EUROPEAN
DATAWAREHOUSE

NEW YEAR RESEARCH UPDATE

28 FEBRUARY 2022

ON TODAY'S CALL

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COVID-19 UPDATE

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METHODOLOGY

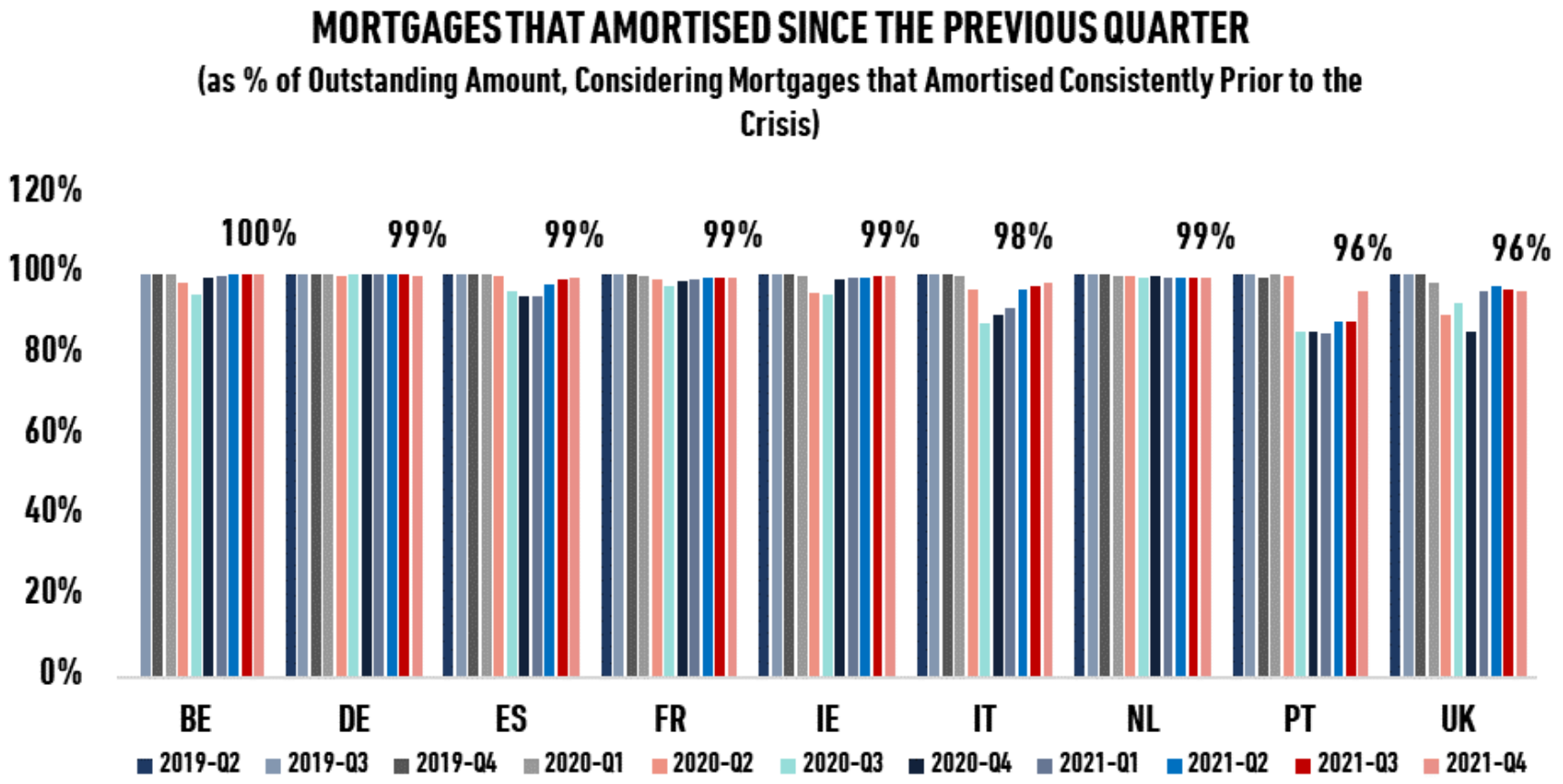
We see if the loans that amortised in each quarter in 2019 also amortised in the following quarters

Select loans whose Current Balance at the end of each quarter is less than the quarter before

Calculate the portion of selected loans that still had a decrease in balance in each of the following quarters

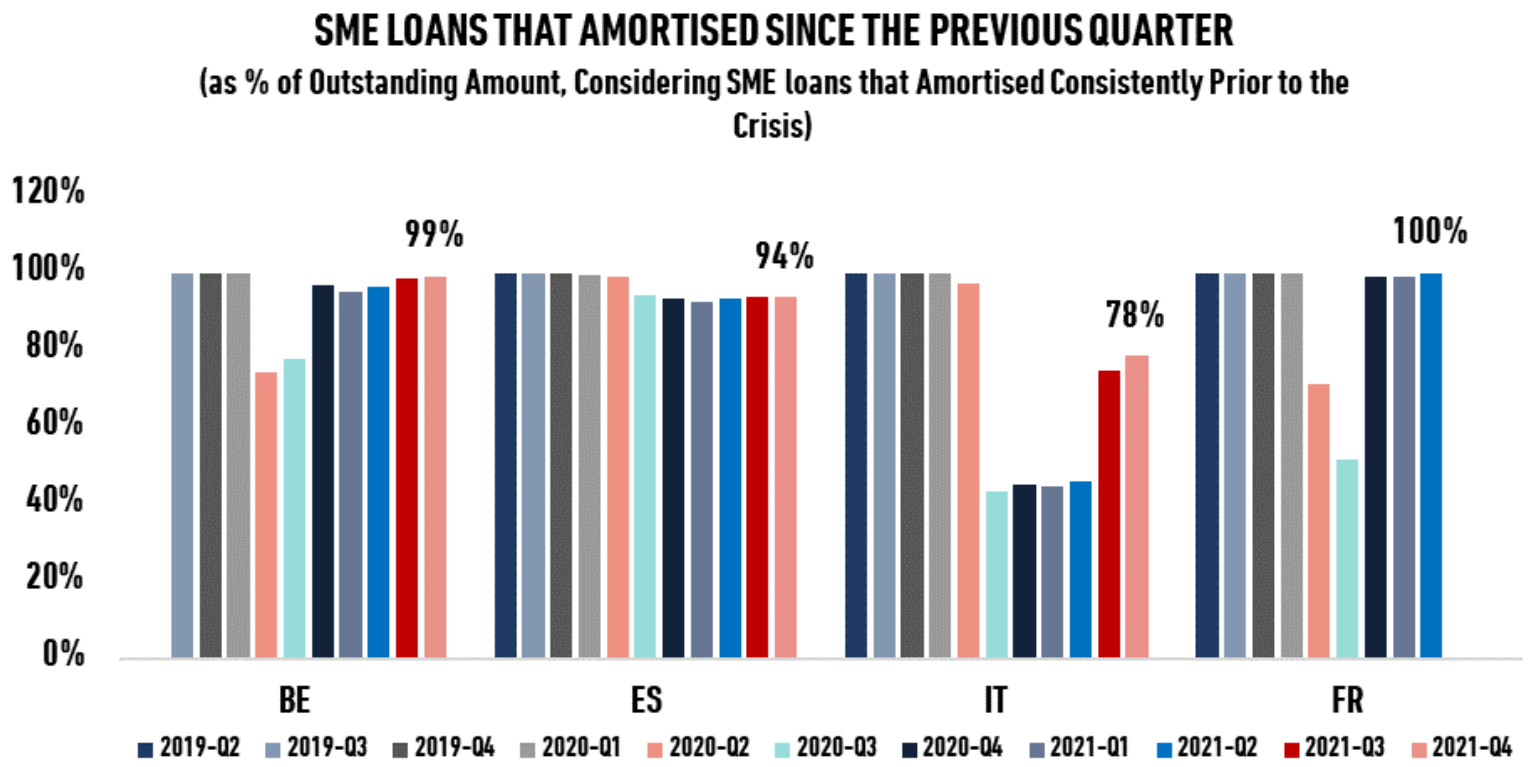
RESIDENTIAL MORTGAGES

Most Borrowers in all countries seem to have started to make their payments again



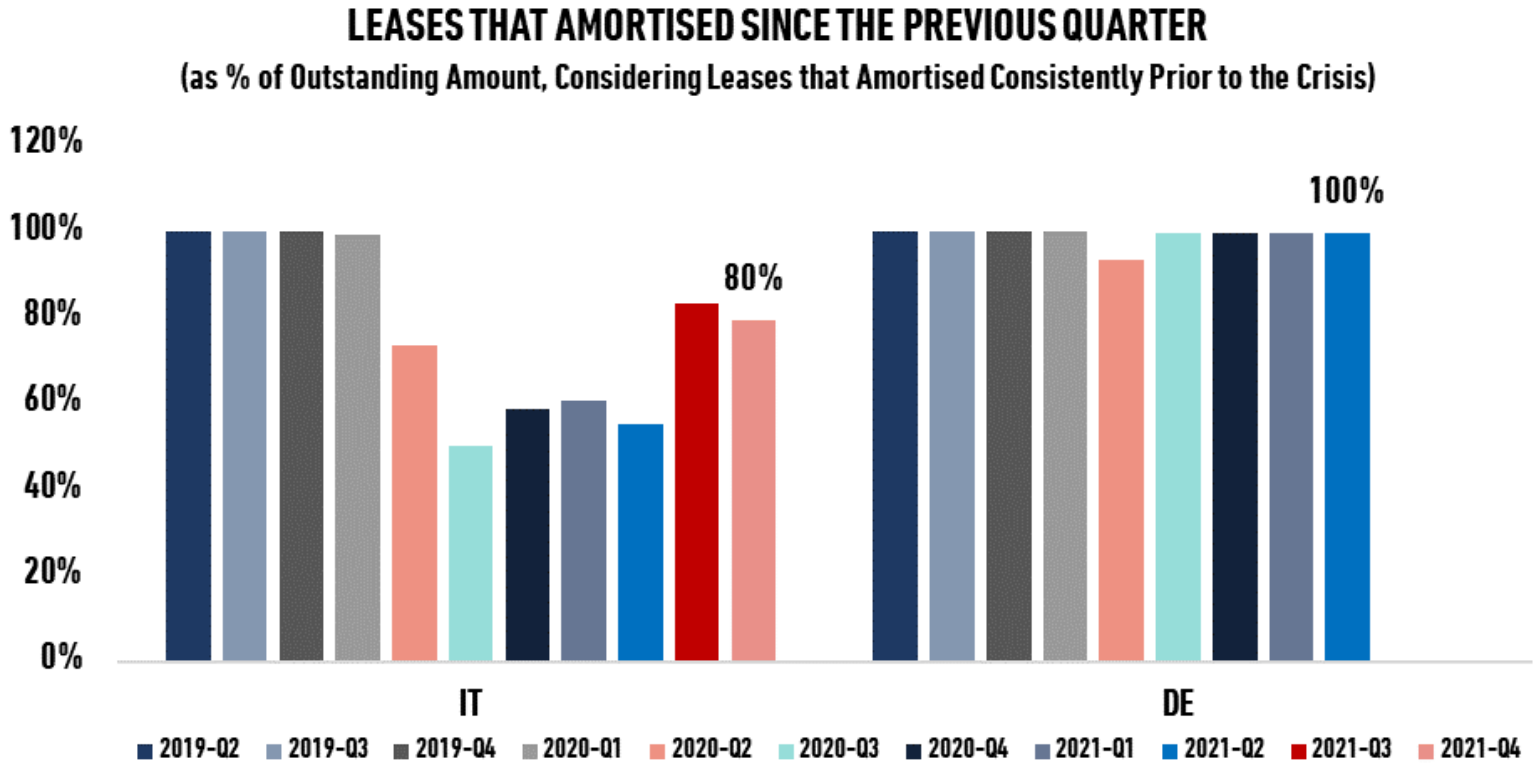
SME LOANS

Loans to Italian SMEs had the strongest fall in amortisation and they have since recovered significantly



LEASES

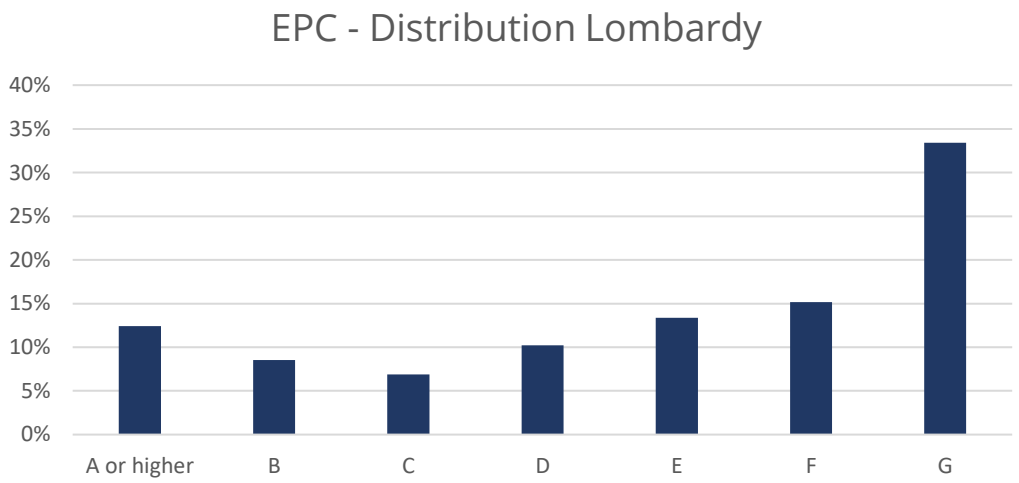
Italian Leases have also recovered significantly in the last 2 quarters

