

## Appendix

<i>Variables</i>	<i>Description</i>
<i>Anti-director rights index (ADRI)</i>	First developed in La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) as a measure of investor protection against corporate management and later on revised in Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) and Spamann (2010). All the three ADRI consist of the same six key components: (1) proxy by mail allowed, (2) shares not blocked before shareholder meeting, (3) cumulative voting and proportional representation, (4) oppressed minority protection, (5) preemptive rights to new share issues, (6) percentage of share capital to call an extraordinary shareholder meeting. Each component is a dummy variable, and the ADRI is formed by aggregating the value of all six components. The index ranges from 0 to 6, whereby a higher value of the index indicates stronger shareholder protection. Source: La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998); Djankov <i>et al.</i> (2008); Spamann (2010).
<i>Anti-self-dealing index (ASDI)</i>	Developed by Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) and is an average of ex ante and ex post private control of self-dealing. The ex ante private control of self-dealing transactions includes approval by disinterested shareholders and ex ante disclosure by the buyer, the insider, and independent review. The ex post private control of self-dealing transactions include the disclosure in periodic filings and the ease of proving wrongdoing (holding the insider and the approving body civilly liable and having access to evidence). Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008).
<i>Public enforcement of anti-self-dealing</i>	Index of public enforcement if all disclosure and approval requirements have been met. Ranges from 0 to 1. One-quarter point when each of the following sanctions is available: (1) fines for the approving body, (2) jail sentences for approving body, (3) fines for the insider, and (4) jail sentences for the insider. Source: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008).
<i>GDP per capita</i>	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current US dollars. Source: World Bank.
<i>Cash holding</i>	Amount of cash and cash equivalent on the balance sheet, scaled by total assets. Source: Compustat.
<i>Free cash flows</i>	Computed as earnings before interest and taxes (EBIT) multiplied by (1 – tax rate), plus Depreciation & Amortization, minus Change in Working Capital, and minus Capital Expenditure, finally scaled by total assets. Source: Compustat.
<i>Capital expenditure</i>	Capital expenditure recorded on the balance sheet, scaled by total assets. Source: Compustat.
<i>Dividend payout ratio</i>	Calculated as the common dividends divided by net income, as recorded on the company's financial statement. Source: Datastream.
<i>Leverage</i>	Calculated as the book value of total liabilities divided by book value of total equity of the company (MSCI and Vigeo samples) or the book value of total liabilities divided by the book value of total assets of the company (ASSET4 sample). Source: Compustat.
<i>Pay for performance</i>	Dummy variable that equals one if the executive compensation is linked to total shareholder value (TSR) and is measured using Thomson Reuter's ASSET4 data category "CEO Compensation Link to TSR". This variable is based on a textual analysis from companies' annual reports and media reports. Source: ASSET4 (Thomson Reuters) and BoardEx.
<i>Excess pay</i>	Residual of regressing the chief executive officer (CEO) total compensation on the one-year lagged Tobin's q, firm size, CEO characteristics variables, CEO incentives variables, and corporate governance variables, as well as firm and time fixed effects. Source on total compensation: ASSET4 (Thomson Reuters) and BoardEx.
<i>Percent of Independent board members</i>	Percentage of independent board members as reported by the company. Independent board members are directors who are not employed by the company, have not served on the board for more than ten years, are not or do not represent a reference shareholder with more than 5% of holding, do not hold cross-board memberships, do not have recent, immediate family ties to the company and do not accept any compensation other than compensation for board service. Source: ASSET4 (Thomson Reuters) and BoardEx.
<i>Compensation committee independence</i>	Percentage of independent compensation committee members as stipulated by the company. Source: ASSET4 (Thomson Reuters) and BoardEx.

