Keeping track of MNEs through business group databases: The experience of Banco de Portugal

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9th IFC Conference on
Are post-crisis statistical initiatives completed?
30th and 31st August 2018
AGENDA

- DATA SOURCE
- THE BUSINESS GROUPS’ DATABASE
- BRIEF CHARACTERIZATION OF THE DATABASE
- RELEVANCE OF MNES
1. DATA SOURCE

Simplified Corporate Information is the legal deposit of accounts

ANNEX A: reported by non financial companies

Annual data (last year available: 2016) | Mandatory | 100% electronic format | More than 400,000 non-financial companies (all) | More than 3,000 items:

- Balance-sheet
- Income statement
- Statement of changes in equity
- Cash flow statement
- Annex to the financial statements

Balance-sheet, income statement, statement of changes in equity, cash flow statement and the annex to the financial statements.
2. THE BUSINESS GROUPS’ DATABASE | 2.1. ARCHITECTURE AND VISUALIZATION

(1) Resident Entities
- IDBP
- Tax ID
- LEI
- Name
- NACE
- UCI

(2) Equity participations
- IDBP (Participant)
- Share Capital (%)
- Voting Rights (%)
- Starting date of ownership
- Ending date of ownership

(3) Non-resident Entities
- IDBP
- Tax ID
- LEI
- Name
- NACE
- Country
- UCI
2. THE BUSINESS GROUPS’ DATABASE | 2.1. ARCHITECTURE AND VISUALIZATION

All Names and Tax IDs used are fictional and based in the Greek and Roman mythology.
2. THE BUSINESS GROUPS' DATABASE | 2.1. ARCHITECTURE AND VISUALIZATION

All Names and Tax IDs used are fictional and based in the Greek and Roman mythology.
The same non-resident entities is reported by different resident NFC.

Non-resident entities are identified by Tax payer identification number (Tax ID), Name and Country.

A check digit validation only applies for national tax payer numbers.

If it is not possible to unequivocally identify a non-resident entity, manual quality control will apply.

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The algorithm compares the attributes of all non-resident entities and if:

<table>
<thead>
<tr>
<th>Situation 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax ID, Name and Country are equal</td>
</tr>
</tbody>
</table>

The entity is considered the same.

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1 All Names and Tax IDs used are fictional and based in the Greek and Roman mythology.
The algorithm compares the attributes of all non-resident entities and if¹:

- **Situation 1**: Country is the same & Tax ID is equal

- **Situation 2**: Fuzzy lookup compares the name -> the same entity when similarity > than 55%

### EXAMPLE!

Name: FLORA SA France
Tax ID: 96720542239

Name: FLORA SA
Tax ID: 96720542239

Are compared as “FLORASAFRANCE“ and “FLORASA“ and considered the same company;

¹ All Names and Tax IDs used are fictional and based in the Greek and Roman mythology
The algorithm compares the attributes of all non-resident entities and if:\1:

<table>
<thead>
<tr>
<th>Situation 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country is the same &amp; Tax ID is different</td>
</tr>
<tr>
<td>Fuzzy lookup compares the tax payer identification number and the name (Tax ID, Name) -&gt; similarity &gt; than 70%;</td>
</tr>
</tbody>
</table>

**EXAMPLE!**

Name: Ares Corp. SA  
Tax ID: 70253621

Name: Ares SA  
Tax ID: AB7025321 (slightly different)

Are compared as “70253621AresCorpSA” and “AB7025321AresSA” are considered the same company;

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1 All Names and Tax IDs used are fictional and based in the Greek and Roman mythology
The same non-resident entities is reported by different resident NFC.

Non-resident entities are identified by Tax payer identification number (Tax ID), Name and Country.

A check digit validation only applies for national tax payer numbers.

If it is not possible to unequivocally identify a non-resident entity, manual quality control will apply.

The algorithm compares the attributes of all non-resident entities and if:

- Similarity of (Tax ID, Name) > than 70%: Entities are selected for manual check
- Similarity of (Tax ID, Name) < than 70%: Entities are considered different

Situation 3

Country is different

1 All Names and Tax IDs used are fictional and based in the Greek and Roman mythology
The algorithm establishes the following hierarchy:

- Repeated participations are deleted
- Indirect participations where the reporting entity is identified are deleted
- Direct participations prevail over indirect participations
- Direct downward participations prevail over direct upward participations

If it is not possible to unequivocally identify a participation, manual quality control will apply.
The algorithm establishes the following hierarchy:

- Repeated participations are deleted
- Indirect participations where the reporting entity is identified are deleted
- Direct participations prevail over indirect participations
- Direct downward participations prevail over direct upward participations

### Situation 2

<table>
<thead>
<tr>
<th>HERMES SA</th>
<th>ATENA SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>99%</td>
<td>15%</td>
</tr>
</tbody>
</table>

\[ 99\% + 15\% = 114\% \]

**If it is not possible to unequivocally identify a participation,** manual quality control will apply.
2. THE BUSINESS GROUPS’ DATABASE | 2.2.3. ALGORITHM - UCI

UCI inconsistencies - companies tend to wrongly identify themselves as UCI.