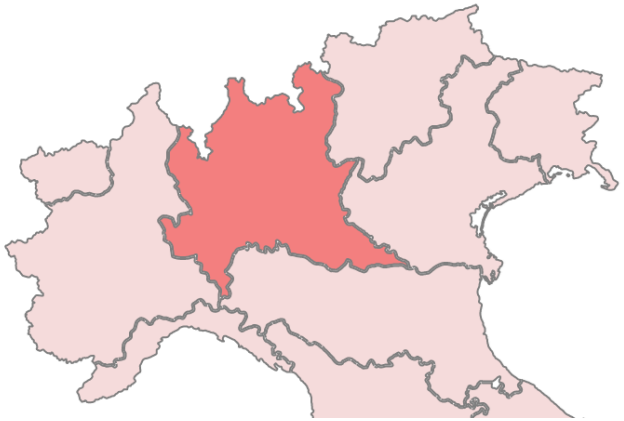


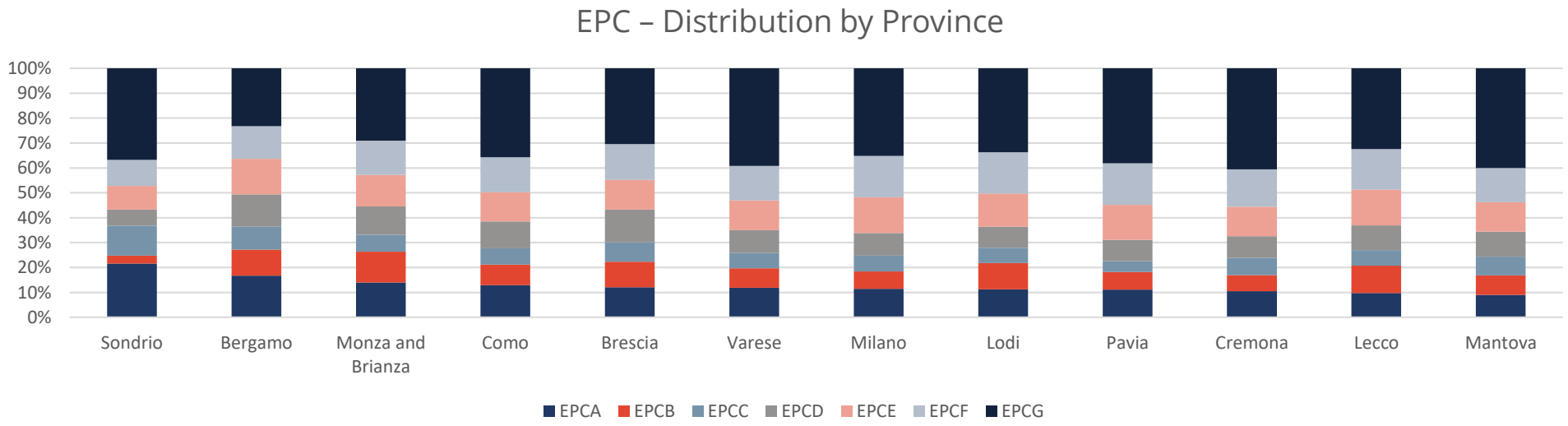
ENERGY PERFORMANCE CERTIFICATE MATCHING

ANDREA BEDIN, EUROPEAN DATAWAREHOUSE

ANALYSIS OF THE ENERGY PERFORMANCE CERTIFICATES IN LOMBARDY







CENED: THE EPC REGISTER IN LOMBARDY

CENED
Certificazione ENergetica degli EDifici

Data Sample

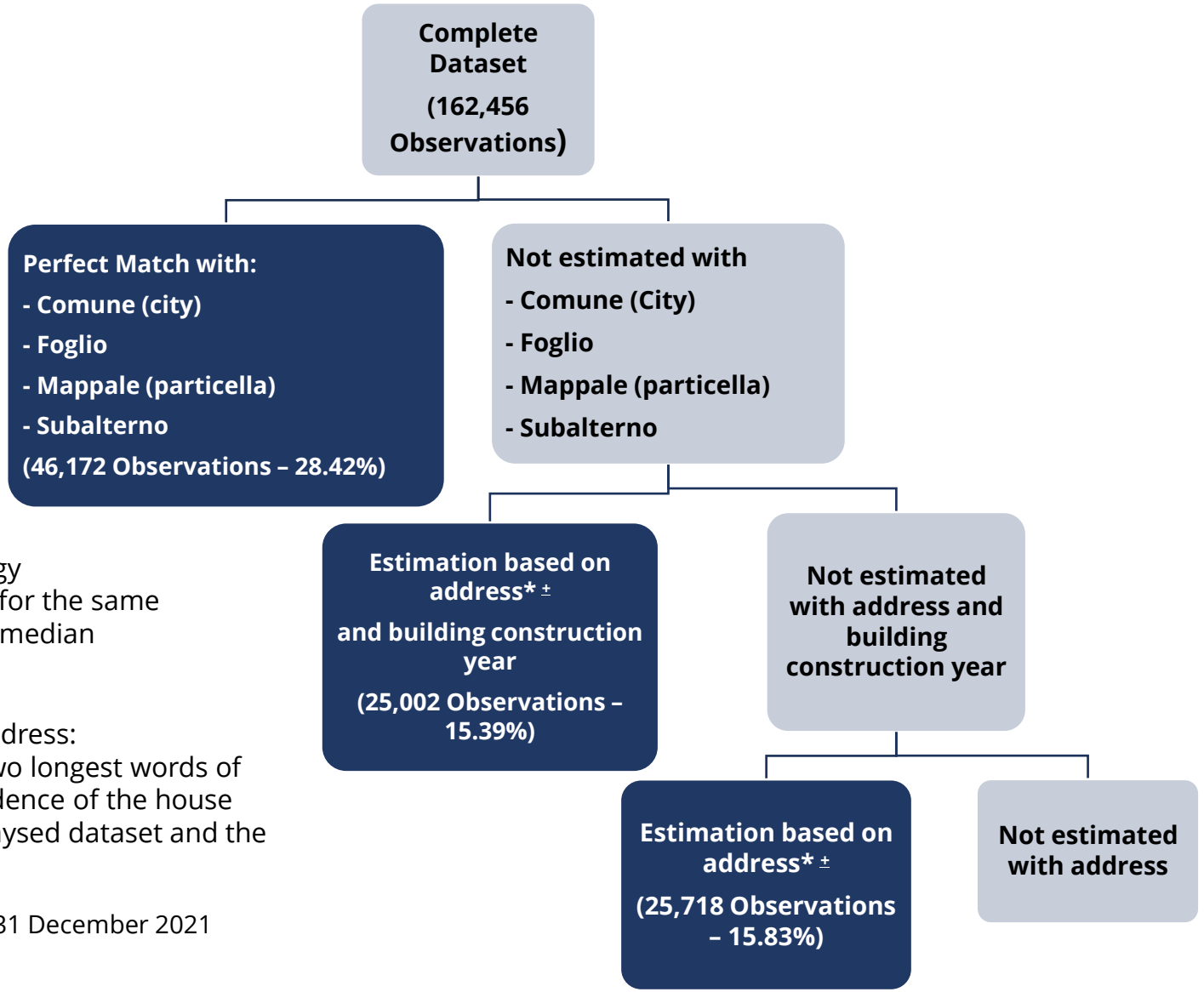
Mortgage Information				Building Information with cadastral data							
Loan ID	Borrower ID	Building ID	Amount of the financing	City	Address	House Number	FOGLIO	MAPPALE	SUBALTERNO	Year of building completion	ENERGY PERFORMANCE
919897	532942	253951	€108,392.00	SIRMIONE	VIA TRENTO	1	10	177	22	1995	
786274	880905	232955	€106,850.00	VILLIMPENTA	VIA GANDHI	5	7	601	1	2010	
690293	863507	326831	€187,002.00	MILANO	VIA RAFFAELE PARRAVICINI	18	196	236	3	1955	
381670	616389	870795	€255,837.00	GIUSSANO	VIA GIUSEPPE PARINI	40	2	432	3	2011	
623376	567003	355897	€105,512.00	GARDONE RIVIERA	CORSO ZANARDELLI	210	5	847	84	1990	
613700	212842	281623	€207,794.00	MILANO	VIA FUMAGALLI	3	520	5	781	1900	
844437	333663	448958	€432,807.00	NOVATE MILANESE	VIA MATTEOTTI	18	16	291	4	1966	
273472	108300	995250	€466,528.00	PALAZZAGO	VIA FRATELLI RIPAMONTI	3	15	5558	716	1962	
932633	118526	680960	€311,151.00	PAVIA	VIA PIETRO NENNI	65	26	704	21	1978	
973318	194032	995089	€477,217.00	VIGEVANO	VIA PASCOLI	5	17	2058	1	1948	

CENED Sample

CENED Information							
City	Address	House Number	foglio	particella	subalterno	Year Of construction	Energy Performance Certificate
NOVATE MILANESE	VIA MATTEOTTI	18	16	291	4	1966	E
PALAZZAGO	VIA FRATELLI RIPAMONTI	3	15	5558	716	1961-1976	F
MILANO	VIA FUMAGALLI	3	520	5	781	Prima del 1930	A1
SIRMIONE	VIA TRENTO	1	10	177	22	1993-2006	G
GARDONE RIVIERA	CORSO ZANARDELLI	210	5	847	84	1977-1992	D
VILLIMPENTA	VIA GANDHI	5	7	601	1	2010	C
MILANO	VIA RAFFAELE PARRAVICINI	18	196	236	3	1946-1960	G
PAVIA	VIA PIETRO NENNI	65	26	704	21	1977-1992	F
VIGEVANO	VIA PASCOLI	5	17	2058	1	1946-1960	G
GIUSSANO	VIA GIUSEPPE PARINI	40	2	432	3	2011	C

Source: CENED Website

EPC MATCHING METHODOLOGY



*In case of multiple energy performance certificates for the same address we calculate the median value of Co2 emissions.

± Estimation based on address: correspondence of the two longest words of the address + correspondence of the house number between the anaysed dataset and the CENED database.

CENED data updated as of 31 December 2021

EPC EXTRACTION EXAMPLES WITH PERFECT COMBINATION AND ESTIMATES

Perfect match with Foglio Mappale Subalterno

Sample Bank Data							CENED Data						
Loan ID	City	Address	House Number	Foglio	Mappale	Subalterno	EPC Date	EPC	Type of Match	CO2 Emissions	City	Address	Foglio, Mappale, Subalterno
1	SAN PAOLO	Via dello Stornello	6	17	415	10	22/12/2019	D	FMS	27.77	SAN PAOLO	Via dello Stornello 6	17,415,10
2	MILANO	VIA MARCO AURELIO	39	233	39	703	22/12/2019	F	FMS	68.78	MILANO	VIA MARCO AURELIO 39	233,39,703
3	SARONNO	Corso Italia	39	11	25	1	23/12/2019	G	FMS	179.77	SARONNO	Corso Italia 39	11,25,1

Estimate based on Address and year of building construction *

Sample Bank Data									CENED Data							
Loan ID	City	Address	House Number	Date of building Construction	Foglio	Mappale	Subalterno	EPC Date	EPC	Type of Match	CO2 Emissions	City	Address	Date of Building Construction	Foglio, Mappale, Subalterno
4	VIGEVANO	VIA SETTE DORMIENTI	54	1940	19	3647	20	01/01/2016	G	Address + Building Date	96.56	VIGEVANO	VIA SETTE DORMIENTI 54	1940	9,3647,17
5	COLOGNO MONZESE	VIA GIOACHINO ROSSINI	7	1967	6	73	80	01/02/2016	G	Address + Building Date	38.64	COLOGNO MONZESE	VIA GIOACHINO ROSSINI 7	1967	6,73,77
6	MILANO	Via della Chiusa	2	2008	436	319	802	01/01/2020	A2	Address + Building Date	63.13	MILANO	Via della Chiusa 2	Dopo il 2006	436,320,76

Estimate with only Address

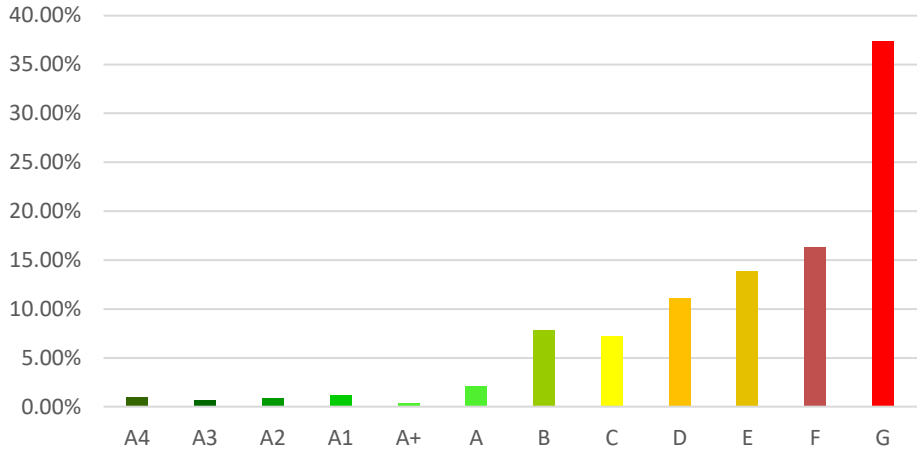
Sample Bank data				CENED Data					
Loan ID	City	Address	House Number	EPC Date	EPC	Type of Match	CO2 Emissions	City	Address
7	MILANO	Via Gamboloita	4	01/01/2018	E	Address	14.65	MILANO	Via Gamboloita 4
8	CASTELLANZA	Via Varese	6	01/01/2021	E	Address	40.04	CASTELLANZA	Via Varese 6
9	MILANO	VIA BRONZETTI	35	01/01/2021	F	Address	40.36	MILANO	VIA BRONZETTI 35

