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DRIVING THE FUTURE: EUROPEAN GREEN AUTO SECURITISATION WORKSHOP

20 NOVEMBER 2025

AGENDA

14:00 WELCOME SPEECH
SANDRA VESELI, MOODY'S INVESTOR SERVICE

14:05 KEYNOTE SPEECH
STEPHANIE SCHILLING, EUROPEAN ENVIRONMENT AGENCY

14:20 MARKET OVERVIEW AND GREEN TRANSITION IN AUTO ABS
STEVEN BECKER, MOODY'S RATINGS

14:40 CENTRAL BANK'S PERSPECTIVE ON SUSTAINABLE FINANCE, AND THE POTENTIAL OF SECURITISATION
NILS BOESEL, DEUTSCHE BUNDESBANK

15:00 PANEL 1: INCENTIVES TO LOWER EMISSIONS IN EUROPE: THE IMPACT OF THE EU SECREG REVISION
MODERATOR: MARCO ANGHEBEN (EDW), JAN-PETER HÜLBERT (TSI), SEBASTIAN OEBELS (HOGAN LOVELLS), THOMAS LUPBRAND (EUROPEAN INVESTMENT FUND)

15:50 COFFEE BREAK

16:20 RECOMMENDATIONS ON HOW TO LOWER VEHICLE EMISSIONS
MAX RIEDEL, SAFE

16:40 LINKING AUTO ABS COLLATERAL TO CO2 EMISSIONS – INSIGHTS FROM GAS DATABASE
MARINE MAÎTRE & USMAN JAMIL, EDW

17:00 PANEL 2: CHARGING AHEAD: BRIDGING CARMAKER CHALLENGES AND CONSUMER SCEPTICISM IN E-MOBILITY
MODERATOR: DR. CHRISTIAN THUN (EDW), MORITZ MELSBACH (MOODY'S RATINGS), ARMIN KRAPF (MOODY'S RATINGS), TOM OELRICH (DZ BANK), MICHAEL ORTH (DEUTSCHE LEASING)

17:50 CLOSING REMARKS
PROF. LORIANA PELIZZON (SAFE), MARCO ANGHEBEN (EDW)

AT TODAY'S EVENT

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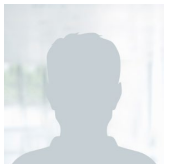

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WELCOME SPEECH

SANDRA VESELI, MOODY'S INVESTOR SERVICE

KEYNOTE SPEECH

STEPHANIE SCHILLING, EUROPEAN ENVIRONMENT AGENCY

Road transport data at the European Environment Agency (EEA)

Stephanie Schilling / GAS workshop/ 2025-11-20

Zehra Coplu, Sustainably Yours / EEA

European Environment Agency

Topics

- Information about the EEA

- Detailed road transport available at the EEA
  - data
  - associated information

Who is the EEA?

- An EU agency – public administration
- Since 1994
- Located in Copenhagen, Denmark
- ~ 300 staff

- More info:
  - https://www.eea.europa.eu/en
  - EEA Corporate Video: https://www.youtube.com/watch?v=AjUtzPG6UcQ

European Environment Agency

What we do

Together with our Eionet network, we provide the knowledge and the data needed to achieve sustainability in Europe.

We support policies with evidence-based knowledge
to help the European Union and our member countries achieve sustainability

We inform public and policy discussions
on sustainability solutions and challenges

We build and maintain networks and partnerships
to facilitate sharing of knowledge and expertise across Europe

We collect, quality check and disseminate data,
making full use of digitalisation and latest innovative technologies

Topic areas


AREAS OF WORK
Biodiversity and ecosystems
1
Climate change mitigation and adaptation
2
Human health and the environment
3
Circular economy and resource use
4
Sustainability trends, prospects and responses
5

Legal obligation for data collection

Annual **new** registrations for following vehicle categories:

Light-duty vehicles (LDVs)

- Cars (M1)
- Vans (N1)

laboratory & real world CO_2 values

- data from EU27, NO, IS and manufacturers

Regulation (EU) **2019/631** setting CO_2 emission performance standards for new passenger cars and for new light commercial vehicles

Regulation (EU) **2021/392** on the monitoring and reporting of data relating to CO_2 emissions from passenger cars and light commercial vehicles

Heavy-duty vehicles (HDV)

- Trucks (N1*, N2, N3)
- Buses (M2, M3)
- Trailers (O3, O4)
  - data from EU27 (in future also NO, IS) and manufacturers

Regulation (EU) **2019/1242** setting CO_2 emission performance standards for new heavy-duty vehicles

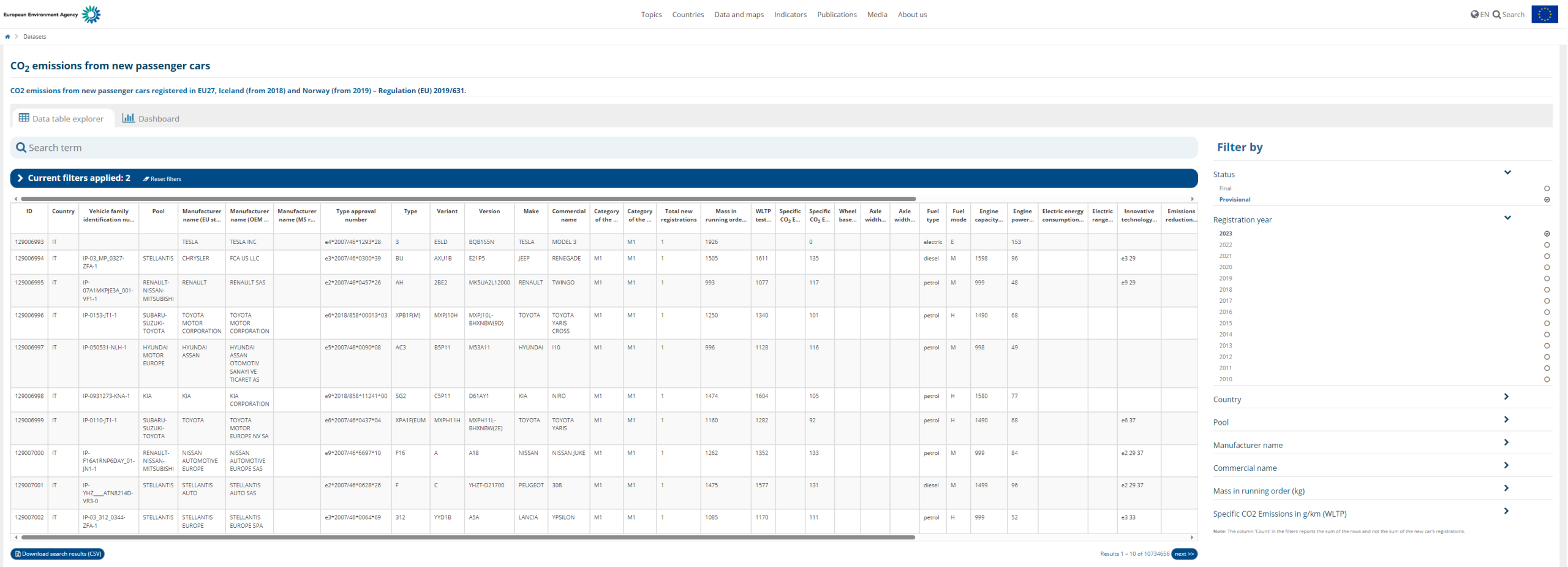
- Exemptions from the scope of the Regulations e.g. vocational vehicles (HDV), national small series (LDV) and others
- Derogations or exemptions also for small manufacturers

*provided that the vehicles do not fall under Regulation 2019/631

Cars and vans data

https://co2cars.apps.eea.europa.eu/

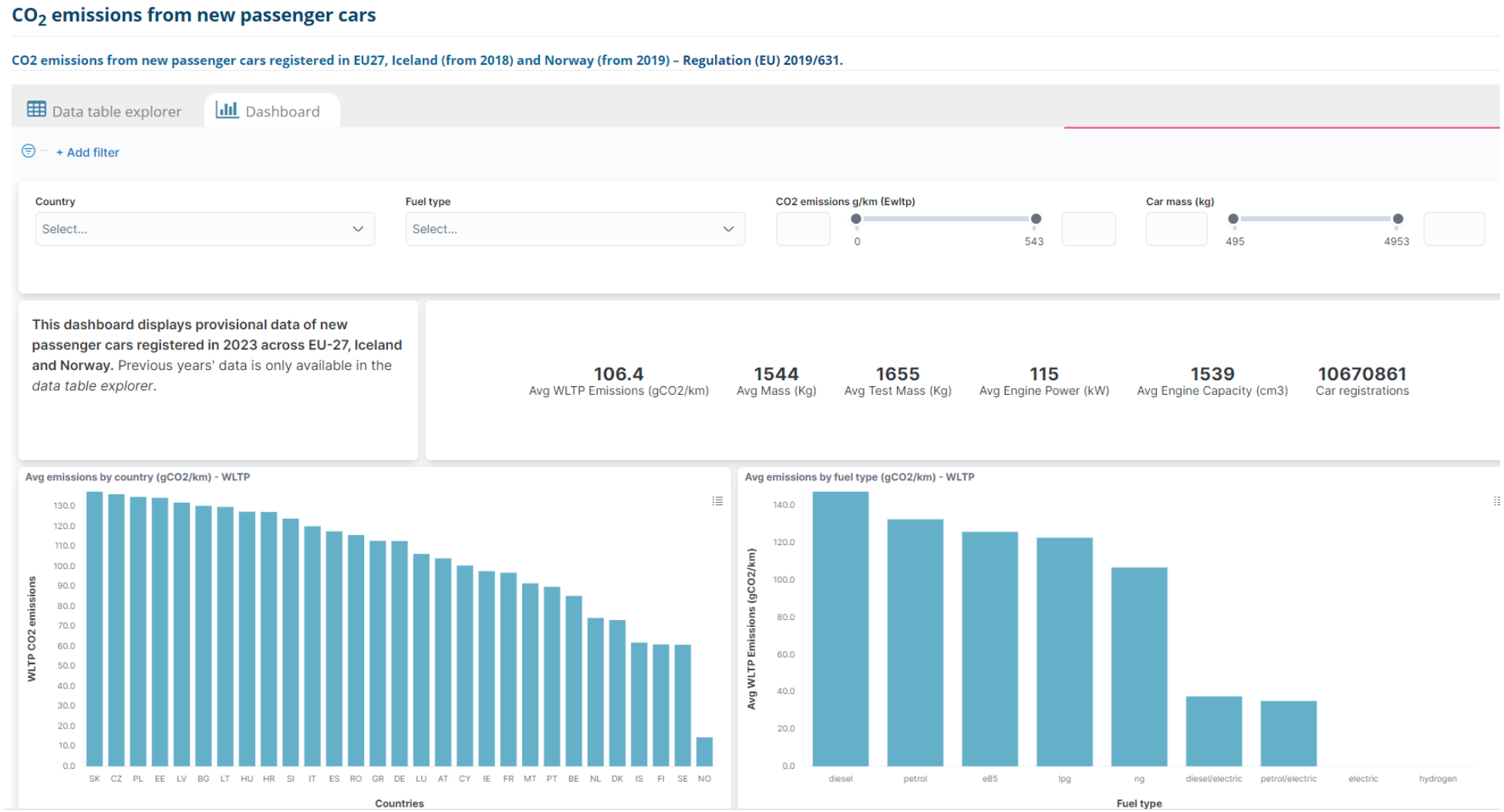
https://co2vans.apps.eea.europa.eu/



ID	Country	Vehicle family identification nu...	Pool	Manufacturer name (EU st...	Manufacturer name (OEM ...	Manufacturer name (MS r...	Type approval number	Type	Variant	Version	Make	Commercial name	Category of the ...	Category of the ...	Total new registrations	Mass in running orde...	WLTP test...	Specific CO_2 E...	Specific CO_2 E...	Wheel base...	Axle width...	Axle width...	Fuel type	Fuel mode	Engine capacity...	Engine power...	Electric energy consumption...	Electric range...	Innovative technology...	Emissions reduction...
129006993	IT			TESLA	TESLA INC		e4*2007/46*1293*28	3	E5LD	BQB1S5N	TESLA	MODEL 3		M1	1	1926			0				electric	E		153				
129006994	IT	IP-03_MP_0327-ZFA-1	STELLANTIS	CHRYSLER	FCA US LLC		e3*2007/46*0300*39	BU	AXU1B	E21P5	JEEP	RENEGADE	M1	M1	1	1505	1611		135				diesel	M	1598	96			e3 29	
129006995	IT	IP-07A1MKPJE3A_001-VF1-1	RENAULT-NISSAN-MITSUBISHI	RENAULT	RENAULT SAS		e2*2007/46*0457*26	AH	2BE2	MK5UA2L12000	RENAULT	TWINGO	M1	M1	1	993	1077		117				petrol	M	999	48			e9 29	
129006996	IT	IP-0153-JT1-1	SUBARU-SUZUKI-TOYOTA	TOYOTA MOTOR CORPORATION	TOYOTA MOTOR CORPORATION		e6*2018/858*00013*03	XPB1F(M)	MXPJ10H	MXPJ10L-BHXNBW(9D)	TOYOTA	TOYOTA YARIS CROSS	M1	M1	1	1250	1340		101				petrol	H	1490	68				
129006997	IT	IP-050531-NLH-1	HYUNDAI MOTOR EUROPE	HYUNDAI ASSAN	HYUNDAI ASSAN OTOMOTIV SANAYI VE TICARET AS		e5*2007/46*0090*08	AC3	B5P11	M53A11	HYUNDAI	I10	M1	M1	1	996	1128		116				petrol	M	998	49				
129006998	IT	IP-0931273-KNA-1	KIA	KIA	KIA CORPORATION		e9*2018/858*11241*00	SG2	C5P11	D61AY1	KIA	NIRO	M1	M1	1	1474	1604		105				petrol	H	1580	77				
129006999	IT	IP-0110-JT1-1	SUBARU-SUZUKI-TOYOTA	TOYOTA	TOYOTA MOTOR EUROPE NV SA		e6*2007/46*0437*04	XPA1F(EUM	MXPH11H	MXPH11L-BHXNBW(2E)	TOYOTA	TOYOTA YARIS	M1	M1	1	1160	1282		92				petrol	H	1490	68			e6 37	
129007000	IT	IP-F16A1RNP6DAY_01-JN1-1	RENAULT-NISSAN-MITSUBISHI	NISSAN AUTOMOTIVE EUROPE	NISSAN AUTOMOTIVE EUROPE SAS		e9*2007/46*6697*10	F16	A	A18	NISSAN	NISSAN JUKE	M1	M1	1	1262	1352		133				petrol	M	999	84			e2 29 37	
129007001	IT	IP-YHZ___ATN8214D-VR3-0	STELLANTIS	STELLANTIS AUTO	STELLANTIS AUTO SAS		e2*2007/46*0628*26	F	C	YHZT-D21700	PEUGEOT	308	M1	M1	1	1475	1577		131				diesel	M	1499	96			e2 29 37	
129007002	IT	IP-03_312_0344-ZFA-1	STELLANTIS	STELLANTIS EUROPE	STELLANTIS EUROPE SPA		e3*2007/46*0064*69	312	YYD1B	A5A	LANCIA	YPSILON	M1	M1	1	1085	1170		111				petrol	H	999	52			e3 33	