The algorithm analyse the chain of voting rights higher than 50% and go up into the group structure to find out the correct UCI.

The UCI of the group will be the company on the top of the control chain.

If it is not possible to unequivocally identify a UCI, manual quality control will apply.

All Names and Tax IDs used are fictional and based in the Greek and Roman mythology.
2.3. THE IMPACT OF THE ALGORITHM AND THE MANUAL QUALITY CONTROL

<table>
<thead>
<tr>
<th>Year</th>
<th>RESIDENT</th>
<th>NON-RESIDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>4,000</td>
<td>2,000</td>
</tr>
<tr>
<td>2011</td>
<td>5,000</td>
<td>3,000</td>
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<tr>
<td>2012</td>
<td>6,000</td>
<td>4,000</td>
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<tr>
<td>2013</td>
<td>7,000</td>
<td>5,000</td>
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<tr>
<td>2014</td>
<td>8,000</td>
<td>6,000</td>
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<tr>
<td>2015</td>
<td>9,000</td>
<td>7,000</td>
</tr>
<tr>
<td>2016</td>
<td>10,000</td>
<td>8,000</td>
</tr>
</tbody>
</table>
2.3. THE IMPACT OF THE ALGORITHM AND THE MANUAL QUALITY CONTROL

**Number of non-resident entities in IES**

**Number of participations in IES**

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</table>
2.3. THE IMPACT OF THE ALGORITHM AND THE MANUAL QUALITY CONTROL

Number of non-resident entities in IES

Number of participations in IES

Number of UCIs in IES

RESIDENT
NON-RESIDENT

RESIDENCY

PORTUGUESE
FOREIGN

Manual | Reported (IES) | Algorithm

Geographical distribution of UCI with affiliates in Portugal

Geographical distribution of Portuguese controlled MNEs

- Between 100 and 1,000 groups
- Between 10 and 100 groups
- Less than 10 groups
- More than 2,000 entities
- Between 1,000 and 2,000 entities
- Between 100 and 1,000 entities
- Between 10 and 100 entities
- Less than 10 entities

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4. RELEVANCE OF MNES (2016)

Resident NFCs by type of group

- Number of corporations: 92% All-resident enterprise group, 5% Domestically controlled enterprise group, 3% Foreign controlled enterprise group, 2% Non-group firms
- Turnover: 37% All-resident enterprise group, 24% Domestically controlled enterprise group, 27% Foreign controlled enterprise group, 13% Non-group firms
- Number of employees: 59% All-resident enterprise group, 14% Domestically controlled enterprise group, 14% Foreign controlled enterprise group, 13% Non-group firms

Share of exports and imports in turnover

- All-resident enterprise group: Exports/Turnover 17%, Imports/Turnover -7%, Balance 4%
- Domestically controlled enterprise group: Exports/Turnover 26%, Imports/Turnover 3%, Balance 3%
- Foreign controlled enterprise group: Exports/Turnover 30%, Imports/Turnover 11%, Balance -7%
- Non-group firms: Exports/Turnover 14%, Imports/Turnover 3%

Liabilities structure

- All-resident enterprise group: Debt securities (A) 26%, Bank loans (B) 21%, Intra-group financing (C) 25%, Other liabilities 35%
- Domestically controlled enterprise group: Debt securities (A) 17%, Bank loans (B) 13%, Intra-group financing (C) 13%, Other liabilities 28%
- Foreign controlled enterprise group: Debt securities (A) 37%, Bank loans (B) 20%, Intra-group financing (C) 14%, Other liabilities 28%
- Non-group firms: Debt securities (A) 37%, Bank loans (B) 16%, Intra-group financing (C) 7%, Other liabilities 28%
CONCLUDING REMARKS

Improving the quality of business groups’ data

- Close cooperation between statistical authorities at a national and international level
- Establishment of an effective framework to interchange data
- LEI mandatory for all entities operating in international markets (used as a key to identify non-resident entities)

THANK YOU FOR YOUR ATTENTION
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