

Behind the curtain: an empirical analysis of corporate opacity across countries and sectors worldwide to assess money laundering risks

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Beneficial ownership (BO) transparency (and opacity)

- › Key principle of current global AML regime
- › Introduction of BO registers (about 60 countries worldwide)
- › FATF assesses countries on both *Effectiveness* and *Technical Compliance* levels:
 - › **IO5:** Effectiveness of BO transparency
 - › **R.24:** Transparency of legal persons recently revised
 - › **R.25:** Transparency of legal arrangements under revision
- › **Countries' FATF scores on BO transparency are poor:**
 - › Only 50% of countries are at least 'Largely compliant' and 9% have at least 'Substantial effectiveness'
 - › Average Technical Compliance score for R.24 and R.25 = 45.2% and 48.6% (updated as of MERs issued until August, 2023)
 - › Average Effectiveness score for IO5 = 19.7%



FATF assessments of BO transparency: 4 clusters

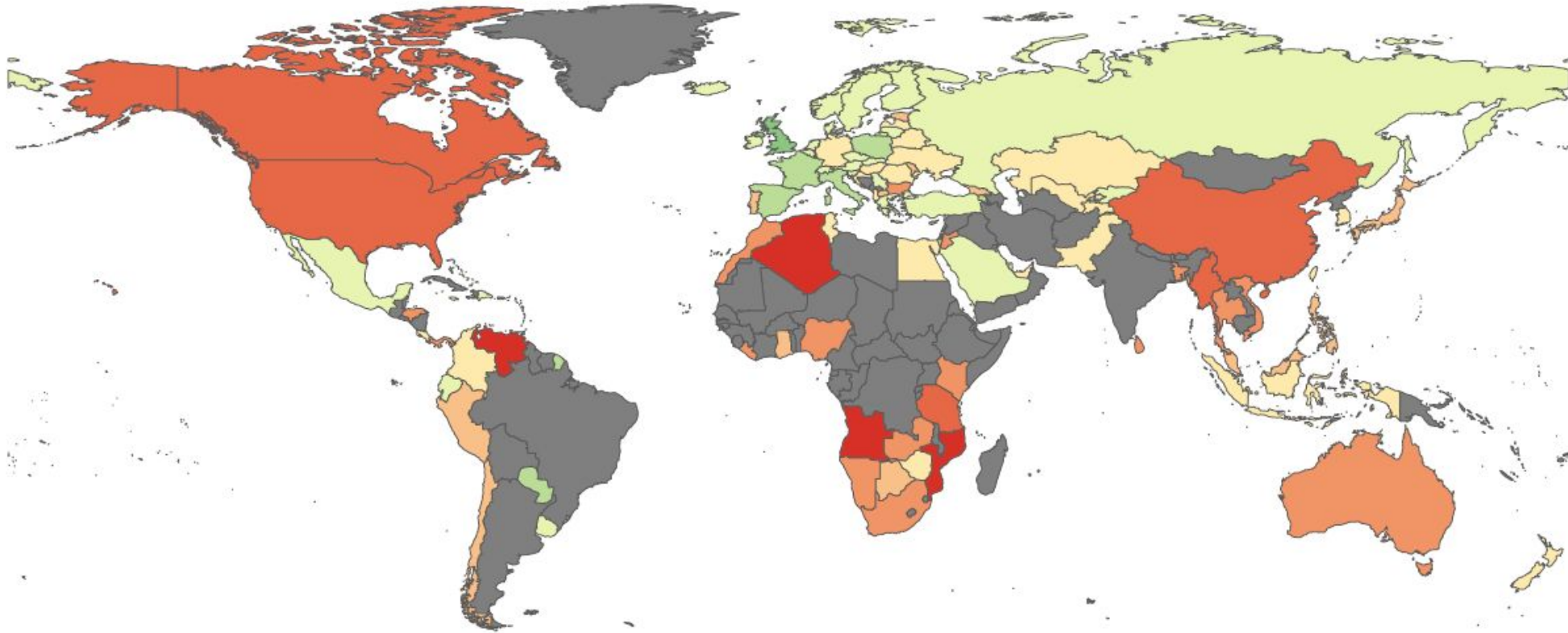
› Mean between FATF R.24, R.25 and IO5 scores (100% = max compliant/effectiveness; 0% = not compliant/effective) (updated as of August, 2023, MERs)