European Environment Agency

Cars and vans visualisations (I)

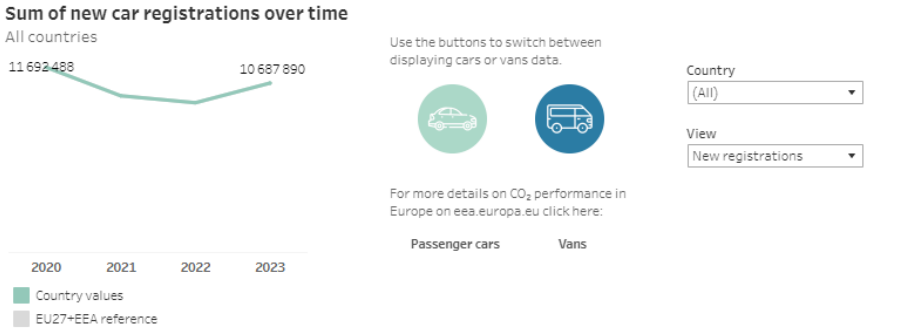


European Environment Agency

Cars and vans visualisations (II)

New passenger cars and vans

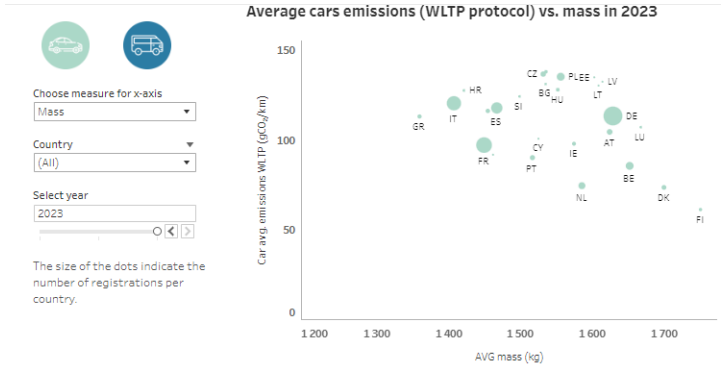
The EEA collects data from EU Member States and selected EEA member countries on new light-duty vehicles registered in their territory. The data include vehicle manufacturer, CO2 emissions and technical information about the vehicles (e.g. weight, engine capacity and fuel used).

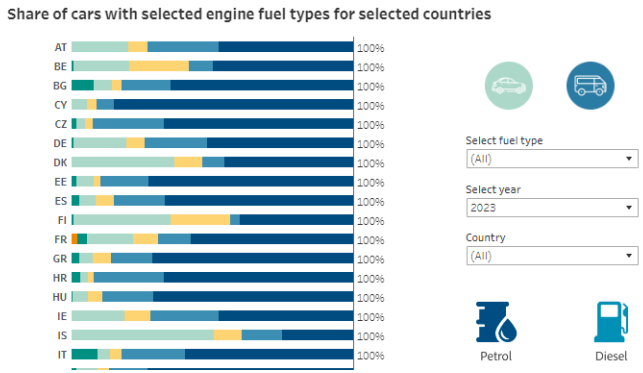


Country comparison

The number of vehicles and the average fuel efficiency of new vehicles vary widely across countries due to the different models and types of vehicles sold in each country.

https://climate-energy.eea.europa.eu/topics/transport/emissions-from-cars/data





European Environment Agency

Real-world data from cars and vans - data

Additional information

This page provides access to key data sources related to the monitoring of the real-world emissions from new cars and vans. They are grouped by the key re

Data - 2022

- Vans - Aggregate Real-world CO2 emissions dataset [2022].
- Cars - Aggregate Real-world CO2 emissions dataset [2022].
- Vans - Raw Real-world CO2 emissions dataset [2022].
- Cars - Raw Real-world CO2 emissions dataset [2022].

Data - 2021

- Vans - Aggregate Real-world CO2 emissions dataset [2021].
- Cars - Aggregate Real-world CO2 emissions dataset [2021].
- Vans - Raw Real-world CO2 emissions dataset [2021].
- Cars - Raw Real-world CO2 emissions dataset [2021].

Documentation

- European Commission Staff Working Document (SWD).
- European Commission Report.

L 77/18 EN Official Journal of the European Union 5.3.2021

ANNEX

1. **Collection and reporting of real-world data and VINS in accordance with Articles 9 and 10**

Table 1

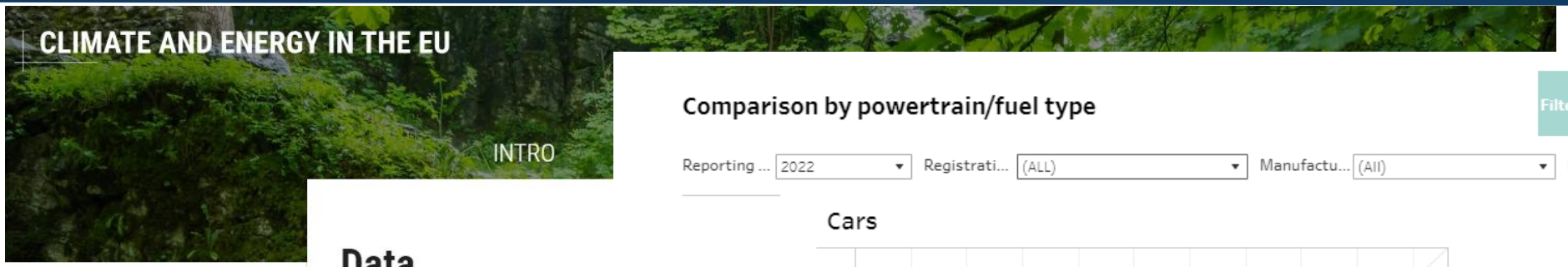
Data to be reported in accordance with Articles 9 and 10

Parameter	Unit	Vehicles of category M1 and N1	
		Pure internal combustion engine vehicles and not-off-vehicle charging hybrid electric vehicles (1)	Off-vehicle charging hybrid electric vehicles (2)
Vehicle identification number	-	√	√
Total fuel consumed (lifetime)	l	√	√
Total distance travelled (lifetime)	km	√	√
Total fuel consumed in charge depleting operation (lifetime)	l	_	√
Total fuel consumed in driver-selectable charge increasing operation (lifetime)	l	_	√
operation with engine running (lifetime)		_	
Total distance travelled in driver-selectable charge increasing operation (lifetime)	km	_	√
Total grid energy into the battery (lifetime)	kWh	_	√

https://climate-energy.eea.europa.eu/topics/transport/real-world-emissions/additional_information

European Environment Agency

Real-world data from cars and vans - visualisation



TOPICS

Transport

CO2 emissions from new passenger cars and vans

CO2 emissions from new heavy-duty vehicles

Real world emissions

Fuel quality

COUNTRIES

CATALOGUE

ABOUT

Data

Real-wor

The tables and graphs
fuel consumption of p

They are based on an a

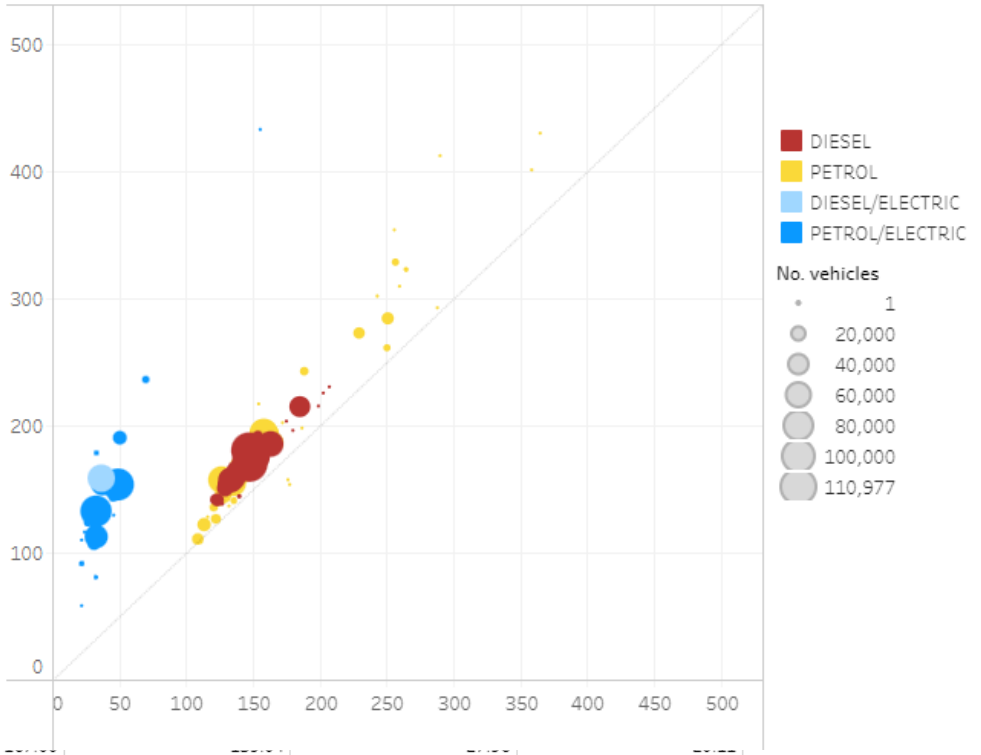
Comparison by powertrain/fuel type

Filter by cars or vans: Cars

Reporting ... 2022 | Registrati... (ALL) | Manufactu... (All) | Fuel consu... CO2 emissions (g/km)

Cars

Avg real-world CO2 emissions..



DIESEL
PETROL
DIESEL/ELECTRIC
PETROL/ELECTRIC

No. vehicles
1
20,000
40,000
60,000
80,000
100,000
110,977

Results by manufacturer

Reporting year: 2022 | Registration year: (ALL)

	Number of veh				
PETROL	1,[illegible]				
DIESEL	896,887	179.22	151.96	27.25	17.94
PETROL/ELECTRIC	373,552	134.38	37.95	96.43	254.07
DIESEL/ELECTRIC	64,940	155.36	36.47	118.89	325.98
ICEV	2,455,751	171.46	143.76	27.70	19.27
PHEV	438,492	137.49	37.73	99.75	264.36

European Environment Agency

Heavy-duty vehicles - data

Match	UniqueData	OEM_ManufacturerName	OEM_Make	OEM_Model	OEM_VehicleGroup	OEM_VehicleSubgroup	OEM_ZeroEmissionVehicle	OEM_HybridElectricHDV	OEM_DualFuelVehicle
Match	Yes	Ford Otosan	Ford Otosan	1850T	5				
Match	Yes	Ford Otosan	Ford Otosan	1850T	5				
Match	Yes	Ford Otosan	Ford Otosan	1850T	5				
Match	Yes	MAN Truck & Bus SE	MAN	TGX 18.470 4x2 BL SA	5				
Match	Yes	MAN Truck & Bus SE	MAN	TGX 18.470 4x2 BL SA	5				
Match	Yes	MAN Truck & Bus SE	MAN	TGX 18.470 4x2 BL SA	5				
Match	Yes	MAN Truck & Bus SE	MAN	TGX 18.470 4x2 BL SA	5				
Match	Yes	MAN Truck & Bus SE	MAN	TGX 18.470 4x2 BL SA	5				
Match	Yes	MAN Truck & Bus SE	MAN	TGX 18.510 4x2 BL SA	5				
Match	Yes	MAN Truck & Bus SE	MAN	TGX 18.510	5				

Trucks and Buses

Aggregated and matched data

Detailed data

Metadata

Trailers

Aggregated and matched data

Detailed data

Metadata

Previous years:

Table publisher

Match (713605)

OEM_only (142463)

UniqueData

[all]
No (12092)
Yes (701513)

OEM_ManufacturerName

[all]
Akpinar Mah. Hasan Basri Cad. No:2 34885 Istanbul, TURKEY (37
Akpinar Mah. Hasan Basri Cad. No:2 34885 Sancaktepe/istanbul
Anadolu Isuzu Otomotiv Sanayi ve Ticaret A.S. (100)

OEM_Make

[all]

OEM_VehicleGroup

[all]

OEM_VehicleSubgroup

[all]
[null] (487620)
10-LH (6429)
10-RD (45)

OEM_ZeroEmissionVehicle

[all]
No
Yes

European Environment Agency

Heavy-duty vehicles - visualisation

https://climate-energy.eea.europa.eu/topics/transport/emissions-from-heavy-duty-vehicles/data

New heavy-duty vehicles in European countries

EU Member States and selected EEA member countries report data on new heavy-duty vehicles registered in their territory. Countries collect data for trucks, buses, coaches and trailers. Data includes vehicle manufacturer, vehicle type, fuel used, mass, etc. These data are reported annually to the EEA, from 2020. They contain all unique vehicles registered since 01/07/2019, as reported by Member States.

