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Working Paper

The journey from micro supervisory data to aggregate macroprudential statistics

ECB Statistics Paper, No. 20

Provided in Cooperation with:

European Central Bank (ECB)

Suggested Citation: Barbic, Gaia; Borgioli, Stefano; Klacso, Jan (2017) : The journey from micro supervisory data to aggregate macroprudential statistics, ECB Statistics Paper, No. 20, ISBN 978-92-899-2834-2, European Central Bank (ECB), Frankfurt a. M., <https://doi.org/10.2866/754138>

This Version is available at:

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EUROPEAN CENTRAL BANK
EUROSYSTEM

Statistics Paper Series

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The journey from micro supervisory data to aggregate macroprudential statistics

No 20 / May 2017

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Abstract

The Consolidated Banking Data (CBD) are a key component of the ECB/ESCB statistical toolbox for financial stability analysis. This dataset, which contains all the relevant dimensions of systemic risk stemming from and affecting national banking systems, is compiled from firm-level supervisory returns. With the entry into force of the new set of European Banking Authority (EBA) Implementing Technical Standards on Supervisory Reporting in 2014, the whole CBD statistical framework had to be reshaped. In August 2015 the first data for the revised CBD were released. This paper deals with the main issues in the challenging endeavour of transposing firm-level supervisory returns, often based on different accounting systems, into comprehensive aggregate statistics, while ensuring as far as possible continuity in the time series for indicators and aggregates calculated from different successive data models. At the same time, the new CBD has substantially enlarged the quantity and increased the quality of data, available to the users. This paper provides a description of the database, together with some examples drawn from it.

JEL code: C82, G21.

Keywords: Macroprudential Analysis, Consolidated Banking Data, Banking Indicators

Non-technical summary

A continuously changing economic, financial and institutional environment makes relevant and reliable statistical information a key input for policymakers. It is the job of official statisticians to collect, compile and disseminate high-quality and methodologically sound statistics and service changing user needs. The financial crisis starting in 2008 that turned into a global recession and later triggered the European sovereign debt crisis highlighted that the supervision of individual financial institutions (micro supervision) is not enough in itself to prevent systemic imbalances building up in the financial system. These systemic risks can significantly harm the functioning of the whole financial system, with serious negative consequences for the real economy. The European Systemic Risk Board (ESRB) was established in 2010 to oversee the financial system in the European Union (EU) and prevent and mitigate systemic risk. The new Capital Requirements Regulation and Directive (CRR/CRD IV)¹ provided the mandate and tools for the macroprudential authorities. Under the Single Supervisory Mechanism (SSM), the ECB shares macroprudential responsibility with national designated authorities and has the power to top up macroprudential measures implemented by national authorities.

This new macroprudential framework and the associated tasks increased the need for in-depth analysis of the financial and banking system and for relevant and suitable statistical data sources. At the same time, the new regulatory framework introduced more harmonised reporting standards for European banks and more harmonised definitions of several financial items (e.g. non-performing exposures). New definitions and reporting requirements were also introduced (e.g. the leverage ratio and new liquidity ratios such as the liquidity coverage ratio and the net stable funding ratio). CRR/CRD IV also require the EBA to develop implementing technical standards to specify uniform formats, frequencies and definitions to be applied to supervisory reporting in the EU.

The increased importance of the macroprudential focus, the new regulation and the related new reporting requirements introduced by the EBA Implementing Technical Standards on Supervisory Reporting led to the revision of the Consolidated Banking Data (CBD). The aim of this paper is to show, using the example of the new revised CBD framework, the main issues that arise when deriving aggregate statistics from bank-level supervisory data based on different accounting systems. The paper also describes how to preserve as much continuity as possible in time series constructed by connecting data points from successive and different data models. Both conceptual and implementation issues are discussed in the paper.

The new CBD framework is based on the FINREP and COREP templates introduced by the EBA Implementing Technical Standards on Supervisory Reporting. The new

¹ Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (CRD IV) and Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms (CRR).

reporting framework has ensured more harmonised data reporting (e.g. on non-performing exposures) and enabled the broadening of the new framework compared to the previous one. While the old CBD framework consisted of four parts (profitability and efficiency, asset quality, balance sheet and capital adequacy), the new one contains 11 sections: an enlarged profitability and efficiency part; profitability and efficiency ratios including return on equity distributions; balance sheet containing main asset and liability items; balance sheet breakdowns (this section contains counterparty breakdown for the main assets) ; asset quality information on forbearance exposures; non-performing exposures and impaired assets; concentration, with a geographical breakdown of exposures and information about large exposures; liquidity and funding information about liquid assets; stable funding or asset encumbrance; and four parts providing information about the structure of own funds, risk exposures, capital buffers and breakdowns of the reporting population by several solvency ratios.