Source: CENED database

PERCENTAGES OF ENERGY PERFORMANCE CERTIFICATES WITH THE DIFFERENT METHODOLOGIES

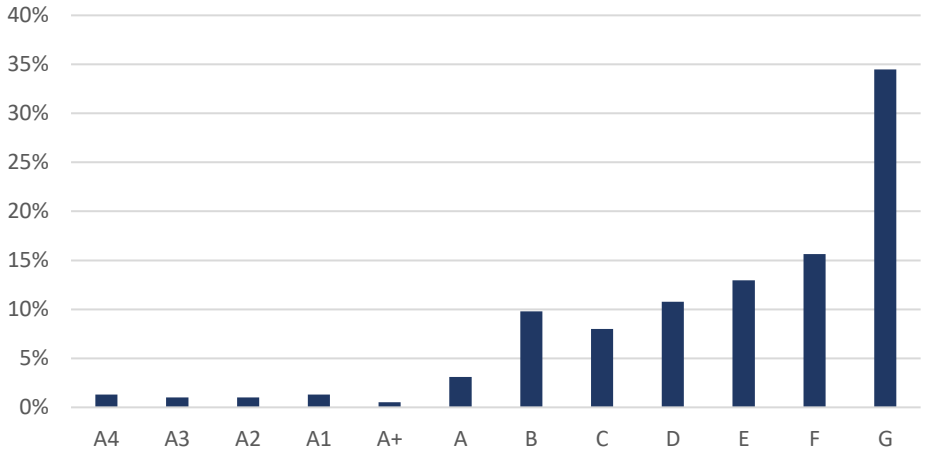
Energy Performance Certificates

All observations



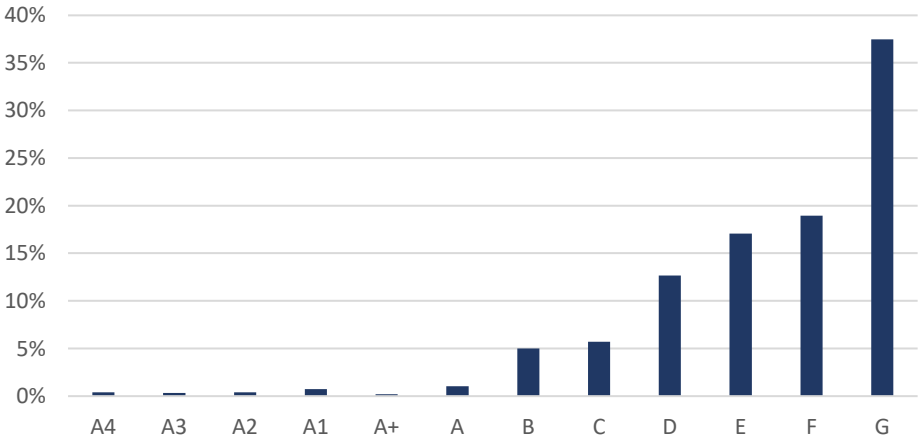
Energy Performance Certificates

Perfect match with Foglio-Mappale-Subalterno



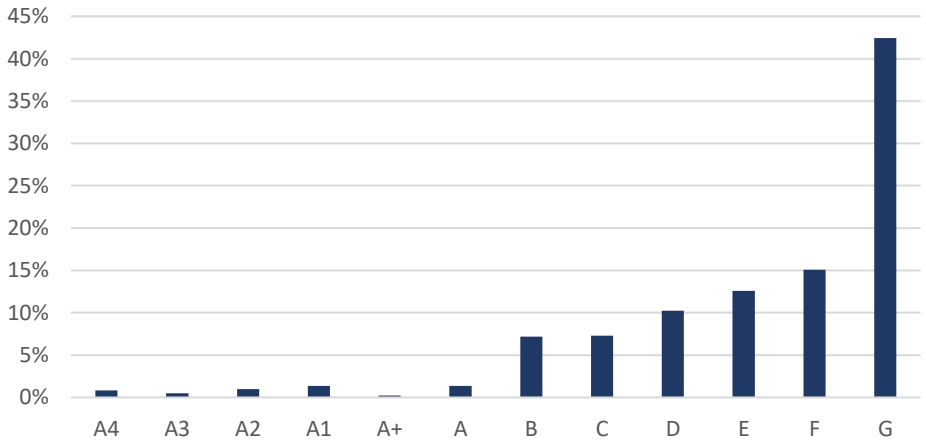
Energy Performance Certificates

Estimate based on address and building construction year



Energy Performance Certificates

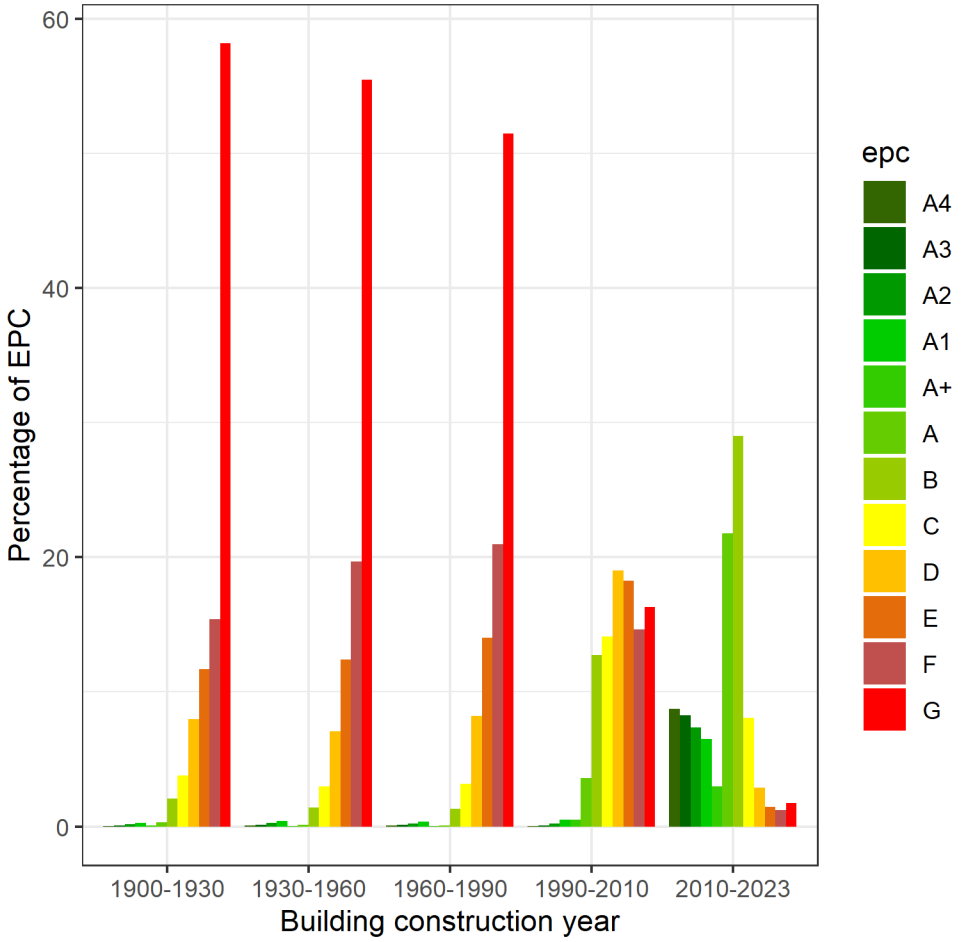
Estimate based on address



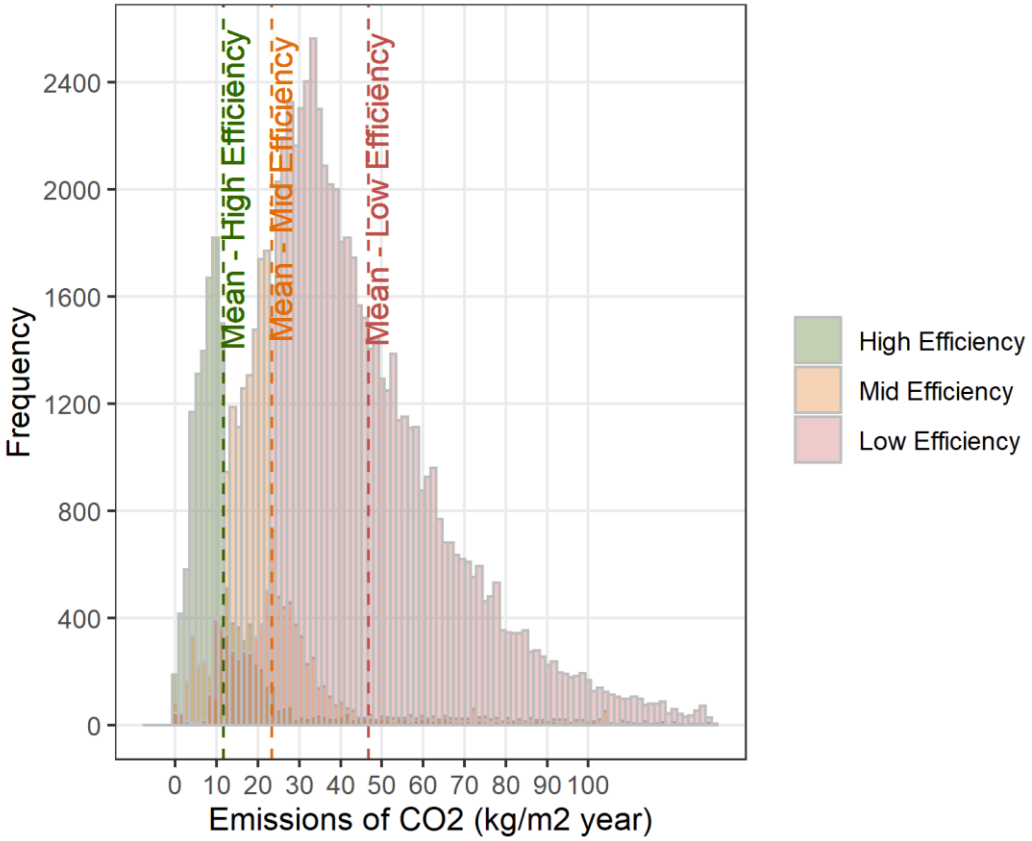
Source: EDW Calculations

EPC ANALYSIS – KEY RESULTS

Energy Performance Certificate by building construction year

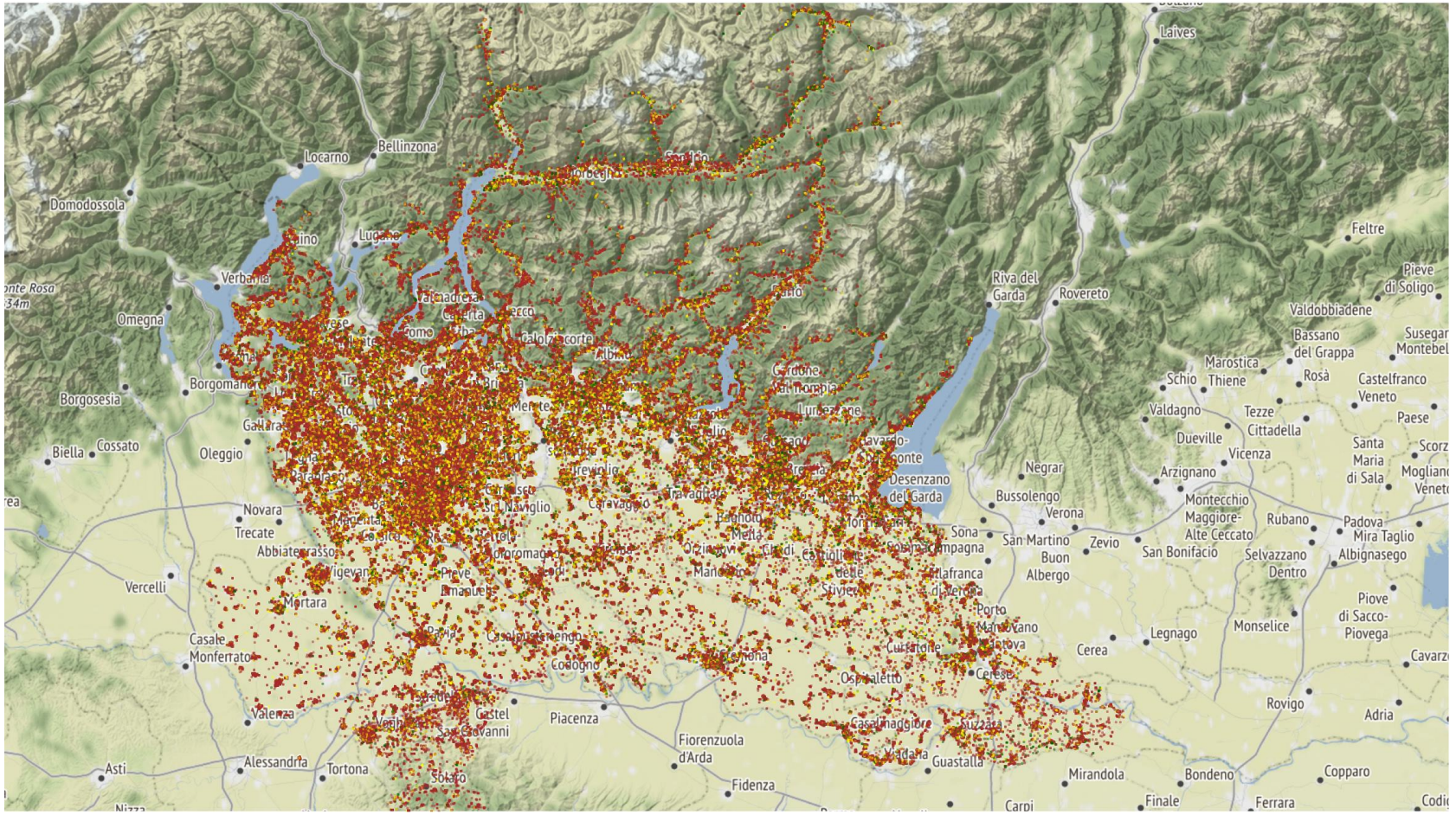


Co2 emissions by energy efficiency class



Notes: High Efficiency = A4-B;
Mid Efficiency = C,D;
Low Efficiency = E-G
Source: CENED and EDW Calculations

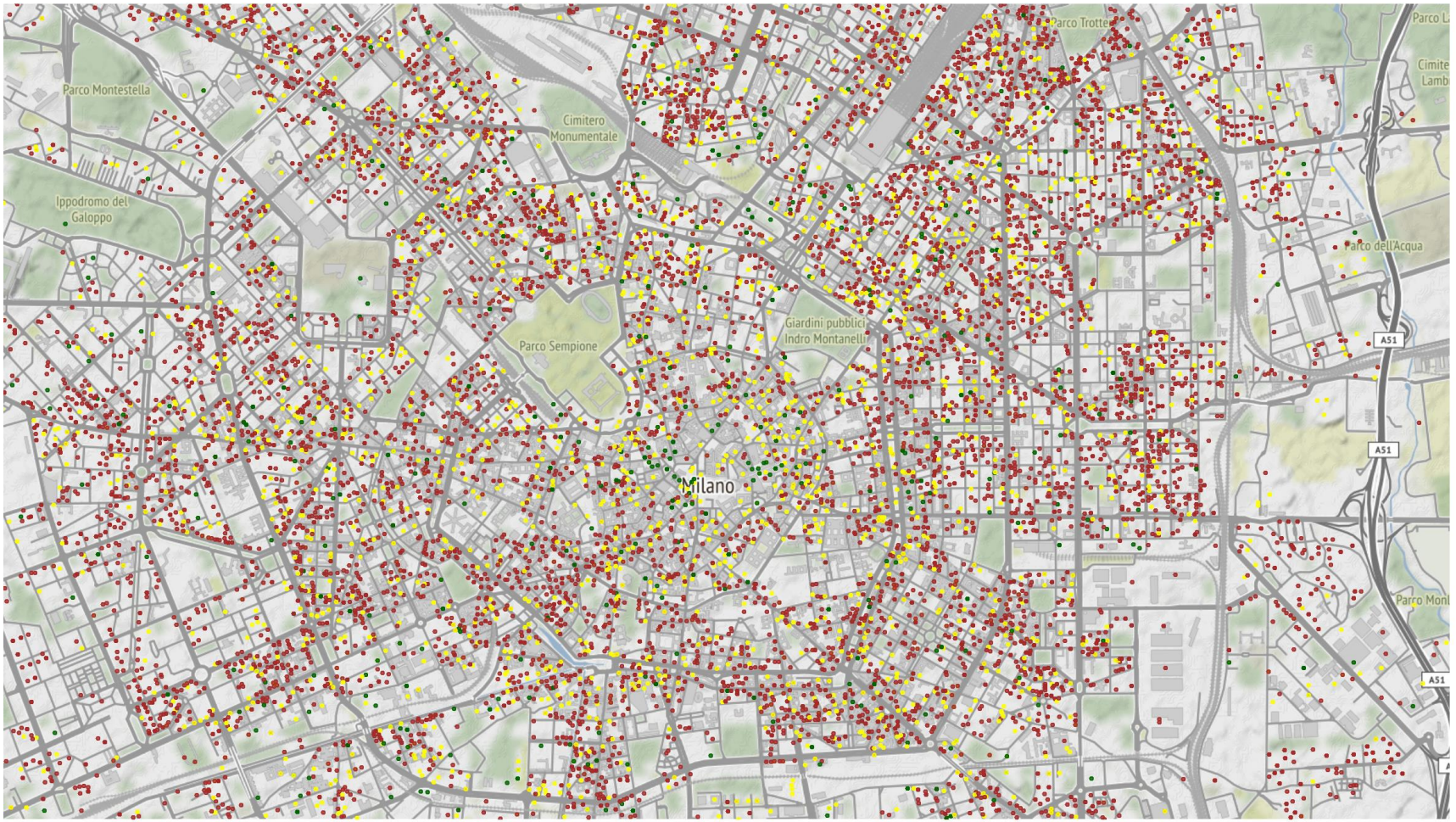
GEOGRAPHICAL DISTRIBUTION CENED EPC – LOMBARDY



High Efficiency
Mid Efficiency
Low Efficiency

Notes: High Efficiency = A4-B;
Mid Efficiency = C,D;
Low Efficiency = E-G
Source: CENED and EDW Calculations

GEOGRAPHICAL DISTRIBUTION CENED EPC – MILAN



Notes: High Efficiency = A4-B;
Mid Efficiency = C,D;
Low Efficiency = E-G
Source: CENED and EDW Calculations

EDW'S ADJUSTED DATABASE

LUDOVIC THEBAULT, EUROPEAN DATAWAREHOUSE

ADJUSTED DATABASE

EDW RESPONDS TO DEMAND FOR CORRECTED ECB DATABASE

The Benefits:

The data, covering Q1 2013 - Q4 2021, is amended to improve usability and reduce the preparation work for the data user.

The Goal:

In our adjusted database, we try to:

- Copy trustworthy data; or
- Copy corrected data when we can;
- Eliminate incorrect data that cannot be corrected;
- Add useful information where feasible/needed (WIP)

The Challenge

We cannot promise that the outcome will be 100% perfect, but...

we can promise that our research clients will gain time!

