ESG rating divergence: The role of data source and its implications

Yilmaz Yildiz[1], Artur Semeyutin[2], Alper Kara[3] & Said Kaawach[2]

[3]Kent Business School, University of Kent

[2]School of Business, Education and Law, University of Huddersfield

[1]Department of Economics and Finance, Brunel University of London

Brunel
University
of London


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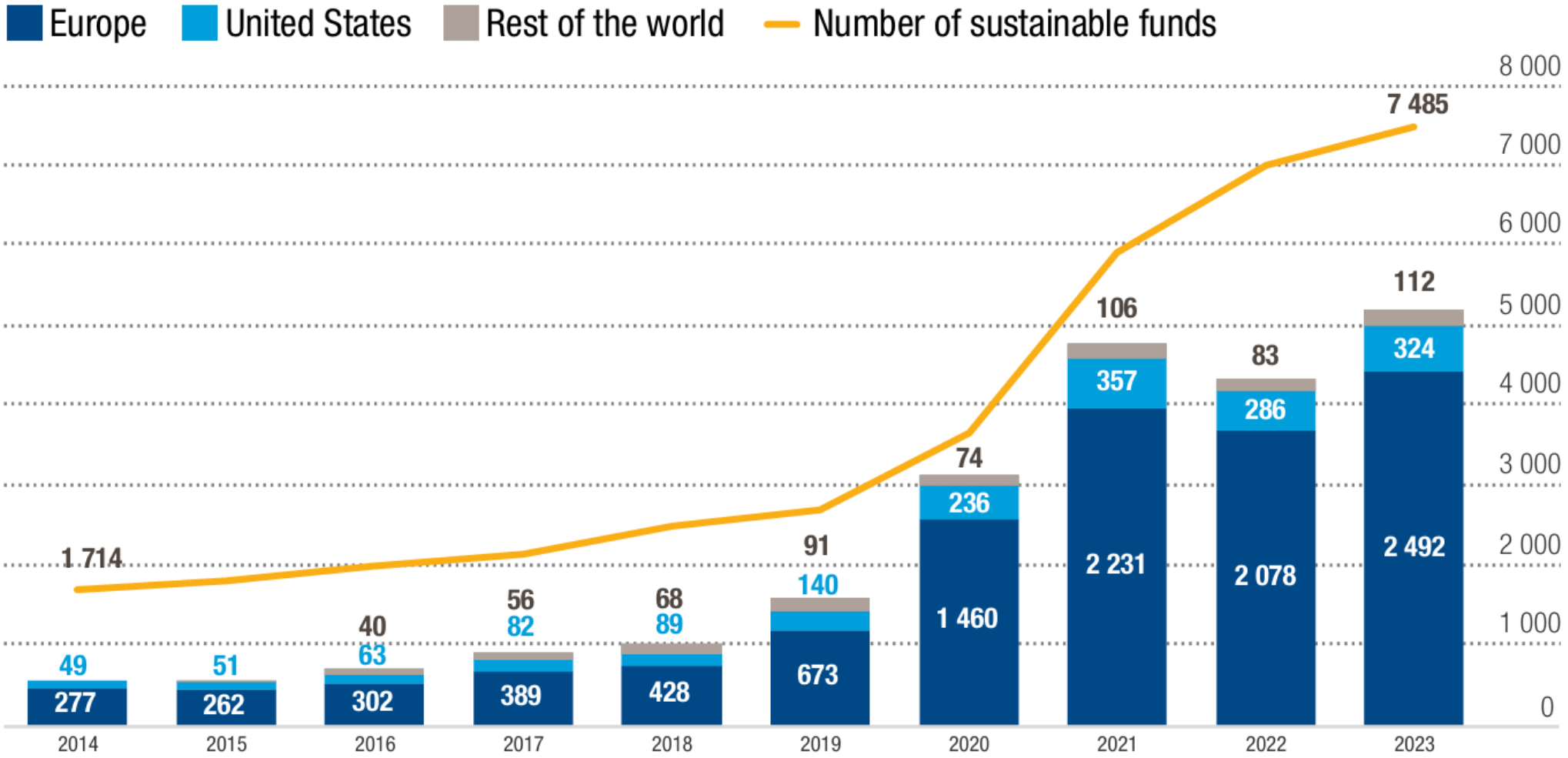
Market value of Sustainable Funds

