ESG news, future cash flows, and firm value

Derrien et al. (2024)

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May 3, 2024

Env.Climate

Introduction

- This paper studies the effect of ESG information on firm value

$$PV_{it} = \frac{CF_{it}}{r_{it} - g_{it}} \tag{1}$$

- ESG information affects firm value by two channels
  1. Discount rates: e.g. divestment
  2. Future cash flows: e.g. regulation, consumer preference
- This paper focuses on the cash flow channel
  - The lower cash flow comes from the consumer demand (lower sales), rather than the higher costs (lower margins)

Data

- ESG information: RepRisk's daily ESG news
  - RepRisk ESG information is consistent, no backfilling, and highly frequent
- Analyst forecasts: IBES
  - Firm level forecasts consensus of EPS, sales, gross margin, LTG, PTG

$$\Delta F_t EPS_{i,t+h} = F_t EPS_{i,t+h} - F_{t-1} EPS_{i,t+h} \tag{2}$$

  - Over 1,2,3,4-quarter and 1,2,3-year horizons

$$\frac{\Delta F_t EPS_{i,t+h}}{|F_{t-1}EPS_{i,t+h}|} = \alpha + \beta 1\{ESGincidentsin[t-6,t]\} + \gamma_{country \times Industry \times t} + \sigma_i + \epsilon_{i,t} \quad (3)$$

Panel A: At least one incident

	(1) Q1	(2) Q2	(3) Q3	(4) Q4	(5) 1 year	(6) 2 year	(7) 3 year	(8) LTG	(9) PTG	(10) Ret.
>=1 incidents in the past 6 months=1	-0.158**	-0.125*	-0.072	-0.065	-0.110**	-0.143***	-0.150***	-0.005	-0.170***	-0.167***
	(-2.15)	(-1.78)	(-1.08)	(-1.09)	(-2.33)	(-3.39)	(-3.70)	(-0.42)	(-5.89)	(-4.48)
Month × Industry × Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
adj R2	0.089	0.090	0.085	0.095	0.077	0.093	0.073	0.073	0.176	0.364
Obs.	279530	259734	239787	145738	548322	546116	421821	199753	561343	554966

Panel B: Splitting by the number of incidents

	(1) Q1	(2) Q2	(3) Q3	(4) Q4	(5) 1 year	(6) 2 year	(7) 3 year	(8) LTG	(9) PTG	(10) Ret.
1 incident in the past 6 months	-0.093	-0.059	0.010	-0.039	-0.069	-0.101**	-0.113***	0.005	-0.133***	-0.160***
	(-1.20)	(-0.79)	(0.15)	(-0.64)	(-1.42)	(-2.36)	(-2.70)	(0.36)	(-4.60)	(-4.29)
>=2 incidents in the past 6 months	-0.302***	-0.273***	-0.253***	-0.125	-0.206***	-0.240***	-0.229***	-0.026*	-0.254***	-0.184***
	(-3.15)	(-2.92)	(-2.68)	(-1.34)	(-3.12)	(-3.98)	(-4.09)	(-1.66)	(-6.30)	(-3.42)
Month × Industry × Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
adj R2	0.089	0.090	0.085	0.095	0.077	0.093	0.073	0.073	0.176	0.364
Obs.	279530	259734	239787	145738	548322	546116	421821	199753	561343	554966

Panel A: At least one incident

	Sales							GrossMargin						
	(1) Q1	(2) Q2	(3) Q3	(4) Q4	(5) 1 year	(6) 2 year	(7) 3 year	(8) Q1	(9) Q2	(10) Q3	(11) Q4	(12) 1 year	(13) 2 year	(14) 3 year
>=1 incidents in the past 6 months=1	-0.019	-0.037**	-0.040**	-0.021	-0.034***	-0.059***	-0.059***	-0.029	-0.024	0.007	0.020	-0.019	-0.018	0.002
	(-1.19)	(-2.16)	(-2.47)	(-1.33)	(-3.34)	(-4.81)	(-4.58)	(-1.58)	(-1.33)	(0.37)	(1.23)	(-1.65)	(-1.42)	(0.16)
Month × Industry × Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
adj R2	0.095	0.098	0.096	0.099	0.092	0.105	0.086	0.056	0.046	0.045	0.050	0.060	0.056	0.053
Obs.	279985	251644	224824	131232	552092	541921	417346	131259	119671	105483	61761	296492	286369	181832

