

Taxonomy Alignment & Transition-risk Exposure Coefficients

Lucia Alessi

Team Leader - Financial Research

European Commission – Joint Research Centre

lucia.alessi@ec.europa.eu

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The missing data challenge for financial institutions

Conceptual approach

Issue: measuring the Taxonomy-alignment of a portfolio

- “to what extent the [financial] undertaking’s activities are associated with economic activities that qualify as environmentally sustainable” (GAR, Art. 8 TR)
- “to what extent the investments underlying the financial product are in economic activities that qualify as environmentally sustainable” (Art. 5 and 6 TR – Art. 8 and 9 SFDR)
- “based on information already available [...] or calculated using estimates, extended information on [...] taxonomy alignment” (BTAR, Pillar 3 ESG disclosures under Art. 449a CRR)

• In the absence of granular *data*, either:

- Count as zero – conservative but severe underestimation; or
- Use an estimate – closer to reality but risk of overestimation

← **Mandatory KPIs**

← **Voluntary disclosures**

Taxonomy-alignment estimates for portfolios

Two approaches

Bottom-up

- Based on firm-level *estimates*, which are:
 - Computed by and different across market data providers
 - Based also on confidential information
 - Available for larger firms

Top-down

- Based on industry-wide assumptions
- Available for all exposures

Methodological contribution

Alessi and Battiston (IRFA, 2022)

Taxonomy Alignment Coefficients (TAC): first top-down method to estimate alignment of financial portfolios to the EU Taxonomy for sustainable activities (*).

Transition risk Exposure Coefficients (TEC): method to estimate the portfolio exposure to climate transition risk, building on CPRS.

- TAC&TEC: sector-level, standardized and transparent coefficients estimates, based on definitions of greenness and transition risk, applicable across countries. Tool available open source (as csv table annex to Alessi&Battiston 2022).
- Used by ESMA (Advice on Art. 8 TR), EBA (EU-wide pilot exercise on climate risk) and ESRB (Climate-related risk and financial stability); suggested for use by ESAs (Advices on Art. 8), EBA (ITS on Pillar 3 ESG disclosures) and Sustainable Finance Platform (Recommendations on Data and Usability of the EU Taxonomy)

Alessi and Battiston 2022, Two sides of the same coin: Green Taxonomy alignment versus transition risk in financial portfolios, Int'l Review of Financial Analysis with Excel tool available at <https://doi.org/10.1016/j.irfa.2022.102319>

() Available for CC mitigation only. First version of TAC elaborated in Alessi, Battiston, Melo and Roncoroni (JRC report 2019).*

<https://publications.jrc.ec.europa.eu/repository/handle/JRC118663>

Standardised taxonomy-alignment coefficients (TAC)

Electricity, gas, steam and air conditioning supply

2-dgt NACE	3-dgt NACE	4-dgt NACE	Activity	TAC activity	TAC	Rationale
D35	D35.1	D35.1.1	Production of Electricity from Solar PV	1	0.35	Renewables
D35	D35.1	D35.1.1	Production of Electricity from Concentrated Solar Power	1	0.35	Renewables
D35	D35.1	D35.1.1	Production of Electricity from Wind Power	1	0.35	Renewables
D35	D35.1	D35.1.1	Production of Electricity from Ocean Energy	1	0.35	Renewables
D35	D35.1	D35.1.1	Production of Electricity from Hydropower	1	0.35	Renewables
D35	D35.1	D35.1.1	Production of Electricity from Geothermal	1	0.35	Renewables
			[...]			
			Storage of Electricity	1	n.a.	No NACE
			Storage of Thermal Energy	1	n.a.	No NACE
			Storage of Hydrogen	1	n.a.	No NACE
			[...]			
D35	D35.2	D35.2.1	Manufacture of biogas and biofuels for use in transport and of bioliquids	1	0.01	Biogas share
D35	D35.3	D35.3.0	District Heating/Cooling Distribution	0.32	0.32	
D35	D35.3	D35.3.0	Installation and operation of Electric Heat Pumps	1	0.32	
			[...]			

TAC & TEC

Operative workflow

TAC & TEC tool

NACE	TAC	TEC
06.20	0	1
19.20	0	1
29.10	0.02	0.97
35.11	0.35	0.39
...

(+)
JOIN

Holding data: exposure at issuer/borrower level with NACE classification

Issuer	NACE	Holding (Eur)	TAC	TEC
issuer1	06.20	100	0	1
issuer2	06.20	100	0	1
issuer3	35.11	100	0.35	0.39
issuer4	35.11	100	0.35	0.39
...