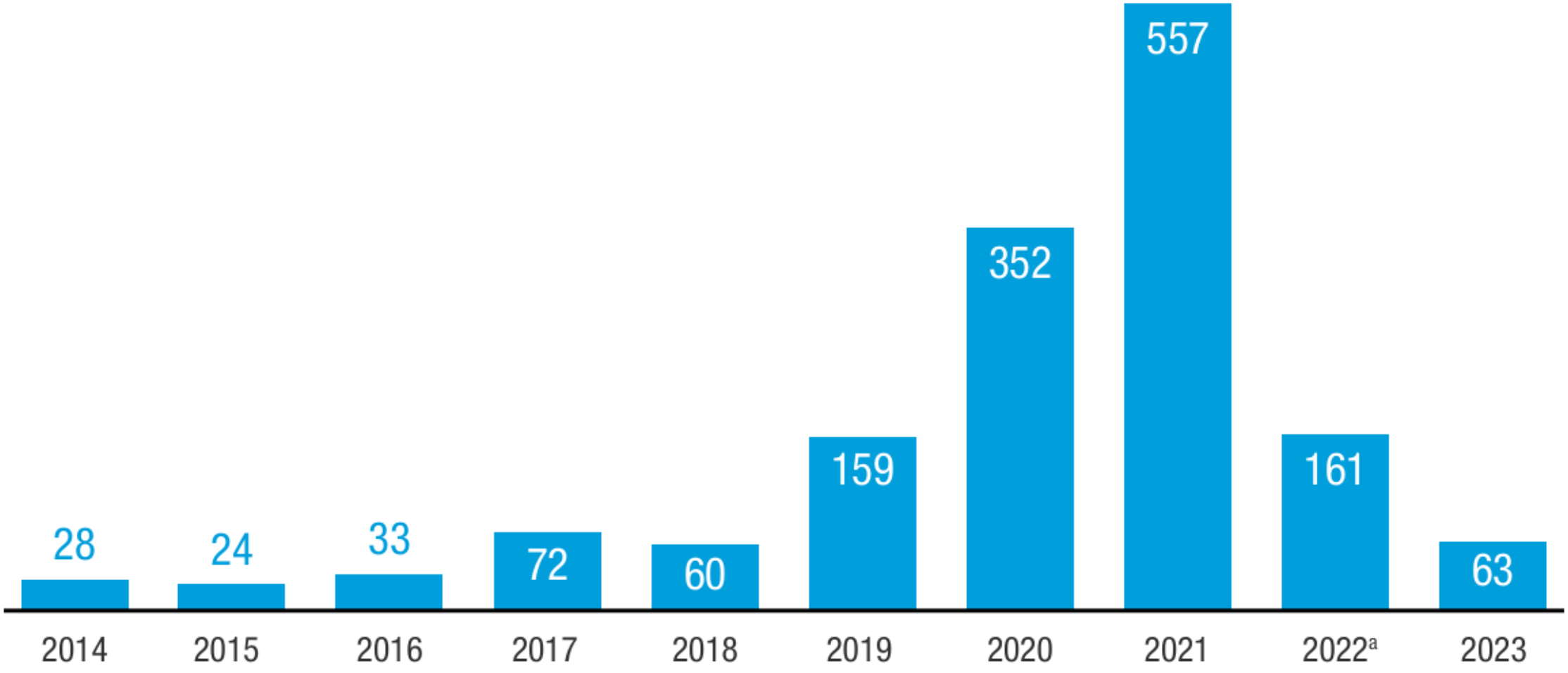
(Billions of dollars and number)



Source: World Investment Report 2024, UNCTAD, based on Morningstar data.