Panel B: Splitting by the number of incidents

	Sales							GrossMargin						
	(1) Q1	(2) Q2	(3) Q3	(4) Q4	(5) 1 year	(6) 2 year	(7) 3 year	(8) Q1	(9) Q2	(10) Q3	(11) Q4	(12) 1 year	(13) 2 year	(14) 3 year
1 incident in the past 6 months	-0.005	-0.014	-0.013	-0.015	-0.025**	-0.041***	-0.038***	-0.033*	-0.019	0.017	0.020	-0.022*	-0.016	0.010
	(-0.33)	(-0.78)	(-0.78)	(-0.86)	(-2.35)	(-3.30)	(-2.65)	(-1.84)	(-1.01)	(0.85)	(1.22)	(-1.69)	(-1.21)	(0.69)
>=2 incidents in the past 6 months	-0.048**	-0.087***	-0.101***	-0.036*	-0.055***	-0.100***	-0.105***	-0.018	-0.037	-0.015	0.019	-0.012	-0.021	-0.015
	(-2.17)	(-4.00)	(-4.50)	(-1.71)	(-3.79)	(-5.80)	(-5.74)	(-0.72)	(-1.55)	(-0.62)	(0.83)	(-0.79)	(-1.31)	(-0.82)
Month × Industry × Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
adj R2	0.095	0.098	0.096	0.099	0.092	0.105	0.086	0.056	0.046	0.045	0.050	0.060	0.056	0.053
Obs.	279985	251644	224824	131232	552092	541921	417346	131259	119671	105483	61761	296492	286369	181832

Cash Flow Channel vs. Discount Rate Channel

$$\frac{PV_{it}(r_{it})}{b_i} = \frac{F_t EPS_{i,t+1}}{(1+r_{it})} + \frac{F_t EPS_{i,t+2}}{(1+r_{it})^2} + \frac{F_t EPS_{i,t+3}}{(1+r_{it})^3} + \frac{1}{(1+r_{it})^3}\frac{(1+g_t)F_t EPS_{i,t+3}}{r_{it}-g_t}$$

- $PV_{it}(r_{it}) = P_{it}$: used to calculate implied discount rates
- b_i: payout ratio
- $F_t EPS_{i,t+h}$: forecasted EPS
- g_t: nominal GDP growth rate

On an ESG incident, $\widehat{PV}$ is calculated using the new forecasted EPS and the same $(r_{it}, b_i, g_t) \Rightarrow$ cash flow channel

On an ESG incident, $\hat{r}$ is calculated using the new forecasted EPS and the same $(b_i, g_t) \Rightarrow$ cash flow and discount rate channels

Cash Flow Channel vs. Discount Rate Channel

Window	$\widehat{\Delta PV}/PV$		Return		$\Delta r/r$	
	(1) Coef.	(2) t-stat	(3) Coef.	(4) t-stat	(5) Coef.	(6) t-stat
$[t, t]$	-0.09	-1.56	-0.25	-3.52	0.05	2.09
$[t, t+1]$	-0.14	-1.30	-0.20	-2.96	0.06	1.66
$[t, t+2]$	-0.25	-1.67	-0.20	-2.56	0.04	0.82
$[t, t+3]$	-0.44	-2.28	-0.21	-1.70	-0.01	-0.10
$[t, t+4]$	-0.59	-2.56	-0.24	-1.34	-0.02	-0.39
$[t, t+5]$	-0.78	-2.86	-0.24	-0.87	-0.06	-0.95
$[t, t+6]$	-0.91	-2.90	-0.34	-1.24	-0.07	-1.08

Analyst Forecast Errors

$$\frac{|FEPS_{i,e,j,t} - EPS_{i,e}| - |FEPS_{i,e,j,t-1} - EPS_{i,e}|}{|EPS_{i,e}|}$$

$$= \alpha + \eta \text{ DownwardAdj } j_{i,e,j,t}$$

$$+ \beta \text{ DownwardAdj }_{i,e,j,t} \times 1\{ESG \text{ incidents of firm } i \text{ in } [t-6, t]\} \qquad (4)$$

$$+ \gamma_{i,e,t} + \epsilon_{i,e,j,t}$$

	(1) Q1	(2) Q2	(3) Q3	(4) Q4	(5) 1 year	(6) 2 year	(7) 3 year
Downward Adjustment=1	-0.005***	-0.012***	-0.015***	-0.012***	-0.014***	-0.022***	-0.025***
	(-6.14)	(-9.92)	(-11.35)	(-9.35)	(-16.14)	(-19.34)	(-20.81)
>=1 incidents in months [t-6,t]=1 × Downward Adjustment=1	-0.001	-0.002*	-0.002*	-0.003**	-0.002***	-0.003***	-0.004***
	(-0.94)	(-1.83)	(-1.72)	(-2.40)	(-2.80)	(-3.26)	(-3.68)
Firm × Earnings Announcement × Month	YES	YES	YES	YES	YES	YES	YES
adj R2	0.306	0.275	0.265	0.221	0.234	0.222	0.202
Obs.	2589891	2176507	1713483	850921	7564562	6455400	2780857

Conclusion

- ESG incidents lead to lower firm value through the cash flow channel
  - Sales reduction explains the value reduction, not the costs.
- This value reduction is mainly due to cash flow channel
  - The discount rate channel cannot be ruled out
- Analysts correctly revise their forecasts downward after ESG incidents

References

Derrien, F., P. Krueger, A. Landier, and T. Yao (2024). Esg news, future cash flows, and firm value. *Journal of Finance, Forthcoming* (1-83).