=

Portfolio level alignment and transition risk exposure

NACE	Holding (Eur)	TA	TE
06.20	200	0	200
35.11	200	$0.35 \cdot 200 = 70$	$0.39 \cdot 200 = 78$
...

Granularity

- TAC: each economic activity listed in the EU Taxonomy, either single NACE 4 or in one/more NACE codes
- TEC: each economic activity as NACE4

Sources and methods

- climate-relevant technologies included in NACE4 (e.g. electricity generation, automotive)
- available literature on figures at EU level
- Taxonomy regulation criteria
- Average estimate based on simple models documented

TAC and TEC at country level

Alessi and Battiston (2023)

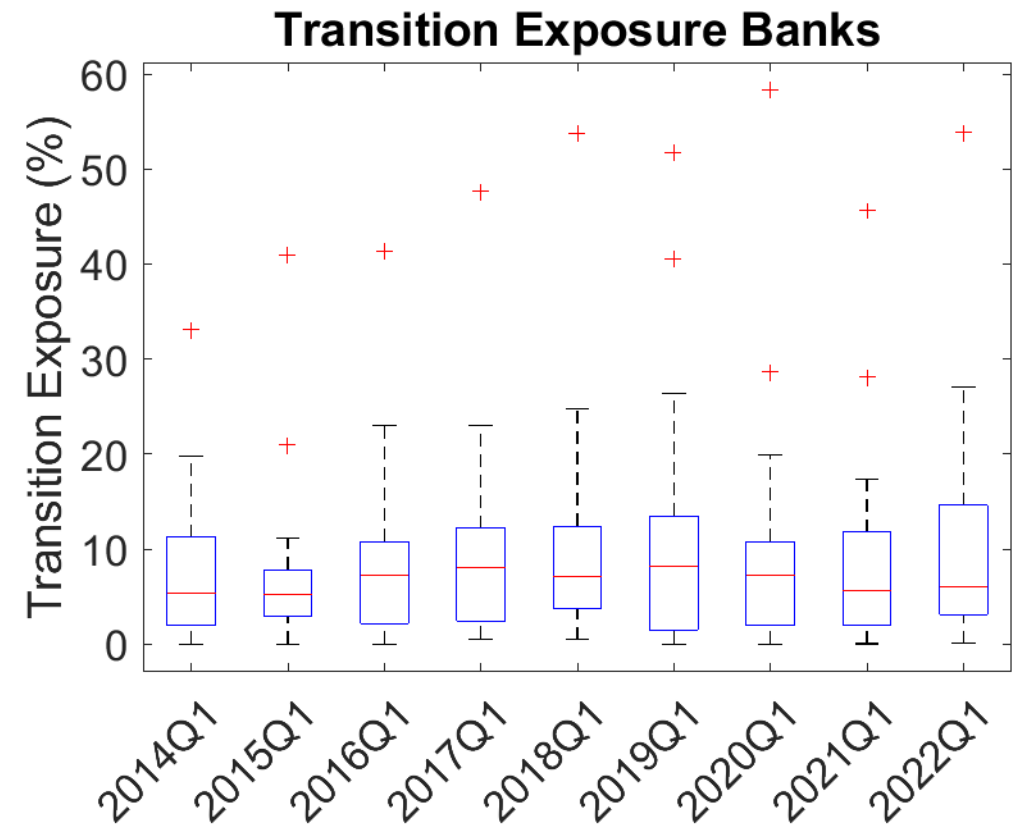
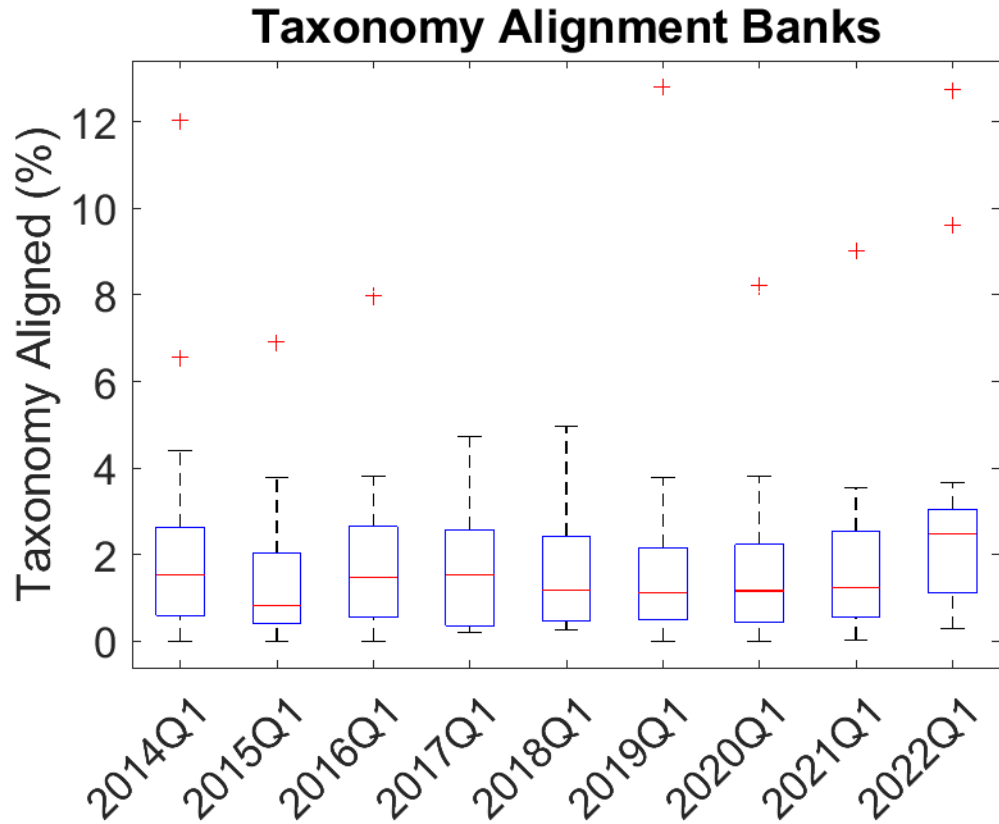