Net flows to Sustainable Funds

(Billions of dollars)



Source: World Investment Report 2024, UNCTAD, based on Morningstar data.

What is happening?

Who killed the ESG party?

Asset managers no longer boast about environmental, social and governance credentials

FT FINANCIAL TIMES

Vanguard backed no environmental or social measures in 2024 proxy season

Support on votes has been dwindling among big money managers after reaching record levels just a few years ago

BlackRock stresses financial strength over ESG in company calls

Report for 2024 on engagement priorities drops reference to global warming

Asia ESG fund flows plummet in first quarter

Strong inflows to Taiwan's sustainable vehicles help offset heavy outflows from Hong Kong and Singapore

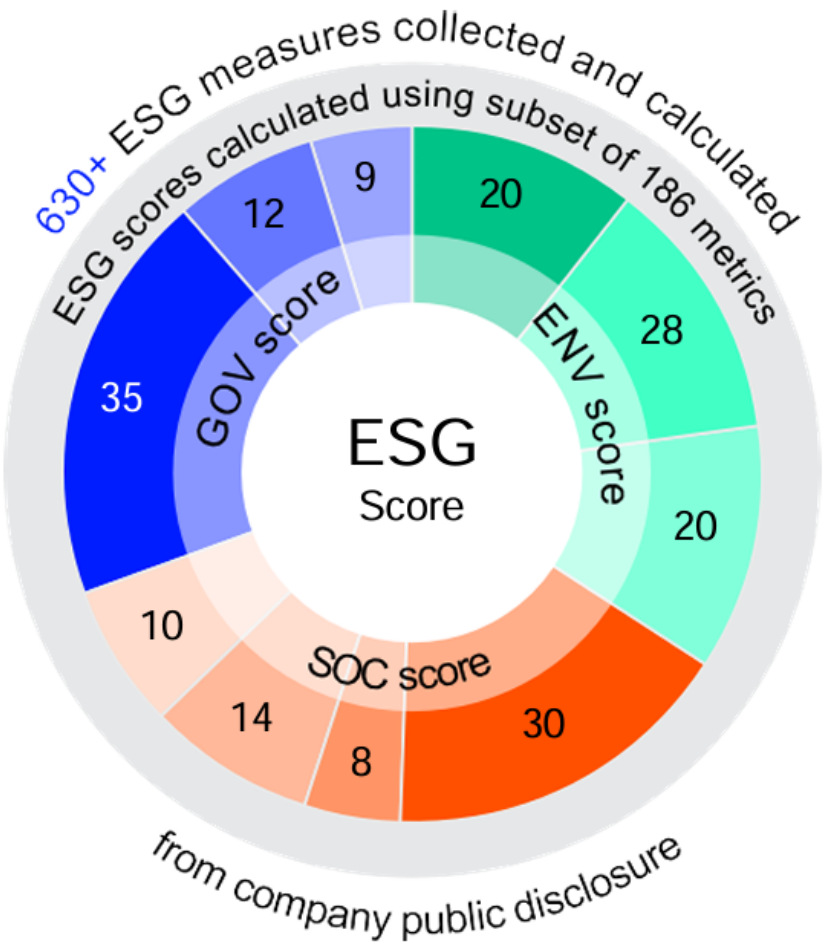
Investors pull cash from ESG funds as performance lags

Sustainability-focused equity funds suffer net $40bn of outflows in 2024, the first sustained exodus

UK investors pull out of ESG funds

Record outflow of £544mn from responsible investment funds in September

How are ESG ratings calculated?



Environmental
- Resource use
- Emissions
- Innovation

Social
- Workforce
- Human rights
- Community
- Product responsibility

Governance
- Management
- Shareholders
- CSR strategy

Source: London Stock Exchange Group (LSEG) – formerly Refinitiv

What are the criticisms of ESG ratings?

Everything vs Nothing

Greenwashing

Goodness vs Risk

Past vs Future

Measuring ESG

How consistent are ESG ratings?

