



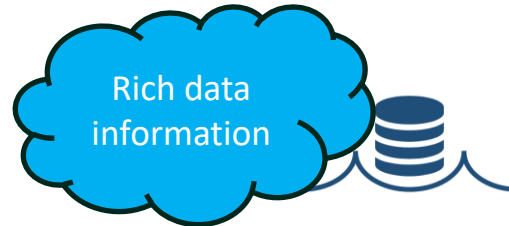
How to validate in case of heterogenous data?

Jean-Paul DAISOMONT, Head of XBRL Business Line
ECB, Frankfurt, 13 – 14 June 2023

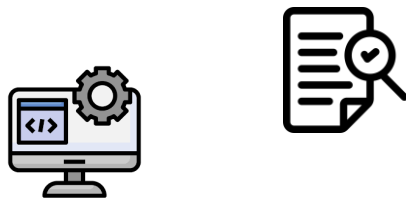
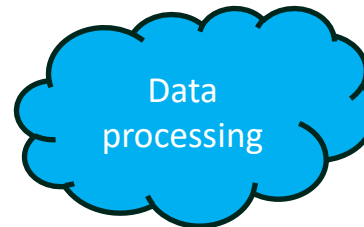
The context: data verification

/// Third way to manage PC...

XBRL
SDMX



Formula
linkbase



Identification by Use cases

/// Back on our experiences...

- / For ECB/EBA reporting (Decision ECB/2014/29 of 2 July 2014)
 - The **ECB** added extra checks aimed at enhancing the quality of supervisory reporting data.
 - In Luxembourg, the **CSSF** published a first list of additional validation rules in order to take into account specific concerns.
 - In the Netherlands, the **DNB** quarterly published additional data quality checks.
- / For National Specific Reporting,
 - In Belgium, for **CBSO**, a specific focus is put on data quality (DQM domain of CBSO project)
- / For ECB reporting, SDMX Anacredit validation
- / By extension,
 - Cross validation between CBSO data with EBA balance sheet;
 - Cross validation between EBA reports and ECB reports.

Some used references

Starting points of our analysis

[ECB plausibility checks](#)

- https://www.bankingsupervision.europa.eu/banking/approach/dataqualitychecks/shared/pdf/EGDQ_publication.xlsx

[DNB Additional-data-quality-checks \(2023-q1\)](#)

- <https://www.dnb.nl/media/zfjpvpa1/additional-data-quality-checks-2023q1-v3.xlsx>

[CSSF Plausibility checks ECB EGDQ Checks \(2023\)](#)

- https://www.cssf.lu/wp-content/uploads/CSSF_Plausibility_checks_ECB_EGDQ_Checks_Final_version.xlsx

[BCL Anacredit Validation Rules \(sheet "Referential integrity", "Uniqueness - Cred. data" et "Consistency ECB"\)](#)

- https://www.bcl.lu/en/Regulatory-reporting/Etablissements_credit/AnaCredit/Instructions/AnaCredit_Validation_rules_EN.xlsx

More over the implementation

/// A quick overview over the Core principles ...

DATASETS



Set of XBRL reports

1. Semantic meta-model representation
2. Data report (XBRL/XML, xBRL-JSON, xBRL-CSV, ...)



Excel file
with Plausibility Checks spec.

- Logical expression using
 - Presentation information, data defined with
 - model, table reference, row and column
 - Dimensional data
- Additional information (Tolerance, Business info.)

Logical expression
or ad hoc
evaluation



Quality
of control reports

- Values of variables, in the expression
- Values in the tables

More over the implementation

Zoom in on datasets in case of XBRL taxonomies



DATASETS



DPM Model

	2011			2012		
	UK	US	World	UK	US	World
Profit						
Revenue						
Expenses						

	2011			2012		
	UK	US	World	UK	US	World
Assets						
Fixed Assets						
Cash						
Other Assets						
Liabilities						
Accounts Payable						
Loans Payable						

/entry point

FACT

/report

Expression for cross-validations

/// Deep dive into some samples...

/ Cross-validation 100 % within EBA (XBRL)

```
{f:EBA, fv:1, t: F13.01, r: 0015, c: 0050, m:FINREP9_Con_IFRS, FINREP9_Ind_IFRS, ...} =  
  {f:EBA, fv:1, t: F18.00,c, r: 0070, c: 0210, m:FINREP9_Con_IFRS, FINREP9_Ind_IFRS, ...} +  
  {f:EBA, fv:1, t: F18.00,c, r: 0191, c: 0210, m:FINREP9_Con_IFRS, FINREP9_Ind_IFRS, ...} +  
  {f:EBA, fv:1, t: F18.00,c, r: 0221, c: 0210, m:FINREP9_Con_IFRS, FINREP9_Ind_IFRS, ...}  
Range: {"table": ["F13.01", "F18.00,c"],"row": ["0015","0070","0191","0221"], "col": ["0050","0210"]}
```

/ Cross-validation 100 % within ANACREDIT (module instrument, SDMX)

```
IF {f:AnaCredit, fv:1, a: Instrument.Settlement Date, m:Instrument} <> 'Non-applicable'  
THEN  
  {f:AnaCredit, fv:1, a: Instrument.Settlement Date, m:Instrument} >=  
    {f:AnaCredit, fv:1, a: Instrument.Inception Date, m:Instrument}
```

/ Cross ANACREDIT vs EBA

```
{f:AnaCredit, fv:1, a: Instrument.Inception Date, m:Instrument} =  
  instant_date( {f:EBA, fv:1, t: F13.01, r: 0015, c: 0050, FINREP9_Con_IFRS, FINREP9_Ind_IFRS, ...})
```

/ Syntax:

- F: for framework; FV: for framework version, M: Model
- T:, R:, C:, EBA convention for table linkbase
- A: attribute for Anacredit

Wrap-up: Key points to highlight...



- / Assumptions over the conventions:
 - Common agreement over the syntax of the expression (between stakeholders)
 - Within a framework (EBA, Solvency, Anacredit, CBSO, ...), agreement on the semantic characteristics to use

- / Process
 - Load data meta-model (configuration, input for computing semantic characteristics)
 - Load Excel file with PC to apply (configuration, expressions to apply)
 - Load data report and run PC

- / Identified advantages
 - Without specific coding
 - Only interpretation (parsing, rapid testing)
 - Reusable solution
 - Extensible solution (new requirements)
 - Taxonomy driven solution, with rich semantic + presentation



Thank you!