Choose time period (year/semester)

(Multiple values)

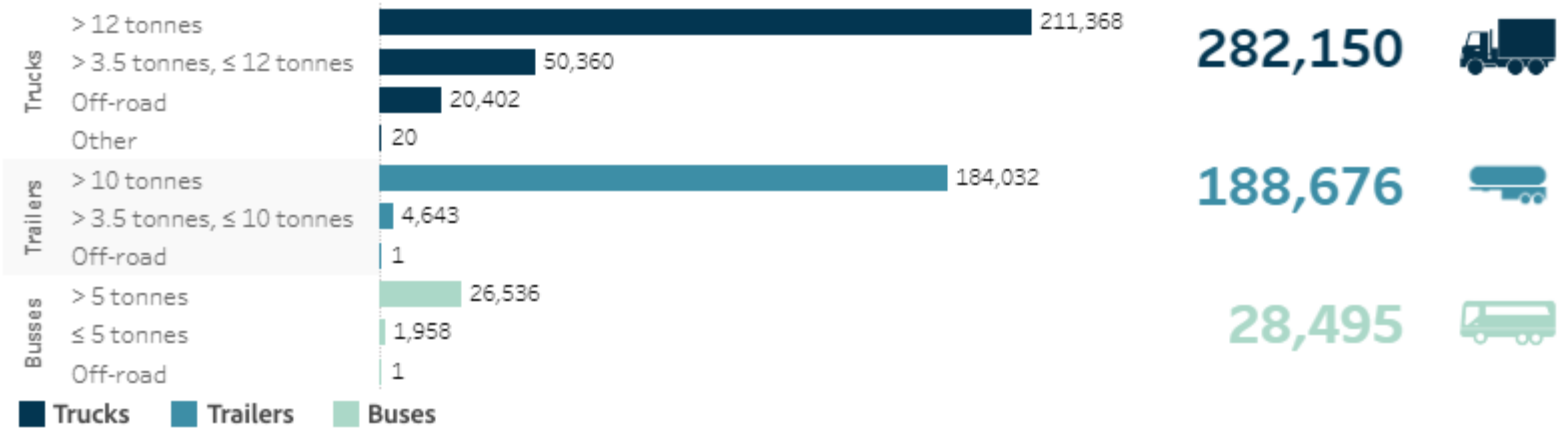
Number of vehicles of different types registered in selected time period & countries

Choose countries

(All)

Note: if all is selected Norway and United Kingdom are included

Hover over the bars to see a description for categories



European Environment Agency

Questions?

Picture: Stephanie Schilling

Now?

Later?

→ stephanie.schilling@eea.europa.eu

→co2.monitoring@eea.europa.eu
→Real-world-data-monitoring@eea.europa.eu
→HDV-monitoring@eea.europa.eu

Thank you

European Environment Agency

MARKET OVERVIEW AND GREEN TRANSITION IN AUTO ABS

STEVEN BECKER, MOODY'S RATINGS

CENTRAL BANK'S PERSPECTIVE ON SUSTAINABLE FINANCE, AND THE POTENTIAL OF SECURITISATION

NILS BOESEL, DEUTSCHE BUNDESBANK

PANEL: INCENTIVES TO LOWER EMISSIONS IN EUROPE: THE IMPACT OF THE EU SECREG REVISION

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THOMAS LUPBRAND, EUROPEAN INVESTMENT FUND

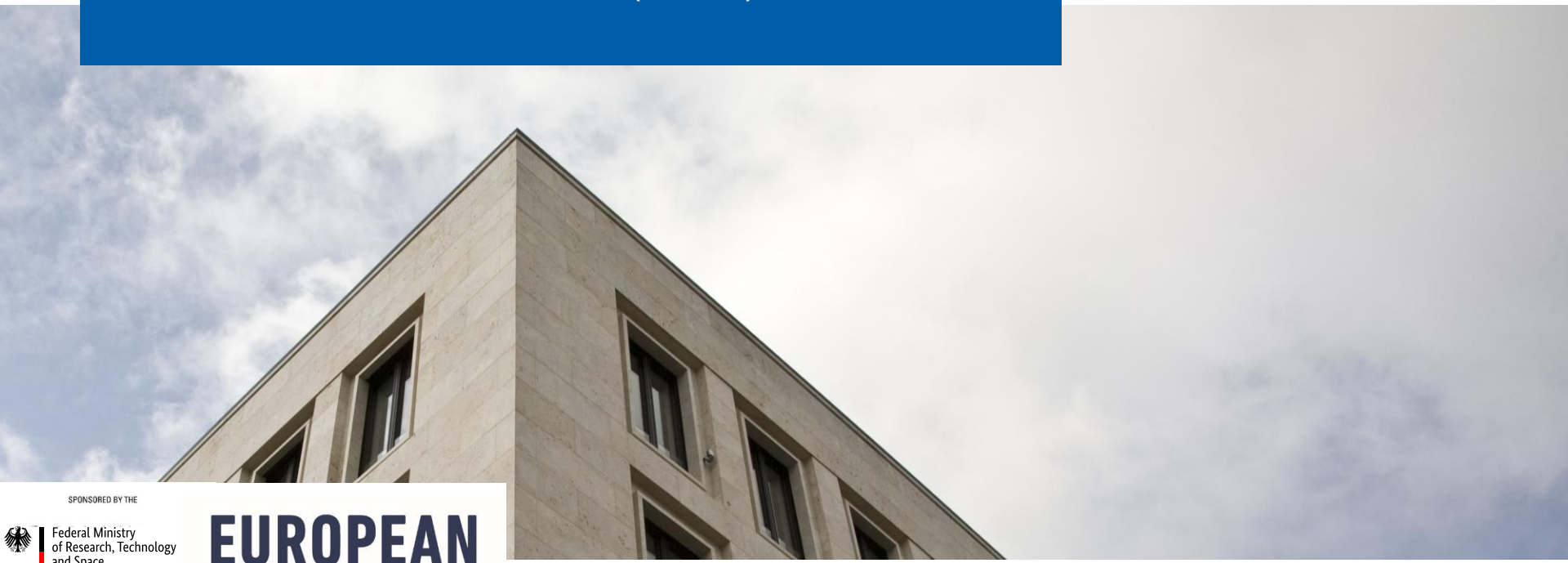
RECOMMENDATIONS ON HOW TO LOWER VEHICLE EMISSIONS

MAX RIEDEL, SAFE

Green Auto Securitisation (GAS)

Max Riedel (SAFE)

LEIBNIZ INSTITUTE SAFE
Sustainable Architecture for Finance in Europe



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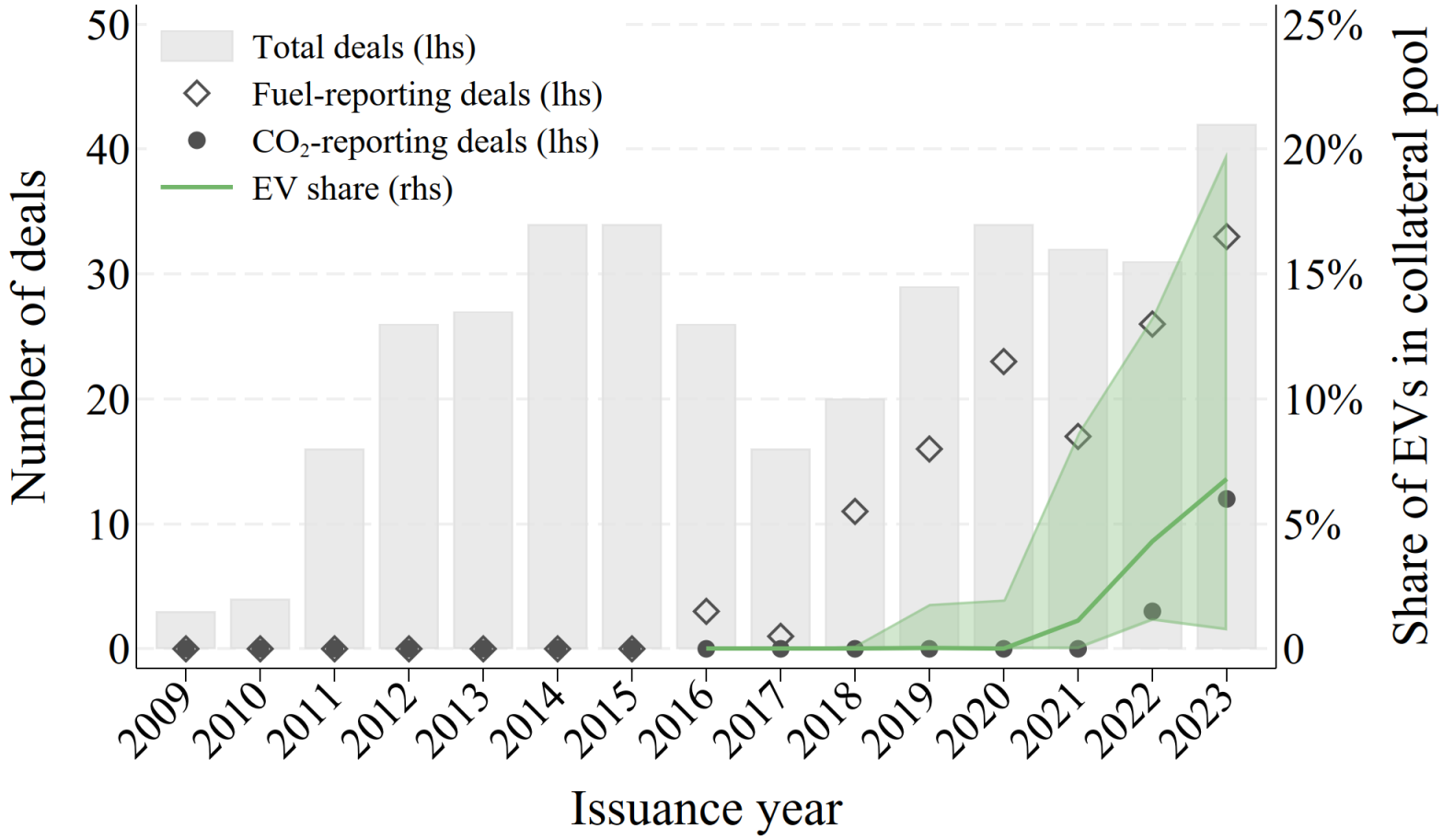
The GAS project and its outputs

- Collaborative 3-year project, financed by the BMFTR
  - Leibniz Institute for Financial Research SAFE
  - European DataWarehouse GmbH

- Outputs
  1. How to Green the European Auto ABS Market? A Literature Survey
  2. GAS database
  3. Mutual Funds' Appetite for Sustainability in European Auto ABS
  4. Credit risk in the green transition: evidence from electric vehicle loans
  5. Fragmented EU Car Labels: How To Achieve Consumer-Friendly Standardization and Transparency?
  6. Vehicle identifiers: the key to jump-starting the European Green Auto ABS market?
  7. From Deletion to Substitution: A Smart Regulatory Path for EU Securitisation Reform

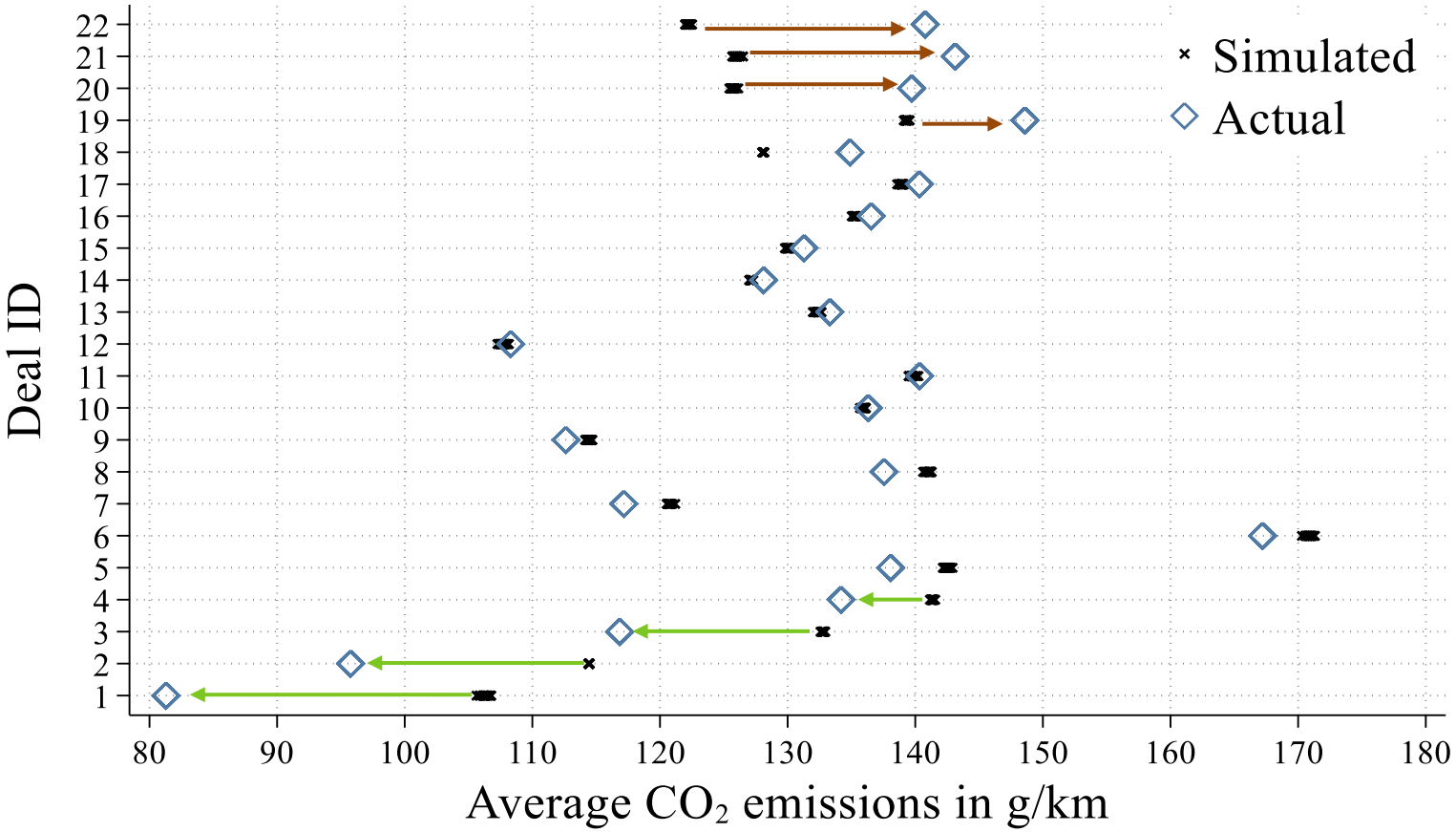
“Greenness” of Auto ABS

How green are Auto ABS?