Correlations between six ESG ratings

	KL SA	KL MO	KL SP	KL RE	KL MS	SA MO	SA SP	SA RE	SA MS	MO SP	MO RE	MO MS	SP RE	SP MS	RE MS	Average
ESG	0.53	0.49	0.44	0.42	0.53	0.71	0.67	0.67	0.46	0.7	0.69	0.42	0.62	0.38	0.38	0.54
E	0.59	0.55	0.54	0.54	0.37	0.68	0.66	0.64	0.37	0.73	0.66	0.35	0.7	0.29	0.23	0.53
S	0.31	0.33	0.21	0.22	0.41	0.58	0.55	0.55	0.27	0.68	0.66	0.28	0.65	0.26	0.27	0.42
G	0.02	0.01	-0.01	-0.05	0.16	0.54	0.51	0.49	0.16	0.76	0.76	0.14	0.79	0.11	0.07	0.30

Source: Berg, F., Koelbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, *26*(6), 1315-1344.

What are the sources of ESG Rating Divergence?

Scope

- Different ESG attributes are assessed

Measurement

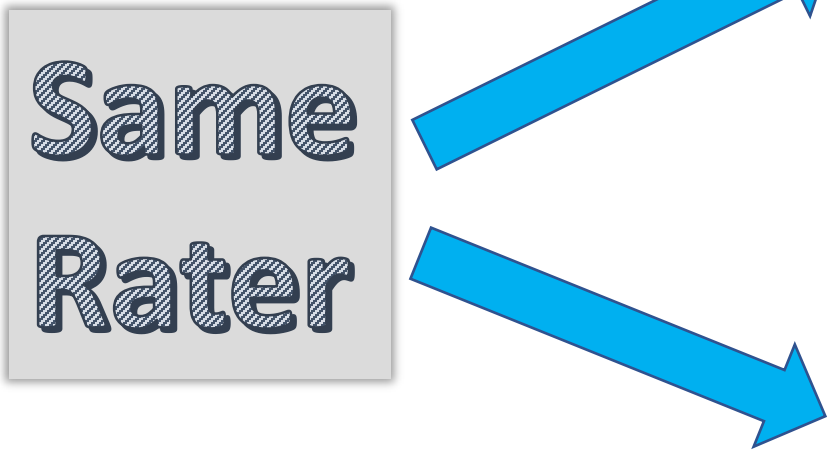
- Different indicators used to measure similar ESG concepts

Weight

- Different levels of importance given to ESG factors

Source: Berg, F., Koelbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, *26*(6), 1315-1344.

What if the rater effect is eliminated?



- **Traditional ESG ratings (T-ESG)**
  - Annual reports, Company websites
  - Filings, News
- **Media-based ESG ratings (M-ESG)**
  - Global News & Social Media
  - 13 Languages
  - Real-time via natural language processing (NLP)

M-ESG are designed to *parallel* and be *directly comparable* to T-ESG (LSEG 2024)

What is the contribution of the paper?

ESG rating divergence

- Chatterji et al. (2016), Gibson Brandon et al. (2021) Christensen et al. (2022), Berg et al. (2022)
- Divergence is not an outcome of different raters

Novel database

- Used first-time to quantify ESG rating divergence

Management of the ESG rating divergence

- Board gender diversity and other good corporate governance measures.
- Women directors and ESG outcomes: Hafsi and Turgut (2013), Harjoto et al. (2015), McGuinness et al. (2017), Nekhili et al. (2017)

ESG rating divergence impact on firm value

- Gibson Brandon et al. (2021), Avramov et al. (2022), Berg et al. (2022)

Data Source and Sample

Match T-ESG and M-ESG rating data

- Non-financial firms, between 2002-2022
- 55,000 firm-year observations

ESG rating divergence

- M-ESG & T-ESG: 0 to 100
- DSEG = | M-ESG – T-ESG |
- DENV, DSOC, DCONT and DEC (DSEG excluding G)

