

Estimating the alignment of financial portfolios to the EU Taxonomy of sustainable investments

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Taxonomy-alignment estimates for portfolios

Two approaches

Bottom-up

- Based on firm-level *estimates*:
 - For large firms: only partially available from market data providers and/or annual reports
 - For SME: not yet available

Top-down

- Based on sector/technology level averages/assumptions
- Available for all exposures

Bottom-up approach. Example

	A	B	C
1	Owner	Fuel	CAPACITY
2	Iberdrola SA	Coal	873.6
3	Iberdrola SA	Gas	1657.5
4	Iberdrola SA	Hydro	2269
5	Iberdrola SA	Marine	1.084
6	Iberdrola SA	Solar	670
7	Iberdrola SA	Wind	3562.5271
8	RWE AG	Geothermal	0.34
9	RWE AG	Wind	24.75
10	Repsol SA	Solar	253.8
11	Repsol SA	Wind	5.44
12			

- Consider a portfolio of securities of energy and electricity firms.
- Firms (even some oil companies) produce electricity using different sources and technologies. Some technologies are renewable and aligned to the EU taxonomy, others are not.
- Each firm owns a portfolio of power generation plants characterised by fuel type and capacity.

Example

	A	B	C	D	E	F	G	H	I
1	PowerPlantID	PowerPlantName	CapacityMW	FuelType	Owner	OwnPerc	Normalized_OwnPerc	Normalized_Capacity	
2	1027211	Alange Natural Gas Plant Spain	850	Gas	Iberdrola SA		100	850	
3	3007044	Alcarama Wind Farm	51.85	Wind	Iberdrola SA	64	64	33.184	
4	1028217	Alto Tamega Hydro Plant Portugal	1158	Hydro	Iberdrola SA		100	1158	
5	3009020	Alvao Wind Farm	42	Wind	Iberdrola SA	100	100	42	
6	3060160	Bolanos Wind Farm	24	Wind	Iberdrola SA	100	100	24	
7	3060300	Bureba Wind Farm	12	Wind	Iberdrola SA	95	95	11.4	
8	3007224	Cabimonteros Wind Farm	49.5	Wind	Iberdrola SA	41	41	20.295	
9	3060362	Carrascosa Wind Farm	38	Wind	Iberdrola SA	100	100	38	
10	4037222	Chinchilla de Montearagon Wind Farm	10.4	Wind	Iberdrola SA	100	100	10.4	
11	1019818	Daivoes Hydro Plant Portugal	118	Hydro	Iberdrola SA		100	118	
12	4042555	EcoEnergias Iberdrola Ceclavin PV Plant	328	Solar	Iberdrola SA	50	50	164	
13	3031022	EDP Atlantic Floating Offshore Wind Farm	27.2	Wind	Repsol SA	19.4	20	5.44	
14	3009498	El Gramal Wind Farm	37.4	Wind	Iberdrola SA	25	25	9.35	
15	3060084	El Romeral Wind Farm	31.45	Wind	Iberdrola SA	100	100	31.45	
16	3060146	El Venzo Wind Farm	8	Wind	Iberdrola SA	100	100	8	
17	3020982	Escurrillo Wind Farm	49.5	Wind	Iberdrola SA	32	32	15.84	
18	1005484	Figueira da Foz Natural Gas Plant Portugal	807.5	Gas	Iberdrola SA		100	807.5	
19	3020492	Forgosello Wind Farm	24.42	Wind	Iberdrola SA	100	100	24.42	
20	4045976	Gamesa Ballestas Wind Farm	41.6	Wind	Iberdrola SA	100	100	41.6	
21	3009414	Gamesa Iberdrola 2005 Plants	700	Wind	Iberdrola SA	100	100	700	
22	4045975	Gamesa La Casetona Wind Farm	27.7	Wind	Iberdrola SA	100	100	27.7	
23	4046268	Gamesa Puylobo Wind Farm	47.6	Wind	Iberdrola SA	100	100	47.6	
24	1019828	Gouvaes Hydro Plant Portugal	880	Hydro	Iberdrola SA		100	880	
25	3060126	Grijota Wind Farm	4.98	Wind	Iberdrola SA	86	86	4.2828	

