European DataWarehouse

Private Area Solutions | August 2018

EUROPEAN
DATAWAREHOUSE

Agenda

1. Private Area Description
2. Benefits of the Private Area
3. Private Area Key Principles
4. Functionalities
5. Document Storage
6. Private Area Screenshots
7. EDitor
8. What's Next for EDitor in 2018
9. Overview of Data Quality Checks for ACC RMB
10. Value Added Functionalities
11. ACC Deal Upload and Rule Results in EDitor
12. Fee Structure

Private Area Description

European DataWarehouse (ED) implemented a private area to collect information including Loan Level Data (LLD) and relevant documentation, particularly for the following instruments:

1. Credit claims used as repo collateral in the Eurosystem collateral framework
    A. Four main jurisdictions
        i. France
        ii. Ireland
        iii. Italy
        iv. Portugal

2. Private ABS transactions

3. Whole Loan and guarantee portfolios

4. Structured Private Repo transactions

More than 100 private transactions from several large financial institutions have been created in the ED private area from across the above jurisdictions

Benefits of the Private Area

The main advantage of the private area is the **controlled transmission of the information**

- Access to the relevant data is fully managed by the Data Owner (DO) who is responsible for authorising access to Data Users (DU). The authorisation can be modified regularly
- The legal framework for the transmission and dissemination of the information is governed by specific customer agreements
- Access can be assigned to existing ED registered users or any new users after signing the specific customer agreement (at no additional cost for investors)

The data templates used in the private area are the ECB templates or variations of the respective ECB templates adjusted to individual customer specifications

The same upload and download channels that are used in the public area can also be used in the private area

Even though the loan level data (LLD) of private transactions is currently not available through the EDvance Cloud or other data user channels, the LLD can be used for benchmarking in the ED Cloud using the import of external LLD functionality in the comparison tab

Private Area Key Principles

1. Accessibility	Easy and user-friendly web-based access
2. Functionality	Continuous software enhancements and developments
3. Reliability	Robust software with ongoing support
4. Integrity	Legal framework for accessing, uploading and downloading information

Storage of Relevant Data

- ED regularly collects documentation and data according to existing ECB and EBA templates and taxonomies
- The underlying assets could be:
    a) performing or non-performing loans
    b) ABS with residential mortgages, loans to small and medium enterprises, auto loans, consumer loans, or leases as underlying assets
    c) collateral for repo transactions

