MICRODATA MANAGEMENT AT THE BANCO DE ESPAÑA

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FINANCIAL REPORTING AND CCR
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4. CONCLUSIONS
The Banco de España (BdE) applies an integrated and comprehensive approach to the financial and prudential reporting requirements of the credit institutions and other financial institutions that it supervises.
Integrated approach

The BdE has a **single data dictionary** and a **single data point model (DPM)** for:

- **The different financial and prudential reporting frameworks:**
  - Supervisory, financial stability and monetary policy statistics
  - Market primary financial statements and some disclosures

- **The different type of data:**
  - **Microdata** (open templates), e.g. CCR and SHS
  - **Aggregated data** (closed templates), e.g. FINREP and COREP
2 INTEGRATED APPROACH

DATA INPUT
Each entity develops its own input approach

ENTITIES
INTERNAL DATA BASE (each entity decides how to organise it)

Transformations

DATASET TO BE REPORTED TO BdE

INTEGRATED REPORTING APPROACH
Data are managed as a single reporting package. BdE is working on a single data dictionary based on EBA DPM

DATA WAREHOUSE
Users have access to data on a need-to-know basis
BdE can check data quality

AGGREGATED DATA
EU SUPERVISORY REPORTING (FINREP, COREP, ETC.)

BdE FINANCIAL REPORTING
ECB REQUIREMENTS (BSI, MIR)
BdE AND BIS STATISTICS
SOLO SUPERVISORY FINANCIAL REPORTING
PUBLIC FINANCIAL STATEMENTS

MICRODATA

X B R L
GROUP COMPOSITION (FINREP)

LARGE EXPOSURES

TEXT
CENTRAL CREDIT REGISTER (CCR)

SECURITIES HOLDINGS
## 2 INTEGRATED APPROACH
### SINGLE DATA DICTIONARY AND SINGLE DPM

<table>
<thead>
<tr>
<th>DICTIONARY</th>
<th>REPORTING FRAMEWORKS</th>
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<tbody>
<tr>
<td></td>
<td>FINREP</td>
</tr>
<tr>
<td>DATA TYPE</td>
<td></td>
</tr>
<tr>
<td>BASIC ITEMS</td>
<td></td>
</tr>
<tr>
<td>• Assets</td>
<td></td>
</tr>
<tr>
<td>• Liabilities</td>
<td></td>
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<tr>
<td>• Exposure</td>
<td></td>
</tr>
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<td>• (...)</td>
<td></td>
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<tr>
<td>MAIN CATEGORY</td>
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<tr>
<td>• Main category</td>
<td></td>
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<tr>
<td>• Cash</td>
<td></td>
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<tr>
<td>• Loans</td>
<td></td>
</tr>
<tr>
<td>• (...)</td>
<td></td>
</tr>
<tr>
<td>• (...)</td>
<td></td>
</tr>
<tr>
<td>REST OF DOMAINS</td>
<td></td>
</tr>
<tr>
<td>• Geographical area</td>
<td></td>
</tr>
<tr>
<td>• Residence of counterparty</td>
<td></td>
</tr>
<tr>
<td>• Location of the activity</td>
<td></td>
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<tr>
<td>• (...)</td>
<td></td>
</tr>
<tr>
<td>• Currency</td>
<td></td>
</tr>
<tr>
<td>• Counterparty</td>
<td></td>
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<tr>
<td>• (...)</td>
<td></td>
</tr>
</tbody>
</table>

- Domain
- Dimension
- Member
Comprehensive approach

The approach is applied in the following phases in relation to financial and prudential reporting:

- Decision on the information to be collected
- Frequency and timeliness
- Design of the templates
- Collection of the templates
- Primary and secondary quality controls
3 COMPREHENSIVE APPROACH
3.1 DECISION ON THE INFORMATION TO BE COLLECTED

- All potential internal (and external) users of the data shall be consulted on the information to be collected under a microdata statistic to include all data relevant for them.

- Required data ideally should also be useful for the reporting agents: they will have an additional incentive to provide the data on time with the highest quality.

- Reporting agents shall be clearly chosen: not all microdata need to be requested of all entities.

- The threshold, if any, to report data item-by-item shall be decided after a careful study: the volume of data to be collected and the marginal usefulness of the items of a lower amount should be considered.

  Reporting of microdata with aggregated information on items that are not reported item-by-item as they are below the threshold should be considered.

A MERITS AND COST ANALYSIS OF THE DATA TO BE COLLECTED MUST BE MADE!
3 COMPREHENSIVE APPROACH
3.2 FREQUENCY AND TIMELINESS

Users normally tend to request data with the highest frequency and with the lowest timeliness, but the quality of microdata is closed related to the frequency and timeliness of the information.