Financial and non-financial variables (LSEG)

Country level macro data (World Bank)

Final sample

- 6,347 firms,
- Around 40,000 firm-year observations
- 67 countries

Table 1. Correlation between ESG scores

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)M-ESG	1.000							
(2)T-ESG	**0.290**	1.000						
(3)M-ENV	0.741	0.318	1.000					
(4)T-ENV	0.240	0.869	**0.312**	1.000				
(5)M-SOC	0.786	0.208	0.439	0.151	1.000			
(6)T-SOC	0.287	0.895	0.289	0.720	**0.218**	1.000		
(7)M-CONT	0.253	0.023	0.155	0.041	0.285	0.016	1.000	
(8)T-CONT	-0.146	-0.237	-0.180	-0.218	-0.079	-0.223	**0.222**	1.000

This table presents the Pearson correlations between traditional ESG scores and external media-based ESG scores and its pillars.

Table 2. ESG divergence across countries

Country	# of obs.	DESG	DENV	DSOC	DES	DCONT
Australia	4527	20.179	28.741	24.159	23.593	47.494
Brazil	958	19.267	25.327	24.227	21.573	46.171
Canada	3771	23.704	31.175	27.099	27.047	44.388
China	3382	19.467	26.916	25.842	24.052	57.320
France	1866	17.548	23.374	21.515	19.641	42.375
Germany	1792	16.933	23.456	21.972	19.702	42.229
Hong Kong	891	18.200	27.098	23.207	21.842	53.109
India	1746	19.470	25.981	21.858	21.472	45.620
Italy	919	19.229	27.341	24.741	22.945	50.534
Japan	6544	16.541	23.464	22.579	19.278	44.284
Netherlands	838	17.914	25.158	22.259	20.242	41.501
South Africa	1234	16.913	22.405	20.668	18.325	48.468
South Korea	1333	19.539	24.877	24.358	21.872	47.964
Spain	829	16.243	21.609	24.939	19.630	41.509
Sweden	1233	16.996	23.923	20.045	19.039	36.023
Switzerland	1416	19.298	27.575	23.107	22.226	42.040
Taiwan	1410	22.470	25.728	27.851	24.623	47.538
United Kingdom	6160	18.664	24.417	23.158	20.747	41.120
United States	25029	24.921	34.924	28.150	29.526	49.434

This table presents the average value of ESG divergence measures across countries. DESG indicates data source divergence at the aggregate level. DENV, DSOC, DES and DCONT indicate divergence in environmental scores, divergence in social scores, divergence in aggregate environmental and social scores, and divergence in controversy scores.

Table 4. ESG divergence – country characteristics

Panel B. Economic development					
	DESG	DENV	DSOC	DES	DCONT
High income	21.299	29.593	25.201	24.997	45.425
Upper middle income	18.245	24.734	22.648	21.422	51.110
Lower middle income	19.888	26.580	23.478	22.639	46.952
Panel C. Voice and Accountability					
	DESG	DENV	DSOC	DES	DCONT
High (Top 25%)	20.497	27.729	24.384	23.398	43.059
Medium (Between 25th and 75th percentiles)	21.362	29.966	25.203	25.260	47.036
Low (Bottom 25%)	19.382	27.493	24.680	24.911	53.910
Panel D. Press freedom					
	DESG	DENV	DSOC	DES	DCONT
High (Top 25%)	19.824	27.152	23.815	22.646	42.324
Medium (Between 25th and 75th percentiles)	20.848	28.921	24.758	24.415	46.127
Low (Bottom 25%)	22.217	31.153	26.230	26.876	49.776

This table presents the average values of ESG divergence measures by country-specific factors. DENV, DSOC, DES and DCONT indicate divergence in environmental scores, divergence in social scores, divergence in aggregate environmental and social scores, and divergence in controversy scores.

But why?