EU Taxonomy: example portfolio with one equity investment

Investor



200€

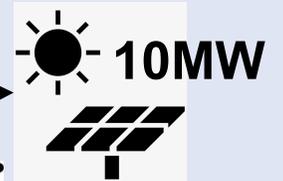
Firms



Plants

Power generation plants

10MW



20MW



$$\begin{aligned} \text{TaxonShare} &= \frac{50\% \cdot 200\text{€}}{200\text{€}} \\ &= 50\% \end{aligned}$$

Taxonomy alignment. What is the share of the portfolio that can be considered aligned to the EU Taxonomy, or Taxonomy aligned, given that an investor with a portfolio invested in one or more firms?

Computation steps:

- Step 1:** identify a proxy for the share of revenues in activities that are taxonomy aligned, e.g. share of production capacity, or share of output.
- Step 2:** weight the share computed in step 1 by the amount invested in each firm

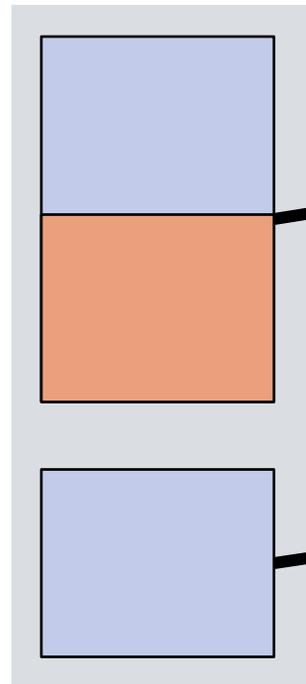
EU Taxonomy: example portfolio with two equity investments

Investor

Firms

Plants

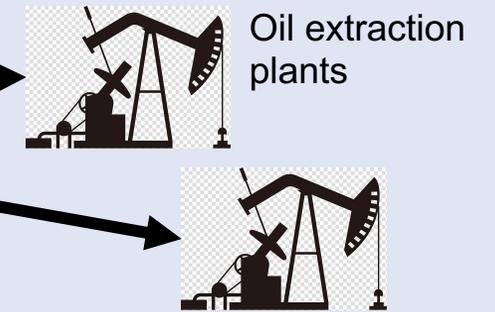
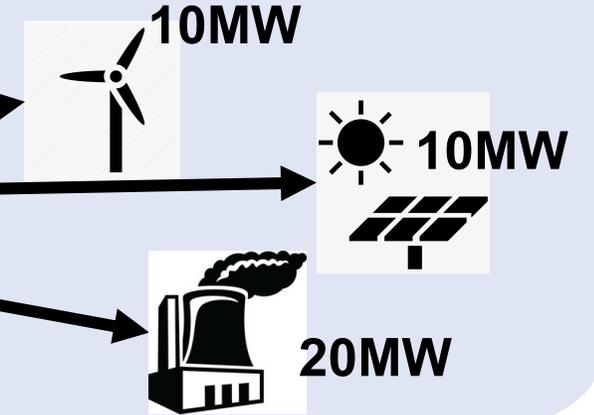
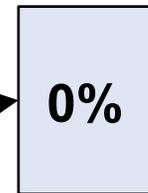
Power generation plants