<i>CEO-chairman duality</i>	Dummy variable that equals one if the CEO simultaneously chairs the board and zero otherwise. Source: ASSET4 (Thomson Reuters) and BoardEx.
<i>Say-on-pay</i>	Dummy variable that equals one if the company's shareholders have the right to vote on executive compensation and zero otherwise. Source: ASSET4 (Thomson Reuters) and BoardEx.
<i>Board size</i>	Total number of board members at the end of the fiscal year. Source: ASSET4 (Thomson Reuters) and BoardEx.
<i>Compensation committee</i>	Dummy variable that equals one if the company has a compensation committee on the board and zero otherwise. Source: ASSET4 (Thomson Reuters) and BoardEx.
<i>Blockholder ownership</i>	Total ownership of all blockholders who hold at least 5% of the company's shares. Source: Orbis.
<i>Wedge</i>	Ratio of the voting rights to the ownership for the largest shareholder of the company. Wedge1 stands for the difference between the voting rights and the cash flow rights of the largest shareholder. Wedge2 stands for the ratio of the voting rights to the cash flow rights of the largest shareholder. Source: Datastream.
<i>ROA</i>	Return on assets, net income divided by total assets. Source: Compustat.
<i>Tobin's q</i>	Ratio of the market value of equity to the book value of equity of the company. Source: Compustat.
<i>Financial constraints</i>	Measured by the ratio of the change in short-term investment to the change in operational cash flow. Source: Compustat.
<i>Interest coverage</i>	EBIT divided by interest expenses. Source: Compustat.
<i>Financial slack</i>	Current debts divided by current assets. Source: Compustat.
<i>CapEx to sales ratio</i>	Ratio of capital expenditure to the total sales revenue, a measure following Berger, P. and Ofek, E. (1995). Source: Compustat.
<i>Firm size</i>	Book value of total assets of the firm. Source: Compustat.
<i>Firm age</i>	Number of years since the firm's year of incorporation. Source: Datastream.
<i>Dividend per share</i>	Rolling 12-month dividend per share (adjusted). This variable intends to represent the anticipated payment over the following 12 months and for that reason is calculated on a rolling 12-month basis or is the indicated or forecasted annual amount. Special or once-off dividends are generally excluded. Dividends per share are displayed gross, inclusive of local tax credits when applicable, except for Belgium, France, Ireland, and the UK, where dividends per share are displayed on a net basis. Source: Datastream.
<i>ROE</i>	Return on equity; net income divided by total assets. Source: Compustat.
<i>Annual sales growth rate</i>	Annual growth rate of sales revenue of the firm. Source: Datastream.
<i>Largest shareholder's ownership</i>	Percentage ownership of the single largest owner (by voting power). Source: Datastream (ASSET4).
<i>Sustainable country rating</i>	Country-level sovereign ESG scores and benchmarks based on 120 ESG risk and performance indicators in three domains: (1) environmental protection, (2) social protection and solidarity, and (3) rule of law and governance. Countries are graded on a scale of one hundred on their commitment and performance in these indicators (e.g., ratification of the Kyoto convention, the Vienna convention, the Stockholm convention, CO2 emissions per head, Gini index, etc.). Source: Vigeo.
<i>Entrenchment Index 1</i>	Following the original Entrenchment Index with US coverage by Bebchuk, Cohen, and Ferrell (2009), the Entrenchment Index 1 is constructed for firms from 64 countries across the world during the period 2002-2013 and is the sum of the five dummy variables from Datastream's ASSET4 sample based on the presence of a poison pill, a golden parachute, a supermajority requirement for amending bylaw and charter, a classified board, and other anti-takeover provisions. Missing values are treated as zeros. Source: Datastream.

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*Entrenchment  
Index 2*

Following the original Entrenchment Index with US coverage by Bebchuk, Cohen, and Ferrell (2009), the Entrenchment Index 2 is constructed for firms from 64 countries across the world during the period 2002-2013, and is the sum of the five dummy variables from Datastream's ASSET4 sample based on the presence of a poison pill, a golden parachute, a supermajority requirement for amending bylaw and charter, a staggered board (the terms of board members are uniform), and other antitakeover provisions. Missing values are treated as zeros. Source: Datastream.