Source: Latino, Pelizzon, Riedel, and Wang (2025)

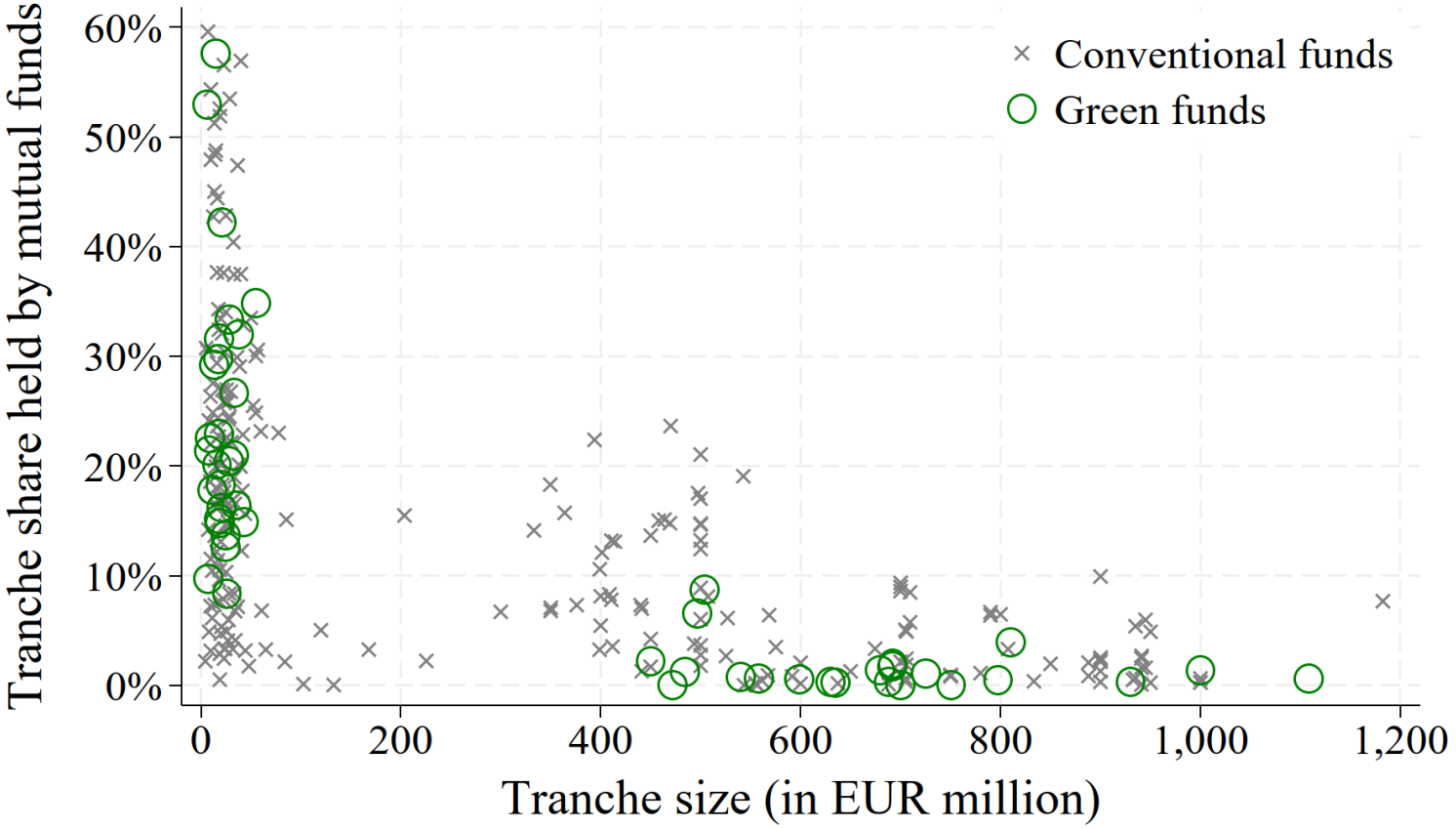
Simulated vs actual greenness



Note: simulations are based EEA's vehicle data, matched on country, year of registration, manufacturer, model, and fuel type

Mutual fund demand

MFs' exposure to Auto ABS



Main findings

We find that

- MFs value transparency about the fuel type distribution of underlying collateral
- in particular green MFs tend to hold larger exposures to Auto ABS that are more transparent or composed of a larger share of EVs

We observe that

- financed CO2 emissions matter for all MFs
- MFs avoid strong manufacturer concentrations
- green MFs tend to hold a larger share of Auto ABS with more sustainable manufacturers

Credit risk

Credit risk: EV loans default less

VARIABLES	Full sample		By income group		
			Low	Middle	High
EV	-1.154***	-0.432***	-0.396*	-0.218	-0.159
	[0.088]	[0.127]	[0.162]	[0.212]	[0.277]
Interest rate (%)	0.084***	0.058***	0.070***	0.056**	0.006
	[0.005]	[0.009]	[0.012]	[0.017]	[0.025]
Maturity (years)	0.181***	0.077***	0.077***	0.074**	0.031
	[0.004]	[0.009]	[0.011]	[0.016]	[0.025]
Debt-to-income (%)	0.001***	0.001***	0.001***	0.002***	0.002***
	[0.000]	[0.000]	[0.000]	[0.001]	[0.001]
Fuel usage (kWh/100km)		0.009***	0.009***	0.009***	0.011***
		[0.001]	[0.002]	[0.003]	[0.003]
Observations	2,153,620	994,757	391,462	719,940	258,981
Pseudo R^2	0.126	0.165	0.169	0.169	0.165

Notes: Logit regressions of NPL on borrower/loan controls. All specifications include manufacturer and lender FEs. Robust SE in brackets; ***, **, * denote 1%, 5%, 10%.

- EV loans default significantly less than comparable ICEV loans, particularly among lower-income borrowers.

EV subsidy expansion affects lending terms

	Dependent variable					
	Interest rate (1)	Maturity (2)	Log income (3)	Verification (4)	NPL (5)	NPL+Arrear (6)
EV × subsidy period	0.106***	-0.224***	0.029	-0.003***	0.004**	0.008***
	[0.021]	[0.038]	[0.026]	[0.001]	[0.002]	[0.003]
EV	0.037	0.405***	0.203***	-0.011	-0.013***	-0.021***
	[0.083]	[0.095]	[0.046]	[0.008]	[0.005]	[0.005]
Observations	599,438	599,438	599,438	599,438	599,438	599,438
R^2	0.313	0.198	0.872	0.986	0.019	0.037

Notes: OLS estimates of loan terms on loans originated between 2019 Q1–2021 Q4. All specifications include lender, vehicle model, and NUTS-3 region×quarter fixed effects, as well as borrower-level controls. Robust standard errors in brackets; ***, **, * denote 1%, 5%, and 10% significance levels.

- Banks responded to the 2020 EV subsidy expansion by increasing interest rates, shortening maturities, and relaxing screening for EV borrowers.

Lender heterogeneity under the 2020 EV subsidy

	Dependent variable					
	Interest rate (1)	Maturity (2)	Log income (3)	Verification (4)	NPL (5)	NPL+Arrear (6)
EV × subsidy period × Captive	0.221***	-0.370***	0.511***	-0.000	-0.006*	-0.015***
	[0.052]	[0.074]	[0.069]	[0.001]	[0.003]	[0.005]
EV × subsidy period	0.026	-0.119**	-0.124***	-0.003**	0.005*	0.012***
	[0.023]	[0.048]	[0.028]	[0.001]	[0.003]	[0.004]
Observations	599,438	599,438	599,438	599,438	599,438	599,438
R^2	0.319	0.198	0.873	0.986	0.020	0.037

Notes: OLS estimates on loans originated 2019Q1–2021Q4. All specifications include lender, vehicle-model, and NUTS-3 region × quarter fixed effects, plus borrower-level controls. Robust standard errors in brackets; ***, **, * denote 1%, 5%, 10% significance.

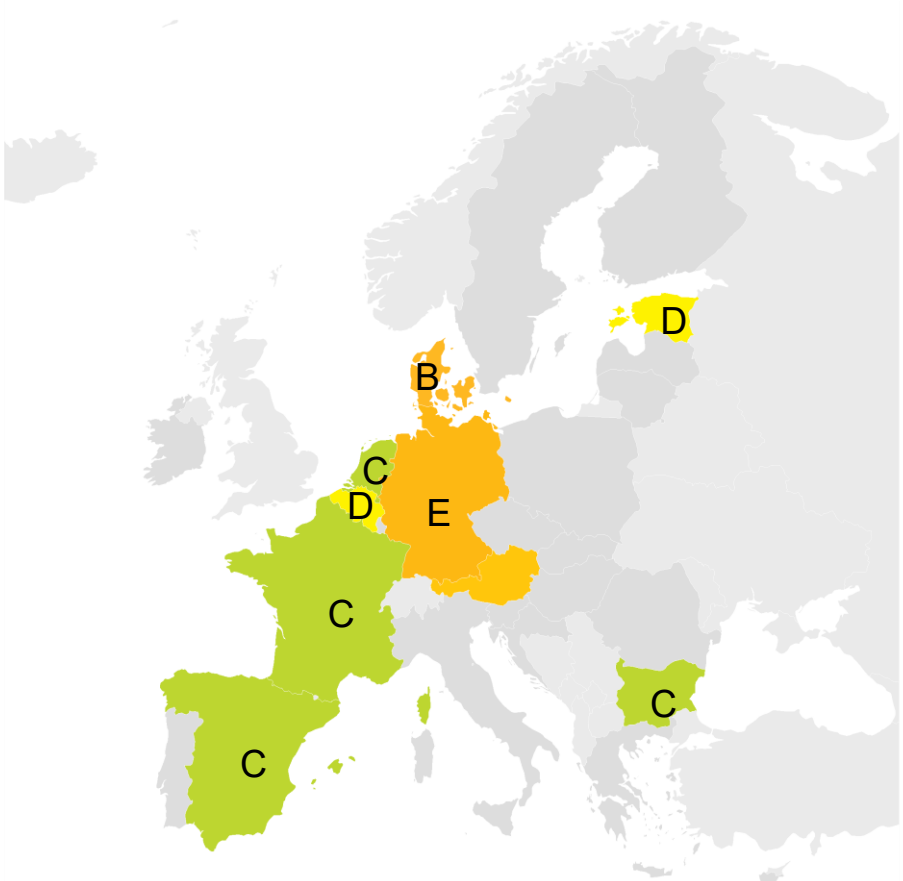
- Captive banks tighten terms and preserve performance
- Independent banks experience higher delinquencies

Potential sustainability proxies

Can we use car labels as sustainability proxies?

Car label

Rating heterogeneity of an SUV



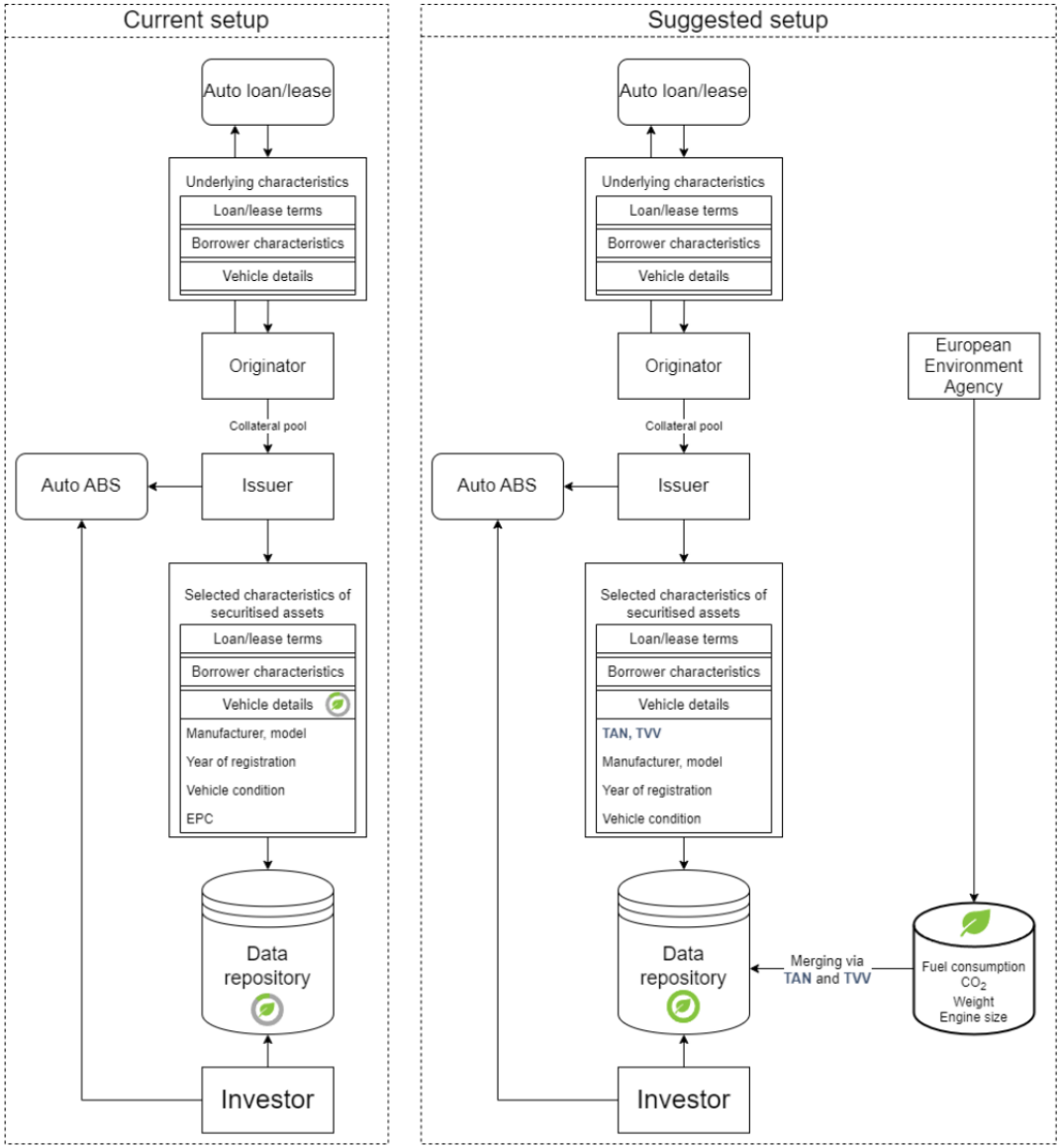
Note: The labels refer to Volkswagen T-Roc 1.5 TSI (2022-2024), with a fuel consumption of 6.1 l/100km and CO2 emissions of 138 g/km.