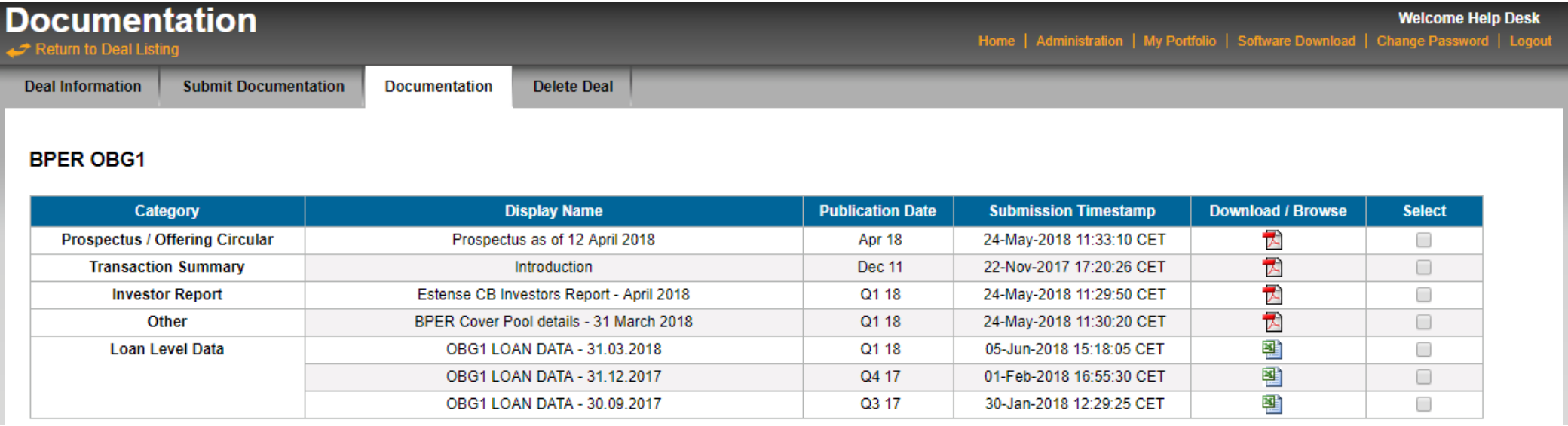
Security and Tracking

- The Data Owner (DO) as a reporting entity can create deals with a specific ED Code and upload the data
- The DO can alternatively assign a separate Data Provider (DP) to upload the relevant information into Edwin
- Once the deal is created, ED keeps a clear log of the uploads, downloads and a full data back-up for future recovery
- Additional reporting services are available upon request

Controlled Transmission

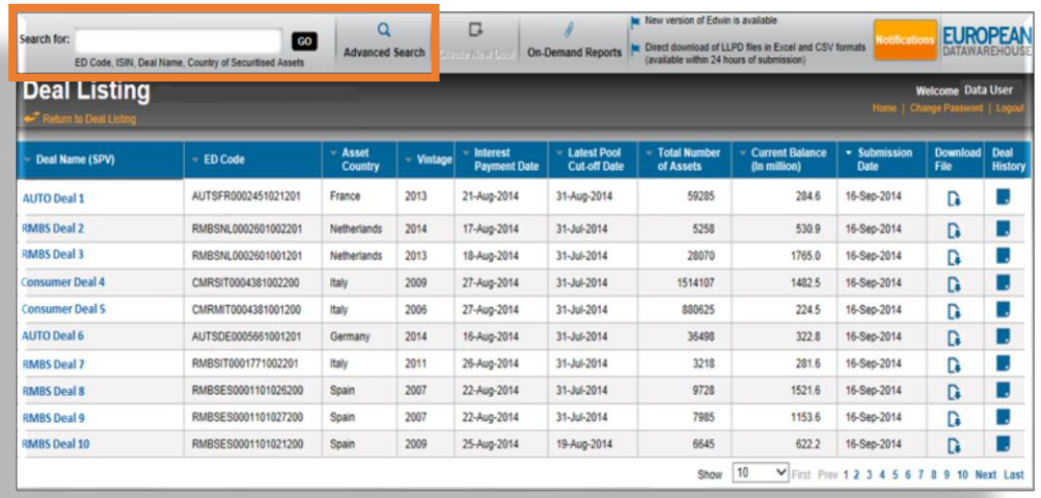
- The private area is designed to enable controlled transmission of the information
- Access to the relevant data is fully managed by the DO who is responsible for authorising the access to Data Users (DU). The authorisation can be changed at any time
- The legal framework for the transmission and dissemination of the information is governed by specific customer agreements