DATA QUALITY

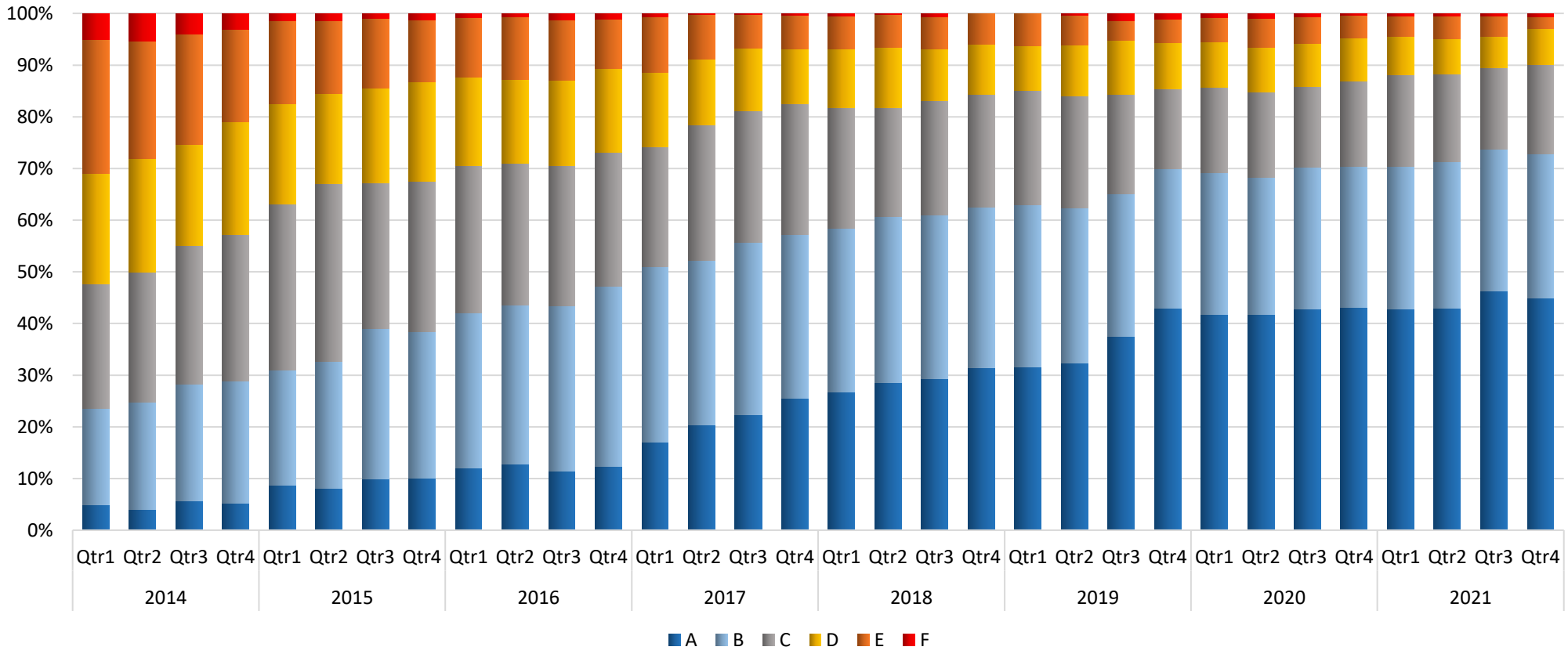
The data quality process

- EDW runs hundreds of data quality checks per loan level data (LLD) upload
- EDW uses a ticketing system to track errors until correction of the data
- Data provider/owners typically correct errors for the next submission but…
- Existing errors tend to stay in the database
- EDW produced data quality scores to track quality

Good to know

- The oldest data has the most issues
- Frequency of LLD submissions is not always uniform
- Inactive loans are dropped out of later submissions
- Loan identifiers are meant to be static but this is not always the case

DQS1 (DATA QUALITY SCORES) EVOLUTION FROM 2014 UNTIL Q4 2021 (ECB)



ADJUSTED DATABASE FEATURES

- Adjustments at the field level
- Adjustments at the EDCODE + PCD level
- Correct data errors where possible
- Report NULL when data is not usable
- Add extra fields where needed (WIP)
- Exclude the worst data submissions
- Preserve time series since 2013

DATA QUALITY ISSUES

EXAMPLES AND AMENDMENTS

EXTREMELY IMPLAUSIBLE VALUES AND DUMMY VALUES

Description and detection

- Dummy values are extremely implausible values that are used instead of reporting ND
- Dummy values should not be used in calculations as they can have severely distorting effects
- Examples include:
  - AR136 (valuation **amount**) 99999999999
  - AS55 (loan **amount** SME) 99999999999.99
  - AS50 (origination **date** SME) 1900-01-01; 0001-01; 9999-12-01
  - AS37 (SME LGD) 999.99

Non-dummy value issues

- Other sanity checks implemented:
  - Eg. some dates should not be later than the data reporting date
- Dummy or extremely implausible values replaced by NULL

DUMMY VALUES AFFECTING AMOUNTS

Example of decimal point errors affecting field AS55 (loan amount – SME)

- Total is distorted by dummy values
- Replace the dummy by NULL

EDCODE	PCD	Total	MaxAS55	Amended Total	Fix
SMESES000089101320051	2013-03-28	300,333,921,482	99,999,999,999.99	**333,921,482**	Excl. dummy
SMESES000089101320051	2013-04-30	300,327,672,535	99,999,999,999.99	**327,672,535**	Excl. dummy
SMESES000089101320051	2013-07-26	200,309,305,175	99,999,999,999.99	**309,305,175**	Excl. dummy
SMESES000089101320051	2013-09-23	296,733,295	11,910,747.44	**296,733,295**	
SMESES000089101320051	2013-10-24	293,560,254	11,910,747.44	**293,560,254**	

DECIMAL POINT ISSUES AFFECTING AMOUNTS

Example of decimal point error affecting field AR67 (loan amount) – amounts reported in cents are divided by 100 to adjust

EDCODE	PCD	Total	Minloan	Maxloan	Amendment	Factor
RMBSES000065100820109	2012-12-31	543,666,534	-	5,137,760	543,666,534	1
RMBSES000065100820109	2013-01-31	541,268,537	-	5,137,760	541,268,537	1
RMBSES000065100820109	2013-02-28	533,034,307	-	5,137,760	533,034,307	1
RMBSES000065100820109	2013-03-31	530,458,966	-	5,137,760	530,458,966	1
RMBSES000065100820109	2013-04-30	52,674,246,801	-	513,776,024	526,742,468	0.01
RMBSES000065100820109	2013-05-31	52,421,459,882	-	513,776,024	524,214,599	0.01
RMBSES000065100820109	2013-06-30	52,135,713,808	-	513,776,024	521,357,138	0.01
RMBSES000065100820109	2013-07-31	51,881,453,371	-	513,776,024	518,814,534	0.01
RMBSES000065100820109	2013-08-31	51,669,610,421	-	513,776,024	516,696,104	0.01
RMBSES000065100820109	2013-09-30	51,377,559,409	-	513,776,024	513,775,594	0.01
RMBSES000065100820109	2013-10-31	511,377,065	-	5,137,760	511,377,065	1
RMBSES000065100920081	2012-12-31	837,733,199	-	825,103	837,733,199	1
RMBSES000065100920081	2013-03-31	813,261,111	-	817,275	813,261,111	1
RMBSES000065100920081	2013-06-30	78,804,702,406	-	78,943,414	788,047,024	0.01
RMBSES000065100920081	2013-08-31	77,450,398,292	-	78,419,876	774,503,983	0.01
RMBSES000065100920081	2013-09-30	76,665,850,372	-	78,157,765	766,658,504	0.01
RMBSES000065100920081	2013-12-31	743,841,573	-	773,699	743,841,573	1
RMBSES000065101120061	2012-12-31	581,713,724	-	657,088	581,713,724	1
RMBSES000065101120061	2013-02-28	571,454,162	-	657,088	571,454,162	1
RMBSES000065101120061	2013-05-31	55,579,620,815	-	44,983,108	555,796,208	0.01
RMBSES000065101120061	2013-07-31	54,614,359,961	-	44,645,161	546,143,600	0.01
RMBSES000065101120061	2013-08-31	54,200,701,041	-	44,475,970	542,007,010	0.01
RMBSES000065101120061	2013-11-30	529,959,463	-	439,675	529,959,463	1

DECIMAL POINT ISSUE AFFECTING PERCENTAGES

Decimal point error in field AR109 (current interest rate)

An interest rate is reported as 0.0338 instead of 3.38 (for example), we multiply by 100 to adjust

edcode	pcd	Min	Max	Average	loans	Amendment	Factor
RMBMUK000551100120075	2016-01-31	0.0069	0.0669	0.04	40,748	3.62	100
RMBMUK000551100120075	2016-03-31	0.0069	0.0669	0.04	39,688	3.60	100
RMBMUK000551100120075	2016-07-31	0.0069	0.0669	0.04	35,820	3.59	100
RMBMUK000551100120075	2016-10-31	0.0035	0.0639	0.03	37,047	3.38	100
RMBMUK000551100120075	2017-01-31	0.3500	6.3900	3.35	34,572	3.35	1
RMBMUK000551100120075	2017-04-30	0.3500	6.3900	3.33	32,115	3.33	1
RMBMUK000551100120075	2017-07-31	0.2500	6.3900	3.20	47,088	3.20	1
RMBMUK000551100120075	2017-10-31	0.2500	6.3900	3.18	44,525	3.18	1
RMBMUK000551100120075	2018-01-31	0.5000	6.3900	3.24	42,355	3.24	1
RMBMUK000551100120075	2018-04-30	0.5000	6.3900	3.15	44,106	3.15	1
RMBMUK000551100120075	2018-07-31	0.50	6.39	3.04	47,245	3.04	1
RMBMUK000551100120075	2018-10-31	0.75	5.60	3.11	44,467	3.11	1
RMBMUK000551100120075	2019-01-31	0.75	5.29	3.10	41,917	3.10	1

DATA QUALITY AFFECTING STATIC FIELDS

When implausible values are identified in a static field

- We assume that the last available reporting should be the correct one
- Foreign nationals should be a minority
- Check the OC - if there is a substantial proportion of FN, the OC should mention it

Example: looking for change of patterns

AR16 Optional field Y/N "Foreign National" indicating whether the borrower is a national of the country in which the property and mortgage loan resides. If no data available, refer to Taxonomy for inputs.

EDCODE	PCD	AR16	AR16 corrected	Sum Before correction	Sum After Correction
RMBSES000065101820066	2016-02-29	N	Y	311,483,323	40,518,220
RMBSES000065101820066	2016-02-29	Y	N	40,518,220	311,483,323
RMBSES000065101820066	2016-05-31	N	Y	305,618,091	40,271,123
RMBSES000065101820066	2016-05-31	Y	N	40,271,123	305,618,091
RMBSES000065101820066	2016-08-31	N	N	40,021,575	40,021,575
RMBSES000065101820066	2016-08-31	Y	Y	298,690,571	298,690,571
RMBSES000065101820066	2016-11-30	N	N	39,722,088	39,722,088
RMBSES000065101820066	2016-11-30	Y	Y	291,711,348	291,711,348

OTHER KEY AFFECTED FIELDS (LIST OF AFFECTED FIELDS)

Extremely implausible value

- A date later than the reporting date for a past event…
- A borrower age less than 18 years or more than 120 years…

Validated content

- Some fields have limited options, anything else should be NULL (i.e Y/N or 1,2,3)

Modified content

- Originator: when a number or a code is reported, we report the actual name
- An income in month instead of years (*12)
- A defaulted loan where the current amount is reported in the default amount field..
- Days in arrears: one data provider reported 90 days in arrears less than was the case (add 90 days to the number of days reported)

Excluded LLD (combination Edcode + PCD)

- Specific LLDs where key data cannot be rectified
- When 2 LLDs are reported in the same month, we only keep the latest (it is usually the correct one)
- When a LLD includes duplicate values
- Private deals are out,
- Deals that are by construct too out of the ordinary can be excluded too

NEXT PROJECT: AN "ALL IN ONE" DATABASE

Since 2021, we receive data in three different formats

- ESMA format will eventually replace the ECB-format data
- Data is also received for the UK database
- We have also briefly received data in „unstructured" format (not yet databased)

An "all in one"

- So far, we have worked mainly with ECB data, for which we have up to nine years of data
- For some queries, we need to use data from several sources
- An integrated database is planned (ESMA data + time series from the adjusted database)
- Will back-populate an ESMA-format database with adjusted ECB data

For now...

- We will make the adjusted ECB database available to research users as a Beta version, covering the years 2013-2021

Please let us know if you are interested!

ENERGY EFFICIENCY DATA INSIGHTS

USMAN JAMIL, EUROPEAN DATAWAREHOUSE

ENERGY PERFORMANCE DATA AVAILABILITY

FEBRUARY 2022

ENERGY PERFORMANCE CERTIFICATES ARE REQUIRED UNDER ESMA REGIME

ESMA Templates for loan level data contain relevant fields for Energy Performance

Fields RREC10 and RREC11 for underlying loans in Residential Mortgage-Backed Securities (RMBS):

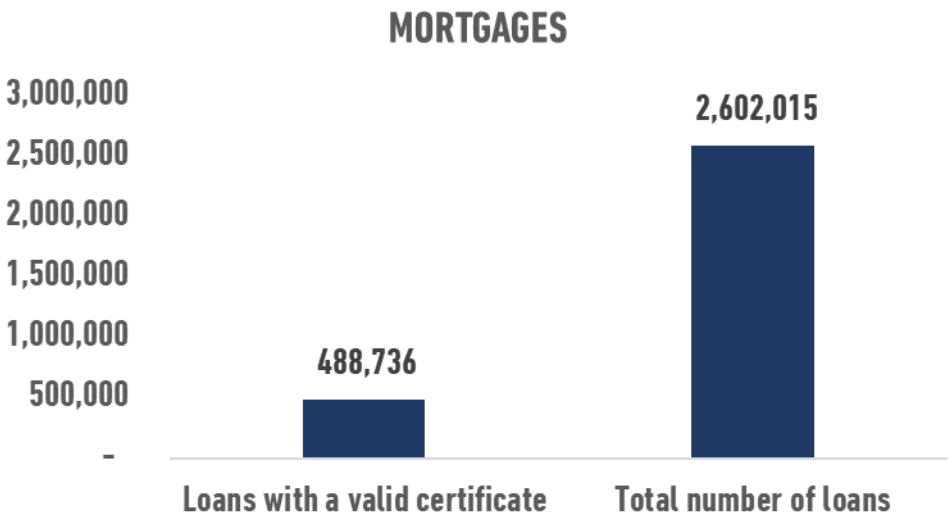
	RREC10	Energy Performance Certificate Value	The energy performance certificate value of the collateral at the time of origination: A (EPCA) B (EPCB) C (EPCC) D (EPCD) E (EPCE) F (EPCF) G (EPCG) Other (OTHR)
	RREC11	Energy Performance Certificate Provider Name	Enter the full legal name of the energy performance certificate provider. The name entered must match the name associated with the LEI in the Global Legal Entity Foundation (GLEIF) database.

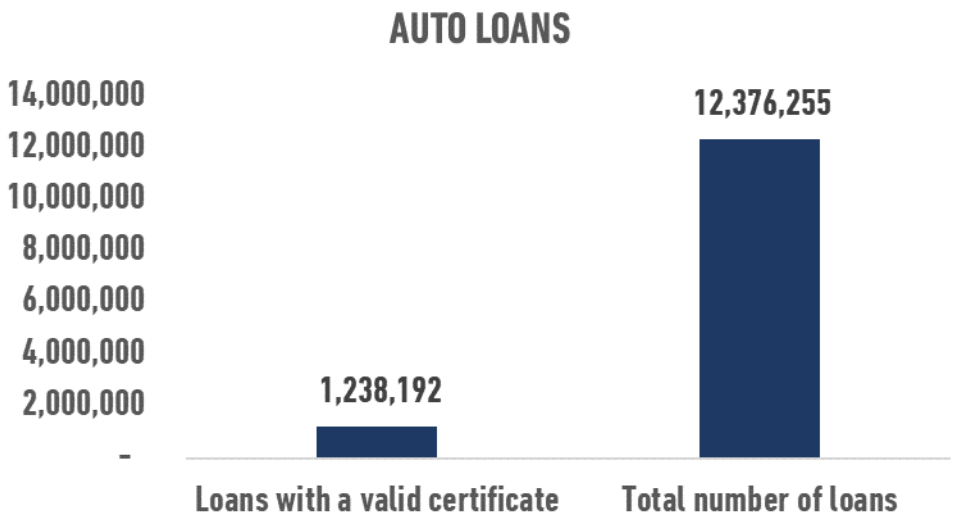
Fields AUTL57 and AUTL58 for underlying loans in AUTO ABS:

			Other (OTHR)
	AUTL57	Energy Performance Certificate Value	The energy performance certificate value of the collateral at the time of origination: A (EPCA) B (EPCB) C (EPCC) D (EPCD) E (EPCE) F (EPCF) G (EPCG) Other (OTHR)
	AUTL58	Energy Performance Certificate Provider Name	Enter the full legal name of the energy performance certificate provider. The name entered must match the name associated with the LEI in the Global Legal Entity Foundation (GLEIF) database.