Source: Badenhoop and Riedel (2025)

Vehicle identifiers could be a solution

TAN, Type, Variant, and Version are

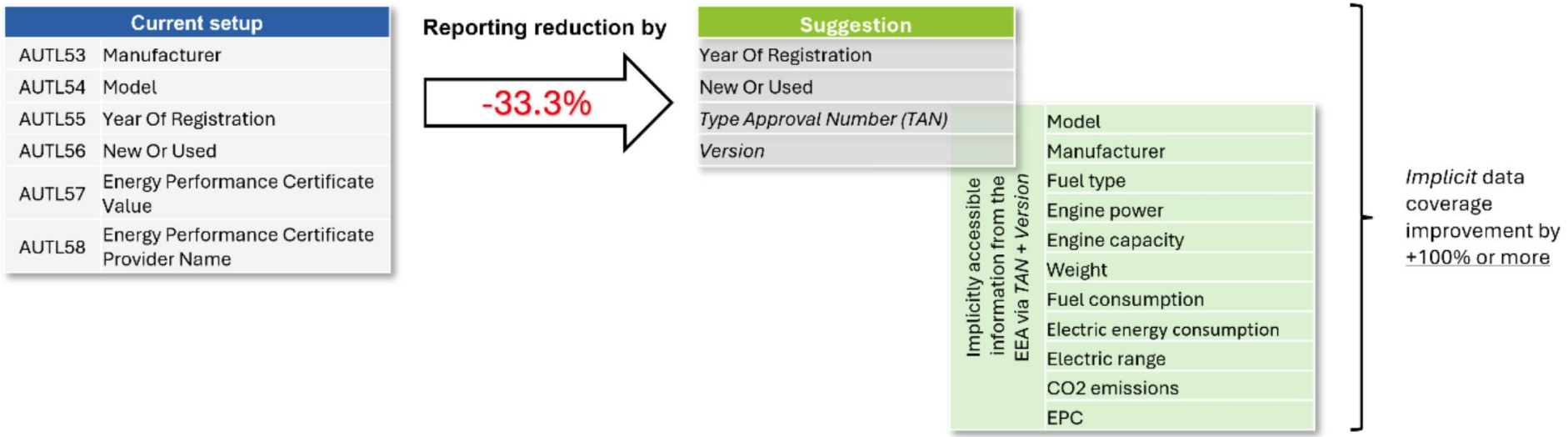
- granular
- used by the EEA
- GDPR-compliant



Source: Hackmann, Lindner, Pelizzon, and Riedel (2024)

Recent developments

- The European Commission aims to reduce reporting fields for securities by at least 35%
- Our suggestion: less is more, if done thoughtfully



Source: Lindner and Riedel (2025)

Vehicle identifiers are versatile

- Vehicle identifiers can be used not only to obtain vehicle sustainability information!
- They can be used by investors to manage future, unforeseen risks related to the underlying vehicles that might considerably affect resale prices of affected cars (i.e., higher loss given default).
- Examples:

Diesel scandal

Image: picture-alliance/chromorange/C. Ohde

Airbag malfunctioning

Source: 6abc Philadelphia

Battery fires

Source: ktm2day.com

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- European DataWarehouse (2025). A Standardised Methodology to Calculate Vehicle Emissions with CO2 (g/km) Values. https://eurodw.eu/research_articles/a-standardised-methodology-to-calculate-vehicle-emissions-with-co2-values
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- Latino, C., Pelizzon, L., Riedel, M., & Wang, Y. (2025). Mutual funds' appetite for sustainability in European auto ABS. *SAFE Working Paper 448*.https://doi.org/10.2139/ssrn.5234973
- Lindner, V. R., & Riedel, M. (2025). From deletion to substitution: A smart regulatory path for EU securitisation reform. *SAFE Policy Letter No. 109.* https://safe-frankfurt.de/fileadmin/user_upload/editor_common/Policy_Center/SAFE_Policy_Letter_109.docx.pdf

Thank you

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Project Manager

Appendix

Data accuracy using the TAN and Version as vehicle identifiers

Variable	Median	SD	P1	P25	P75	P99	Obs
Number of fuel types	1.00	0.29	1.00	1.00	1.00	2.00	28,628
Number of types	1.00	0.23	1.00	1.00	1.00	2.00	28,628
Number of variants	1.00	1.17	1.00	1.00	1.00	6.00	28,628
SD(Weight in kg)	0.00	27.12	0.00	0.00	15.33	133.49	28,628
SD(Engine power in KW)	0.00	16.87	0.00	0.00	0.00	81.77	28,607
SD(CO2 in g/km)	0.88	8.39	0.00	0.37	2.70	50.18	28,628

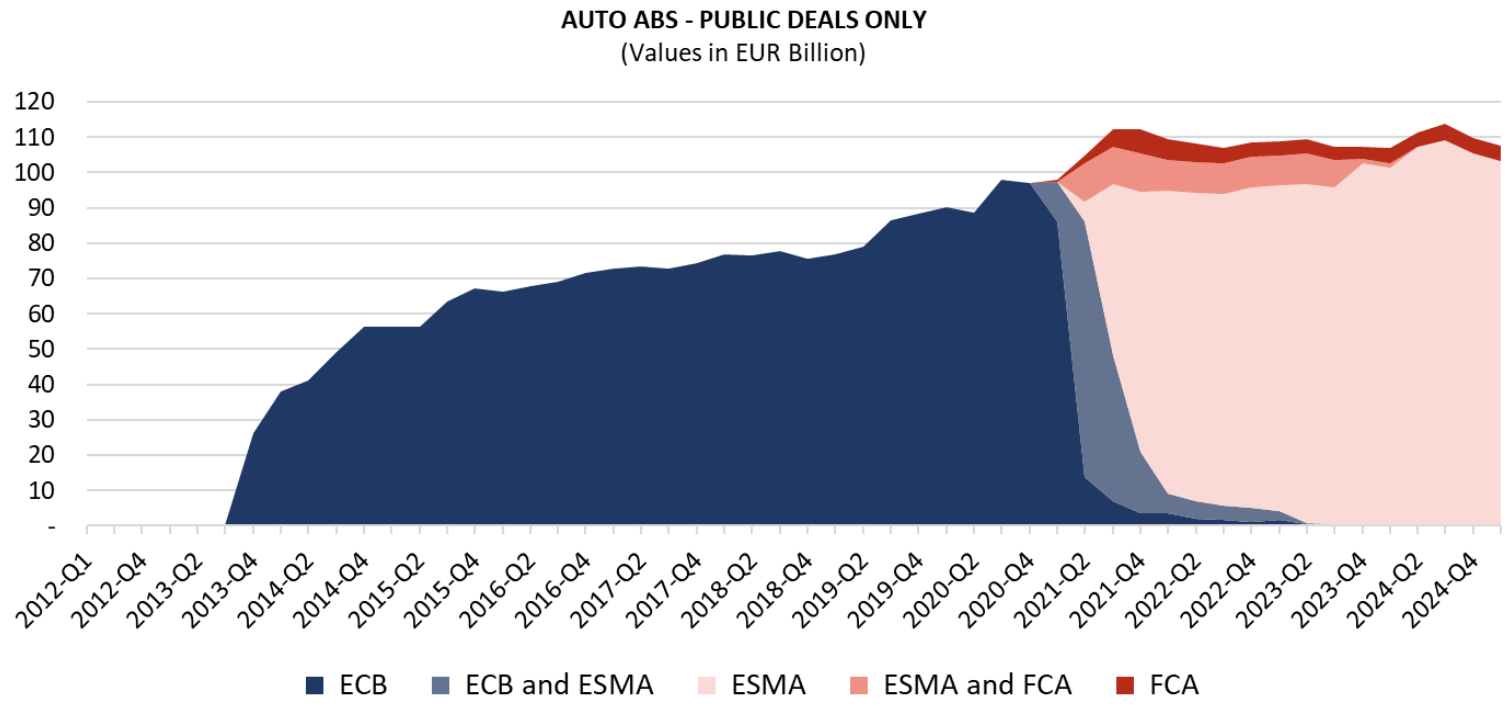
Table 1: Summary statistics on vehicle data accuracy when defining a vehicle model based on a combination of the TAN and the version code. The first three rows show the number of distinct fuel types, type codes, and variant codes within each TAN-Ve-based vehicle model. The last three rows report the within-model standard deviations (SD) of vehicle weight, engine power, and CO_2 emissions. Source: Own calculations, EEA (2025).

LINKING AUTO ABS COLLATERAL TO CO2 EMISSIONS – INSIGHTS FROM GAS DATABASE

MARINE MAÎTRE & USMAN JAMIL, EUROPEAN DATAWAREHOUSE

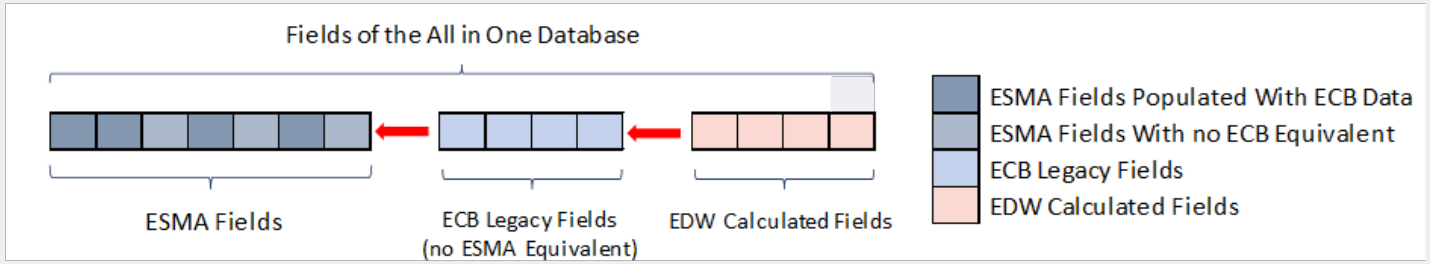
ALL IN ONE DATABASE: MERGING ECB AND ESMA DATA

MANAGING THE DISRUPTION: HISTORICAL DATA IS IN ECB FORMAT, RECENT DATA IS IN ESMA FORMAT

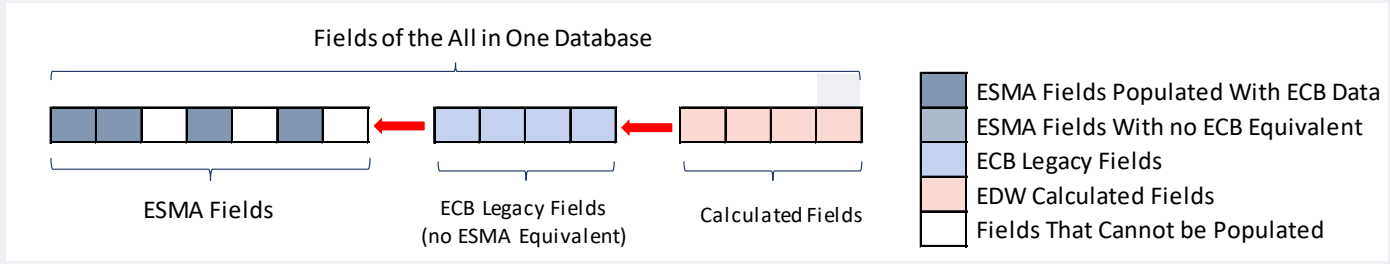


MERGING ECB AND ESMA DATA (ALL IN ONE DATABASE)