Transaction data can be uploaded file-by-file and stored in Edwin



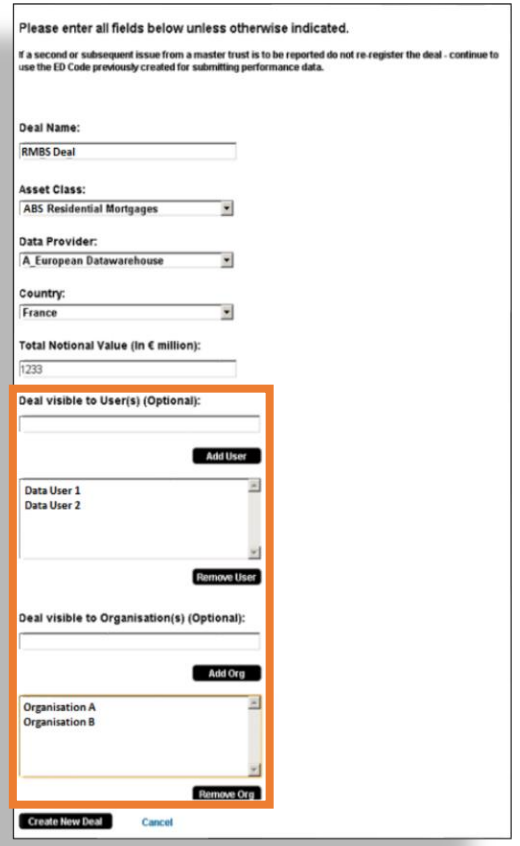
Category	Display Name	Publication Date	Submission Timestamp	Download / Browse	Select
Prospectus / Offering Circular	Prospectus as of 12 April 2018	Apr 18	24-May-2018 11:33:10 CET		
Transaction Summary	Introduction	Dec 11	22-Nov-2017 17:20:26 CET		
Investor Report	Estense CB Investors Report - April 2018	Q1 18	24-May-2018 11:29:50 CET		
Other	BPER Cover Pool details - 31 March 2018	Q1 18	24-May-2018 11:30:20 CET		
Loan Level Data	OBG1 LOAN DATA - 31.03.2018	Q1 18	05-Jun-2018 15:18:05 CET		
	OBG1 LOAN DATA - 31.12.2017	Q4 17	01-Feb-2018 16:55:30 CET		
	OBG1 LOAN DATA - 30.09.2017	Q3 17	30-Jan-2018 12:29:25 CET		

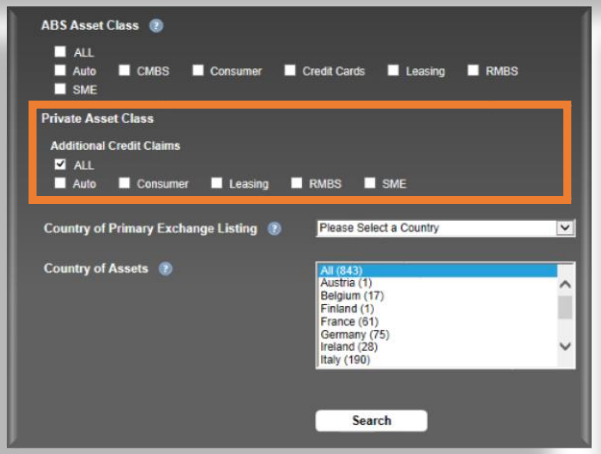
Private Area Screenshots



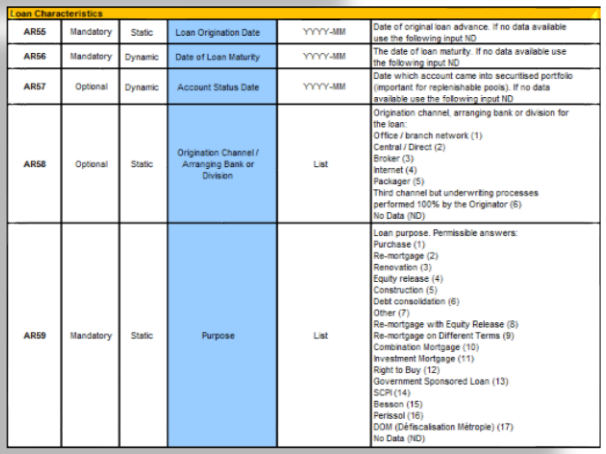
Deal Listing

Deal Creation





Advanced Search Function



Loan Characteristics

AR55	Mandatory	Static	Loan Origination Date	YYYY-MM	Date of original loan advance. If no data available use the following input ND
AR56	Mandatory	Dynamic	Date of Loan Maturity	YYYY-MM	The date of loan maturity. If no data available use the following input ND
AR57	Optional	Dynamic	Account Status Date	YYYY-MM	Date which account came into securitised portfolio (important for replenishable pools). If no data available use the following input ND
AR58	Optional	Static	Origination Channel / Arranging Bank or Division	List	Origination channel, arranging bank or division for the loan: Office / branch network (1) Central / Direct (2) Broker (3) Internet (4) Packager (5) Third channel but underwriting processes performed 100% by the Originator (6) No Data (ND)
AR59	Mandatory	Static	Purpose	List	Loan purpose. Permissible answers: Purchase (1) Re-mortgage (2) Renovation (3) Equity release (4) Construction (5) Debt consolidation (6) Other (7) Re-mortgage with Equity Release (8) Re-mortgage on Different Terms (9) Combination Mortgage (10) Investment Mortgage (11) Right to Buy (12) Government Sponsored Loan (13) SCPI (14) Besson (15) Perissol (16) DOM (Défiscalisation Métrople) (17) No Data (ND)