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Table OA1. MSCI intangible value assessment data description

IVA factor	IVA subscore	weight	Key metrics
Strategic governance	SG1—Strategy	< 2%	Overall governance; rating composed of total scores of non-key issues
	SG2—Strategic capability	< 2%	Management of corporate social responsibility (CSR) issues, partnership in multi-stakeholder initiatives
	SG3—Traditional governance concerns	< 2%	Board independence, management of CSR issues, board diversity, compensation practices, controversies involving executive compensation and governance
Human capital	HC1—Workplace Practices	< 2%	Workforce diversity, policies and programs to promote diversity, work/life benefits, discrimination-related controversies
	HC2—Labor relations	20%	<i>KEY ISSUE: Labor relations</i> Benefits, strikes, union relations, controversies, risk of work stoppages, etc.
	HC3—Health and safety	< 2%	Health and safety policies and systems, implementation and monitoring of those systems, performance (injury rate, etc.), safety-related incidents and controversies
Stakeholder capital	SC1—Stakeholder partnerships	< 2%	Customer initiatives, customer-related controversies, firm's support for public policies with noteworthy benefits for stakeholders
	SC2—Local communities	< 2%	Policies, systems, and initiatives involving local communities (especially indigenous peoples), controversies related to firm's interactions with communities
	SC3—Supply chain	< 2%	Policies and systems to protect supply-chain workers' and contractors' rights, initiatives toward improving labor conditions, supply-chain-related controversies
Products and services	PS1—Intellectual capital and product development	< 2%	Beneficial products and services, including efforts that benefit the disadvantaged, reduce consumption of energy and resources, and production of hazardous chemicals; average of two scores
	PS2—Product safety	< 2%	Product quality, health and safety initiatives, controversies related to the quality or safety of a firm's products, including legal cases, recalls, criticism
Emerging markets	EM1—Emerging markets strategy	< 2%	Default = 5, unless company – specific exposure is highly significant
	EM2—Human rights and child and forced labor	< 2%	Policies, support for values in Universal Declaration of Human Rights, initiatives to promote human rights, human rights controversies
	EM3—Oppressive regimes	<2%	Controversies, substantive involvement in countries with poor human rights records
Environmental risk factors	ER1—Historic liabilities	< 2%	Controversies including natural resource – related cases, widespread or egregious environmental impacts
	ER2—Operating risk	< 2%	Emissions to air, discharges to water, emission of toxic chemicals, nuclear energy, controversies involving non – greenhouse gas emissions
	ER3—Leading and sustainability risk indicators	< 2%	Water management and use, use of recycled materials, sourcing, sustainable resource management, climate change policy and transparency, climate change initiatives, absolute and normalized emissions output, controversies
	ER4—Industry carbon specific risk	25%	<i>KEY ISSUE: Carbon</i> Targets, emissions intensity relative to peers, estimated cost of

	compliance		
Environmental management capacity	EMC1—Environmental strategy	< 2%	Policies to integrate environmental considerations into all operations, environmental management systems, regulatory compliance, controversies
	EMC2—Corporate governance	< 2%	Board independence, management of CSR issues, board diversity, compensation practices, controversies involving executive compensation and governance
	EMC3—Environmental management systems	< 2%	Establishment and monitoring of environmental performance targets, presence of environmental training, stakeholder engagement
	EMC4—Audit	< 2%	External independent audits of environmental performance
	EMC5—Environmental accounting and reporting	< 2%	Reporting frequency, reporting quality
	EMC6—Environmental training and development	< 2%	Presence of environmental training and communications programs for employees
	EMC7—Certification	< 2%	Certifications by the International Organization for Standardization (ISO) or other industry- and country-specific third – party auditors
	EMC8—Products and materials	< 2%	Positive and negative impact of products and services, end-of-life product management, controversies related to environmental impact of products and services.
Environmental opportunity factors	EO1—Strategic competence	< 2%	Policies to integrate environmental considerations into all operations and reduce environmental impact of operations, products and services, environmental management systems, regulatory compliance
	EO2—Environmental opportunity	35%	<i>KEY ISSUE: Opportunities in clean technology</i> Product development in clean technology, research and development relative to sales and trend, innovation capacity
	EO3—performance	< 2%	Percent of revenue represented by identified beneficial products and services