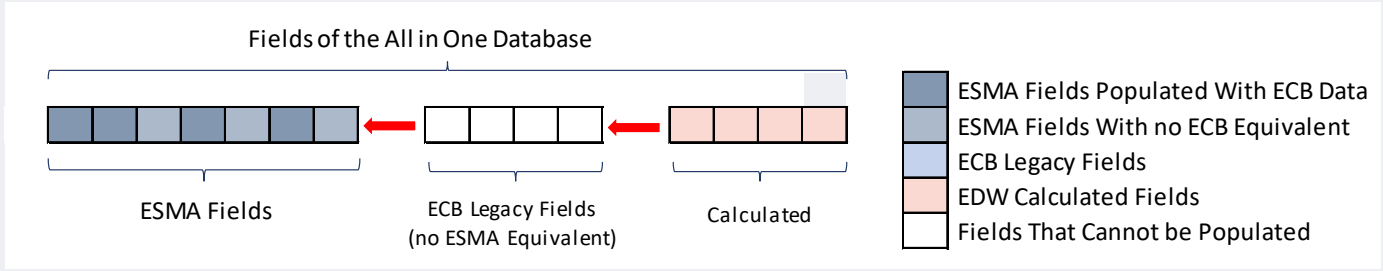
COMPOSITION OF THE ALL IN ONE DATABASE



WHEN ECB DATA IS IMPORTED IN THE ALL IN ONE DATABASE

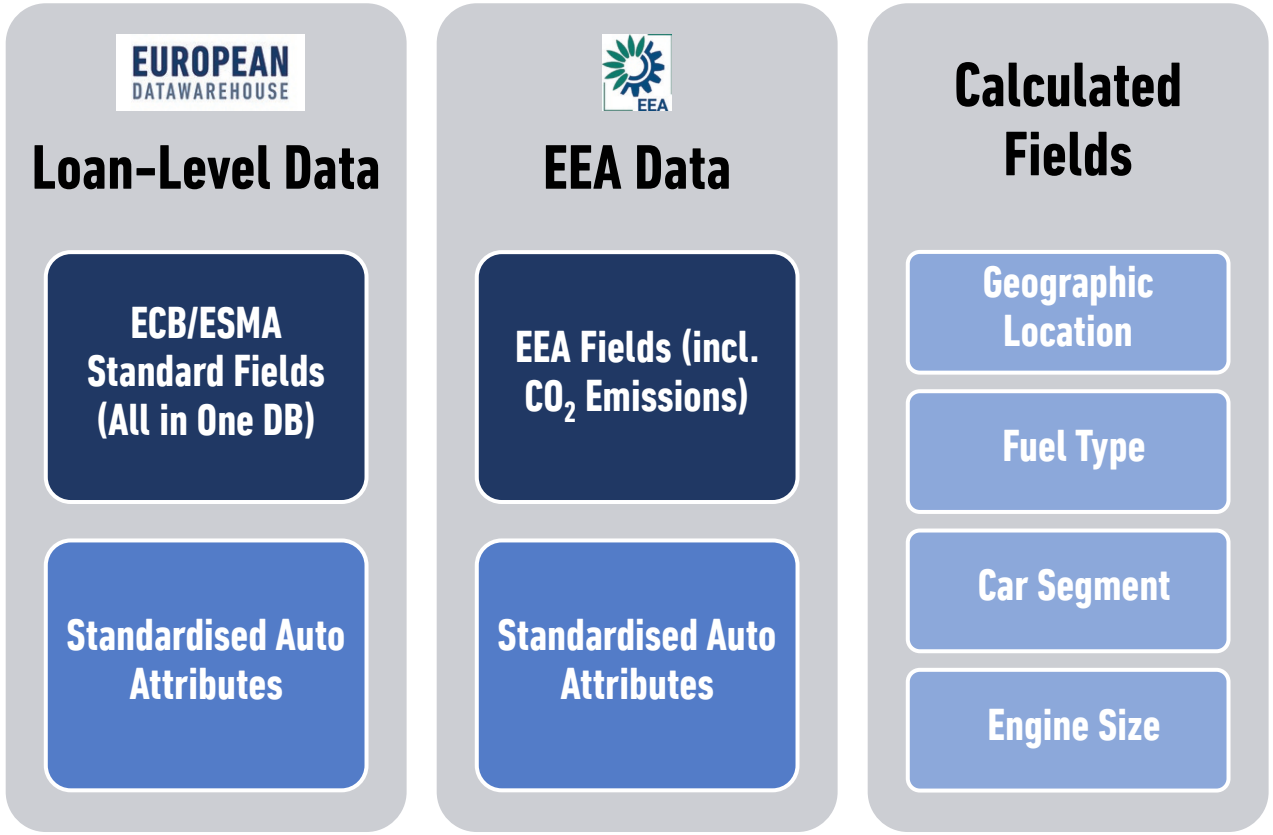


WHEN ESMA DATA IS IMPORTED IN THE ALL IN ONE DATABASE



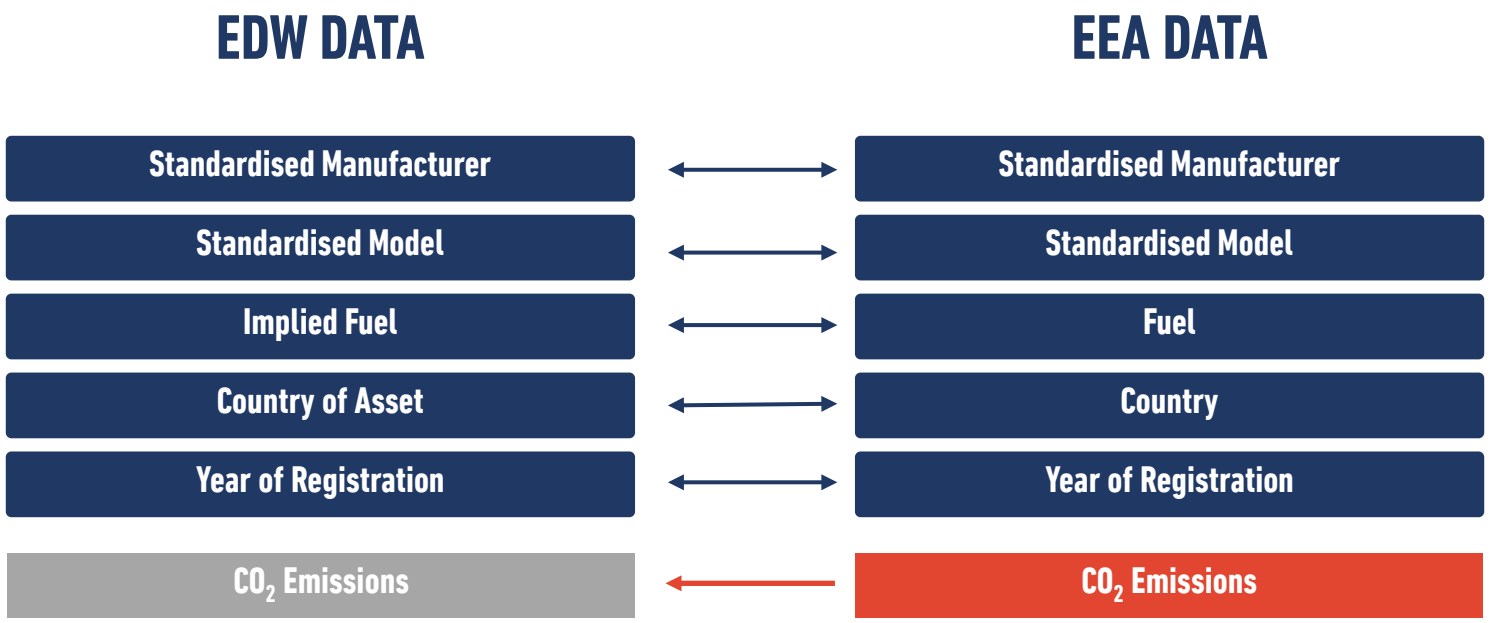
GAS DATABASE: LOAN-LEVEL DATA AND EEA DATA WITH EXPANDED FIELDS

A MORE COMPREHENSIVE DATABASE INCLUDING KEY FIELDS NEEDED FOR RELIABLE STATISTICAL ANALYSIS



MATCHING CO_2 EMISSIONS FOR CAR LOANS/LEASES WITH EDW DATA

95% OF LOANS/LEASES SUCCESSFULLY MATCHED WITH CO_2 EMISSIONS – INCLUDING ECB DATA



KEY FIGURES

> 450
DEALS

> 48 mm
LOANS

> 1.2 bn
ROWS

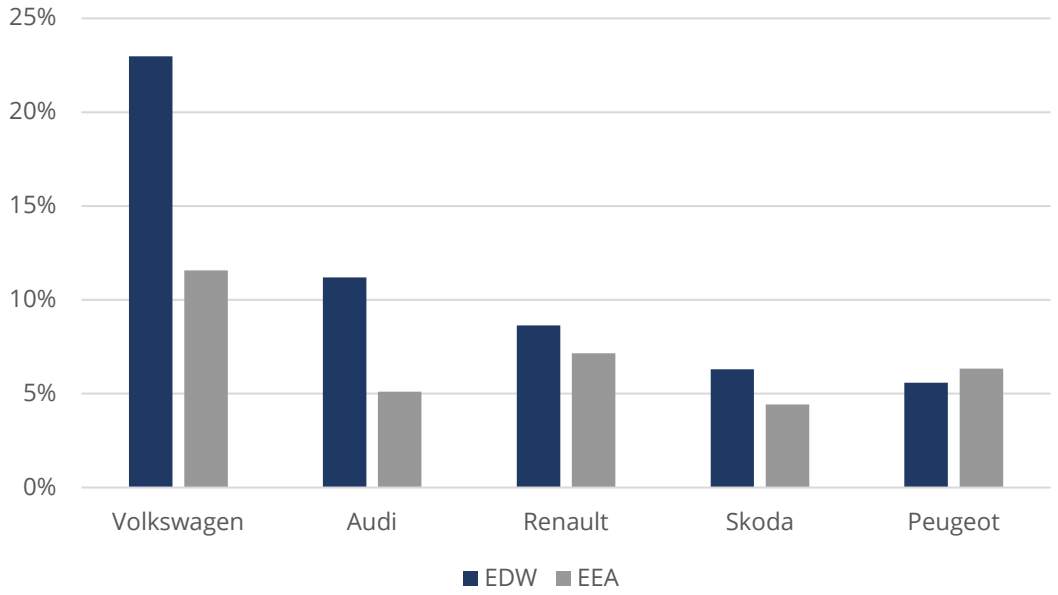
> 180
MANUFACTURERS

> 1,600
MODELS

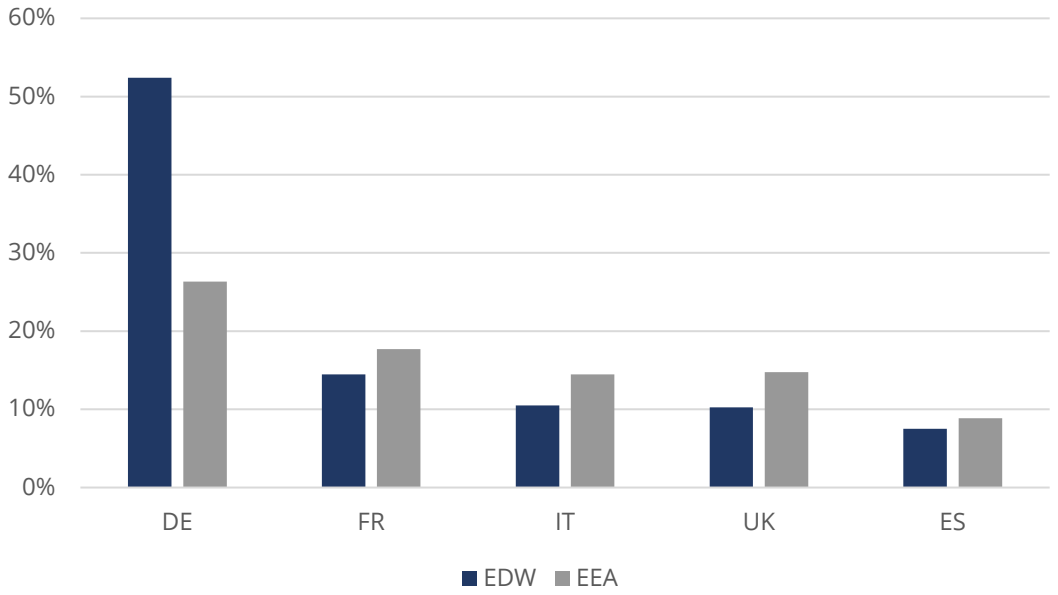
SECURITISED PORTFOLIOS VS. EEA DATABASE: A REPRESENTATIVE SAMPLE

MANUFACTURER AND COUNTRY RANKINGS ALIGN CLOSELY

Most Represented Manufacturers in Securitised Portfolios vs. EEA Database

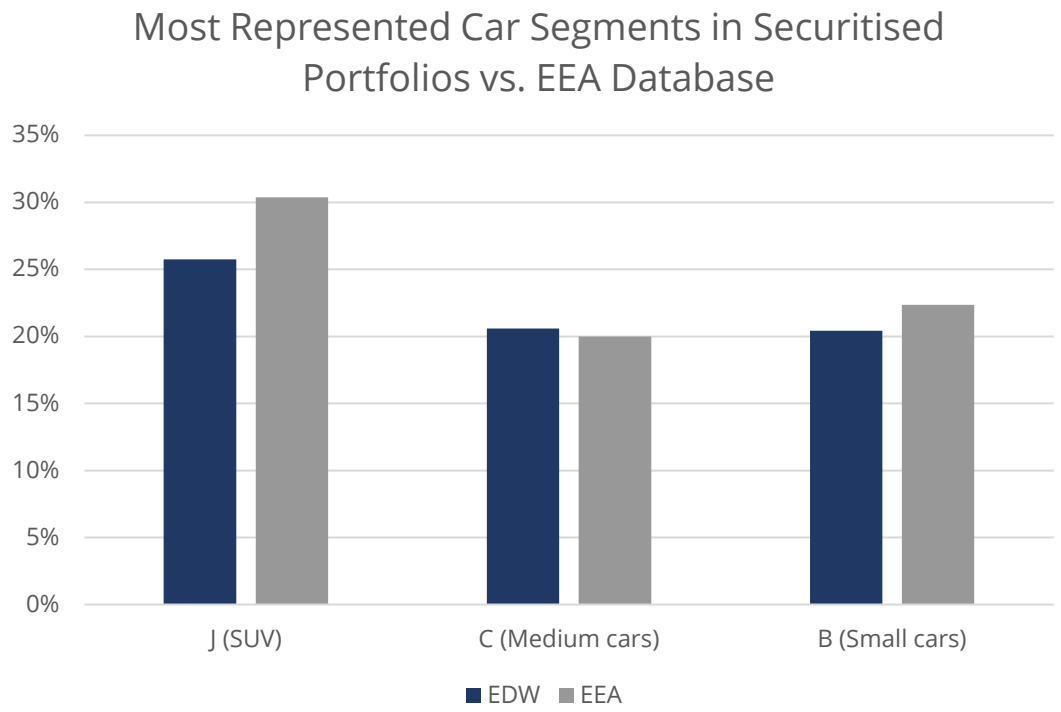


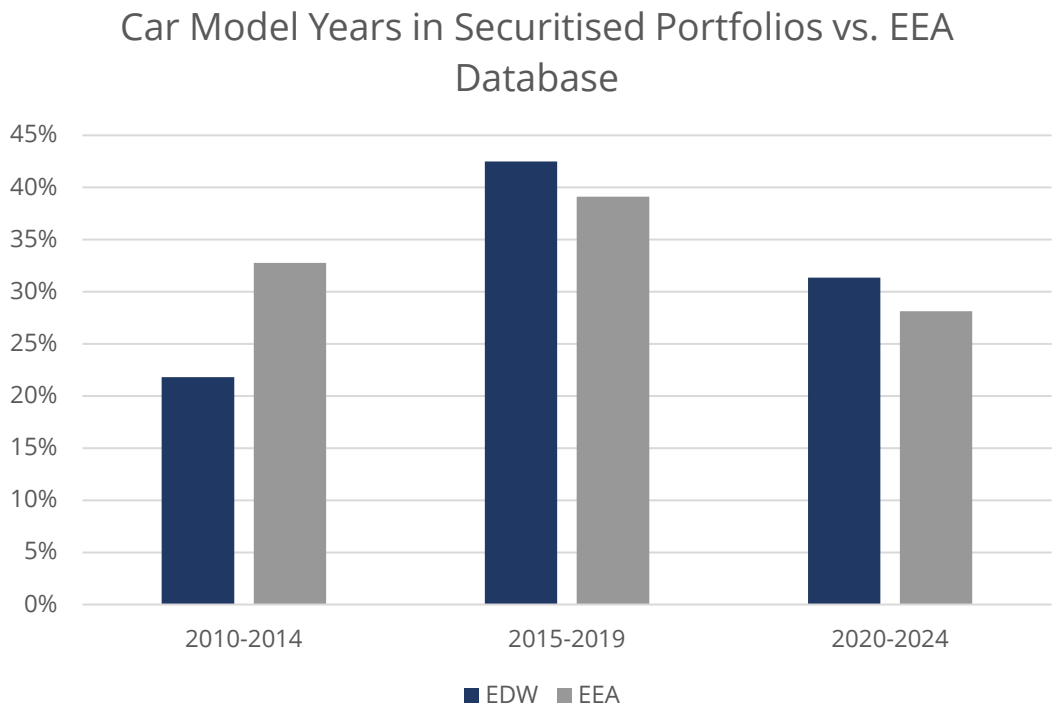
Most Represented Countries in Securitised Portfolios vs. EEA Database