Information mismatch between:

- ESG information disclosed in reports and reflected in external media

Negative divergence (T-ESG > M-ESG):

- Firm ESG disclosures may be substantially different to how it's actually behaving.
  - ESG management via cosmetic adjustments and manipulation (Raghunandan and Rajgopal 2022; Cornaggia and Cornaggia 2023; Baker et al. 2023).
  - Strategic omittance of negative ESG developments (Baker et al. 2023).

Positive divergence (T-ESG < M-ESG):

- Reporting deficiencies of positive ESG efforts
  - Firms may prefer under-reporting to avoid excessive monitoring from stakeholders (Kim and Lyon 2015).
  - Firms may not feel to report ESG efforts, due to industrial or country level disclosure requirements

So what?

ESG scores assist market participant to make informed decisions by reducing the information asymmetries between them and firms ESG performance.

- Chatterji and Toffel (2010), Grewal and Serafeim (2020), Berg et al. (2022), Cao et al., (2023).

However, wide availability of different ESG metrics does not necessarily reduce ESG information asymmetry (Berg et al. 2022).

More ESG disclosure result in a greater disagreement between raters due to the subjective nature of ESG information (Christensen et al. 2022).

Can it be managed?

Good corporate governance can reduce the information mismatches that causes the divergence.

- Firms corporate social responsibility (CSR) actions are classified as a function of corporate governance (García-Sánchez et al. 2022).

Board of directors is a core element

- They responsible for setting and monitoring the CSR objectives and targets of firms (De Villiers et al. 2011, Eccless et al. 2014).

Gender diversity

- Better CSR performance (Hafsi and Turgut 2013, Harjoto et al. 2015, McGuinness et al. 2017).
- Ethically sensitive and receptive to social and community needs (Bear et al. 2010, Adams and Funk 2012).
- Better in monitoring (Powell and Ansic, 1997, Adams and Ferreira, 2009, Zalata et al. 2019).
- Gender diversity increases quality of public information and voluntary disclosure (Evgeniou and Vermaelen 2017, Nekhili et al. 2017).

Empirical modelling

$$ESG\ divergence_{i,t} = \alpha + \beta_1 Gender\ diversity_{i,t-1} + \beta_2 X_{i,t-1} + \beta_3 Y_{c,t-1} + \varepsilon_{i,t}$$

Table 5. Definitions of the variables and data sources

Variable	Definition	Source
DESG	| T-ESG – M-ESG |	LSEG
DENV	| T-ENV – M-ENV |	LSEG
DSOC	| T-SOC – M-SOC |	LSEG
DES	| T-ES – M-ES |	LSEG
DCONT	| T-CONT – M-CONT |	LSEG
Gender diversity	The ratio of women board members to board size	LSEG
Size	Natural logarithm of book value of total assets	LSEG
Leverage	Ratio of long term debt plus short term debt to total assets	LSEG
Cash	Ratio of cash and equivalents to total assets	LSEG
ROA	Ratio of earnings before extraordinary items to total assets	LSEG
Tobin's Q	Book value of assets minus the book value of equity plus the market value of equity to the book value of assets	LSEG
Intangible	Ratio of intangible assets to total assets	
R&D	Ratio of R&D expenditures to total assets	LSEG
Board size	Number of directors on the board	LSEG
Board independence	Ratio of independent directors to board size	LSEG
CEO-chair duality	1 if CEO and chair of the board is the same person	LSEG
GDP growth	Growth rate in Gross domestic product per capita	World Bank
GDP capita	Gross domestic product (GDP) per capita	World Bank

This table presents the definitions and data sources of the variables used in the study.

Descriptive stats.

Table 6. Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Median	Min	Max
DESG	55886	21.209	15.040	18.571	0.324	62.032
DENV	55886	29.179	21.020	25.207	0.483	86.000
DSOC	55886	25.395	17.609	22.570	0.415	71.489
DES	55886	24.714	17.169	21.983	0.393	70.059
DCONT	55886	46.968	24.264	46.000	1.000	97.000
Gender diversity (%)	53361	15.890	13.014	14.286	0.000	50.000
Board size	53715	9.776	3.195	9.000	4.000	21.000
Board independence (%)	51187	61.600	24.774	66.667	0.000	100.000
CEO-chair duality	53799	0.389	0.488	0.000	0.000	1.000

This table presents the descriptive statistics of the variables used in the study. Definitions of the variables are given in Table 5.