200€ Firm 1

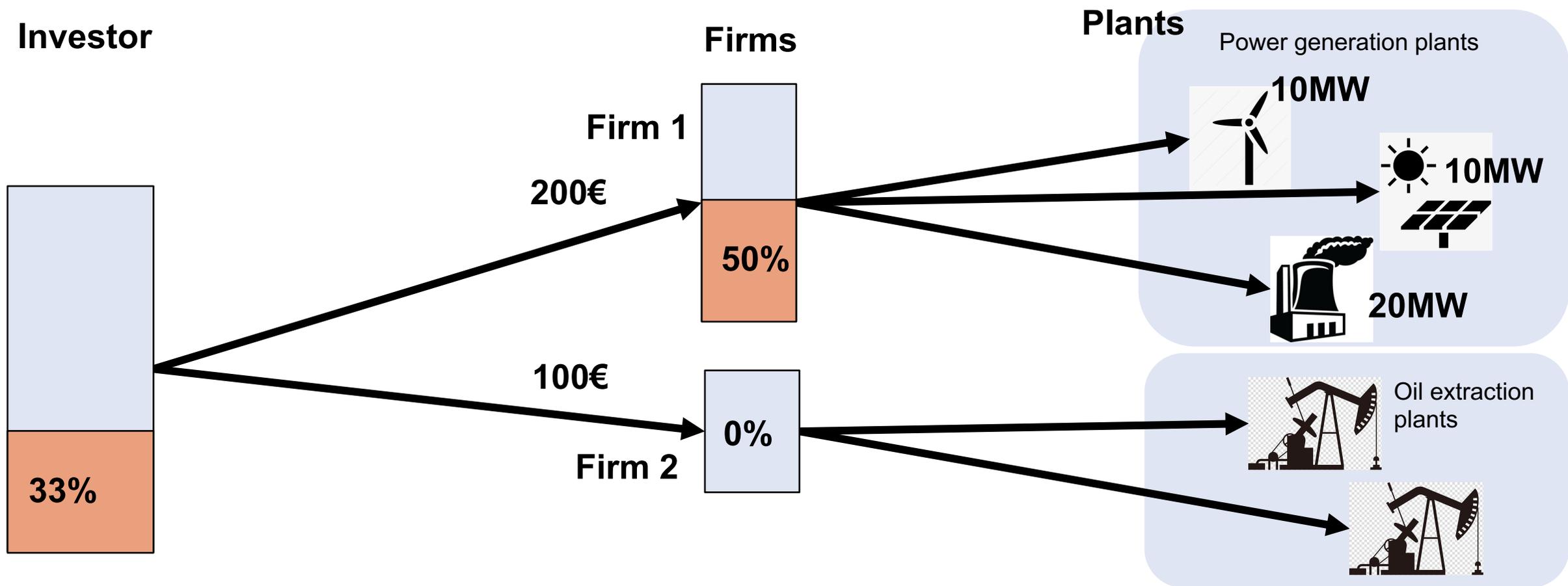


100€ Firm 2



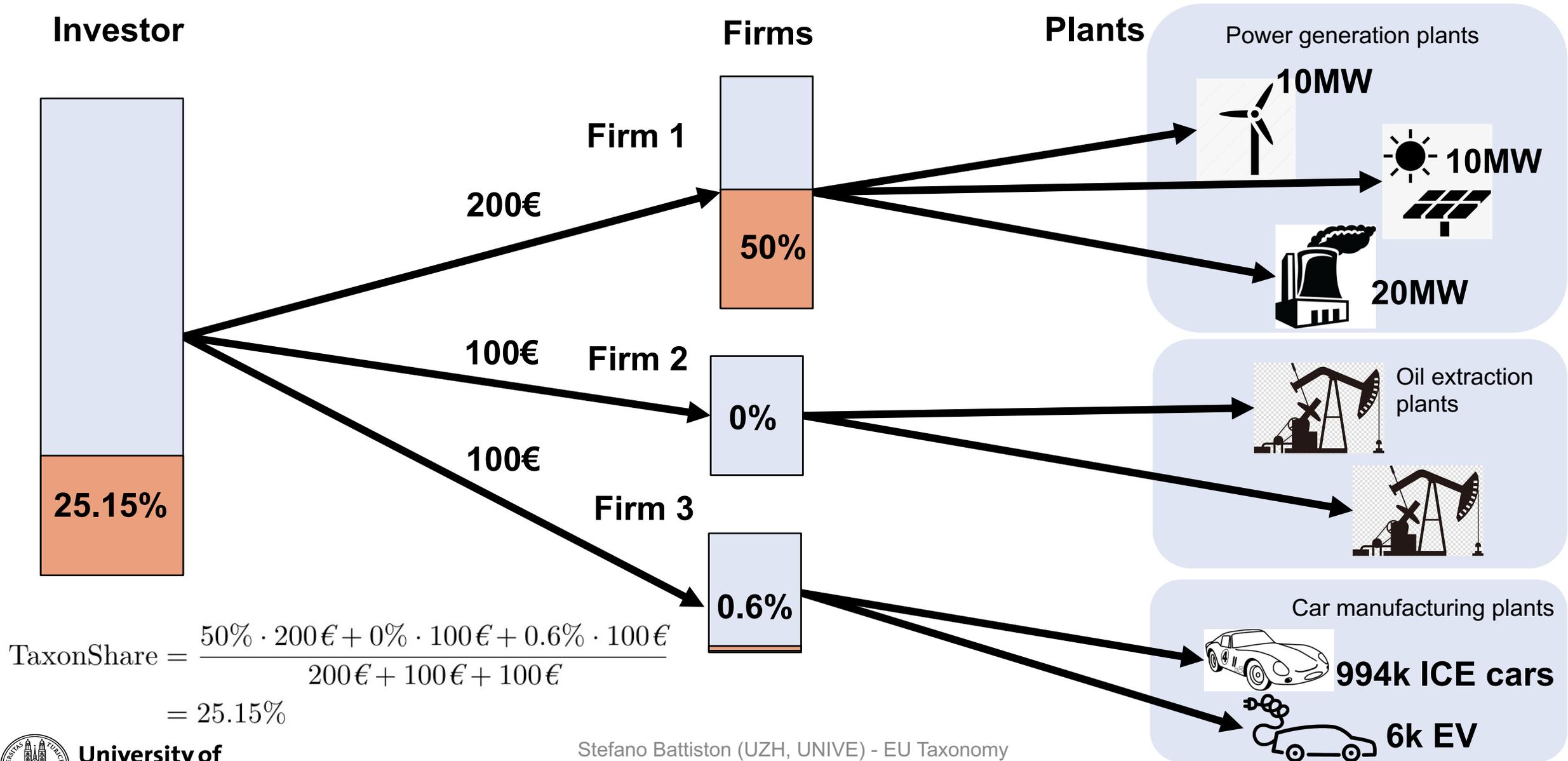
$$\begin{aligned} \text{TaxonShare} &= \frac{50\% \cdot 200\text{€} + 0\% \cdot 100\text{€}}{200\text{€} + 100\text{€}} \\ &= 33\% \end{aligned}$$