ENERGY PERFORMANCE CERTIFICATES – HOW MUCH DATA IS AVAILABLE

Still early days and most originators are struggling to provide this data





ENERGY PERFORMANCE DATA FOR RESIDENTIAL MORTGAGES

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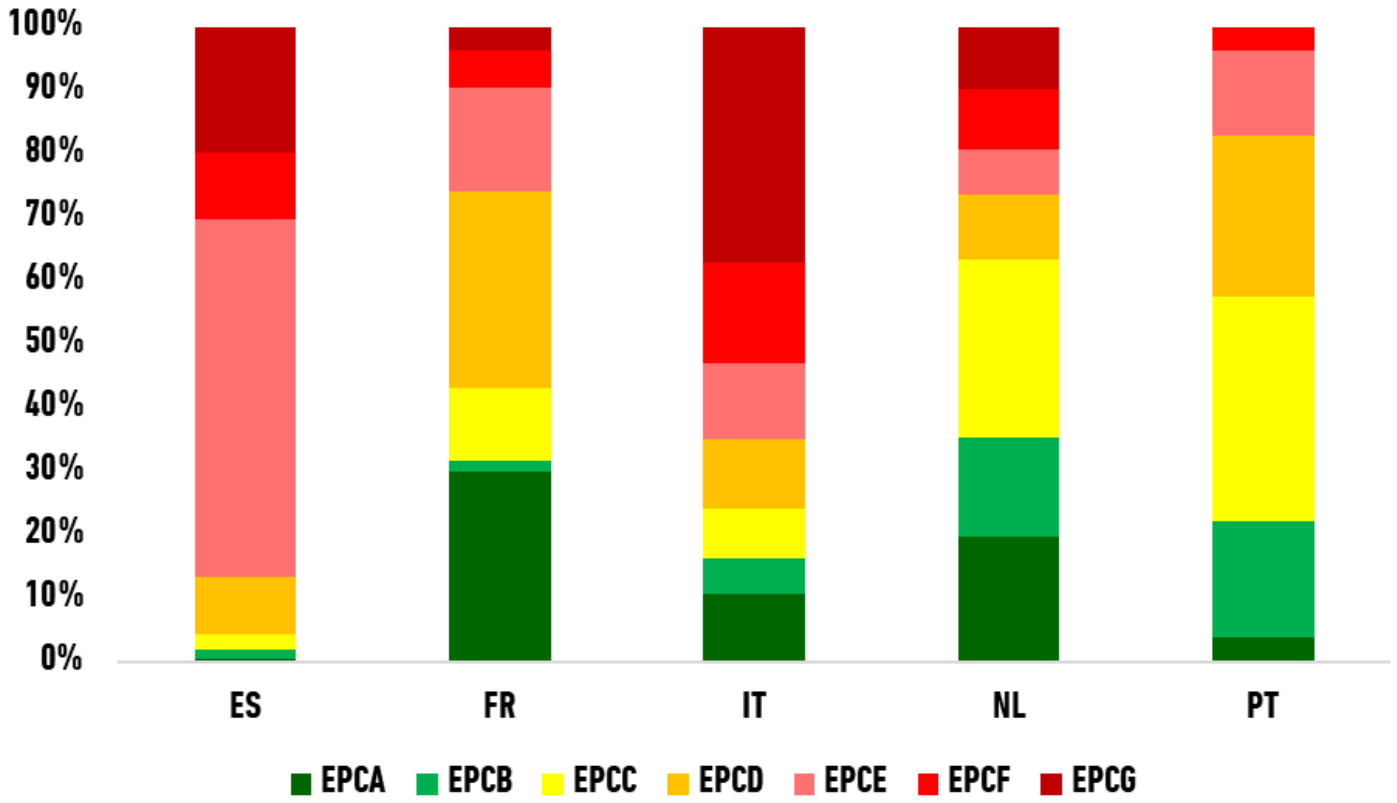
ENERGY PERFORMANCE CERTIFICATES – RMBS

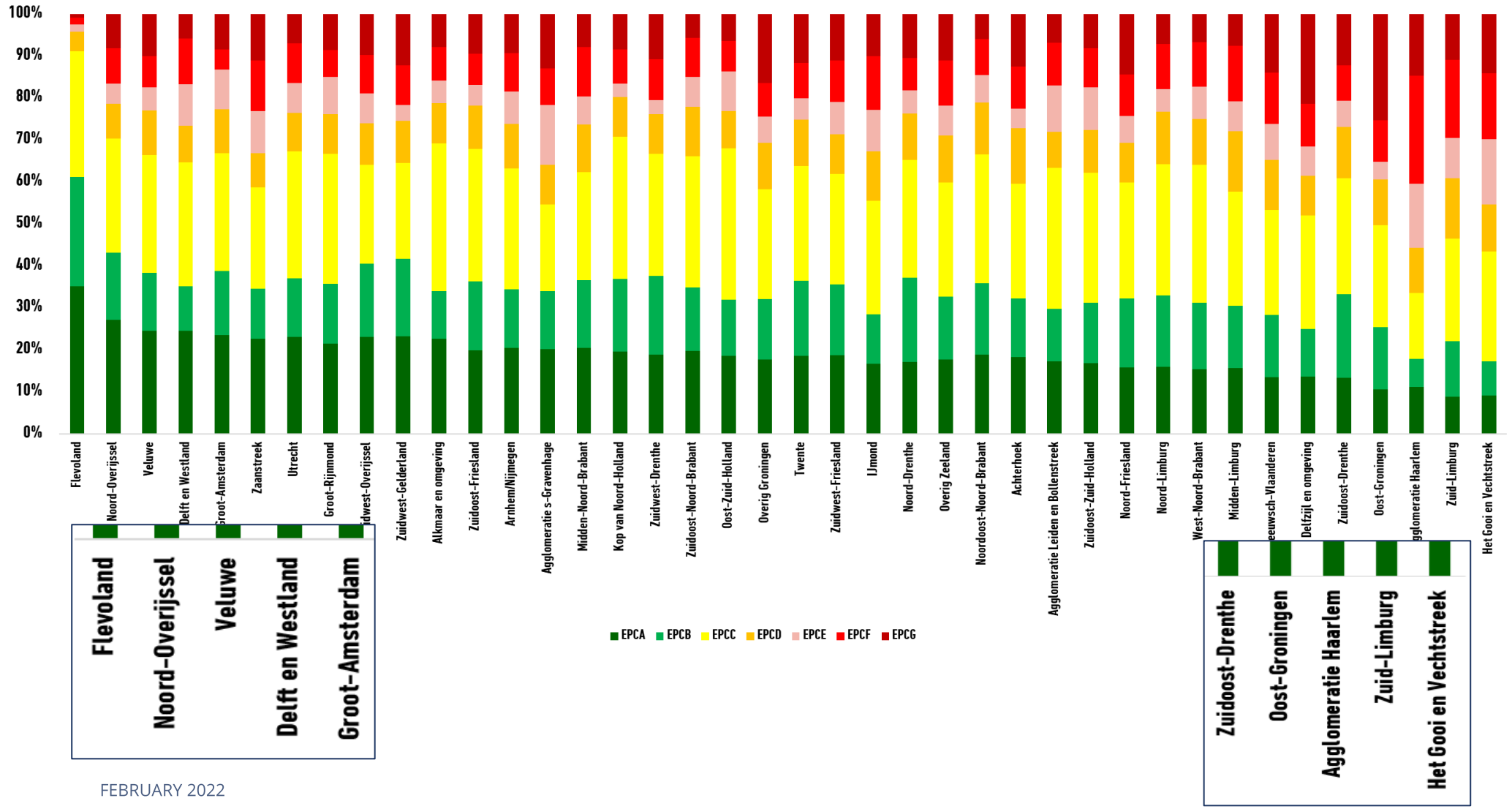
EPC distribution by country

- differs greatly across countries



ENERGY PERFORMANCE CERTIFICATES – DUTCH MORTGAGES BY REGION

Data suggests that Flevoland has the most energy efficient houses across Netherlands



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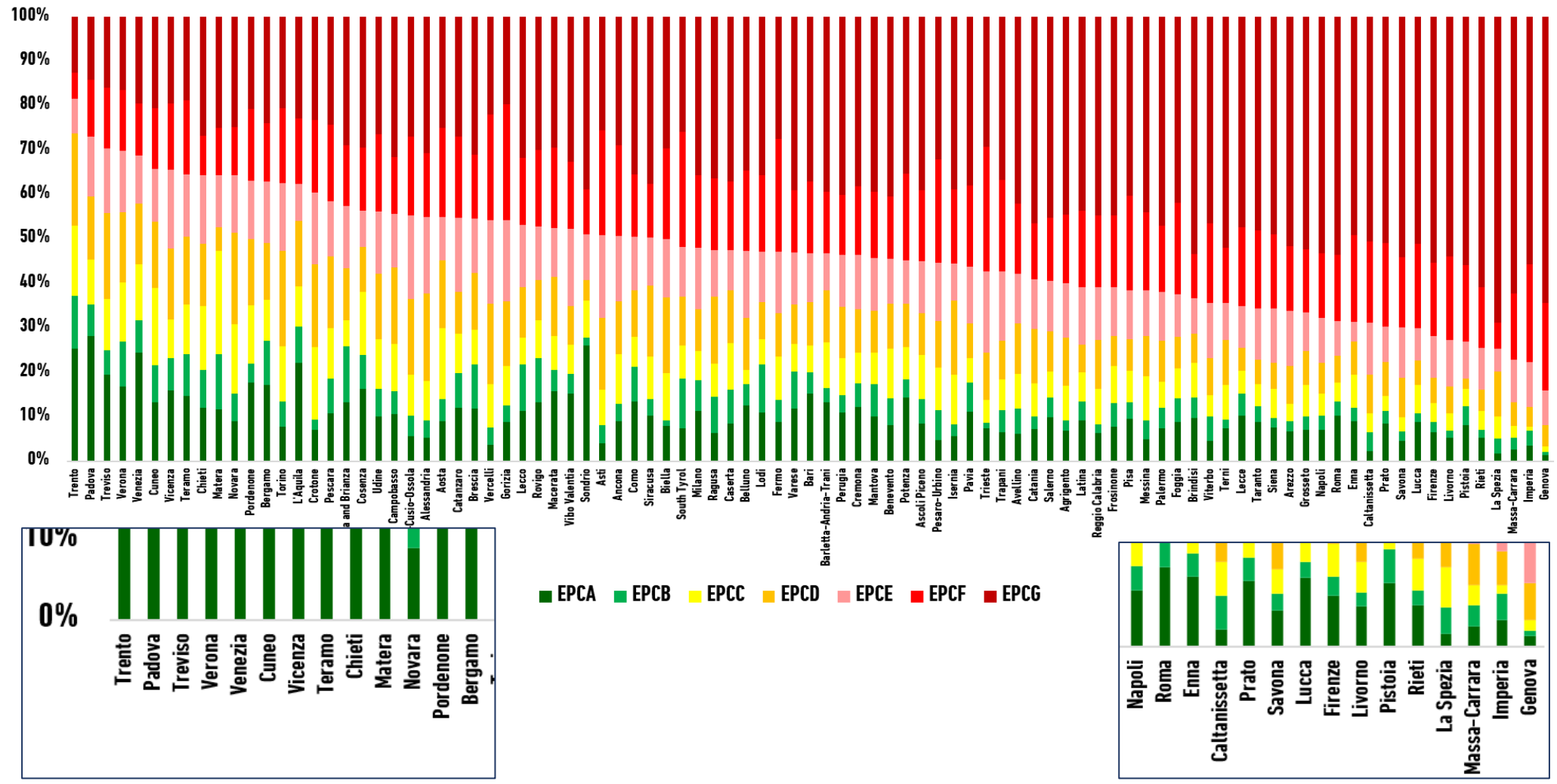
ENERGY PERFORMANCE CERTIFICATES – ITALIAN MORTGAGES BY PROVINCE

Data suggests that Trento has the most energy efficient houses across Italy



ENERGY PERFORMANCE DATA FOR AUTO LOANS

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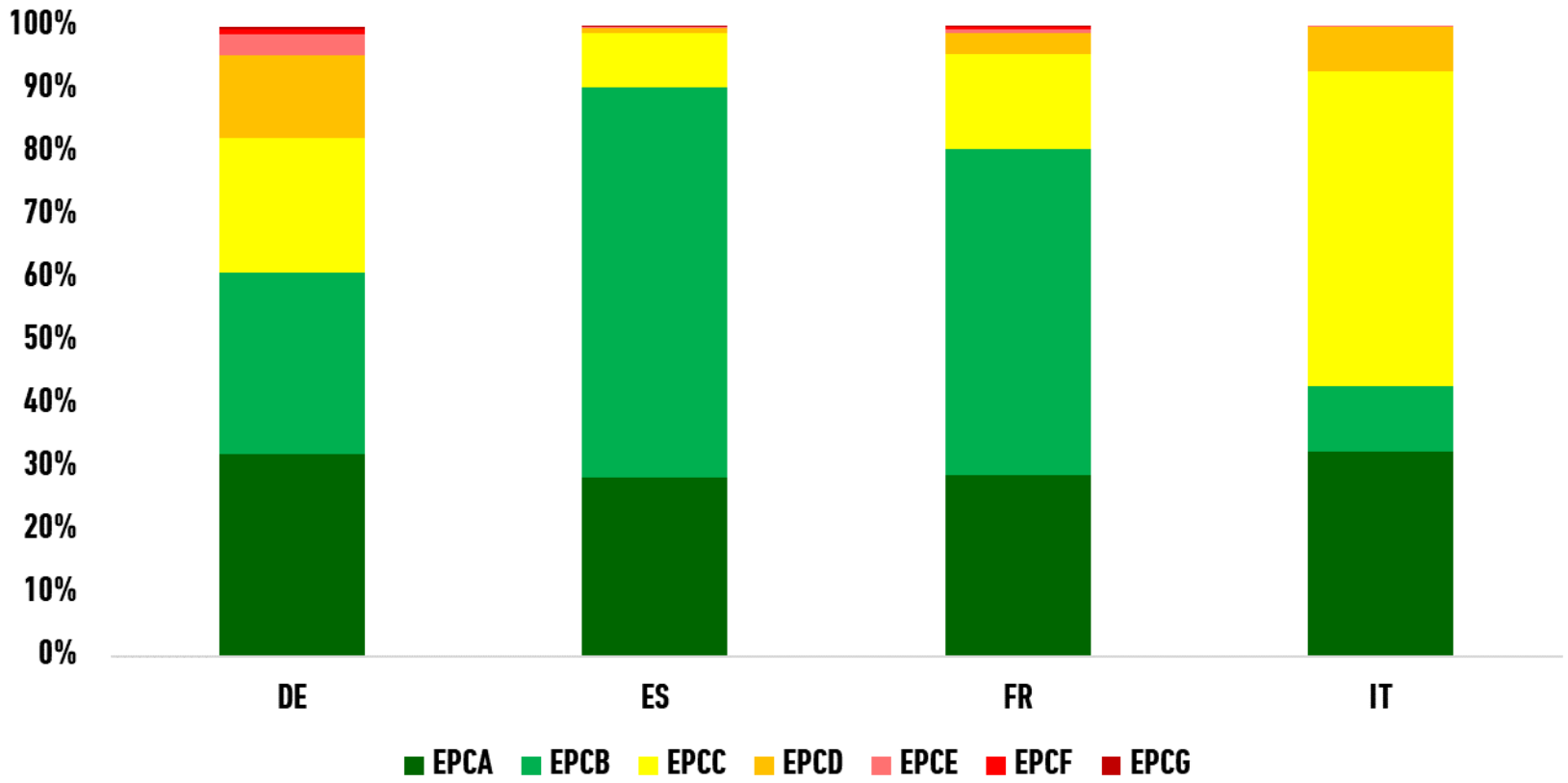
ENERGY PERFORMANCE CERTIFICATES – AUTO LOANS