<p>High >50%</p>	<p>GB - United Kingdom (77.8%), CU - Cuba, IT - Italy, FR - France, ES - Spain, PL - Poland, SG - Singapore, AM - Armenia, IL - Israel, PY - Paraguay, BM - Bermuda, GI - Gibraltar, MO - Macao, RU - Russia, NO - Norway, DK - Denmark, CZ - Czech Republic, SA - Saudi Arabia, AT - Austria, NL - Netherlands, BE - Belgium, RS - Serbia, CH - Switzerland, SK - Slovakia, AD - Andorra, AG - Antigua and Barbuda, KG - Kyrgyzstan, FI - Finland, IE - Ireland, SE - Sweden, GT - Guatemala, TR - Turkey, SI - Slovenia, BH - Bahrain, CY - Cyprus, MT - Malta, GR - Greece, EC - Ecuador, MX - Mexico, IS - Iceland, TT - Trinidad and Tobago, LT - Lithuania, QA - Qatar, KY - Cayman Islands, UY - Uruguay, VA - Vatican City, LI - Liechtenstein, BS - Bahamas, DO - Dominican Republic</p>	<p>Mid-High [33.3% - 50%)</p>	<p>ET - Ethiopia (50%), DE - Germany, UA - Ukraine, CV - Cape Verde, RO - Romania, KR - South Korea, TJ - Tajikistan, MN - Mongolia, NZ - New Zealand, VU - Vanuatu, HU - Hungary, TW - Taiwan, AE - United Arab Emirates, HR - Croatia, BY - Belarus, EG - Egypt, HK - Hong Kong, DM - Dominica, AL - Albania, JM - Jamaica, CO - Colombia, LV - Latvia, UZ - Uzbekistan, KZ - Kazakhstan, SM - San Marino, ID - Indonesia, SC - Seychelles, CR - Costa Rica, PK - Pakistan, TN - Tunisia, ZW - Zimbabwe, BB - Barbados, BT - Bhutan, CL - Chile, MR - Mauritania, NI - Nicaragua, PT - Portugal, GE - Georgia, SN - Senegal, MY - Malaysia, MK - North Macedonia, AW - Aruba, EE - Estonia, JP - Japan, KN - Saint Kitts and Nevis, MD - Moldova, GH - Ghana, MU - Mauritius, PH - Philippines, PE - Peru, MC - Monaco, BW - Botswana, WS - Samoa</p>
<p>Mid-Low [0% - 33.3%)</p>	<p>BF - Burkina Faso, CG - Republic of the Congo, AU - Australia, CM - Cameroon, FJ - Fiji, GD - Grenada, GM - Gambia, GW - Guinea-Bissau, BG - Bulgaria, MA - Morocco, KH - Cambodia, LC - Saint Lucia, JO - Jordan, ML - Mali, VN - Vietnam, MW - Malawi, KE - Kenya, NE - Niger, SL - Sierra Leone, TG - Togo, TM - Turkmenistan, TH - Thailand, PA - Panama, NG - Nigeria, ZA - South Africa, LK - Sri Lanka, LR - Liberia, NA - Namibia, ZM - Zambia, BD - Bangladesh, HN - Honduras, CN - China, US - United States, MG - Madagascar, PW - Palau, SB - Solomon Islands, SZ - Eswatini, TD - Chad, TO - Tonga, CA - Canada, TZ - Tanzania, MM - Myanmar (Burma)</p>	<p>Low 0%</p>	<p>BJ - Benin, CD - Democratic Republic of the Congo, DZ - Algeria, GA - Gabon, HT - Haiti, SR - Suriname, UG - Uganda, VE - Venezuela, MZ - Mozambique, AO - Angola</p>



Confidential - Note: several countries such as Brazil, India, Argentina, Luxembourg and many others do not appear in the table as they have not yet been evaluated during the 4th round, or were not been evaluated as of 24th August, 2023, date in which consolidated MER/FUR assessments were processed

