2.38)
<i>Inverse Mills Ratio</i>	-0.484*** (-7.12)	-0.566*** (-6.58)	-0.431*** (-4.30)	-1.144*** (-3.51)	-1.020*** (-7.50)	-1.209*** (-7.04)	-0.862*** (-4.22)	-2.440*** (-3.47)
<i>Constant</i>	4.289*** (14.18)	3.831*** (10.52)	6.903*** (18.52)	8.092*** (8.56)	8.930*** (15.05)	8.161*** (11.46)	14.183*** (18.78)	15.989*** (7.85)
Model	Heckman							
Matched sample	Yes							
Country FE	Yes							
Industry FE	Yes							
Year FE	Yes							
Entropy balancing	Yes							
Obs.	89,970	56,644	33,326	5,843	89,970	56,644	33,326	5,843
adj. R-sq.	0.303	0.285	0.367	0.388	0.276	0.252	0.348	0.388

Stock Return Analysis

- Measure the change in targets' return sensitivity to a Downside Risk Factor (DOWN; Highest 30% minus Lowest 30%) via Bi-polar Post dummy
 - Similar to Ang et al.'s (2009) estimations of sensitivity to idiosyncratic volatility
- Weekly returns, two-year period around initial engagement
 - Measure a Post vs. Pre effects of engagement
 - Currently sample update to 2018 [Presented version 2004-2014]
- Two dependent variables
 - Weekly target excess returns
[Time-difference analysis]
 - Weekly target excess returns minus *1:1* matched peer excess returns
[Differences-in-differences analysis]

Time-Series DiD Analysis

Time stamp used to measure Post dummy:	LPM		VaR		LPM		VaR	
	Milestone 2	Milestone 3	Milestone 2	Milestone 3	Milestone 2	Milestone 3	Milestone 2	Milestone 3
	Excess Return		Excess Return		Excess Return		Excess Return	
	Target		Target		Target - Control		Target - Control	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Post * DOWN</i>	-0.011 (-1.33)	-0.058*** (-4.80)	-0.009 (-1.13)	-0.057*** (-4.83)	-0.036*** (-4.07)	-0.075*** (-5.72)	-0.034*** (-3.82)	-0.074*** (-5.70)
<i>DOWN</i>	0.067*** (10.29)	0.066*** (10.19)	0.076*** (11.47)	0.075*** (11.37)	0.004 (0.56)	0.004 (0.61)	0.006 (0.77)	0.006 (0.81)
<i>Post</i>	-0.000 (-1.15)	-0.000 (-0.09)	-0.000 (-1.37)	0.000 (-0.08)	0.000 (0.27)	0.000 (1.50)	0.000 (0.25)	-0.001* (1.66)
<i>MKT</i>	1.006*** (151.89)	1.006*** (151.89)	1.002*** (151.35)	1.002*** (151.34)	-0.008 (-1.04)	-0.008 (-1.03)	-0.009 (-1.25)	-0.009 (-1.24)
<i>SMB</i>	0.337*** (22.87)	0.337*** (22.90)	0.334*** (22.70)	0.334*** (22.73)	-0.189*** (-11.52)	-0.189*** (-11.52)	-0.189*** (-11.54)	-0.189*** (-11.53)
<i>HML</i>	0.172*** (13.59)	0.172*** (13.54)	0.160*** (12.63)	0.159*** (12.58)	0.102*** (7.31)	0.103*** (7.31)	0.101*** (7.18)	0.101*** (7.18)
<i>RMW</i>	0.159*** (12.00)	0.158*** (11.96)	0.160*** (12.04)	0.159*** (12.00)	0.055*** (3.71)	0.055*** (3.75)	0.056*** (3.78)	0.056*** (3.80)
<i>CMA</i>	-0.008 (-1.14)	-0.007 (-1.11)	-0.007 (-0.99)	-0.006 (-0.95)	0.010 (1.38)	0.010 (1.37)	0.009 (1.19)	0.009 (1.18)
<i>Alpha</i>	0.001*** (2.70)	0.001*** (2.69)	0.002*** (3.54)	0.002*** (3.52)	-0.001 (-1.04)	-0.001 (-1.03)	-0.001 (-1.18)	-0.001 (-1.18)
Obs.	218,429	218,429	219,181	219,181	214,948	214,948	215,716	215,716
Adj. R-sq.	0.273	0.273	0.274	0.274	0.001	0.001	0.001	0.001