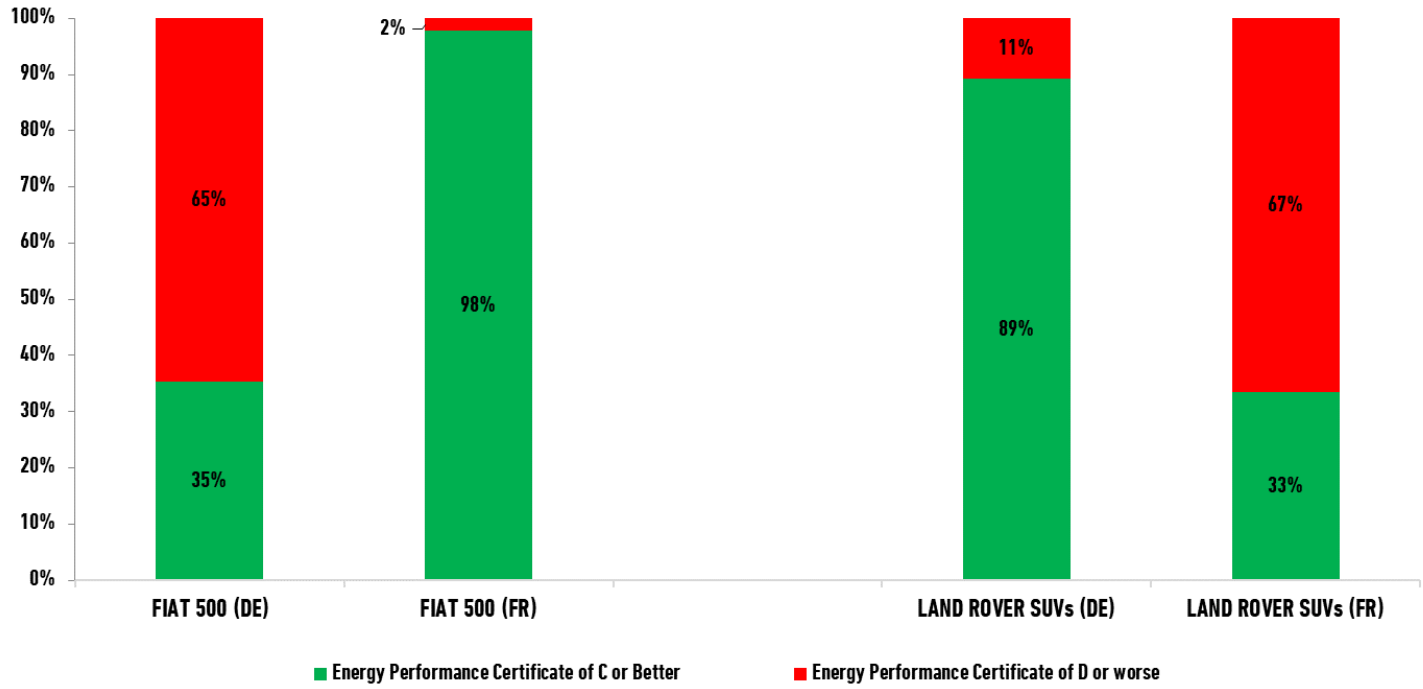
EPC distribution by Country

- Most cars have a Rating of C or better



ENERGY PERFORMANCE CERTIFICATES – AUTO LOANS

Different EPCs for SUVs and Compact cars in Germany and France



– EPC in Germany is scaled to the weight of the car!

CAR ENGINE TYPE

FEBRUARY 2022

MINING CAR MODEL DATA TO IMPLY CAR ENGINE TYPE

Manufacturer and the Model of the Car is reported to EDW for each Car loan/lease

- Based on hints in the model provided, cars were grouped into 4 engine types

- A Large Text Mining Excercise:

14,310 unique combinations for a VOLKSWAGEN GOLF alone!!

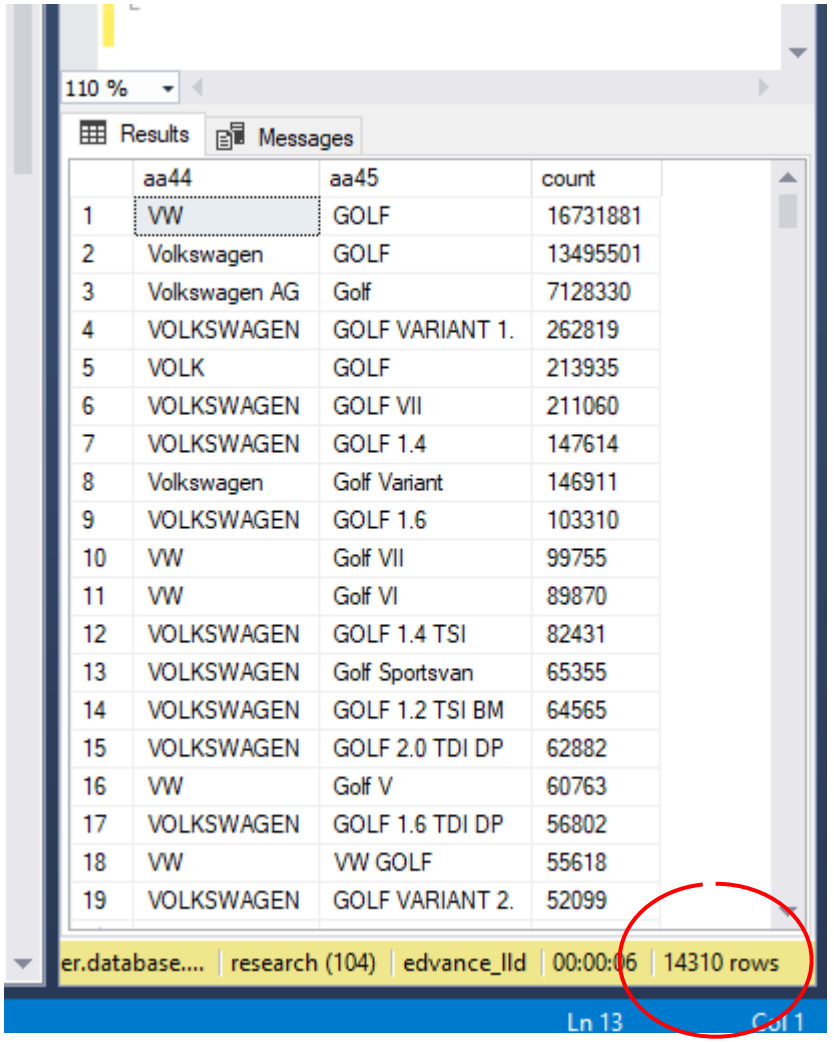
Example:

✓ TDI implies Diesel

✓ TSI implies Petrol and so on

1.94M car loans/leases were successfully matched from:

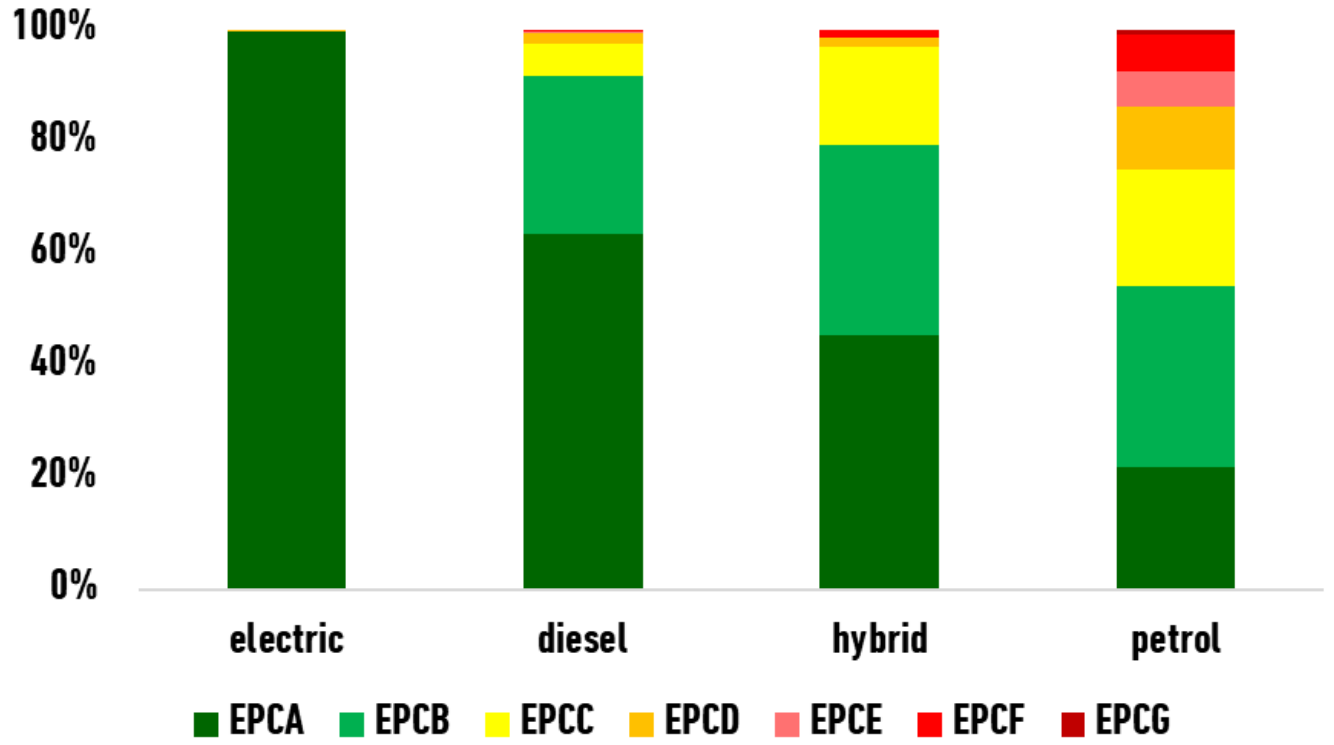
- 9 different countries in Europe
- 81 ABS transactions
- 29 major car manufacturers



	aa44	aa45	count
1	VW	GOLF	16731881
2	Volkswagen	GOLF	13495501
3	Volkswagen AG	Golf	7128330
4	VOLKSWAGEN	GOLF VARIANT 1.	262819
5	VOLK	GOLF	213935
6	VOLKSWAGEN	GOLF VII	211060
7	VOLKSWAGEN	GOLF 1.4	147614
8	Volkswagen	Golf Variant	146911
9	VOLKSWAGEN	GOLF 1.6	103310
10	VW	Golf VII	99755
11	VW	Golf VI	89870
12	VOLKSWAGEN	GOLF 1.4 TSI	82431
13	VOLKSWAGEN	Golf Sportsvan	65355
14	VOLKSWAGEN	GOLF 1.2 TSI BM	64565
15	VOLKSWAGEN	GOLF 2.0 TDI DP	62882
16	VW	Golf V	60763
17	VOLKSWAGEN	GOLF 1.6 TDI DP	56802
18	VW	VW GOLF	55618
19	VOLKSWAGEN	GOLF VARIANT 2.	52099

EPCS ASSIGNED TO CARS BY ENGINE TYPE – EUROPE (9 COUNTRIES)

– Petrol cars seem to have the least favorable EPC distribution

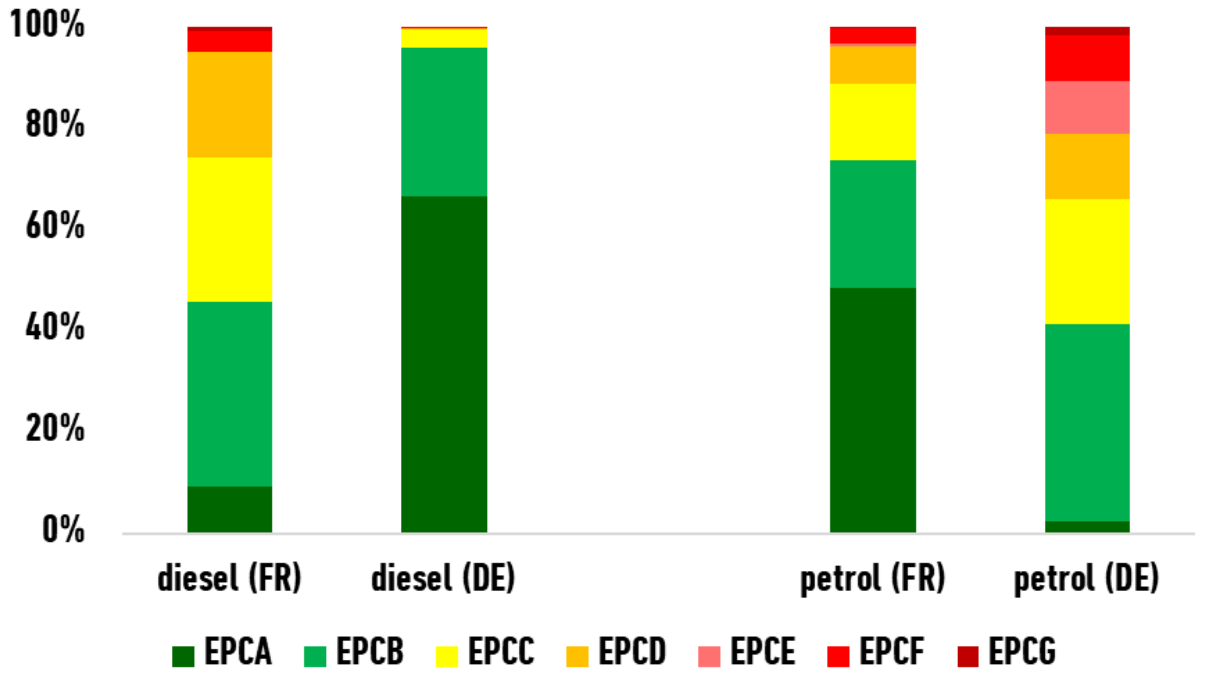


- Diesel engines are more efficient with fuel consumption in general
- Emissions from Diesel engines have significantly improved with technological advancements

EPCS ASSIGNED TO CARS BY ENGINE TYPE – GERMANY VS FRANCE

– We have just observed the inconsistency in EPCs assigned due to car weight – how about engine type?

Germany - Diesel cars have better EPCs
France - Petrol cars have better EPCs



EPCS ASSIGNED TO CARS BY ENGINE TYPE – GERMANY VS FRANCE

– VW GOLF 2.0 TDI Diesel assigned A+ in Germany and B in France

Golf R-Line 2.0 TDI 8 HP 150 HP DSG 7 ; Diesel

Émissions et consommations WLTP

Qu'est-ce que la norme WLTP ?