FATF assessments of BO transparency: 4 clusters

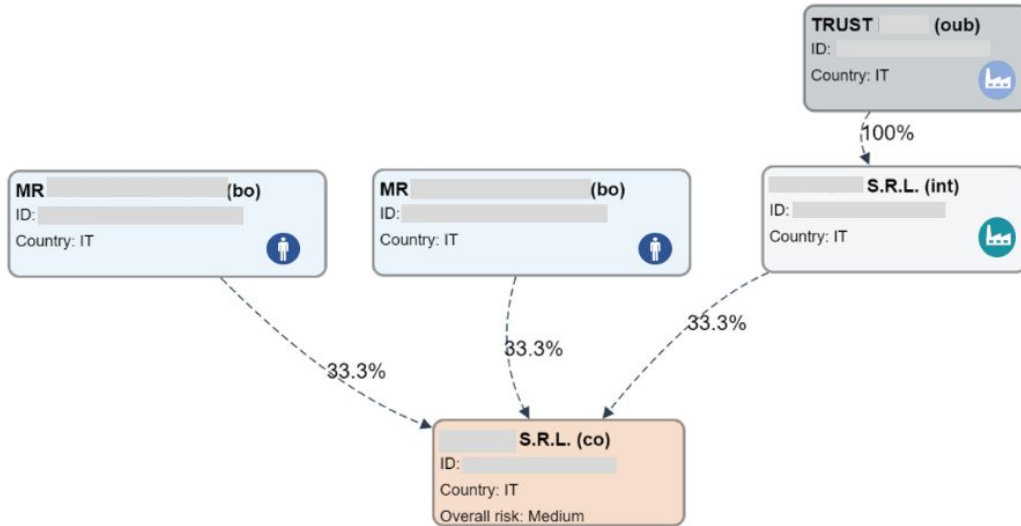


Measuring *actual* BO transparency (or opacity)

- › FATF scores are *statutory* assessments
- › **What is the *actual* level of BO transparency (opacity) across countries?**
- › **How to measure BO transparency (opacity)?**
 - › % of firms for which BO is known: simplistic
 - › Declared BO \neq BO whom can be traced in practice
 - › But even traceable BOs can be proxies/figurehead
 - › Measuring BO transparency shall go beyond identification of natural persons
 - › It shall take into account a variety of risk factors and anomaly indicators
 - › These are those suggested by AML regulation (including FATF) and by empirical evidence of ML
- › Aim of this paper: providing an **empirical measure of BO opacity through measuring these risk factors** across countries



Methodology: concepts and operationalisation



BO opacity risk factor	Operationalisation
Complexity	Average number of layers between a company and its identified BOs, compared with companies of the same size, sector, geographical area
Anomalous share distribution	Upper nodes having an ownership link just below typical 25% threshold
Prevalence of legal arrangements	Prevalence of legal arrangements (trusts, foundations, fiduciaries, funds) among upper nodes
Prevalence of legal persons	Prevalence of legal persons among upper nodes
Lack of information on BOs	Prevalence among upper nodes of non-natural persons for which it is not possible to identify any further natural person or non-natural person on top.

Methodology: data and sources

- › No global business register is available (LEI/GLEIF still at its infancy and does not include ownership data)
- › Employed source: Bureau van Dijk/Moody's ORBIS database (450M+ firms, 200+ countries)
- › Used dataset: about **100M firms, 1.9 billion owners** (details in table below)
- › Computationally challenging: dedicated last-generation 80 CPU server equipped with 40GB RAM running for two full days.
- › Stock as of 31st December 2021
- › On average ownership info available for 94.9% firms (but coverage varies)
- › Discrepancies in coverage not always clearly motivated by BvD (possible biases to be discussed below)

	Filter	N. Firms (million)	N. Upper nodes (billion)	N. countries
Original dataset	None	103.5	1.86	208
Whole sample	>=1000 firms AND >500 firms with ownership data;	97.8	1.84	133
Sample > 2000	>=2000 firms with ownership data	97.8	1.83	111
Sample > 5000	>=5000 firms with ownership data	97.7 M	1.82	103

Results/1 – Complexity and Share anomalies

- › Correlation among all indicators is high (Pearson's >.8, Spearman's >.9)