EU Taxonomy: example portfolio

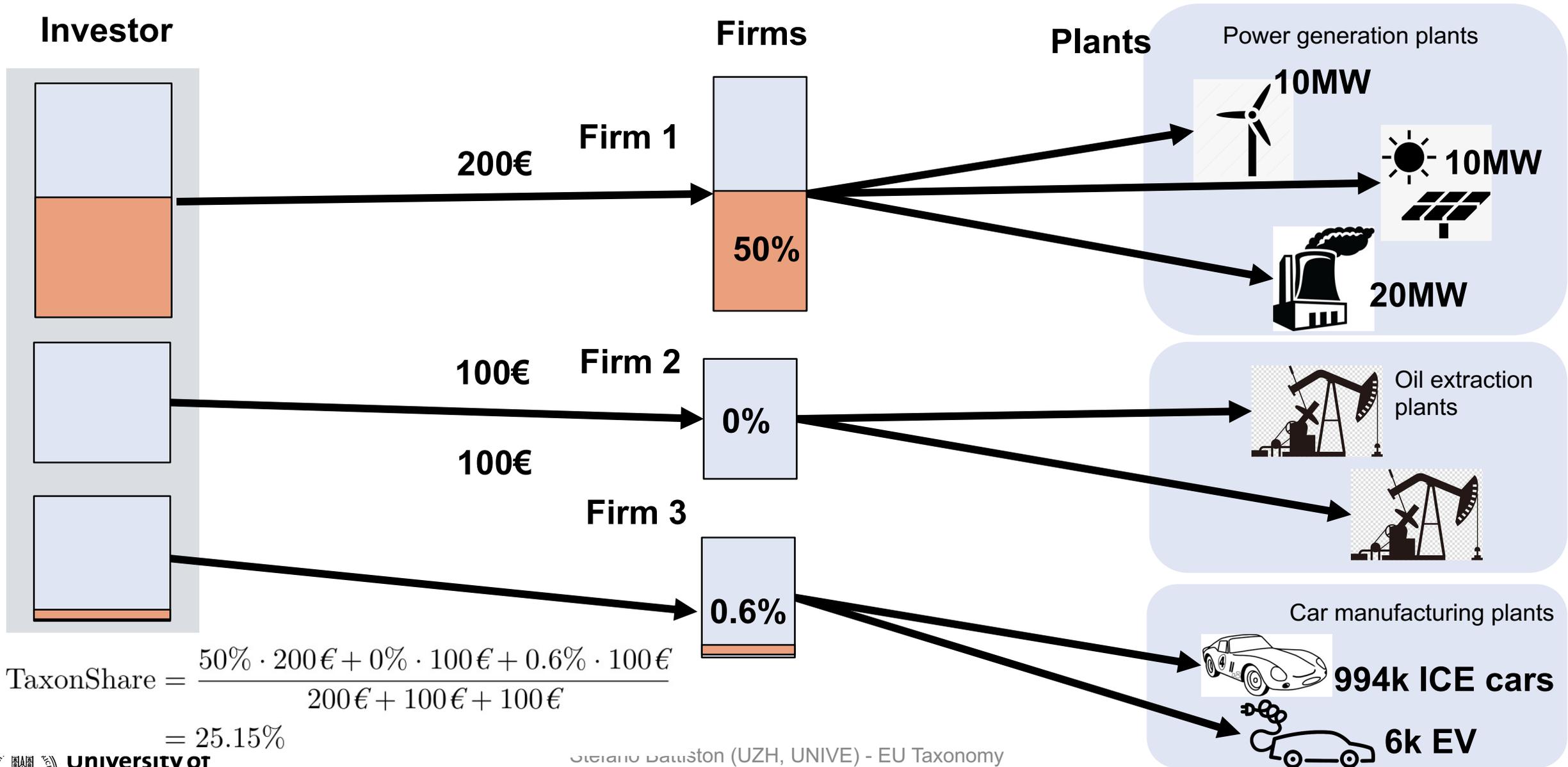


$$\begin{aligned} \text{TaxonShare} &= \frac{50\% \cdot 200\text{€} + 0\% \cdot 100\text{€}}{200\text{€} + 100\text{€}} \\ &= 33\% \end{aligned}$$

EU Taxonomy: example portfolio with three investments



EU Taxonomy: example portfolio with three investments



Top-down. A methodology to estimate the Taxonomy-alignment of a portfolio

- Reference: Alessi, Battiston, Melo and Roncoroni (JRC report 2019). Excel tool to compute Taxonomy alignment available at <https://publications.jrc.ec.europa.eu/repository/handle/JRC118663>
- Top-down approach
 - derive standardized coefficients for each NACE 4 digits code of the obligor/investee company
 - based on available average estimates from literature and own calculations (documented in the tool)
 - covers also activities described in the EU Taxonomy that
- Can be used whenever more granular info is not available, but can be combined with firm-level data in a mixed approach
- Can be applied to any portfolio, incl. lending
- Current version covers CC mitigation