Diesel

Consommation vitesse basse	**6,50 l/100km**
Consommation vitesse moyenne	**4,50 l/100km**
Consommation vitesse élevée	**3,80 l/100km**
Consommation vitesse très élevée	**4,40 l/100km**
Consommation - cycle combiné	**4,50 l/100km**
Émissions CO_2 - cycle combiné	**119 g/km**

Classe énergétique : B

Effizienzklasse	A+ [8]

Verbrauchs- und Emissionswerte nach WLTP-Standard

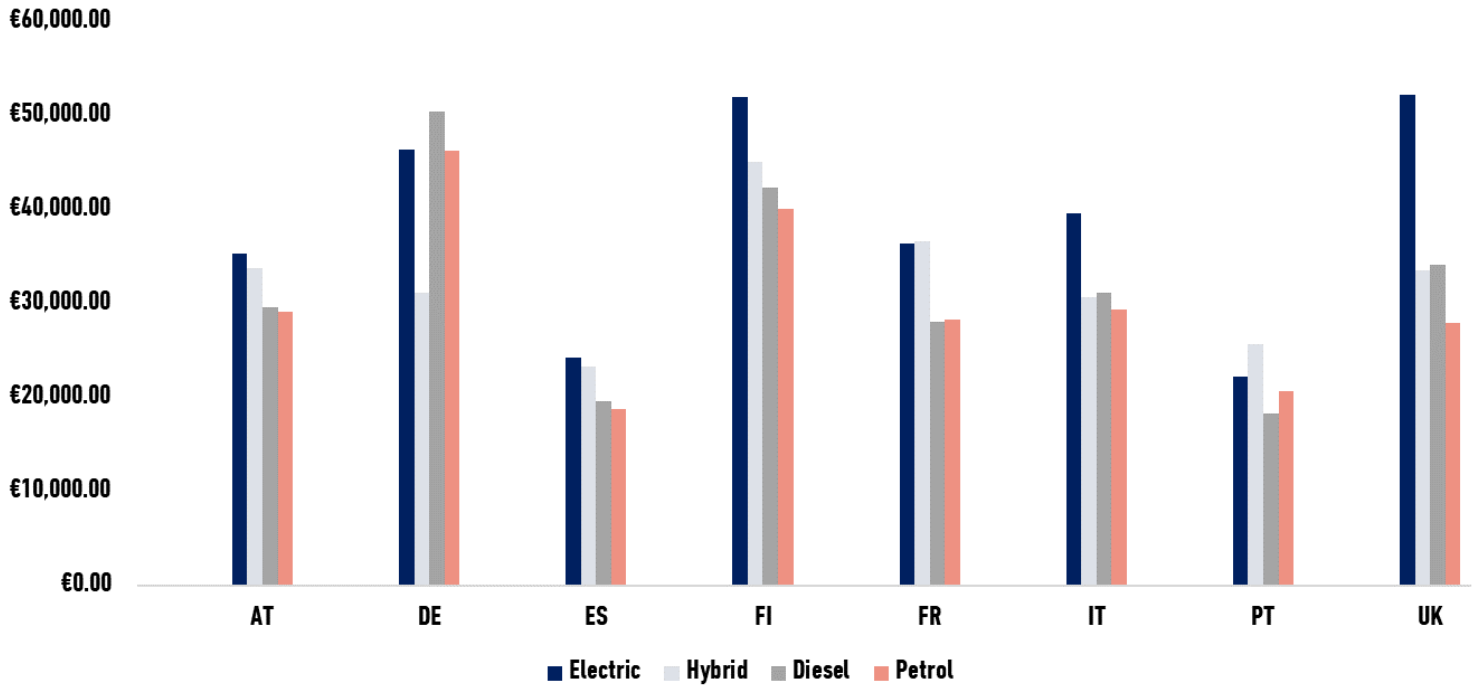
Mehr über WLTP und Emissionsnormen

Diesel

Verbrauch sehr langsam	**6,5 l/100km** [9]
Verbrauch langsam	**4,5 l/100km** [9]
Verbrauch schnell	**3,8 l/100km** [9]
Verbrauch sehr schnell	**4,4 l/100km** [9]
Verbrauch kombiniert	**4,5 l/100km** [9]
CO_2-Emission kombiniert	**119 g/km** [9]

ANNUAL INCOME OF BORROWERS BY COUNTRY AND ENGINE TYPE

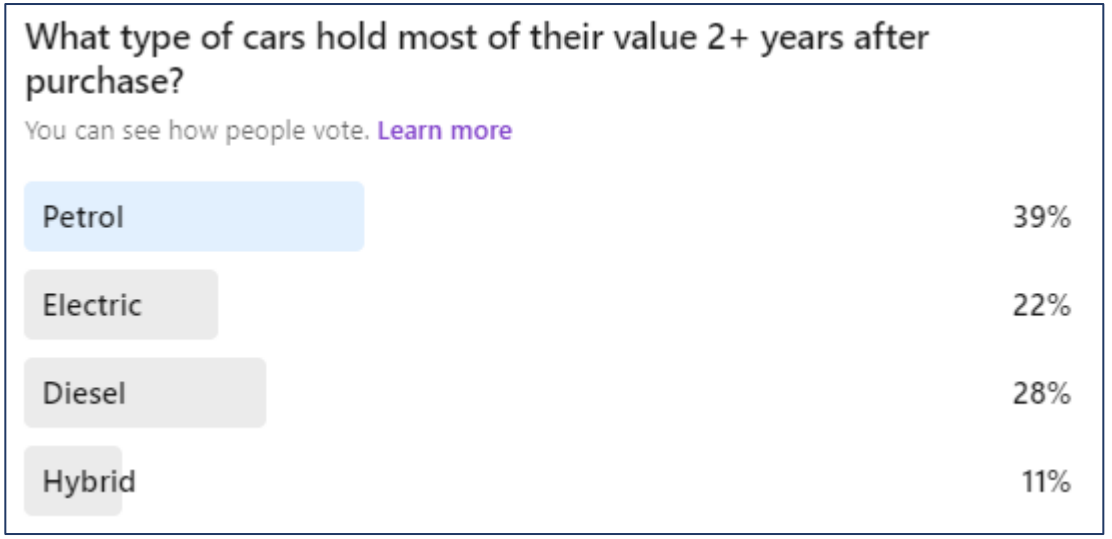
– Only considering borrowers with income between 10k and 120k



– Electric cars seem to be bought by highest earners in most countries
– Huge subsidies/Tax advantages for Electric and Hybrid car purchases in Germany
– Plug-in hybrid cars can be bought (advantages claimed) and driven on petrol alone

RESIDUAL VALUE OF CARS BY ENGINE TYPE

Results of Linkedin Poll



RESIDUAL VALUE OF CARS BY ENGINE TYPE

Car Valuation and Estimated Residual Values are reported in both ECB and ESMA data tapes

Fields AUTL60 and AUTL61 for underlying Auto loans in the ESMA templates for Asset Backed Securities:

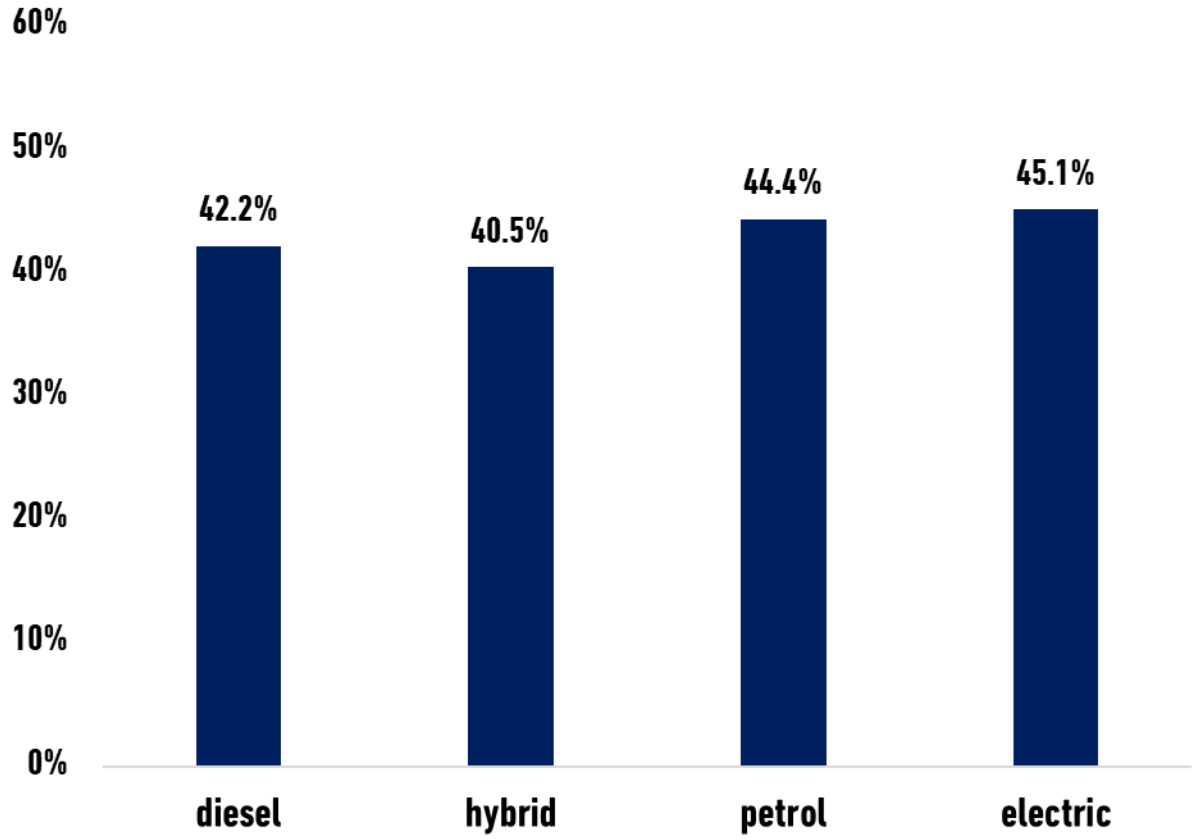
AUTL60	Original Valuation Amount	List price of the vehicle at date of underlying exposure origination. Include the currency in which the amount is denominated, using {(
AUTL61	Original Residual Value Of Vehicle	The estimated residual value of the asset at the date of lease origin Include the currency in which the amount is denominated, using {(

Fields AA49 and AA50 for underlying Auto loans in the ECB templates for Asset Backed Securities:

AA49	Car Valuation at Loan or Lease Origination	List price of the vehicle at date of loan or lease origination. For a non-new car, enter the trade value or the sale price of the car. All 'No Data' options may be used in this optional field Should be rounded to the nearest 100 units
AA50	Original Residual Value of Vehicle	The estimated residual value of the vehicle, at the date of loan or lease origination. Response may be rounded; see "Instructions" tab for details of rounding calculation and rules. If the residual value has been neither securitised nor pledged, enter ND,5. All 'No Data' options may be used in this field

RESIDUAL VALUE OF CARS BY ENGINE TYPE

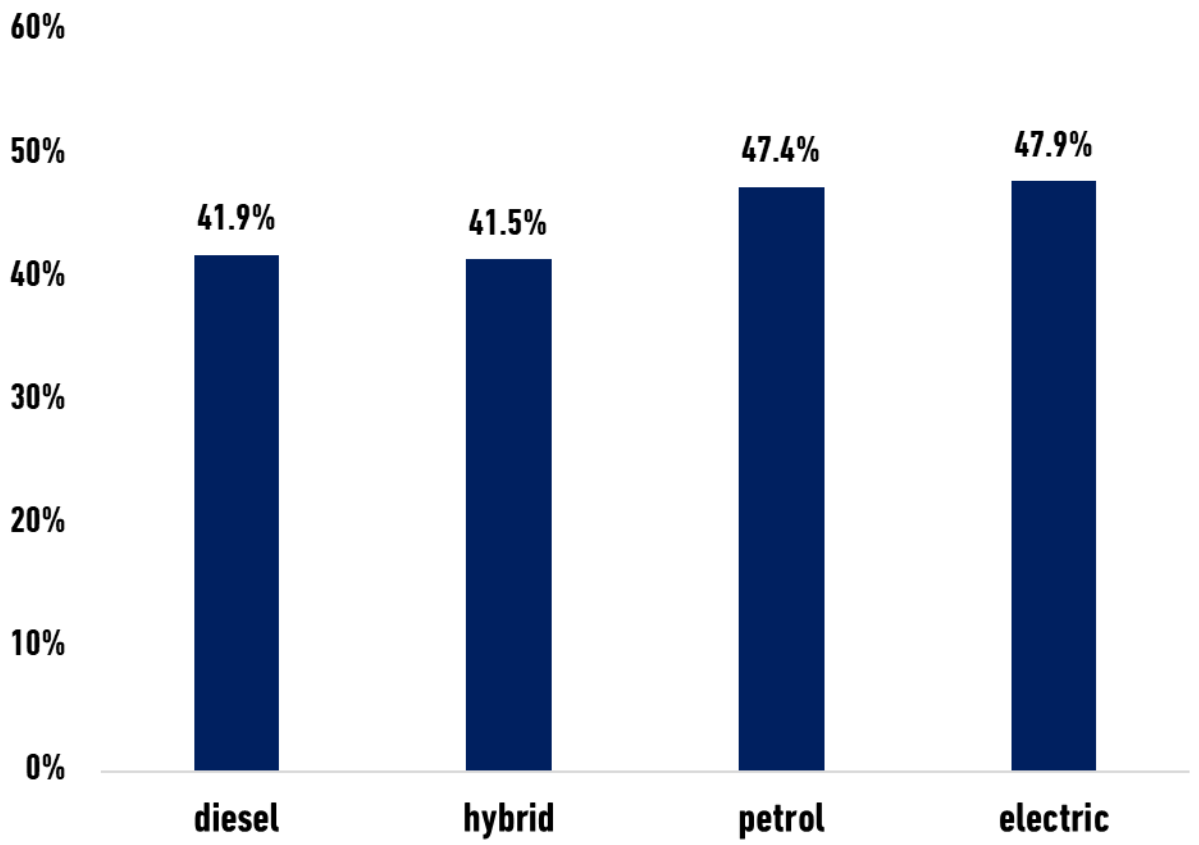
– Only considering New cars registered since 2017



Electric cars seem to have the best Residual Value

RESIDUAL VALUE OF CARS BY ENGINE TYPE

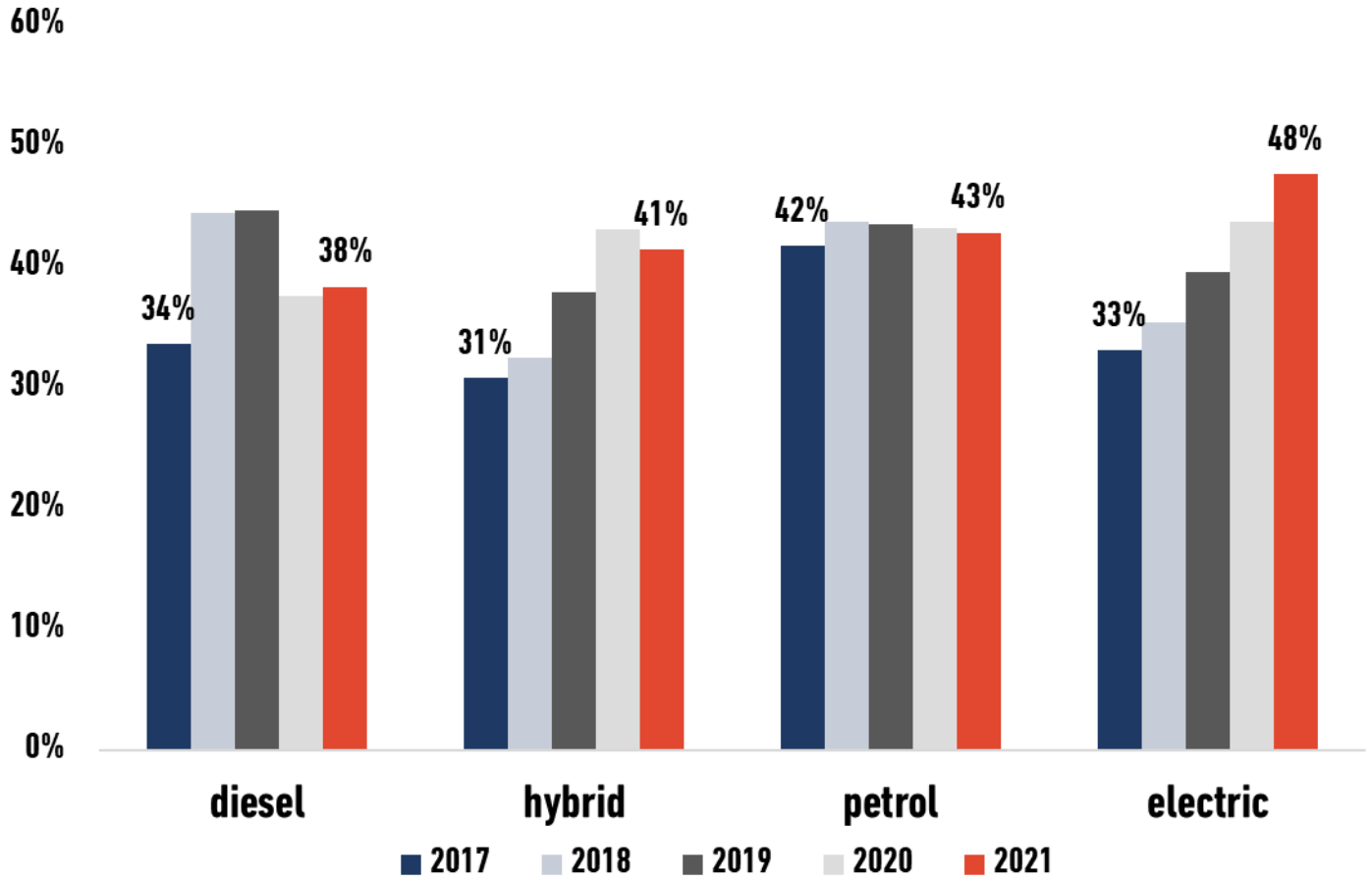
– Only considering New cars registered since 2017
– Only considering loans/leases with a Term of 2 to 4 years