NACE C.29.1 Manufacture of motor vehicles
TAC Proxy: % of sales of battery electric vehicles
Source: mostly IEA
TEC=1-TAC

	TAC	TEC		TAC	TEC
AU	0.03	0.97	JP	0.01	0.99
AT	0.20	0.80	LV	0.05	0.95
BE	0.18	0.82	LT	0.06	0.94
BR	0.00	1.00	LU	0.16	0.84
BG	0.02	0.98	MT	0.09	0.91
CA	0.07	0.93	MX	0.01	1.00
CL	0.00	1.00	NL	0.20	0.80
CN	0.16	0.84	NO	0.86	0.14
HR	0.01	0.99	PL	0.01	0.99
CY	0.01	0.99	PT	0.13	0.87
CZ	0.02	0.98	RO	0.02	0.98
DK	0.16	0.84	RU	0.00	1.00
EE	0.01	0.99	SK	0.01	0.99
FI	0.12	0.88	SI	0.03	0.97
FR	0.13	0.87	KR	0.06	0.94
DE	0.19	0.81	ES	0.04	0.96
GR	0.01	0.99	SE	0.23	0.77
HU	0.05	0.95	CH	0.22	0.78
IN	0.00	1.00	TR	0.00	1.00
IE	0.05	0.95	GB	0.13	0.87
IL	0.05	0.95	US	0.05	0.95
IT	0.10	0.91			

Alessi and Battiston 2023, XXXX, JRC Working paper, forthcoming.

TA and TE of European investors Banks



Note: Estimates based on the confidential Securities Holdings Statistics of the European Central Bank (Alessi and Battiston, forthcoming JRC WP)

TAC & TEC: highlights and limitations

Steps

1. TAC: analyse each economic activity listed in the EU Taxonomy either single NACE 4 within one/more NACE codes
2. TEC: analyse each NACE4 and climate-relevant technologies included (e.g. electricity generation, automotive)
3. Estimate TAC & TEC based on:
 - available average estimates from literature and
 - simple own calculations (transparently documented in the excel tool)
4. Apply TAC to portfolio of exposures, using obligor/investee
 - main NACE 4 digit code, or
 - breakdown of revenues into EU Taxonomy activities

Highlights

- Provide estimate of alignment when technology data and emission intensity of counterparties are not available
- Possible mix approach: combination of firm-level data with sector data
- Applicable at:
 - entity level exposures
 - sector level exposures
- Applicable to any portfolio, incl. lending

Limitations

- Current version covers CC mitigation
- Intended to estimate alignment/risk of holder not of individual firms
- Can be used to evaluate individual firms against average

Thank you



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