Rank	Complexity		Complexity_peer		Share_anomalies	
	Country	Value	Country	Value	Country	Value
1	SE – Sweden	3.50	MH – Marshall Islands	4.0	AT – Austria	0.23%
2	ID – Indonesia	3.22	PG – Papua New Guinea	3.7	MT – Malta	0.20%
3	MH – Marshall Islands	3.0	KY – Cayman Islands	3.6	PT – Portugal	0.19%
4	KY – Cayman Islands	2.46	ID – Indonesia	3.6	LS – Lesotho	0.19%
5	VG – British Virgin Islands	2.45	VG – British Virgin Islands	2.8	FR – France	0.13%
6	NL – Netherlands	2.36	IR – Iran	2.7	CY – Cyprus	0.13%
7	CA – Canada	2.34	PA – Panama	2.7	IN – India	0.12%
8	PH – Philippines	2.29	JP – Japan	2.6	UA – Ukraine	0.08%
9	JP – Japan	2.18	NG – Nigeria	2.5	LU – Luxembourg	0.07%
10	KZ – Kazakhstan	1.86	KE – Kenya	2.5	EC – Ecuador	0.07%
11	IL – Israel	1.61	IN – India	2.3	MH – Marshall Islands	0.06%
12	LU – Luxembourg	1.52	PE – Peru	2.2	MU – Mauritius	0.06%
13	PE – Peru	1.51	LU – Luxembourg	2.2	KY – Cayman Islands	0.06%
14	MX – Mexico	1.51	MU – Mauritius	2.1	TH – Thailand	0.06%
15	MT – Malta	1.36	MT – Malta	2.0	CO – Colombia	0.05%

Notes: only those countries with at least 5000 firms with ownership data are reported in the table. ^aThe value of complexity_peer shall not be read as complexity, but is an indicator scaled 1-5 where 5 = highest value



Results/2 – Legal arrangements, legal persons, lack of identified BO

Rank	Legal_arrangements		Legal persons		Lack_BO	
	Country	Value	Country	Value	Country	Value
1	KY – Cayman Islands	16.6%	KZ – Kazakhstan	78%	SE – Sweden	93%
2	NL – Netherlands	15.0%	NL – Netherlands	73%	NL – Netherlands	93%
3	JP – Japan	13.8%	US – United States	67%	KZ – Kazakhstan	91%
4	MH – Marshall Islands	13.4%	SE – Sweden	64%	JP – Japan	87%
5	ID – Indonesia	13.1%	ME – Montenegro	64%	CA – Canada	84%
6	VG – British Virgin Islands	11.0%	CA – Canada	53%	IR – Iran	80%
7	IR – Iran	10.6%	BA – Bosnia Herzegovina	43%	MH – Marshall Islands	76%
8	CA – Canada	9.0%	JP – Japan	38%	US – United States	75%
9	MX – Mexico	8.0%	UZ – Uzbekistan	34%	ID – Indonesia	74%
10	LU – Luxembourg	7.7%	ZA – South Africa	24%	KY – Cayman Islands	70%
11	ZA – South Africa	7.0%	BE – Belgium	22%	ME – Montenegro	65%
12	NZ – New Zealand	6.9%	AR – Argentina	18%	VG – British Virgin Isl.	62%
13	PH – Philippines	6.9%	GR – Greece	16%	ZA – South Africa	48%
14	PE – Peru	6.6%	MH – Marshall Islands	16%	BA – Bosnia Herzegovina	48%
15	CY – Cyprus	4.3%	LU – Luxembourg	15%	LU – Luxembourg	43%

Notes: only those countries with at least 5000 firms with ownership data are reported in the table.