Table OA2. Vigeo corporate environmental, social, and governance (ESG) data description

Key domain	Sub-dimension	Description
Environment	ENV1.1	Environmental strategy and eco-design
	ENV1.2	Pollution prevention and control
	ENV1.3	Development of green products and services
	ENV1.4	Protection of biodiversity
	ENV2.1	Protection of water resources
	ENV2.2	Minimizing environmental impacts from energy use
	ENV2.3	Environmental supply – chain management
	ENV2.4	Management of atmospheric emissions
	ENV2.5	Waste management
	ENV2.6	Management of environmental nuisances: dust, odor, noise
	ENV2.7	Management of environmental impacts from transportation
	ENV3.1	Management of environmental impacts from the use and disposal of products and services
Human resources	HRS1.1	Promotion of labor relations
	HRS1.2	Encouraging employee participation
	HRS2.1	Career development
	HRS2.2	Training and development
	HRS2.3	Responsible management of restructurings
	HRS2.4	Career management and promotion of employability
	HRS3.1	Quality of remuneration systems
	HRS3.2	Improvement of health and safety conditions
	HRS3.3	Respect and management of working hours
Business behavior (Customer and supplier)	C&S1.1	Product safety
	C&S1.2	Information to customers
	C&S1.3	Responsible Contractual Agreement
	C&S2.1	Integration of corporate social responsibility in purchasing processes
	C&S2.2	Sustainable Relationship with suppliers
	C&S2.3	Integration of environmental factors in the supply chain
	C&S2.4	Integration of social factors in the supply chain
	C&S3.1	Prevention of corruption
	C&S3.2	Prevention of anticompetitive practices
	C&S3.3	Transparency and integrity of influence strategies and practices
Human rights	HR1.1	Respect for human rights standards and prevention of violations
	HR2.1	Respect for freedom of association and the right to collective bargaining
	HR2.2	Elimination of child labor
	HR2.3	Abolition of forced labor
	HR2.4	Nondiscrimination
Community involvement	CIN1.1	Promotion of social and economic development
	CIN2.1	Social impacts of company's products and services
	CIN2.2	Contribution to general interest causes
Corporate governance	CGV1.1	Board of directors
	CGV2.1	Audit and internal controls
	CGV3.1	Shareholders' rights
	CGV4.4	Executive remuneration

Table OA3. MSCI intangible value assessment (IVA) country (region) coverage

Country	IVA rating	EcoValue 21 rating	Social rating	Number of firm time observations	Number of Firm observations
Australia	2.95	2.75	2.97	2,877	240
Austria	3.44	3.13	3.23	370	14
Belgium	2.98	2.97	3.00	680	19
Bermuda Islands	2.02	1.35	2.06	283	16
Brazil	2.68	3.28	2.68	426	33
Canada	3.24	2.87	3.26	3,347	129
Cayman Islands	2.60	1.94	2.95	101	3
Chile	1.59	1.50	1.72	46	9
China	0.54	0.46	0.63	181	35
Colombia	2.00	2.67	2.33	3	2
Cyprus	4.00	3.00	4.00	5	1
Czech Republic	2.43	2.38	2.73	124	22
Denmark	3.43	3.31	3.33	843	22
Egypt	1.71	0.76	1.65	17	3
Finland	3.85	3.78	3.84	927	27
France	3.95	3.39	3.62	3,660	89
Germany	3.83	4.06	3.74	2,779	66
Greece	2.23	2.05	2.14	554	16
Hong Kong	1.79	1.96	1.92	1,447	62
Hungary	1.74	1.83	1.63	95	4
India	2.03	1.66	2.09	150	26
Indonesia	1.47	0.53	1.59	34	4
Ireland	1.89	2.09	1.88	892	24
Israel	1.09	1.64	1.09	78	11
Italy	2.31	1.99	2.33	2149	54
Japan	2.57	3.67	2.59	11,270	384
Korea, South	2.59	2.96	2.61	466	28
Luxembourg	1.96	2.65	1.99	145	9
Macao	2.00	4.00	1.50	2	2
Malaysia	1.47	1.18	1.90	154	14
Mexico	2.05	2.69	2.18	239	17
Morocco	1.00	0.67	1.33	3	1
Netherlands	3.35	3.62	3.29	1,496	34
New Zealand	2.70	2.95	2.97	256	13
Norway	4.06	4.35	3.94	485	16
Pakistan	1.50	1.25	1.75	4	2
Papua New Guinea	2.62	2.00	3.05	21	2
Peru	1.00	1.00	1.00	1	1
Philippines	0.04	0.89	0.04	28	1
Poland	2.03	1.55	1.76	194	7
Portugal	2.67	2.60	2.12	451	11
Puerto Rico	1.06	1.53	1.06	32	1
Romania	1.00	0.78	1.00	23	1
Russia	0.79	0.64	1.07	227	19
Singapore	2.03	2.08	2.08	740	40
South Africa	4.26	3.50	4.33	167	17
Spain	3.48	3.08	3.45	1,610	45
Sweden	4.19	4.09	4.11	1,600	42
Switzerland	3.18	3.10	3.11	3,184	60
Taiwan	2.15	2.04	2.19	156	17