Loan Level Data Taxonomy Example

https://editor.eurodw.eu/editor/

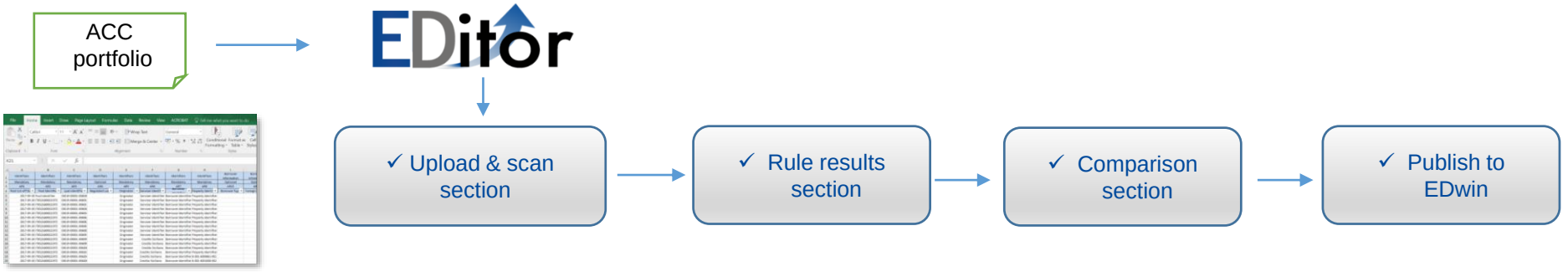
- An integrated **web application** for the seamless analysis and upload of the loan level data (LLD)
- It allows Data Providers to **pre-screen** and **analyse the LLD file** and **upload it directly to EDwin**
- Currently accepts CSV, XML and Excel formats
- API users can use EDitor to analyse the LLD file, while using the API to upload the file to Edwin
- Private deals (such as ACC) can be also uploaded through EDitor
  - ✓ Schema checks
  - ✓ Rule checks

Implementation of Additional Credit Claim (ACC) Rule Sets

❑ ED implemented ACC rule sets for selected asset classes (RMB and SME) in EDitor:

- **> 150** rules for **ACC SME**
- **> 360** rules for **ACC RMB**

❑ The process for uploading ACC portfolios as well as the analysis is the same as for the ABS deals