SECURITISED PORTFOLIOS VS. EEA DATABASE: A REPRESENTATIVE SAMPLE

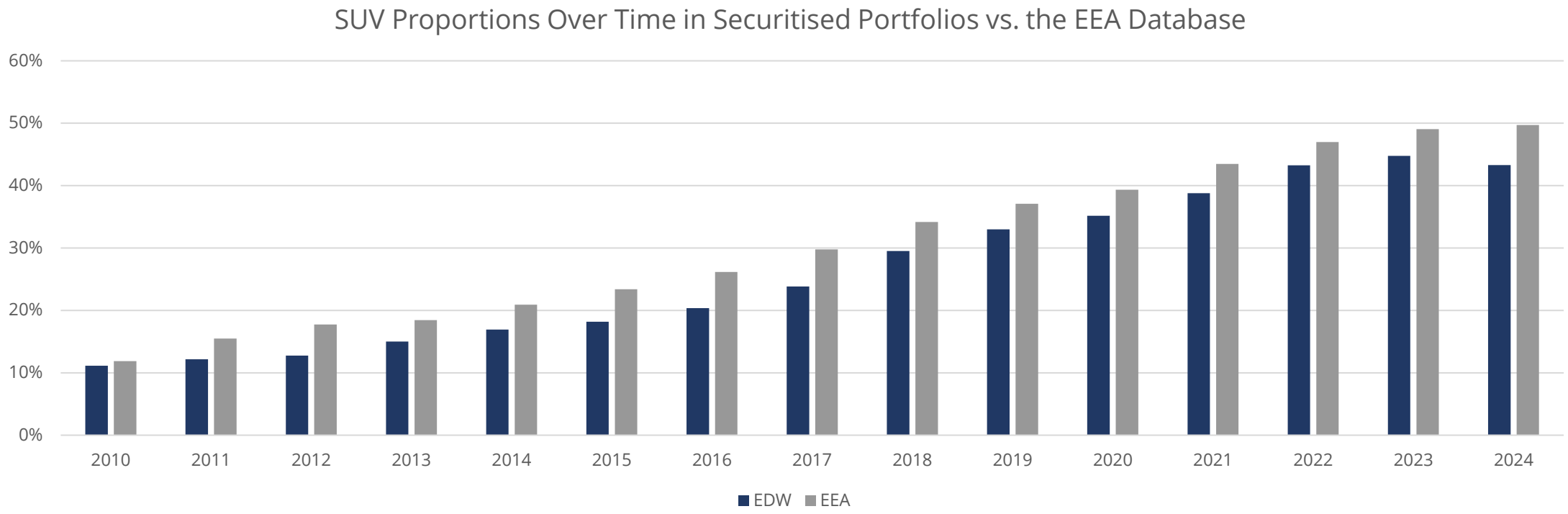
STRONG ALIGNMENT BETWEEN CAR SEGMENT AND VEHICLE MODEL YEAR RANKINGS





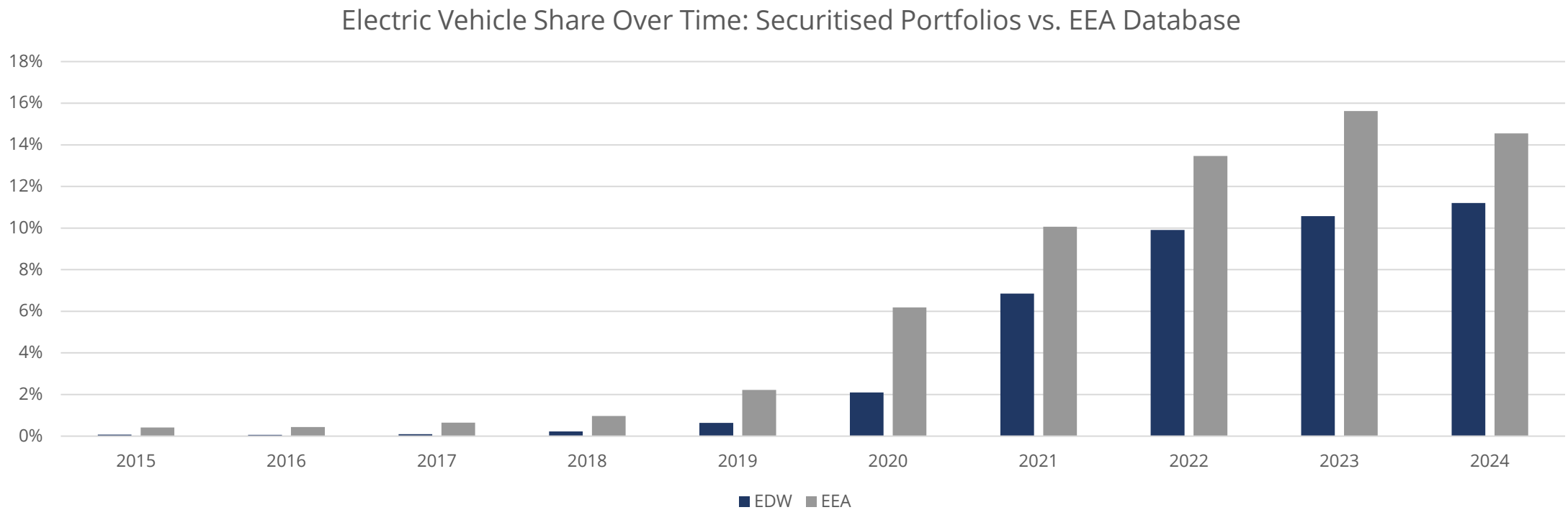
SECURITISED PORTFOLIOS VS. EEA DATABASE: A REPRESENTATIVE SAMPLE

SUVS NOW REPRESENT A SHARPLY RISING SHARE OF ALL VEHICLES SOLD IN THE LAST FIVE YEARS



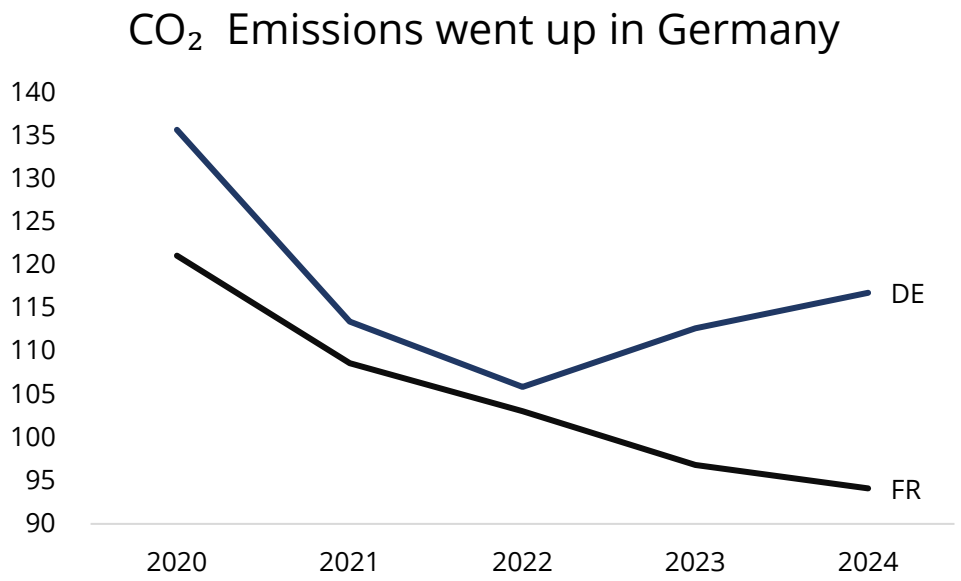
SECURITISED PORTFOLIOS VS. EEA DATABASE: A REPRESENTATIVE SAMPLE

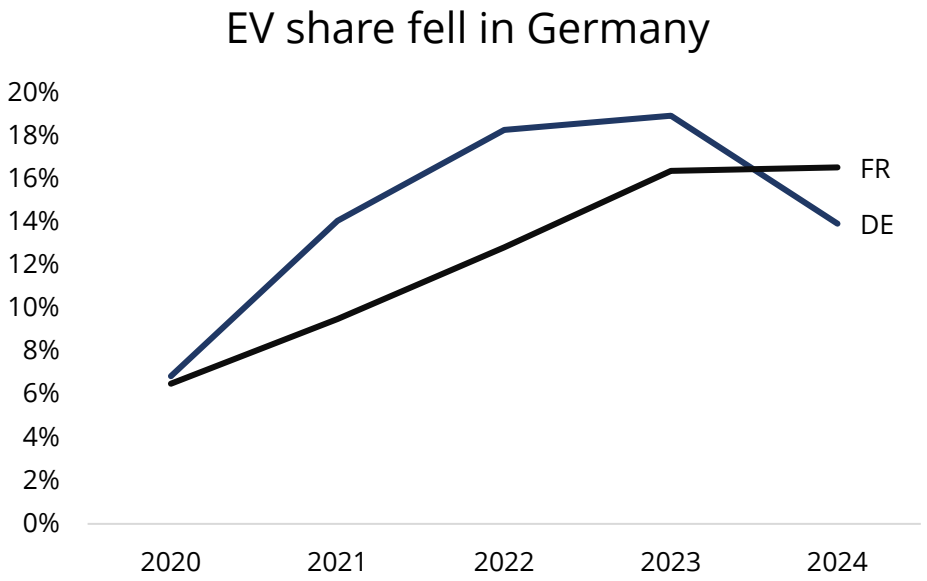
ELECTRIC VEHICLES NOW ACCOUNT FOR MORE THAN 10% OF ALL VEHICLES SOLD



GERMANY VS. FRANCE – DIVERGING PATHS ON CO_2 EMISSIONS AND EV ADOPTION

THE GERMAN SLOWDOWN CONTRASTS WITH CONTINUED FRENCH PROGRESS





WHAT ARE THE MOST POPULAR ELECTRIC VEHICLES IN GERMANY AND FRANCE?

GERMANY – TESLA MODEL Y

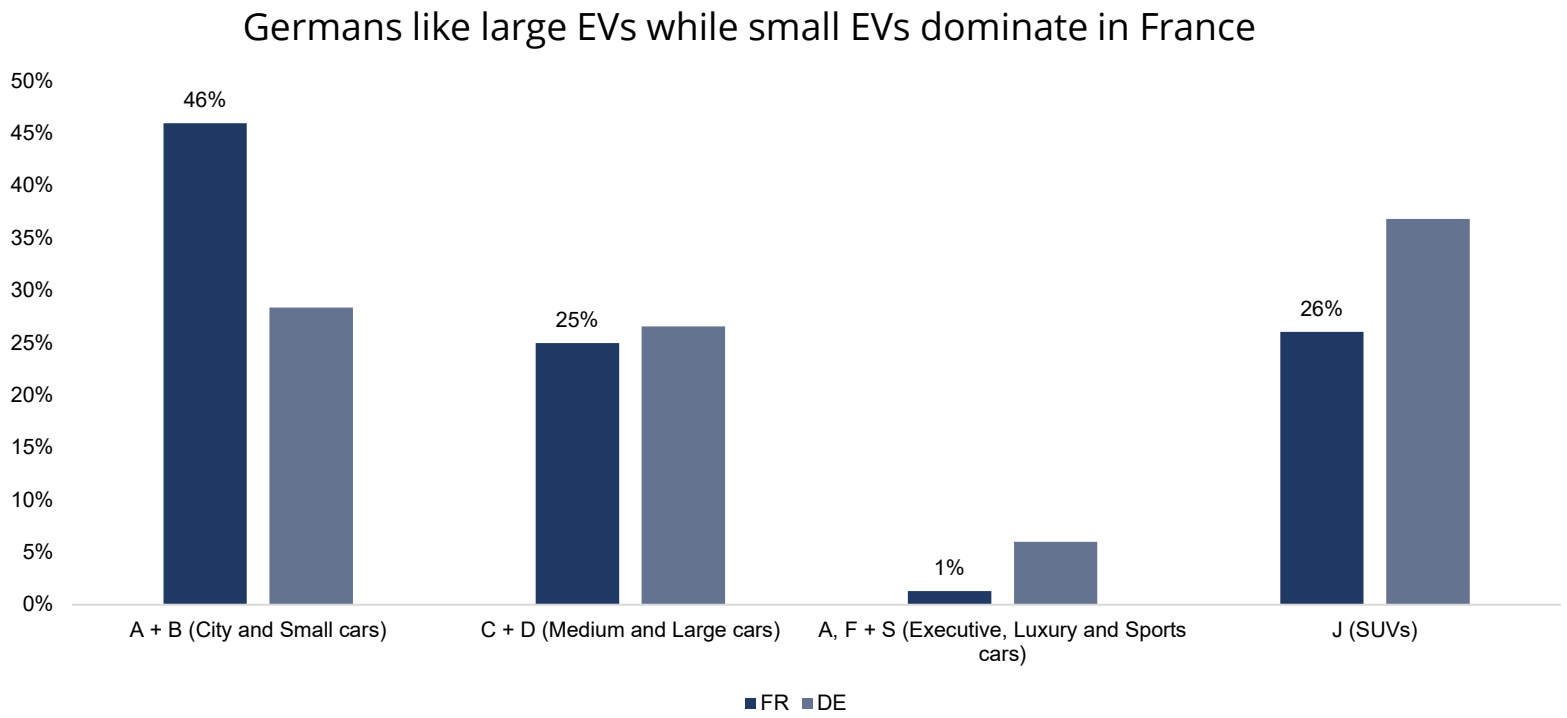
FRANCE – RENAULT ZOE

49,034	CAR VALUE	23,432
511	MONTHLY INSTALLMENT	185
116,012	BORROWER INCOME	41,347
5.3%	MONTHLY DTI	5.5%

TESLA FOR THE FEW!