**Frequency**
- Frequency of microdata changes from one reporting framework to another due to the reasons for which they are required:
  - Money Market Statistics are required daily.
  - CCR data necessary for the feedback loop are required monthly.
  - Data on accounting and credit risk are required quarterly.
  
  *Accounting and credit-risk related information cannot be requested with a lower frequency than that required for the calculation of those data in the relevant regulation.*

**Timeliness**
- Microdata with information that does not need any transformation or calculation by the reporting agent after the reference day can be required with a short deadline (e.g. CCR attributes necessary for feedback loop are requested by the 10th calendar day after the reference day).

- Microdata on accounting and credit-risk information should be requested with a higher timeliness than the same data requested on an aggregated basis in other reporting frameworks.
## 3 COMPREHENSIVE APPROACH
### 3.3 DESIGN OF THE TEMPLATES

### Basic concepts

<table>
<thead>
<tr>
<th>ATTRIBUTE (DIMENSION)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>▪ Each of the different “characteristics/breakdowns/disaggregations” that identify the information required to be reported (e.g. currency, institutional sector, outstanding nominal, etc.).</td>
<td></td>
</tr>
<tr>
<td>▪ Attributes can be:</td>
<td></td>
</tr>
<tr>
<td>▪ Open attributes: those for which there is not a closed list of values (e.g. amounts, dates or names).</td>
<td></td>
</tr>
<tr>
<td>▪ Closed attributes: those with a closed list of values (e.g. currency, geographical area of residence and institutional sector).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VALUES (MEMBER)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>▪ Data that must be reported in an attribute. For example, for currency: euro, dollar, ...</td>
<td></td>
</tr>
<tr>
<td>▪ For closed attributes, the value “not applicable” must be included when that attribute does not need to be reported for a type of counterparty or instrument (e.g. the value “size of the enterprise” shall be “not applicable” for natural persons).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEMPLATE</th>
<th></th>
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<tbody>
<tr>
<td>▪ Each set of attributes that are reported together. For instance, for “Counterparty data”: “counterparty identifier code”, “name”, “address”, “sector”, “geographical area of residence”, etc.</td>
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</tr>
</tbody>
</table>
PREHENSIVE APPROACH
SIGN OF THE TEMPLATES

an attribute (dimension) with a closed list of values is
ed, the list of the potential values in the microdata
ates should have, at least, the necessary granularity
able to fulfill all aggregated data in which that
ute is required.

• The list of values of an attribute should ideally be the
same as that which entities have as input data in their
internal databases to avoid aggregations of values.

attribute shall refer only to one single concept to
ate the analysis of data and the design of the templates.

• The mix of concepts in the same attribute to reduce
the number of attributes must be avoided, especially
when more than one value can be reported at the
same reference date.

ame of an attribute shall always be the same when it is
ed in different templates or reporting frameworks.

tributes and values must be clearly defined.
Transmission of data is costly and time-consuming.

To collect attributes with the same values periodically entails:

(a) performing the same controls repeatedly and
(b) checking the value reported afresh for an attribute against that previously reported.

Attributes (II)

Attributes shall be distributed in different templates to be reported with data of a similar nature that are also reported with the same frequency and timeliness to minimise to the utmost the transmission of...
Attributes (III)

**PREHENSIVE APPROACH SIGN OF THE TEMPLATES**

Data shall be classified as

**Basic data**
Data whose values do not normally change during their life (e.g. data of counterparties and certain data of instruments such as the original and maturity dates)

These data should be reported once the first time they are reported) and updated only when necessary

**Dynamic data**
Data whose values can change periodically (e.g. fair value, outstanding nominal value, performing status)

These data must be reported periodically: daily, monthly, quarterly, etc.
Data on counterparties are required in many microdata reporting frameworks.

**Criteria for reducing the reporting of counterparty data**

Data on each counterparty shall be reported by every reporting agent only once, although these data are required in several reporting frameworks.

The design of the template for collecting counterparty data shall be the same as in any reporting framework, but the number of attributes required in the different reporting frameworks can vary.

The attributes to be reported by the reporting agent to BdE for a counterparty shall be, at least, those required in all reporting frameworks for which the entity must report data.
Any counterparty shall be identified by a single identification code, BdE applies the following criteria because only very few entities have an LEI:

- For residents in Spain, the identification code is the Tax Identifier code which, in the case of natural persons, is the same as the National Identification Card code.

- For non-residents in Spain, reporting agents need to ask BdE for their counterparty identification code.

Once a counterparty identification code is assigned to a counterparty, that code cannot be re-used in the future for identifying other counterparties.
It is necessary to ensure that the same “counterparty identification code” is reported for all reporting agents to identify the same counterparty.

BdE ensures that:

- For a counterparty identification code, all reporting agents report the same name of the counterparty.
- For the same name of a counterparty, the identification code is the same.