Source: Author's elaboration



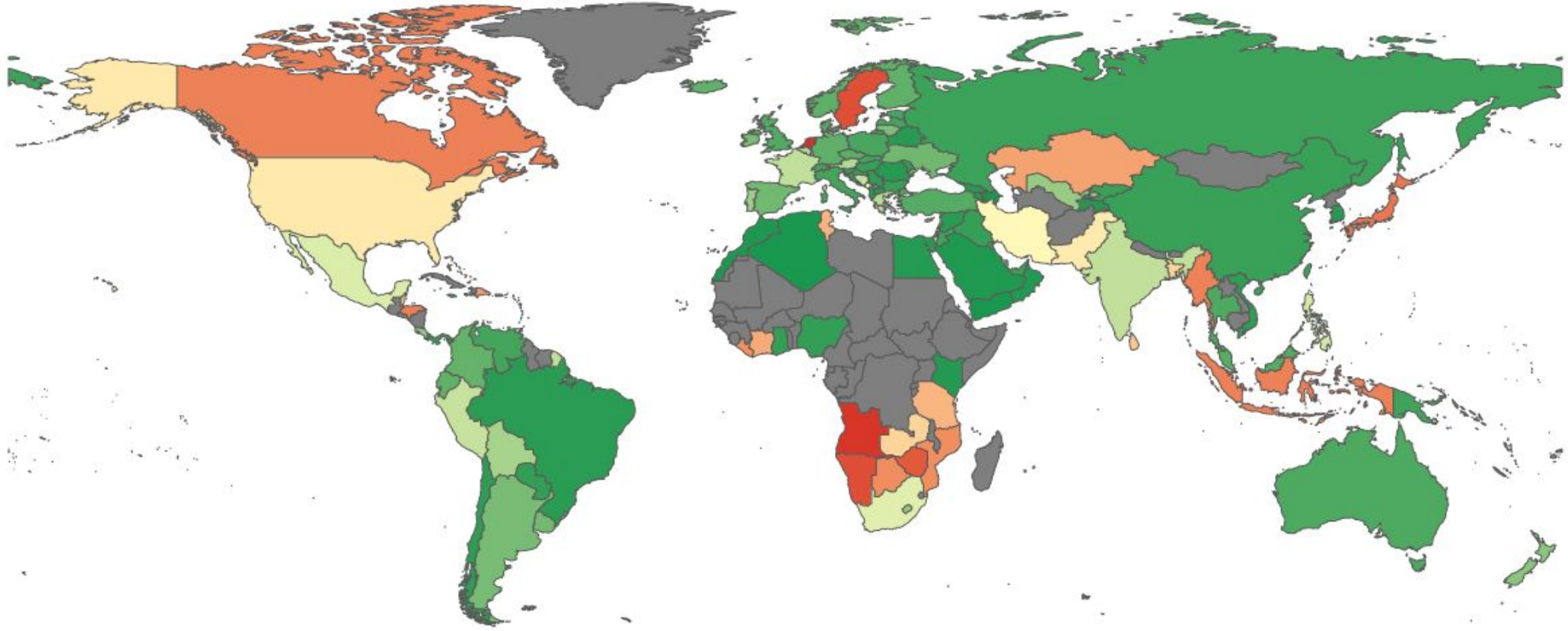
Results/3 – Summary indicator of BO opacity

<i>Whole sample (133 countries)</i>			<i>Sample >= 2000 (111 countries)</i>			<i>Sample >= 5000 (103 countries)</i>		
<i>Rank</i>	<i>Country</i>	<i>Value</i>	<i>Rank</i>	<i>Country</i>	<i>Value</i>	<i>Rank</i>	<i>Country</i>	<i>Value</i>
1	NL - Netherlands	1.00	1	NL - Netherlands	1.00	1	NL - Netherlands	1.00
2	AO - Angola	0.99	2	SE - Sweden	0.93	2	SE - Sweden	0.92
3	NA - Namibia	0.95	3	JP - Japan	0.86	3	JP - Japan	0.86
4	SE - Sweden	0.94	4	MH - Marshall Isl.	0.84	4	MH - Marshall Isl.	0.84
5	ZW - Zimbabwe	0.92	5	ID - Indonesia	0.84	5	ID - Indonesia	0.84
6	BB - Barbados	0.88	6	CA - Canada	0.83	6	CA - Canada	0.83
7	CW - Curaçao	0.85	7	BM - Bermuda	0.82	7	KY - Cayman Islands	0.79
8	JP - Japan	0.85	8	LR - Liberia	0.79	8	KZ - Kazakhstan	0.72
9	MH - Marshall Isl.	0.83	9	KY - Cayman Isl.	0.79	9	VG - British Virgin Isl.	0.64
10	HN - Honduras	0.83	10	KZ - Kazakhstan	0.73	10	US - United States	0.54
11	ID - Indonesia	0.83	11	TN - Tunisia	0.71	11	IR - Iran	0.52
12	CA - Canada	0.83	12	LK - Sri Lanka	0.66	12	MT - Malta	0.49
13	MM - Myanmar	0.82	13	VG - British Virgin Isl.	0.64	13	LU - Luxembourg	0.48
14	GI - Gibraltar	0.82	14	SC - Seychelles	0.64	14	ME - Montenegro	0.45
15	BS - Bahamas	0.81	15	PK - Pakistan	0.57	15	ZA - South Africa	0.43
16	BM - Bermuda	0.81	16	US - United States	0.55	16	MX - Mexico	0.42
17	MO - Macao	0.80	17	IR - Iran	0.52	17	CY - Cyprus	0.41
18	BW - Botswana	0.80	18	MT - Malta	0.49	18	PH - Philippines	0.40
19	MZ - Mozambique	0.79	19	LU - Luxembourg	0.48	19	PE - Peru	0.37
20	LR - Liberia	0.78	20	ME - Montenegro	0.45	20	IN - India	0.37

Notes: average among individual indicators, normalized min-max on a 0-1 scale.