Thailand	2.53	1.04	2.58	82	6
Turkey	2.20	1.13	2.04	109	7
United Arab Emirates	1.00	3.00	1.00	1	1
United Kingdom	3.62	3.24	3.52	14,203	315
United States	2.38	2.44	2.45	31,819	778
<i>(Not included in the World Bank data)</i>					
British Virgin Islands	1.00	2.00	0.00	1	1
Guernsey	2.03	1.28	1.80	87	2
Gibraltar	3.00	2.48	3.09	23	2
Jersey	1.27	1.08	1.31	26	3
<b>(Total: 59 countries)</b>				91,373	

Table OA4.Vigeo environmental, social, and governance (ESG) country (region) coverage

Country	Overall ESG score	Environmental score	Human resources score	Human rights score	Community involvement score	Customers and suppliers score	Corporate governance score	Firm year observations	Firm observations
Australia	34.91	25.12	22.08	34.71	32.86	37.69	56.72	154	72
Austria	28.72	23.95	29.32	35.22	29.40	32.02	40.28	57	16
Belgium	35.45	36.78	38.65	38.49	39.10	41.28	41.25	120	22
Bermuda	30.00	21.00	33.00	38.00	55.00	19.00	39.00	1	1
China	14.80	4.80	6.20	20.60	25.60	23.60	22.00	5	3
Canada	35.20	26.29	24.70	37.53	38.07	41.45	51.54	133	52
Denmark	29.60	27.62	29.59	36.18	30.75	35.76	34.30	97	27
Finland	40.15	40.49	41.72	42.55	33.24	42.37	50.89	123	24
France	42.40	41.22	47.18	48.15	47.53	45.91	43.66	1038	121
Germany	40.55	43.29	43.91	46.25	42.25	44.37	45.11	508	75
Greece	27.61	26.54	27.81	30.10	33.32	34.37	29.67	57	12
Hong Kong	23.36	15.22	15.31	25.05	22.50	27.06	35.53	96	43
Iceland	21.50	5.75	8.00	22.25	9.75	33.75	39.00	4	4
Ireland	27.08	22.85	25.59	30.04	31.95	35.07	51.56	97	18
Italy	36.75	34.28	40.97	41.62	39.85	42.94	12.09	291	52
Japan	25.19	27.47	19.39	31.87	26.25	33.46	16.37	655	290
Luxembourg	33.31	29.03	35.90	40.00	43.30	40.57	44.60	30	5
Netherlands	42.65	43.19	42.35	45.35	47.67	48.55	53.85	288	47
New Zealand	29.43	28.86	17.43	27.14	19.86	29.14	48.86	7	3
Norway	40.94	34.00	39.90	48.14	38.96	41.10	51.60	67	19
Portugal	35.86	35.15	37.90	37.60	42.97	43.08	36.00	61	10
Russia	32.00	31.00	20.00	18.00	16.00	43.00	56.00	2	1
Singapore	25.62	16.16	14.35	23.84	23.84	27.89	44.19	37	17
Spain	36.52	36.40	38.60	40.91	40.85	41.97	41.87	259	51
Sweden	37.10	35.76	32.99	45.71	32.41	42.29	42.08	194	43
Switzerland	37.02	35.79	32.45	40.49	36.04	40.72	44.44	301	54
United Kingdom	42.24	39.47	33.14	42.04	45.85	42.65	64.77	1,157	255
United States	32.69	23.57	18.37	37.28	33.59	38.58	49.86	1,209	449