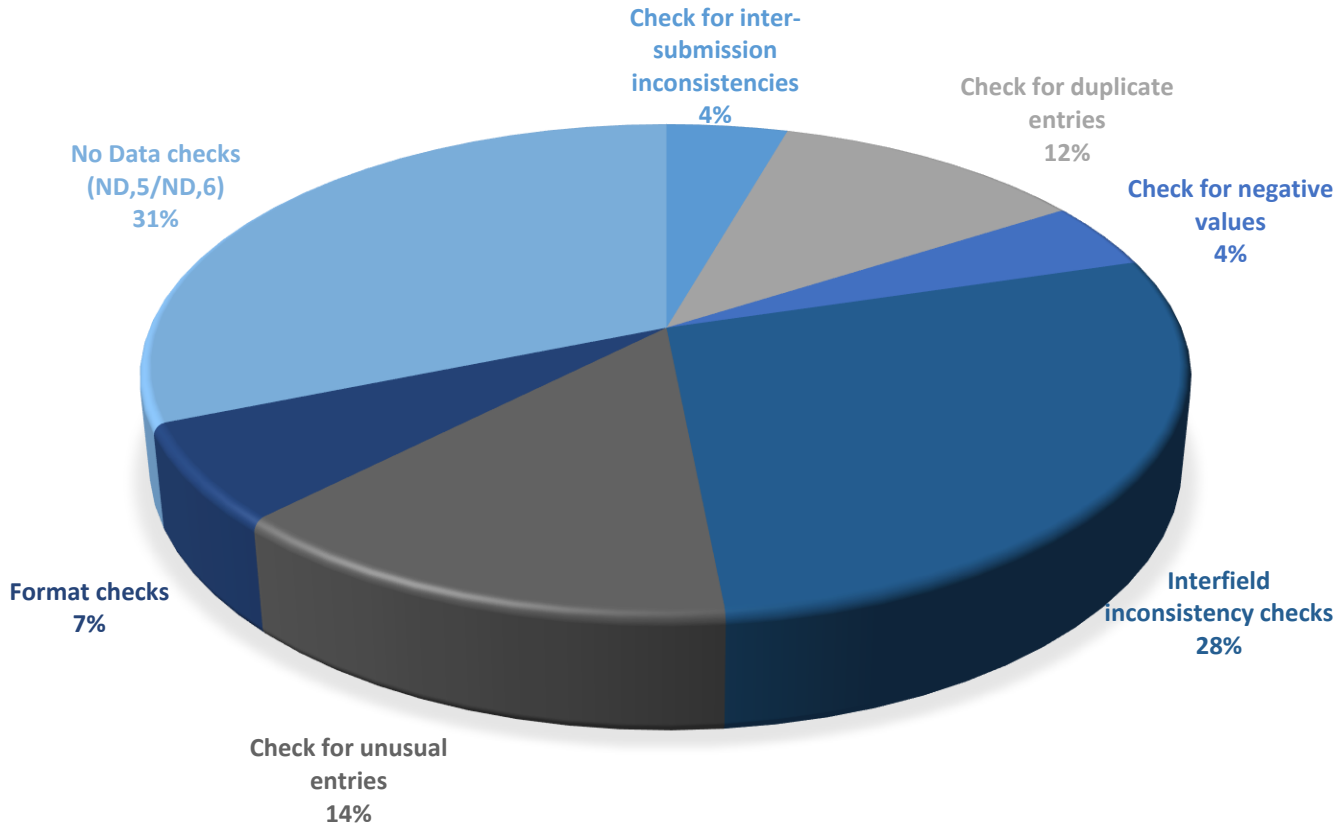


Integration of the Tracking System into EDitor

❑ The tracking system will be fully integrated into EDitor in the upcoming release

Overview of data quality checks for ACC RMB

- The graph below shows the average breakdown of the ACC validation rule set by type of validation check



Value added functionalities

1. **Rule result drill down:** users can download loan-level data (LLD) for each rule result without the need of opening submitted files

2. **Graphical interpretation:** rules allow users do display results in a form of a chart

3. **Custom-built environment:** data quality management is run on the ED server, designed specifically to perform data quality checks quickly

Value added functionalities

1. **Data Remediation:** it is possible to review the LLD files before publication and address potential data quality issues multiple times

2. **Cost effective and standardised templates:** according to the Eurosystem Additional Credit Claim RMB and SME templates*

* The ECB ACC templates are available at **https://www.bancaditalia.it/compiti/polmon-garanzie/gestione-garanzie/Templates_dati_anal_port_crediti.zip**

ACC Deal Upload in EDitor

EDitor

Hello Kate Do+Dp

My Deals | Dashboard | Tickets | Notifications

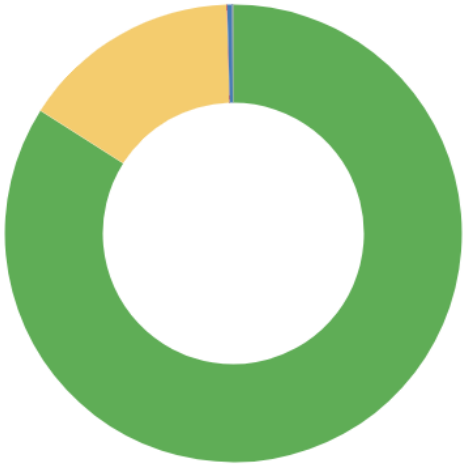
My Deals / Petr's ACC RMBS | CCRSCZSAP001161620181

Pool Cut-off Date: 30-Nov-2017

OVERVIEW | RESULTS | CLUSTERS | COMPARISON | ...