ZOE FOR THE MANY!

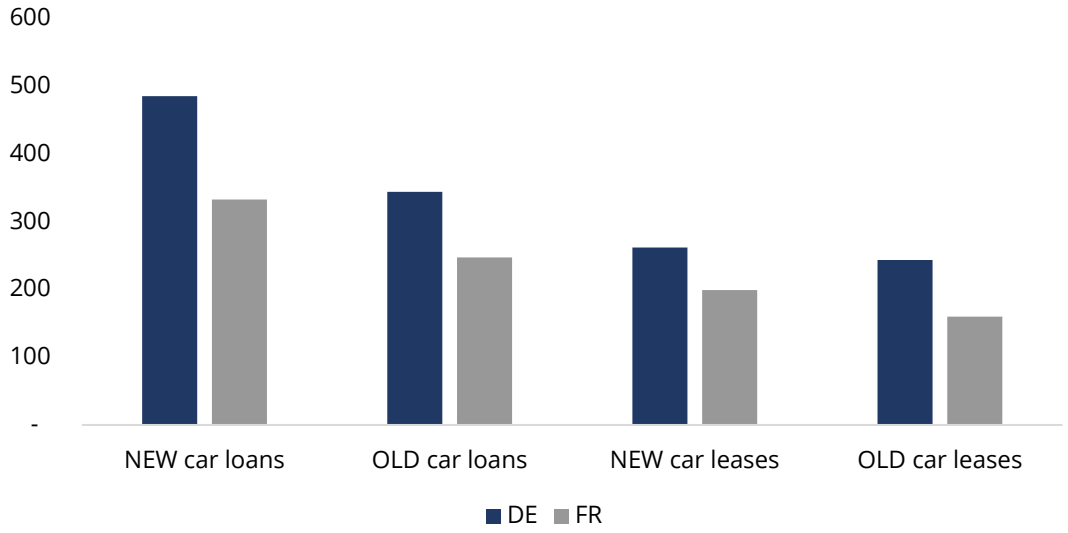
WHAT ARE THE MOST POPULAR EV SEGMENTS IN GERMANY AND FRANCE?



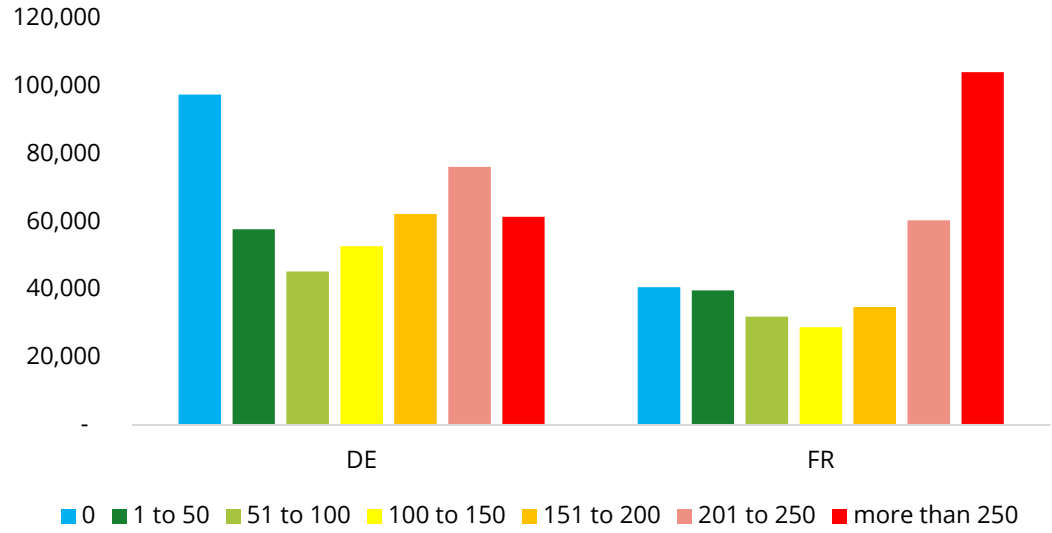
EV FINANCING PATTERNS: GERMANY VS. FRANCE

HIGH EARNERS REPRESENT GERMAN EV BUYERS WHILE FRENCH CONSUMERS OPT FOR AFFORDABLE MODELS

Monthly Installments for EVs are lower in France

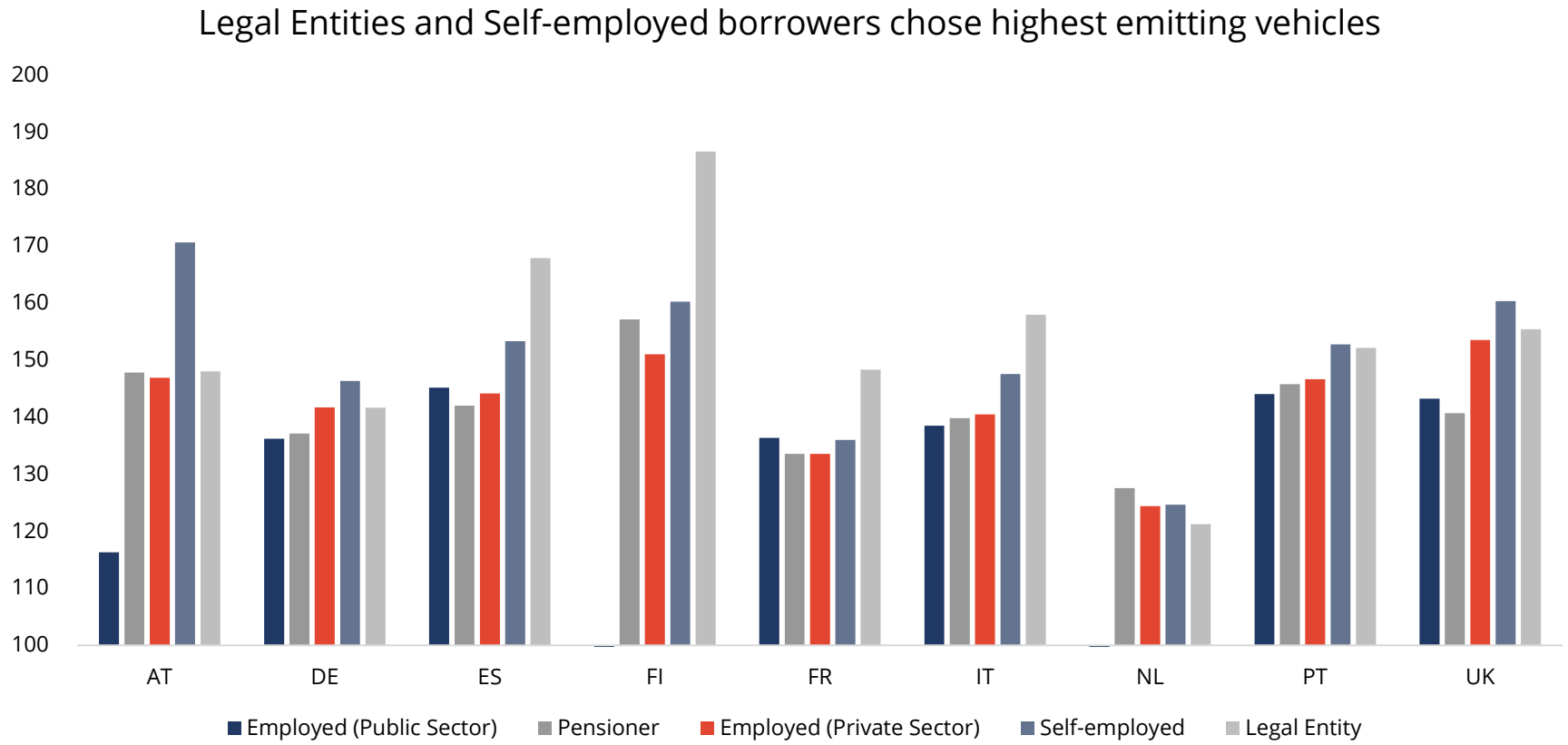


Gross Income of Borrowers by CO_2 Emissions



Note: Only using data for employed borrowers with loans originated since 2020
Average CO_2 emissions of cars in g/km (WLTP standard)

CO_2 EMISSIONS ACROSS COUNTRIES BY TYPE OF EMPLOYMENT

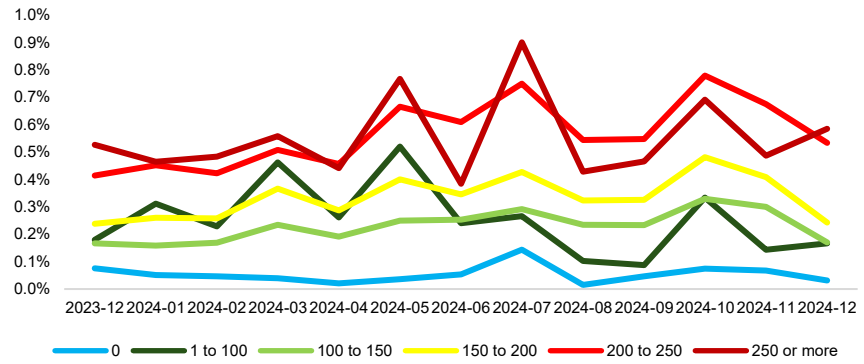


*Average CO_2 emissions of cars in g/km (WLTP standard)

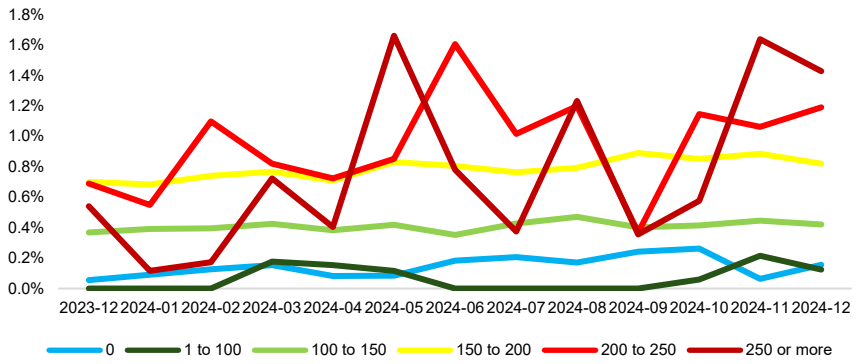
30 TO 60 DAY DELINQUENCIES BY CO_2 EMISSIONS

POLLUTING CARS HAVE HIGHER DELINQUENCIES

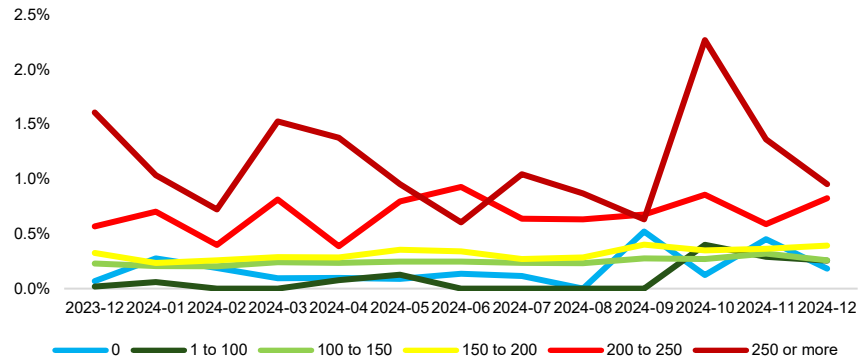
GERMANY



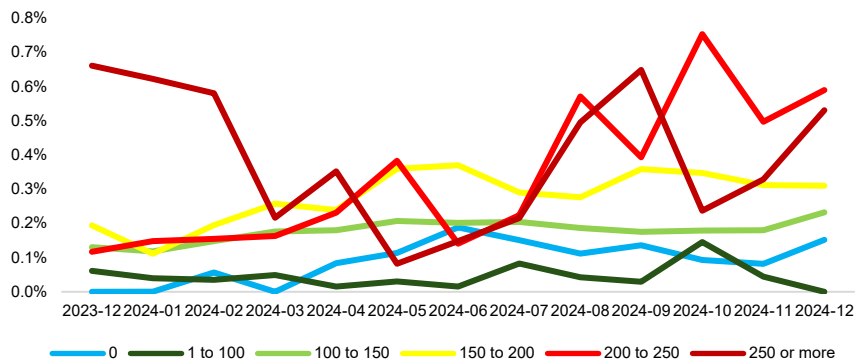
FRANCE



SPAIN



ITALY



Note: Only using data for employed borrowers

PANEL: CHARGING AHEAD: BRIDGING CARMAKER CHALLENGES AND CONSUMER SCEPTICISM IN E-MOBILITY

DR. CHRISTIAN THUN, EUROPEAN DATAWAREHOUSE
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ARMIN KRAPF, MOODY'S RATINGS
TOM OELRICH, DZ BANK
MICHAEL ORTH, DEUTSCHE LEASING

CLOSING REMARKS

PROF. LORIANA PELIZZON, SAFE

MARCO ANGHEBEN, EUROPEAN DATAWAREHOUSE

KEY REVISIONS TO THE SECURITISATION REGULATION (EU) 2017/2402

Replacement of the current EPC Value field — categorising vehicle emissions by classes A to G — with a new field reporting the vehicle's **CO_2 Emissions** (in g/km) in accordance with WLTP standards.
The new field will display a numeric value or an emissions range (e.g., 0–50, 50–75, etc.) and will be implemented in compliance with GDPR.

Elimination of the **EPC Provider Name** field, as it is not necessary for vehicles and similar assets.

Specification that the vehicle identifier field must follow a standardised logic aligned with the European Environment Agency database and ongoing open-data releases. In particular, it introduces the use of existing vehicle identifiers — or components thereof — such as the Type Approval Number (TAN) and the Type-Variant-Version Code (TVV), to enable the integration of loan-level data with sustainability-related vehicle information from ancillary sources, in compliance with GDPR.

Q&A

MOODY'S
RATINGS

MOODY'S INVITES YOU TO JOIN NETWORKING DRINKS

THANK YOU

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THANK YOU