Table OA5: Asset4 environmental, social and governance (ESG) country (region) coverage

Country	Overall CSR rating	Environmental rating	Social rating	Number of firm year observations	Number of firm observations
Abu Dhabi (UAE)	19.65	38.32	25.68	12	1
Austria	43.29	38.13	38.77	4,020	335
Australia	44.46	51.84	50.40	252	21
Belgium	53.16	54.88	49.63	336	28
Brazil	55.02	55.19	67.72	1,008	84
Canada	47.59	37.64	38.65	3,864	322
Channel Islands	52.05	49.82	53.02	24	2
Chile	33.41	43.66	45.61	252	21
China	25.59	33.38	32.78	984	82
Colombia	34.40	34.52	40.94	108	9
Cyprus	39.18	30.20	36.71	12	1
Czech Republic	48.56	48.72	60.01	48	4
Denmark	48.45	56.43	52.69	324	27
Dubai	37.39	44.24	33.76	12	1
Egypt	14.55	19.29	27.22	132	11
Finland	72.26	73.25	66.86	324	27
France	71.45	75.70	76.36	1,212	101
Germany	58.25	67.07	67.16	1,068	89
Greece	35.42	47.10	49.62	300	25
Hong Kong	30.27	33.72	35.51	1,800	150
Hungary	73.29	76.18	80.80	48	4
Iceland	29.02	20.45	36.06	36	3
India	47.16	51.60	57.93	960	80
Indonesia	45.46	41.95	60.83	300	25
Ireland	43.04	42.65	39.33	216	18
Israel	38.44	42.65	39.33	168	14
Italy	52.92	53.05	62.93	708	59
Japan	38.18	61.62	45.47	5,196	433
Jordan	52.16	60.71	62.99	12	1

Kazakhstan	34.92	15.74	27.17	12	1
Kuwait	18.92	24.30	36.60	48	4
Luxembourg	55.00	58.48	52.83	60	5
Malaysia	42.32	41.12	50.21	540	45
Mexico	38.96	46.03	49.47	324	27
Morocco	21.57	20.13	53.42	36	3
Netherlands	75.30	68.86	75.36	540	45
New Zealand	49.47	45.42	42.40	144	12
Nigeria	7.18	10.89	19.71	12	1
Norway	56.90	55.26	58.87	300	25
Oman	27.00	27.42	33.00	12	1
Peru	41.33	31.05	34.41	12	1
Philippines	39.59	36.07	40.79	252	21
Poland	33.22	33.62	42.06	312	26
Portugal	67.52	66.20	73.95	144	12
Qatar	10.77	12.87	24.64	24	2
Russian Federation	37.52	39.92	50.64	408	34
Saudi Arabia	19.22	32.12	25.65	72	6
Singapore	34.66	33.58	35.60	648	54
South Africa	66.17	56.74	73.06	1,092	91
South Korea	47.12	62.00	56.77	1,212	101
Spain	66.26	68.54	73.82	696	58
Sri Lanka	51.25	51.09	66.59	12	1
Sweden	62.79	66.58	63.91	660	55
Switzerland	57.88	58.71	56.98	852	71
Taiwan	29.02	44.74	36.30	1,536	128
Thailand	55.76	47.93	56.73	264	22
Turkey	44.33	48.36	52.90	288	24
United Kingdom	64.32	59.63	63.16	4,776	398
United States	51.91	40.22	44.17	14,436	1203
Zimbabwe	11.75	38.42	35.57	12	1