Results/3 – Summary indicator of BO opacity



Notes: full sample of 133 countries with more than 1000 firms



Results/4 – BO opacity and country characteristics

- › Are countries with higher BO opacity also bigger, richer, more tax advantageous and other?

Contextual variable	Description	Corporate opacity Index value		
		HIGH	MEDIUM	LOW
Population (million)	Average population 2012-2021. Source: World Bank	78.5	113.0	55.1
GDP (billion)	Average GDP PPP 2012-2021, current international USD. Source WB	1,950	2,020	1,080
Bank_credit	Value of domestic bank credit on GDP. Average 2012-2021. Source: WB	88.7%	72.7%	72.3%
Corp_tax_rate	Level of statutory corporate income tax rate, inclusive of sub-central government corporate income tax rate. Year 2021. Source: OECD	23.9%	23.9%	20.3%
Rule_law	Percentile rank (0-100, where 100 = max rule of law and max control of corruption), average 2012-2021. Source: WB	75.2	68.2	63.1
Control_corruption		77.2	63.9	60.2

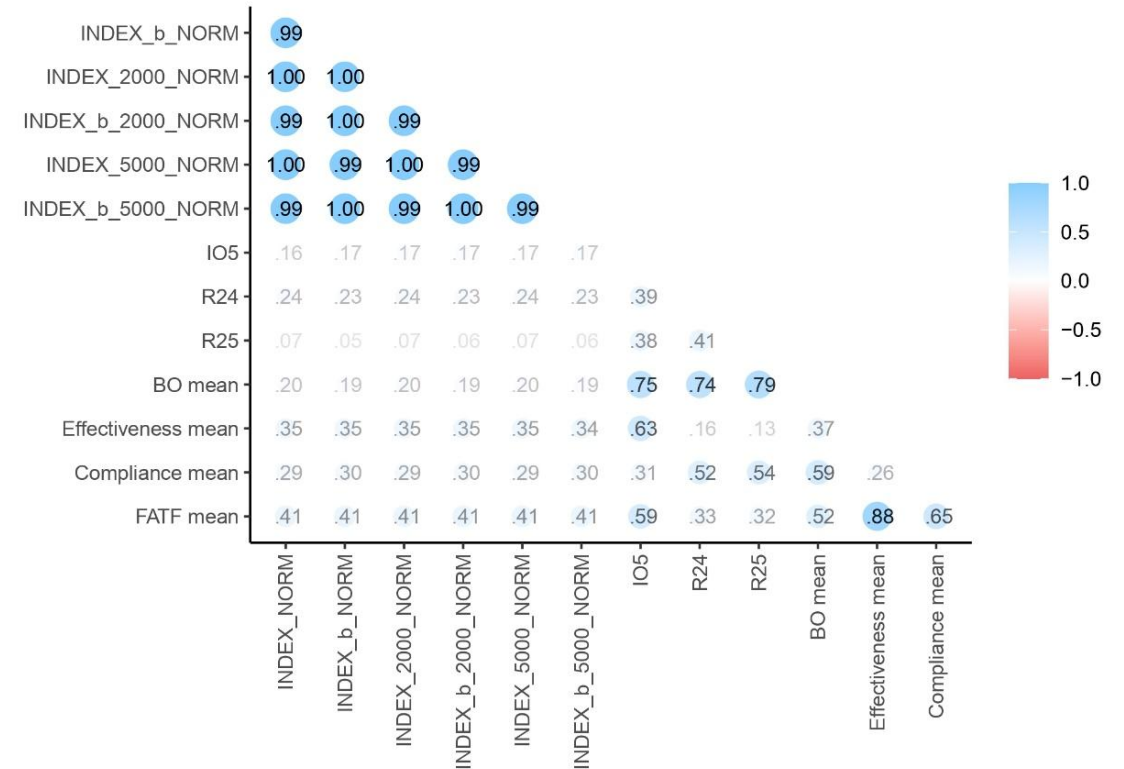
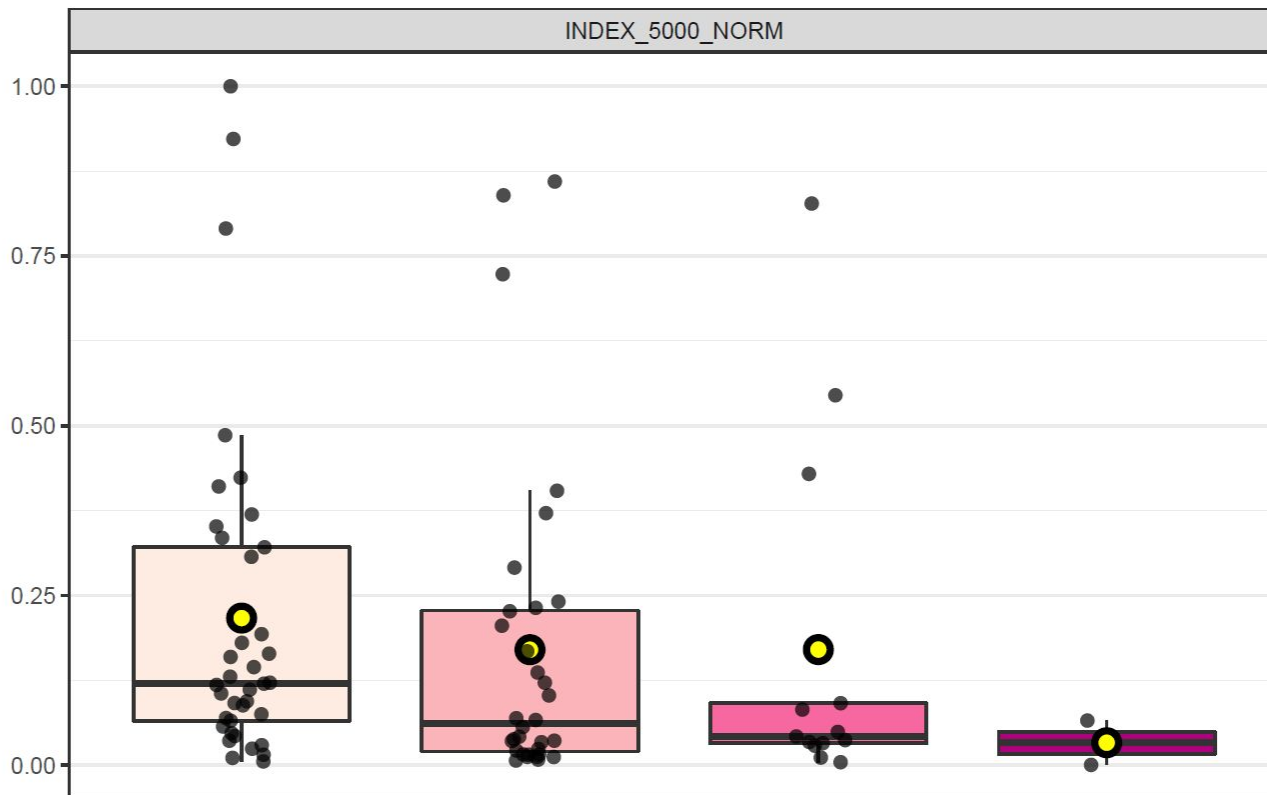
Notes: the three clusters are calculated using k-means hierarchical clustering applied on INDEX_5000, which is the composite indicator of corporate opacity for those countries having at least 5000 firms with ownership data.