Upload LLD | Download | Publish | Print

- 1 - Performing
- 2 - Restructured – No Arrears
- 4 - Performing but removed from the pool by Counterparty
- 5 - Redeemed or Prepaid
- 6 - Other



A1

ECB Score

N/A

Provisional DQS1

Quick Statistics

Total Loans	6,811
Active Loans	6,786 (99.63%)
Inactive Loans	25 (0.37%)
Borrower ID (AR7)	6,710
Property ID (AR8)	6,762
WA CLTV (AR141)	48.62
Average Primary Income	29,107.30
Sum of Original Balance (AR66)	820,846,009.68
Sum of Current Balance (AR67)	545,485,718.53
WA Interest Rate (AR109)	2.41

Submission Status

- Uploaded
- File Validation
- Data Validation: Schema
- Data Extraction
- ECB Score Calculation
- Quick Statistics Calculation
- Rule Validation
- DQS1 Score Calculation

ACC Rule Results in EDitor

EUROPEAN DATAWAREHOUSE

EDitor

Hello Kate Do+Dp

My Deals | Dashboard | Tickets | Notifications

My Deals / Petr's ACC RMBS | CCRSCZSAP001161620181

Pool Cut-off Date: 30-Nov-2017

OVERVIEW | RESULTS | CLUSTERS | COMPARISON | ...

Upload LLD | Download | Publish | Print

Total Rules: 360	Rules Failed: 17	Total Active Loans: 6786

Check ID	Rule Description	Impacted Total Loans		Impacted Active Loans		Impacted Active Loans %		Current Underlying Data
		Current	Previous	Current	Previous	Current	Previous	
AR110/CCR_IIC/A/01	AR110|Current Interest Rate Margin|> AR109 (Current Interest Rate) for active loans	3409	NA	3409	NA	50.24	NA	
AR169/CCR_IIC/A/03	AR169 | Arrears Balance | = 0 and AR166 = 2	1009	NA	NA	NA	NA	NA	
AR135/CCR_COM/A/01	AR135|Original Loan to Value|IF AR135<>(AR66 (OBAL)/AR136(Valuation Amount)*100 + -5 where AR135<>0	95	NA	NA	NA	NA	NA	
AR15/CCR_IIC/A/02	AR15 | Borrower Type | = 1 and AR21 = 6 for active loans	88	NA	88	NA	1.30	NA	
AR166/CCR_IIC/A/06	AR166|Account Status|If AR166 =1 AND AR169 (Arrears Balance) > AR71 (Payment Due) where AR71 > 0 for active loans	65	NA	65	NA	0.96	NA	
AR141/CCR_COM/A/01	AR141|Current Loan to Value|If ABS(AR141) - ABS(AR67(CBAL) + AR80/AR143 (Current Valuation Amount)*100) > 5 where AR141<>0 for active loans	49	NA	NA	NA	NA	NA	
AR26/CCR_COM/A/01	AR26|Primary Income|if AR26 + AR28 + AR76 + AR154 < 2,000 if (AR21<>4,6,7 or AR130 not in (2, 3)) where AR26 is not 'ND%' for active loans	34	NA	NA	NA	NA	NA	
AR111/CCR_IIC/A/01	AR111 Interest Rate Reset Interval|<12 and ar111 not in (0,1,3,6) and ar108 not in (11, 13) and ar107 not in (3, 4,5) and AR56 > AR1 + 12 months for a..	3	NA	3	NA	0.04	NA	
AR71/CCR_IIC/A/03	AR71|Payment due > AR67|Current Balance and AR67|Current Balance > 2000 and AR72|Payment Type not in ('6','7','8','9').	3	NA	3	NA	0.04	NA	
AR109/CCR_CZ/A/01	AR109 | Current Interest Rate | AR109=0 and AR166=1 or 2 for active loans	2	NA	2	NA	0.03	NA	
AR110/CCR_CZ/A/01	AR110|Current Interest Rate Margin|Count Zeros for active loans	2	NA	2	NA	0.03	NA	
AR175/CCR_ND5/A/01 ★	AR175|Redemption Date|=ND5 when AR166=4	2	NA	NA	NA	NA	NA	
AR67/CCR_IIC/A/01 ★	AR67 | Current Balance | > 0 and AR166 = 4	2	NA	NA	NA	NA	NA	