Baseline results

Table 8. Board gender diversity and ESG divergence

	DESG	DES	DENV	DSOC
	(1)	(2)	(3)	(4)
Gender diversity	-0.078***	-0.093***	-0.101***	-0.053***
	(0.011)	(0.014)	(0.016)	(0.013)
Size	-0.696***	-1.531***	-1.744***	-0.851***
	(0.113)	(0.135)	(0.154)	(0.126)
Board size	-0.120**	-0.184***	-0.183***	-0.154***
	(0.047)	(0.057)	(0.068)	(0.055)
Board independence	-0.052***	-0.027***	-0.035***	-0.025***
	(0.007)	(0.008)	(0.009)	(0.008)
CEO-chair duality	0.643**	0.153	0.003	0.217
	(0.272)	(0.334)	(0.380)	(0.316)
Financial controls	Yes	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes
Country fixed	Yes	Yes	Yes	Yes
N	40466	36374	36484	40158
R2	0.075	0.121	0.110	0.055

This table presents the regression results for the impact of board gender diversity on ESG divergence measures. Dependent variable is aggregate ESG divergence (DESG) in Column 1, aggregate environmental and social divergence (DES) in Column 2, Environmental score divergence (DENV) in Column 3, and Social score divergence (DSOC) in Column 4. Definitions of the variables are presented in Table 5. All regressions include constant. Firm-level clustered standard errors are in parentheses. ***, ** and * denote significance at 1%, 5% and 10% levels.

Robustness

- Blau index
- Critical mass
- Board gender composition (tiled, skewed, balanced)
- Excluding US
- With Firm FE
- IV regressions
- PSM

What if the firm gets more attention from the media?

Table 15. Additional analysis

	DESG (1)	DES (2)	DENV (3)	DSOC (4)
Panel B. Buzz is greater than 20				
Gender diversity	-0.085***	-0.093***	-0.101***	-0.059***
	(0.012)	(0.014)	(0.016)	(0.014)
Controls	Yes	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes
Country fixed	Yes	Yes	Yes	Yes
N	37544	35561	35575	37514
R2	0.084	0.125	0.114	0.061
Panel C. Buzz is smaller than 300				
Gender diversity	-0.129***	-0.127***	-0.135***	-0.089***
	(0.015)	(0.017)	(0.021)	(0.017)
Controls	Yes	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes
Country fixed	Yes	Yes	Yes	Yes
N	24476	24393	24393	24468
R2	0.154	0.195	0.173	0.107

This table presents the regression results for the impact of board gender diversity on ESG divergence measures excluding the firms from United States (Panel A), those have a Buzz value lower than 20 (Panel B) and 300 (Panel C). Dependent variable is aggregate ESG divergence (DESG) in Column 1, aggregate environmental and social divergence (DES) in Column 2, Environmental score divergence (DENV) in Column 3, and Social score divergence (DSOC) in Column 4. Definitions of the variables are presented in Table 5. All regressions include constant. Firm-level clustered standard errors are in parentheses. ***, ** and * denote significance at 1%, 5% and 10% levels.

Alternative

- **Different BUZZ cut-off points**

Controversy scores

Table 16. Divergence in ESG Controversy scores

	DCONT (1)	DCONT (2)	DCONT (3)	DCONT (4)
Gender diversity	-0.045***			
	(0.017)			
Blau index		-3.504***		
		(1.349)		
Skewed board			-0.447	
			(0.471)	
Balanced board			-1.055*	
			(0.544)	
Tilted board			-1.378*	
			(0.839)	
One woman				-0.330
				(0.473)
Two women				-0.911
				(0.556)
Three women				-2.117***
				(0.653)
Controls	Yes	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes
Country fixed	Yes	Yes	Yes	Yes
N	40449	40449	40449	40384
R2	0.065	0.065	0.065	0.066

This table presents the regression results for the impact of board gender diversity on ESG Controversies divergence (DCONT). Dependent variable is ESG Controversies divergence (DCONT) in all columns. Definitions of the variables are presented in Table 5. All regressions include constant. Firm-level clustered standard errors are in parentheses. ***, ** and * denote significance at 1%, 5% and 10% levels.