Results/5 – BO opacity and FATF assessments

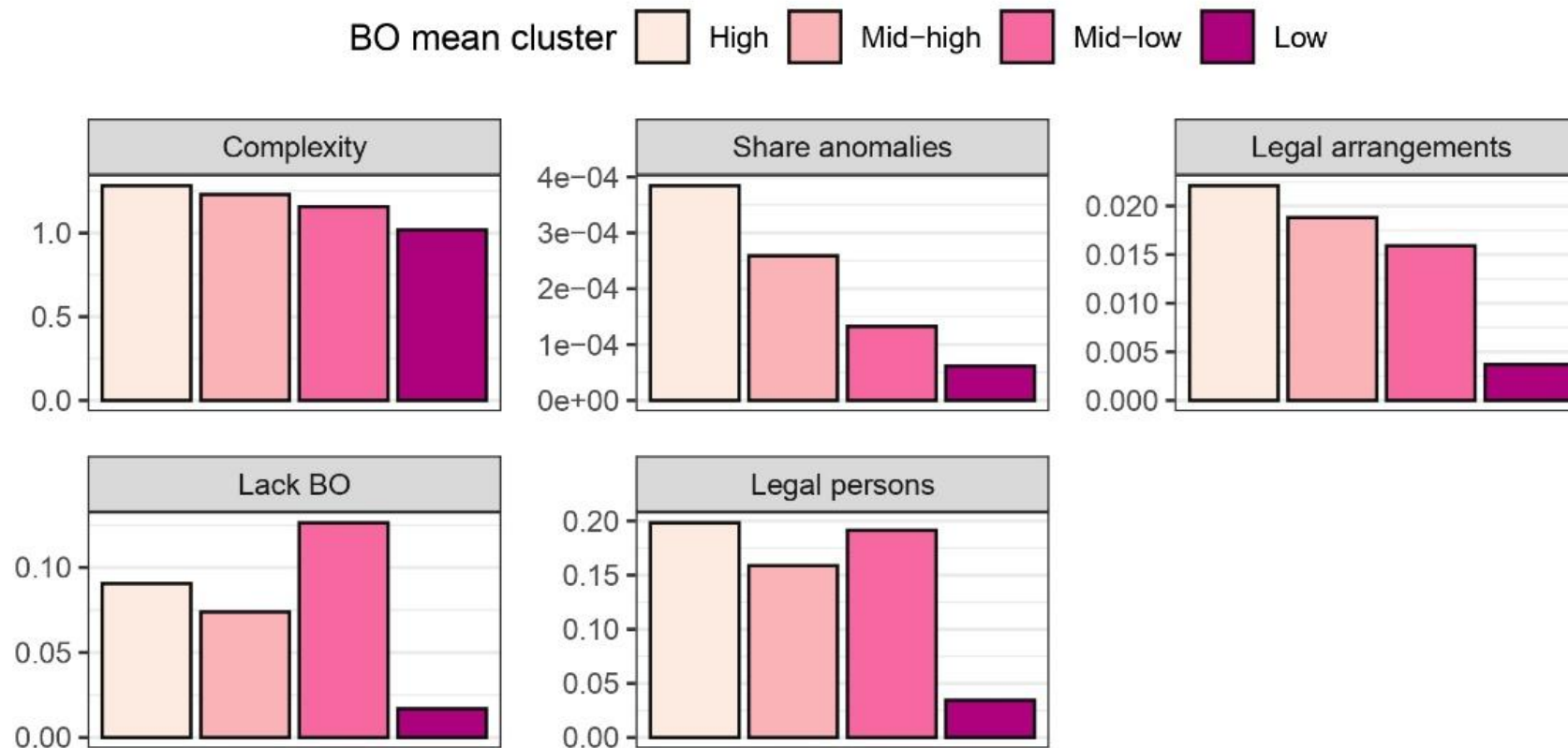
- › The higher the BO opacity, the better countries' FATF scores
 - › *BO mean* = average of R.24, R.25, IO5 scores
 - › *Effectiveness mean* and *Technical compliance* mean scores

BO mean cluster  High  Mid-high  Mid-low  Low



Results/6 – BO opacity and FATF assessments

- › With respect to individual BO opacity indicators
 - › Clearer pattern for complexity (1.5x), share anomalies (5x) and prevalence of legal arrangements (20x)
 - › Less clear patterns for prevalence of legal persons and lack of BO information



Discussion

- › **FATF assessment v. BO opacity**
 - › Statutory assessment v. empirical observation
 - › Causality? Higher risks may lead to stricter rules (and better *Technical compliance*)
 - › But what about *Effectiveness* then?
 - › IO5: “*Information on their [i.e. firms’] beneficial ownership is available to competent authorities without impediments*”
- › **BO opacity measures something else** (e.g. corporate disorganization, unruly M&A, sectoral patterns, etc) – but we also controlled for sector, size, etc
- › Empirical measures of BO opacity can be used in **countries’ self-assessment**, as required by new R.24
 - › Awareness of the risks/patterns related to local legal persons and arrangements
- › Suggestions on **how to shape BO registers**:
 - › Focus on structures (and not just on BOs)
 - › Embedding automatic checks (e.g. anomalous distribution of shares)

Limitations and next steps

- › Dataset: best currently available data for empirical analysis of ownership data (and rapidly growing)
- › Dataset limitations:
 - › **Sampling:** to what extent do firms in Orbis correspond to universe of locally registered firms?
 - › **Lack of ownership data:** is it due to local company regulations? Or to lack of agreements between BvD and local business registers/providers?
- › Next steps:
 - › Update with better country coverage
 - › Better **data treatment** (i.e. treatment of outliers)
 - › Combination of indicators, e.g.
 - › ownership AND financial/accounting red-flags
 - › can help identifying true/false positives