ACC Rule Results in EDitor

ED tested a sample ACC submission with 124,450 residential mortgage loans:

- In this randomly selected file 31 failed rules were identified for a total of potential data quality issues affecting approximately 92% of the loans

Major rules that failed:

Original LTV cannot be reconciled using other fields in the ACC RMB template:

- AR135 | Original Loan to Value | IF AR135<>(AR66 (OBAL)/AR136(Valuation Amount)*100 + -5 where AR135<>0

Combination of income sources with a total annual earnings lower than €2,000 for employed borrower

- AR26|Primary Income | if AR26 + AR28 + AR76 + AR154 < 2,000 if (AR21<>4,6,7 or AR130 not in (2, 3)) where AR26 is not 'ND%' for active loans

Payment due higher than €100,000 for non bullet loans

- AR71|Payment Due|>100,000 and (AR72 is in (1,2,3,4,5,10,11,12,13) for active loans

Duplicate entries for borrower IDs more than five times

- AR7|Borrower Identifier | Duplicate more than 5, excluding ND values

Point Person for the ACC Data Quality Checks

Petr Surala

Manager

Business Development

Telephone: +49 69 50986 9315

Email: petr.surala@eurodw.eu

Fees for ACC Portfolios in the Private Area

Fees for the creation of an ACC private portfolios in Edwin are as follows:

- One-time upload and administrative fee (invoiced on issue of ED Code) € 8,000 per portfolio
- Annual management and surveillance fee (payable in advance) € 6,000 per portfolio

Fees for ACC Data Quality Checks

The following fees are charged for the data quality verification service for each ACC portfolio:

- One time upload and administrative fee (invoiced on issue of ED Code) € 15,000 per portfolio
- Annual data quality management fee (payable in advance) € 3,000 per portfolio

To request data quality checks for a portfolio of ACC RMB or SME, please contact your dedicated analyst indicating the ED Code for the portfolio that you would like to monitor on a regular basis.

Corporate Address:
European DataWarehouse GmbH
Walther-von-Cronberg Platz 2
60594 Frankfurt am Main
Germany
European Transparency Register ID Number: 781559916266-15

+49 (0) 69 50986 9017

enquiries@eurodw.eu

www.eurodw.eu

Disclaimer

This presentation (the "Presentation") has been prepared by European DataWarehouse GmbH (the "Company") and is being made available for information purposes only.

The Presentation is strictly confidential and any disclosure, use, copying and circulation of this Presentation is prohibited without the consent from the Company.

Information in this Presentation, including forecast financial information, should not be considered as advice or a recommendation to investors or potential investors in relation to holding, purchasing or selling securities or other financial products or instruments and does not take into account your particular investment objectives, financial situation or needs. No representation, warranty or undertaking, express or implied, is made as to the accuracy, completeness or appropriateness of the information and opinions contained in this Presentation.
Under no circumstances shall the Company have any liability for any loss or damage that may arise from the use of this Presentation or the information or opinions contained herein.

Certain of the information contained herein may include forward-looking statements relating to the business, financial performance and results of the Company and/or the industry in which it operates. Forward-looking statements concern future circumstances and results and other statements that are not historical facts, sometimes identified by the words "believes", expects", "predicts", "intends", "projects", "plans", "estimates", "aims", "foresees", "anticipates", "targets", "may", "will", "should" and similar expression.
The forward-looking looking statements, contained in this Presentation, including assumptions, opinions and views of the Company or cited from third party sources are solely opinions and forecasts which are uncertain and subject to risks.