Does it matter for financial performance?

Table 17. Performance implications of ESG divergence

	DESG	DES	DENV	DSOC	DCONT
	(1)	(2)	(3)	(4)	(5)
Panel A. Dependent variable is ROA					
Divergence	-0.016***	-0.022***	-0.026***	-0.002	-0.023***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)
N	40992	36029	36156	40644	40967
R2	0.181	0.187	0.188	0.181	0.184
Panel B. Dependent variable is EBITDA					
Divergence	-0.021***	-0.027***	-0.027***	-0.006	-0.020***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)
N	40993	36029	36156	40645	40968
R2	0.214	0.218	0.219	0.214	0.216
Panel C. Dependent variable is Tobin's Q					
Divergence	-0.000	-0.002*	-0.002**	-0.000	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
N	40685	35763	35891	40333	40659
R2	0.276	0.287	0.286	0.278	0.278
Controls	Yes	Yes	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes	Yes
Country fixed	Yes	Yes	Yes	Yes	Yes

This table presents the relationship between ESG divergence measures and accounting and market performance of the firms. Dependent variables are ROA, EBITDA and Tobin's Q in Panel A, B and C, respectively. Divergence denotes aggregate ESG divergence (DESG) in Column 1, aggregate environmental and social divergence (DES) in Column 2, Environmental score divergence (DENV) in Column 3, Social score divergence (DSOC) in Column 4 and ESG controversies divergence in Column 5. All regressions include constant. Firm-level clustered standard errors are in parentheses. ***, ** and * denote significance at 1%, 5% and 10% levels.

Does it matter for risk?

Table 18. Risk implications of ESG divergence

	DESG	DES	DENV	DSOC	DCONT
	(1)	(2)	(3)	(4)	(5)
Panel A. Dependent variable is WACC					
Divergence	0.003**	0.001	0.002*	-0.001	0.002**
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
N	25789	22735	22807	25568	25788
R2	0.295	0.294	0.295	0.294	0.295
Panel B. Dependent variable is Cost of equity					
Divergence	0.005**	0.004**	0.003**	0.002	0.005***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)
N	25784	22730	22802	25563	25783
R2	0.273	0.266	0.266	0.272	0.274
Panel C. Dependent variable is Cost of debt					
Divergence	0.001*	0.001	0.001**	0.000	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
N	25789	22735	22807	25568	25788
R2	0.431	0.430	0.430	0.431	0.432
Controls	Yes	Yes	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes	Yes	Yes
Industry fixed	Yes	Yes	Yes	Yes	Yes
Country fixed	Yes	Yes	Yes	Yes	Yes

This table presents the relationship between ESG divergence measures and risk of the firms which is measured by cost of capital. Dependent variables are WACC, cost of equity and cost of debt in Panel A, B and C, respectively. Divergence denotes aggregate ESG divergence in Column 1 (DESG), aggregate environmental and social divergence (DES) in Column 2, Environmental score divergence (DENV) in Column 3, Social score divergence (DSOC) in Column 4 and ESG controversies divergence in Column 5. All regressions include constant. Firm-level clustered standard errors are in parentheses. ***, ** and * denote significance at 1%, 5% and 10% levels.

Conclusions

ESG ratings (and pillars) diverge substantially, even after eliminating the rater effect, due to different data sources.

Female representation on boards reduce this type of divergence

ESG rating divergence leads to:

- **Lower accounting and market performance**
- **Higher cost of capital**