Standardised taxonomy-alignment coefficients

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	0.209	Renewables
D35	D35.1	D35.1.1	Production of Electricity from Concentrated Solar Power	1	0.209	Renewables
D35	D35.1	D35.1.1	Production of Electricity from Wind Power	1	0.209	Renewables
D35	D35.1	D35.1.1	Production of Electricity from Ocean Energy	1	0.209	Renewables
D35	D35.1	D35.1.1	Production of Electricity from Hydropower	1	0.209	Renewables
D35	D35.1	D35.1.1	Production of Electricity from Geothermal	1	0.209	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	Retrofit of Gas Transmission and Distribution Networks			
H49	H49.5	H49.5.0		n.a.	0	negligible
D35	D35.3	D35.3.0	District Heating/Cooling Distribution	n.a.	0	negligible
D35	D35.3	D35.3.0	Installation and operation of Electric Heat Pumps	n.a.	0	negligible
			[...]			



Standardised taxonomy-alignment coefficients

Manufacturing

2-dgt NACE	3-dgt NACE	4-dgt NACE	Activity	TAC activity	TAC	Rationale
C23	C23.5	C23.5.1	cement	0.030	0.030	ETS approach
C24	C24.4	C24.4.2	aluminium	0.030	0.030	ETS approach
C24	C24.1 C24.2 C24.3 C24.5	C24.5.1 C24.5.2	iron and steel	0.030	0.030	ETS approach
C20	C20.1	C20.1.1	hydrogen	n.a.	0	negligible
			[...]			



Standardised taxonomy-alignment coefficients

Buildings

2-dgt NACE	3-dgt NACE	4-dgt NACE	Activity	TAC activity	TAC	Rationale
F41	F41.1		Construction of new buildings	0.600	0.400	Model
F43	F41.2					
F41	F41.1		Building renovation	0.400	0.400	Model
F43	F41.2					
F41	F41.2		Individual renovation measures, installation of renewables on-site and professional, scientific and technical activities	0.400	0.400	Analogy with above
F43						
L68			Acquisition and ownership of buildings	0.150	0.150	Top 15%
F42	F42.9	F42.9.1	Infrastructure for low carbon transport (water transport)	n.a.	n.a.	Negligible
F42	F42.1	F42.1.1 F42.1.2 F42.1.3	Infrastructure for low carbon transport (land transport)	n.a.	n.a.	Negligible