Electric cars seem to have the best Residual Value

RESIDUAL VALUE OF CARS BY ENGINE TYPE AND YEAR OF CAR REGISTRATION

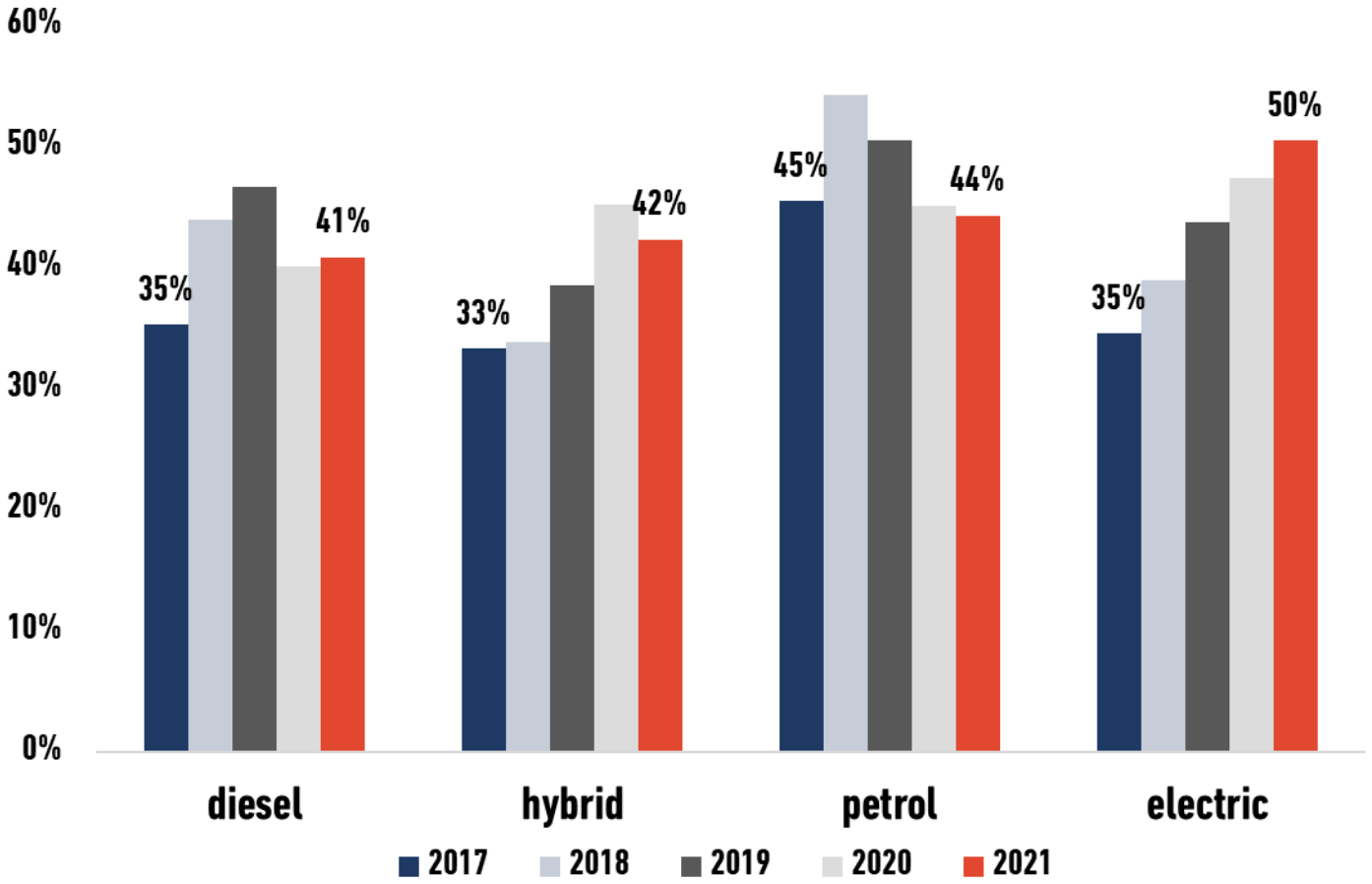
– Only considering loans/leases with a Term of 3 to 5 years



Electric and Hybrid cars have seen consistent improvements in RV since 2017

RESIDUAL VALUE OF CARS BY ENGINE TYPE AND YEAR OF CAR REGISTRATION

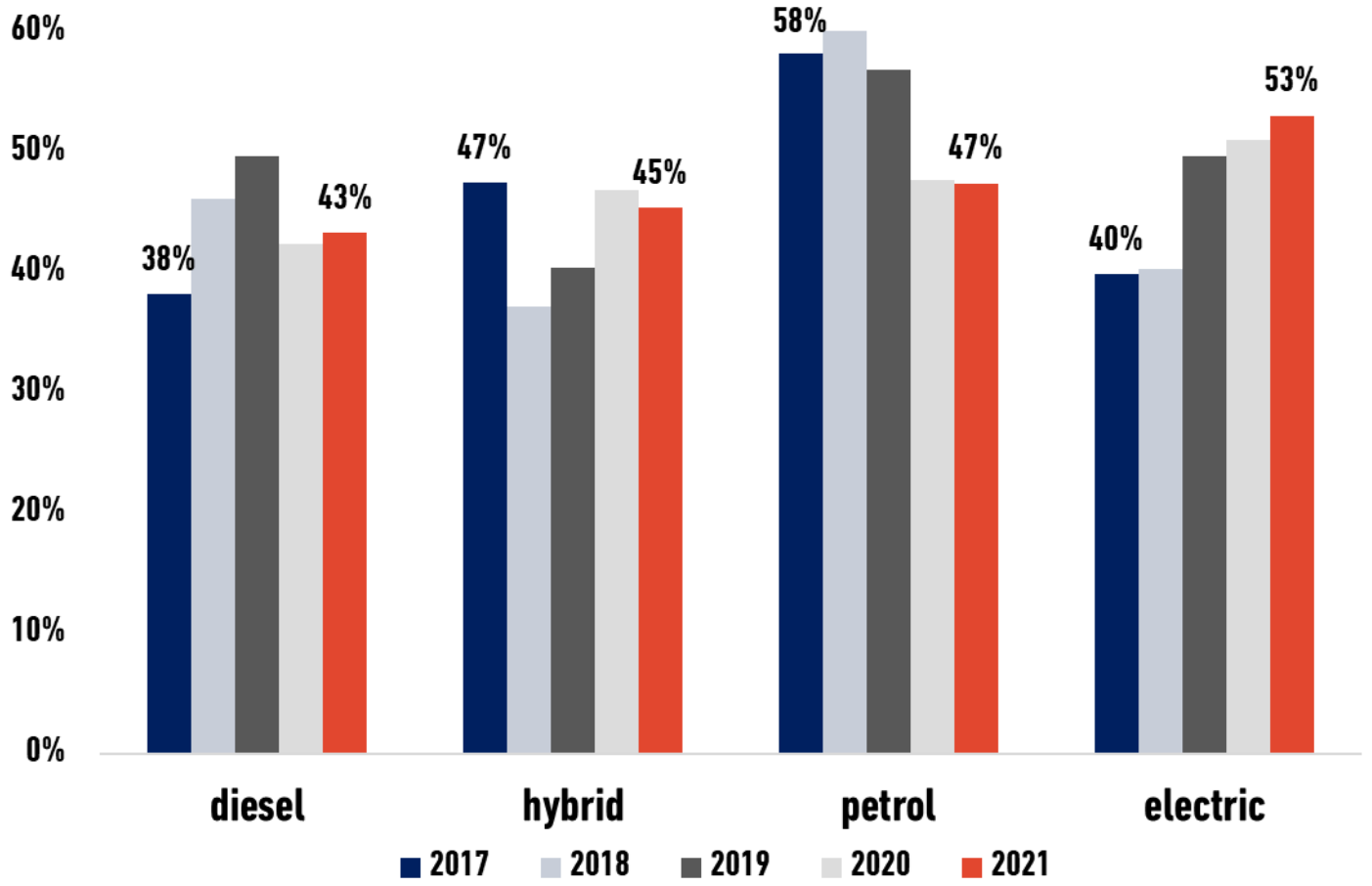
– Only considering loans/leases with a Term of 2 to 4 years



Electric and Hybrid cars have seen consistent improvements in RV since 2017

RESIDUAL VALUE OF CARS BY ENGINE TYPE AND YEAR OF CAR REGISTRATION

– Only considering loans/leases with a Term of 1 to 3 years



Electric and Hybrid cars have seen consistent improvements in RV since 2017

RESIDUAL VALUE OF CARS BY ENGINE TYPE

Concluding remarks/observations

- Residual values assigned to Hybrid and especially Electric cars seem to have improved a lot in the last years

Nevertheless, must be wary that:

- Sample selection is purely based on cases where a match was found
- Majority of electric car loans data is from last 2 years only while diesel and petrol engine data is from before
- Necessary filters (Loan Term, New or Used car etc.) further reduce size of the relevant sample
- Residual values (in %) for electric and hybrid cars observed were more scattered compared to petrol and diesel
- Since many factors can impact Residual Value, a more thorough regression analysis would lead to more conclusive results


Q&A

UPCOMING EVENTS – REGISTER VIA WWW.EURODW.EU

NEXT RESEARCH WEBINAR

SAVE THE DATE:

2 JUNE 2021 @ 16:00

REGISTER NOW

THANK YOU//CONTACT US

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FEBRUARY 2022

APPENDICES (TO USE IF NEEDED)

AN "ALL IN ONE" DATABASE IS NEEDED FOR RESEARCH

From February 2022, loan-level data is received by EDW in several formats

- Most of the LLD is in the ECB format
- Data is also received in ESMA format, and will eventually replace ECB-format data
- Data is also received from the UK database
- We have also briefly received data in „unstructured" format (not yet databased)
- So far, we have worked mainly with ECB data, for which we have up to nine years of data
- For some queries, we now need to use data from several of these sources
- An integrated database is therefore being planned, making all of the this data available so the time series can be preserved.
- As a first step we have produced a data-quality adjusted copy of the ECB database, which we intend to make avaialble to our clients

PERFORMANCE FIELDS

Description and detection

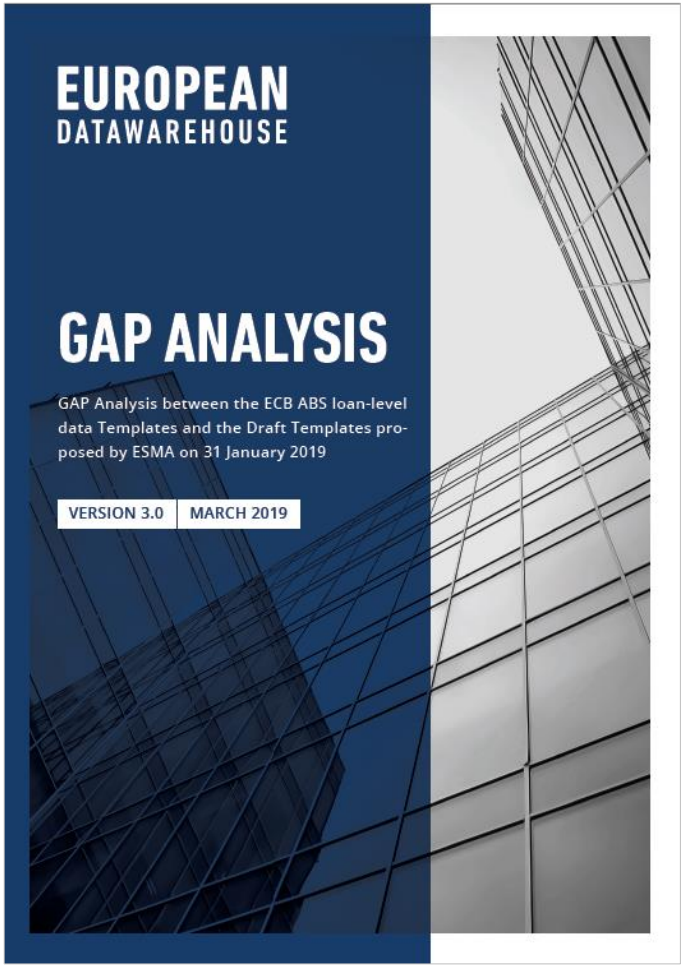
- Default amount should be static, it is often dynamic instead.
- Recoveries and losses are often not reported
- For our statistics, we select preferably deals for which the loan ID is stable overtime, flag the loan when it goes in arrears, with the date and amount, track the outstanding amount of the loan, and consider the difference as a „recovery so far“
- Loan IDs should not change overtime. If they must change:
  - “The loan ID should not change through the life of the transaction. If the original loan ID cannot be maintained in this field enter the original ID followed by the new ID, comma delimited “ (RMBS taxonomy)

GAP ANALYSIS 3.0

A comprehensive comparison between the ESMA draft disclosure templates released in Aug 2018 and Jan 2019

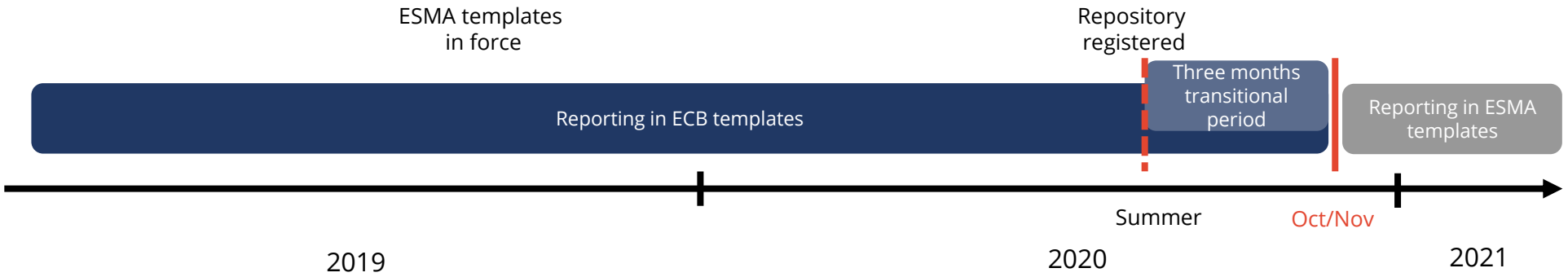
European DataWarehouse GmbH (EDW) has performed a comprehensive analysis of the draft European Securities and Markets Authority (ESMA) reporting templates published on 31 January 2019 as an Annex to the Opinion report on the Amendments to ESMA's draft technical standards on disclosure requirements under the Securitisation Regulation (EU) 2017/24021.

A field-by-field analysis can be found in the annexes of this document and are also available as separate Microsoft Excel files. Version 3.0 of the Gap Analysis, as of March 2019, has been performed with the information available on the ESMA website as of 1 February 2019.



TIMELINE – EUROSYSTEM TRANSPARENCY REGIME

FOR 2019+ DEALS



FOR < 2019 DEALS