If this is not the case, other attributes of the counterparty are checked to ensure that they are different counterparties.
Counterparty can be linked to more than one instrument. To reduce the transmission of information, the counterparty data must be reported in a template different from the template or templates with the information on the instruments.

An instrument can have only one or more than one counterparty, which can have the same or different roles.

To reduce the transmission of data, the following approaches are used:

When in the reporting framework any instrument can have only one counterparty, the “counterparty identification code” is reported as an attribute in one of the templates with instruments data.

When in the reporting framework an instrument can have more than one counterparty, a specific template with the following attributes is included in the reporting framework:

- **Counterparty identification code**
- **Instrument identification code**
PREHENSIVE APPROACH
SIGN OF THE TEMPLATES

IMAGE OF DATA ON COUNTERPARTIES TO DATA ON INSTRUMENTS (II)
BdE is currently using different IT languages for collecting microdata depending on the origin of the requirement:

<table>
<thead>
<tr>
<th>Reporting Framework</th>
<th>IT Language</th>
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<tbody>
<tr>
<td>Central Credit Register (CCR)</td>
<td>TEXT</td>
</tr>
<tr>
<td>Securities Holding Statistics (SHS)</td>
<td>TEXT</td>
</tr>
<tr>
<td>Securities issued by the reporting agent</td>
<td>TEXT</td>
</tr>
<tr>
<td>REP and COREP</td>
<td>XBRL</td>
</tr>
<tr>
<td>Money Market Statistics</td>
<td>XML ISO 20022</td>
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</tbody>
</table>

The IT language for reporting microdata must be chosen taking into consideration the volume and size of the data to be collected, the infrastructure of the NCB and the reporting agents, and whether the data must be re-sent to other institutions.

BdE has chosen TEXT for the CCR because it is collecting monthly data item by item.
PREHENSIVE APPROACH TO QUALITY CONTROL

Classification of the validation rules on the basis of its nature:

Information validation rules: to check that the information is transmitted applying the IT criteria.

Business validation rules: to check that data reported in the different attributes meet the business definitions and are cross-consistent.

Validation rules shall be known by all reporting agents.

When technically possible, reporting agents should be able to check the quality of data on the BdE website before officially sending them.

Validation of validation rules by BdE:

When the data are sent to BdE and before they are stored in the computer.

This criterion (theoretically the best one) can only be applied when the time needed to validate the data is limited (e.g. when the size of the microdata reported simultaneously is not too big).
Validation rules (II)

Severity of the validation rules:

**Section of data:** data reported are not stored by BdE if they do not meet the validation rule.

*Such severity shall only be applied for IT validation rules and for the business validation rules of key attributes.*

**Message to the reporting agent and the BdE’s analysts:** data reported are stored, but the system sends an automatic message to the reporting agent (and to the BdE’s analysts) to re-send the data or to review consistency with other data.

*Such severity shall be applied for business validation rules of attributes other than the key ones when the rejection of some data may entail the rejection of key data that are not erroneous.*

**Message only to the BdE’s analysts:** data reported are stored, but the system sends an automatic message to BdE’s analysts to analyse them.

*Such severity shall be applied for business validation rules of attributes to send a message to the BdE’s analysts on potentially erroneous data. Analysts shall decide whether it is necessary to send a message to the reporting agent.*

**Message on missing related data on the counterparties and the instruments**

This message is sent when the reporting agent has not sent all the data needed to link the counterparties to the instruments (i.e. there are data for an instrument but not for the counterparty.

**Prehensive Approach**

**MARY QUALITY CONTROL**
Comparison of microdata with aggregated data.
Microdata amounts are aggregated for items with the same attributes so as to be able to compare them with the same aggregated data reported in other reporting frameworks, to check that the information reported is consistent.

- **When microdata have no threshold**: both datasets must be the same.
- **When microdata have a threshold**: aggregated microdata must be equal to or lower than the aggregated data reported in other templates.

  *This quality control is easier when the attributes used in the DPM to identify any point data of the templates with aggregated data are the same as those required in the microdata statistics.*

Collaboration of key indicators.
To compare data of individual entities with data of similar entities.

  *This type of check enables outliers to be identified.*
financial and prudential information management has evolved greatly in recent years thanks to the IT revolution, especially in the case of microdata management.

National Central Banks and supervisors are taking advantage of the new IT technologies that allow more data to be collected, with higher frequency and lower timeliness than before. For that reason, microdata statistics are currently more frequent, especially for collecting data on financial assets.

The quality of microdata statistics increases when they are managed using a comprehensive and integrated approach.

Microdata statistics could reduce the number of templates with aggregated data on the same information, provided that the users can receive the data a few days later than they are currently receiving them.

Item-by-item microdata statistics mean that reporting agents need to have the required information on their internal databases item-by-item. For that reason, the quality of any aggregated statistic with that information will increase.
ANKS FOR YOUR ATTENTION