Applications of TAC methodology

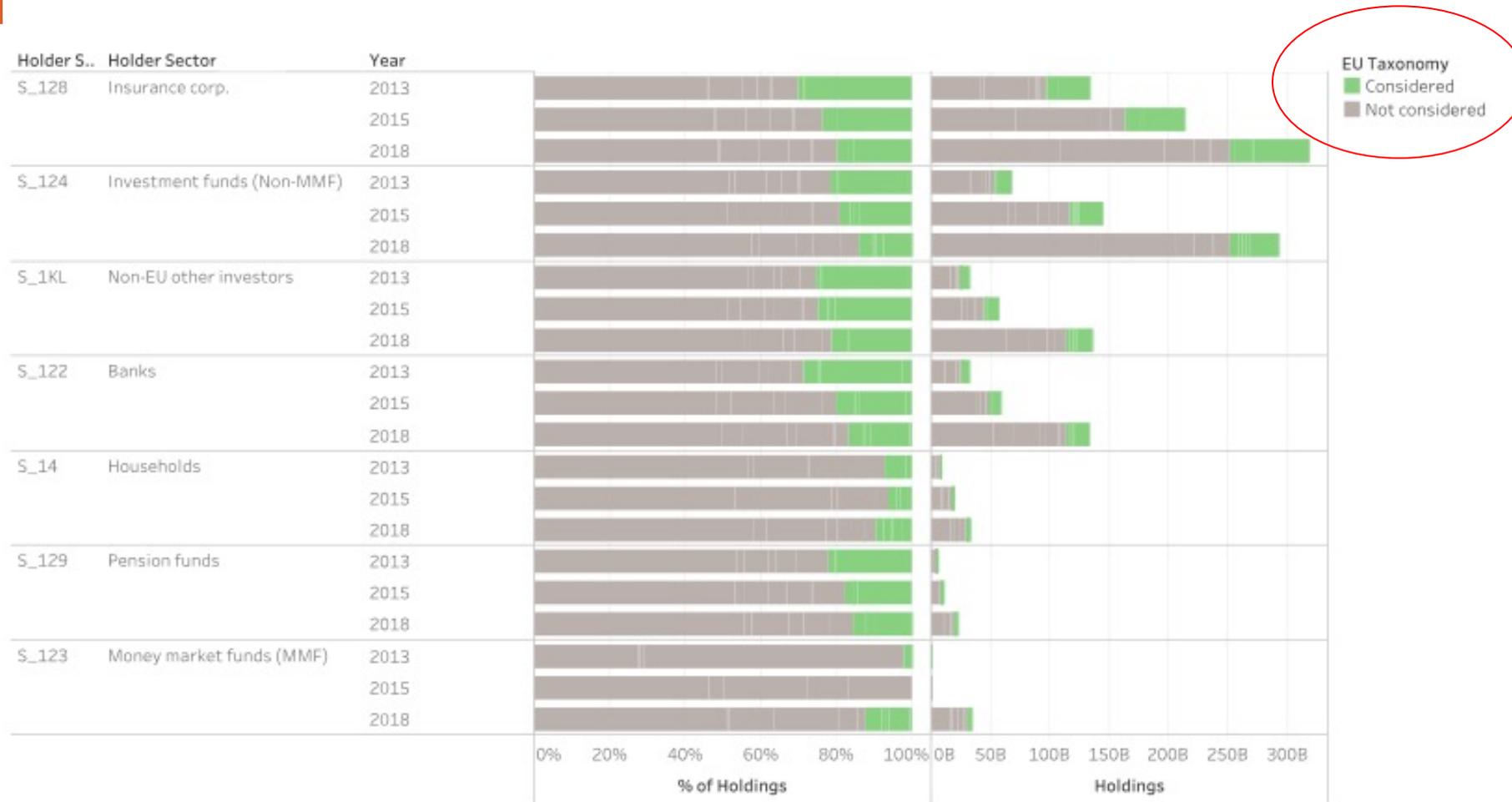
- Originally used to estimate the green share of EU equity and bond mkts – found to be less than 1%
- Cross-checked using FTSE-Russel firm-level green revenue estimates and green bonds
- Used by ESMA (Advice on Art. 8 TR)
- Used by EBA (EU-wide pilot exercise on climate risk)
- Suggested for use by ESAs (Advices on Art. 8) and EBA (ITS on Pillar 3 ESG disclosures)

Taxonomy-alignment of EU capital mkts

Sector	Bonds (€ bn)	Equities (€ bn)
Buildings	16.74	45.35
Energy Intensive	0.95	7.37
Transport	10.59	2.85
Utility	27.82	56.17

Note: Based on 2018 data.