Expected negative DiD term

Time-Difference Analysis

Time stamp used to measure Post dummy:	LPM		VaR		LPM		VaR	
	Milestone 2	Milestone 3	Milestone 2	Milestone 3	Milestone 2	Milestone 3	Milestone 2	Milestone 3
	Excess Return		Excess Return		Excess Return		Excess Return	
	Target		Target		Target - Control		Target - Control	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Post * DOWN</i>	-0.011 (-1.33)	-0.058*** (-4.80)	-0.009 (-1.13)	-0.057*** (-4.83)	-0.036*** (-4.07)	-0.075*** (-5.72)	-0.034*** (-3.82)	-0.074*** (-5.70)
<i>DOWN</i>	0.067*** (10.29)	0.066*** (10.19)	0.076*** (11.47)	0.075*** (11.37)	0.004 (0.56)	0.004 (0.61)	0.006 (0.77)	0.006 (0.81)
<i>Post</i>	-0.000 (-1.15)	-0.000 (-0.09)	-0.000 (-1.37)	0.000 (-0.08)	0.000 (0.27)	0.000 (1.50)	0.000 (0.25)	-0.001* (1.66)
<i>MKT</i>	1.006*** (151.89)	1.006*** (151.89)	1.002*** (151.35)	1.002*** (151.34)	-0.008 (-1.04)	-0.008 (-1.03)	-0.009 (-1.25)	-0.009 (-1.24)
<i>SMB</i>	0.337*** (22.87)	0.337*** (22.90)	0.334*** (22.70)	0.334*** (22.73)	-0.189*** (-11.52)	-0.189*** (-11.52)	-0.189*** (-11.54)	-0.189*** (-11.53)
<i>HML</i>	0.172*** (13.59)	0.172*** (13.54)	0.160*** (12.63)	0.159*** (12.58)	0.102*** (7.31)	0.103*** (7.31)	0.101*** (7.18)	0.101*** (7.18)
<i>RMW</i>	0.159*** (12.00)	0.158*** (11.96)	0.160*** (12.04)	0.159*** (12.00)	0.055*** (3.71)	0.055*** (3.75)	0.056*** (3.78)	0.056*** (3.80)
<i>CMA</i>	-0.008 (-1.14)	-0.007 (-1.11)	-0.007 (-0.99)	-0.006 (-0.95)	0.010 (1.38)	0.010 (1.37)	0.009 (1.19)	0.009 (1.18)
<i>Alpha</i>	0.001*** (2.70)	0.001*** (2.69)	0.002*** (3.54)	0.002*** (3.52)	-0.001 (-1.04)	-0.001 (-1.03)	-0.001 (-1.18)	-0.001 (-1.18)
Obs.	218,429	218,429	219,181	219,181	214,948	214,948	215,716	215,716
Adj. R-sq.	0.273	0.273	0.274	0.274	0.001	0.001	0.001	0.001

Expected negative DiD term

No evidence of a price paid in terms of Alpha for downside risk reduction

Conclusions

- ESG engagements can create value through a reduction in a firm's downside risk
 - Risk reduction effects are stronger for more successful engagements
 - Effects also stronger when governance and especially environmental topics are addressed
 - No evidence of a price paid in terms of Alpha for risk reductions
- Evidence from two complementary DiD approaches
- Our analysis contributes new insights into understanding the channel through which ESG engagement can create value for investors

Thank you for your attention!

Questions and Comments very welcome.