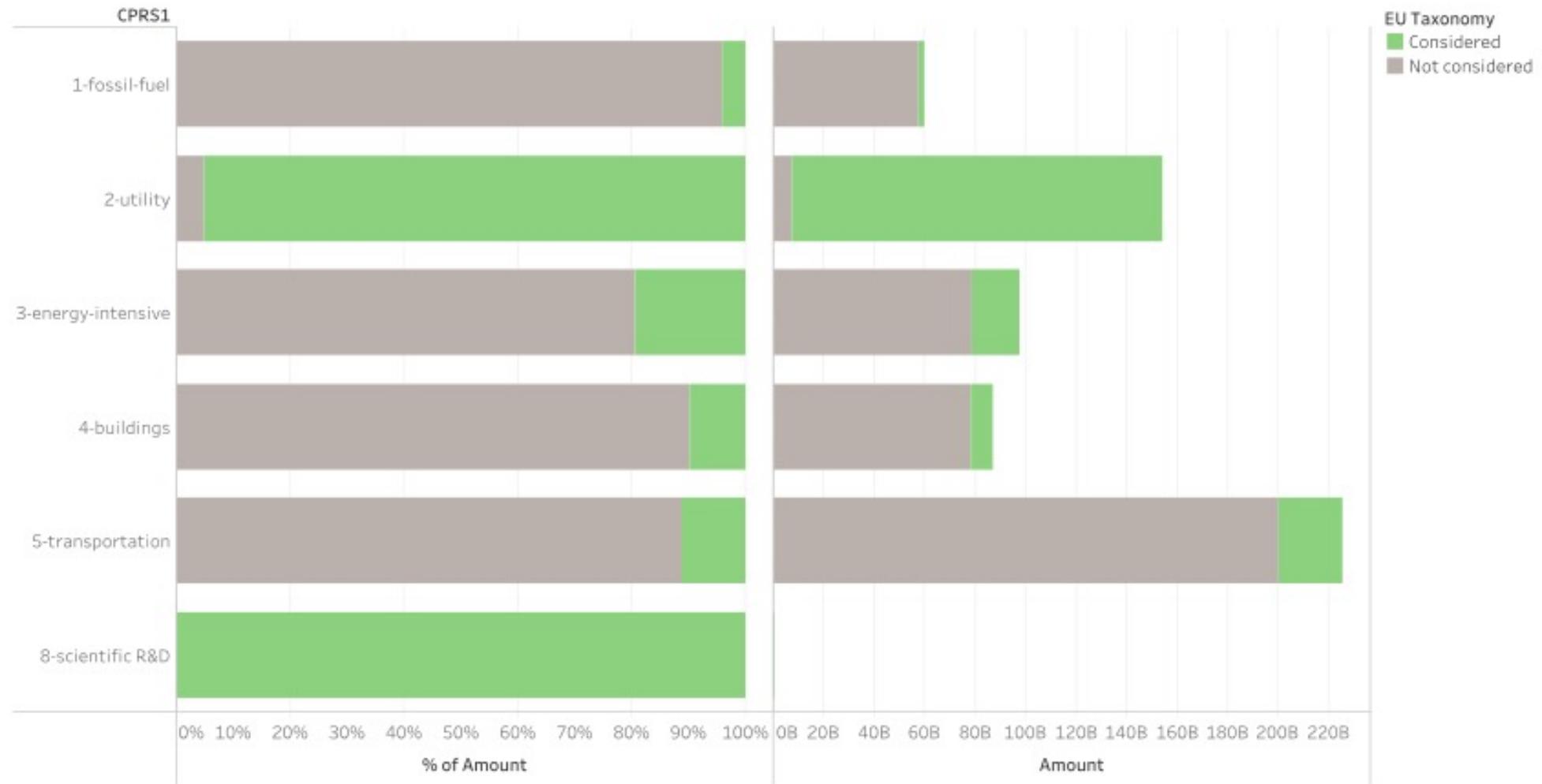
TAC methodology. Example result for holdings across EU investors



ata.

NOTE: EU Taxonomy alignment << EU Taxonomy considered

TAC methodology. Example result for CPRS sectors



Updating and extending the methodology

- Coefficients being currently updated based on Climate DA – Annex 1 (EU Taxonomy Compass)
- Extension to non-EU exposures
- Extension to MS-level
- Can be extended to sovereign exposures and exposures to central banks

Report and excel tool available on JRC website:

<https://ec.europa.eu/jrc/en/publication/eu-sustainability-taxonomy-financial-impact-assessment>