As the CBD have been among the key data sets for macroprudential analysis conducted at the ECB/ESCB for many years, it was crucial to preserve continuity of the time series, i.e. to map the old framework to the new data points as far as possible. This requires sound methodology. In some cases the definition of items changed significantly and the old time series had to be discontinued (e.g. non-performing exposures).

The first data under the new framework were published in August 2015, after a rigorous quality checking process. The new CBD is now available for users in a database that is updated quarterly.

1 Introduction

The financial crisis starting in 2008 that turned into a global recession and later triggered the European sovereign debt crisis highlighted that the supervision of individual financial institutions (micro supervision) is not enough in itself to prevent systemic imbalances building up in the financial system. These systemic risks can significantly harm the functioning of the whole financial system with serious negative consequences for the real economy. The importance of understanding and containing systemic risk and the focus on financial stability increased the relevance of macroprudential policies. The institutional framework has adapted rapidly to the new relevance of systemic risk analysis and reduction. Starting from the de Larosière report², the European Systemic Risk Board (ESRB) was established in 2010 to oversee the financial system in the European Union (EU) and prevent and mitigate systemic risk. The new Capital Requirements Regulation and Directive (CRR/CRD IV) provided the mandate and tools for the macroprudential authorities. Under the Single Supervisory Mechanism (SSM), the ECB shares macroprudential responsibility with national designated authorities and has the power to top up macroprudential measures implemented by national authorities.

This new macroprudential framework and the associated tasks increased the need for an in-depth analysis of the development of the financial and banking system and for relevant and suitable statistical data sources. At the same time, the new regulatory framework introduced more harmonised reporting standards for European banks and more harmonised reporting definitions of several financial items (e.g. non-performing exposures). New definitions and reporting requirements were also introduced (e.g. the leverage ratio and new liquidity ratios such as the liquidity coverage ratio and the net stable funding ratio).

This led to the need for a change in the reporting framework for financial institutions. The new framework is implemented by the Implementing Technical Standards on Supervisory Reporting of the European Banking Authority (EBA).

The crisis gave birth to new statistical datasets and led to the improvement of existing ones (see for instance the enhanced international banking statistics of the Bank for International Settlements³). International programmes like the G20 Data Gaps Initiative⁴ urged the enhancement of several statistical data sources.

The Consolidated Banking Data (CBD) have been among the key data sets for macroprudential analysis conducted at the ECB/ESCB for many years. These data are intensively used for banking and systemic risk analyses, internal briefings and external publications. The ECB Report on Financial Structures⁵ provides an example

² de Larosière (2009).

³ http://www.bis.org/statistics/about_banking_stats.htm

⁴ http://www.fsb.org/2009/10/r_091029/

⁵ European Central Bank (2015).

of the use of these data for banking analysis. The CBD are also one of the key inputs into the statistical support provided by the ECB to the ESRB.

The collection of CBD started in 2002, with changes in the reporting framework over time. The data model in force until 2014 was implemented by all EU countries in 2009; the main data sources were the supervisory information collected according to the Financial Reporting (FINREP) and Common Reporting (COREP) guidelines originally developed by the Committee of European Banking Supervisors (CEBS). As described in Borgioli, Gouveia, and Labanca (2013), these already included detailed information on bank profitability, balance sheets, asset quality and solvency broken down by bank size class and covered almost 100% of the EU banking system. Data were fully consolidated on a cross-border and cross-sector basis; cross-border means that data on branches and subsidiaries located outside the domestic market were included in the data reported by the parent institution and cross-sector means that branches and subsidiaries of banks that can be classified as financial institutions other than banks were also included, with the exception of insurance corporations. CBD further included data for foreign controlled branches and subsidiaries reported separately, as a distinct analysis of these firms is often needed given their large share of the domestic banking sector in some EU countries. CBD were reported at national level for three size classes (small, medium and large banks), determined as a percentage of the total assets of the whole EU banking system. This breakdown by size allows analysis of different national banking systems, as concentration varies substantially among countries. CBD were first collected on annual basis and from 2010 onwards on a semi-annual basis.

Following the implementation of the Implementing Technical Standards and the increase in the availability and harmonisation of supervisory data across the EU, the ESCB Statistics Committee/Working Group on Monetary and Financial Statistics (WG MFS), the Financial Stability Committee/Macro-Prudential Analysis Group (MPAG) and the EBA Standing Committee on Oversight and Practices (SCOP) mandated a Joint Task Force on Consolidated Banking Data (the “TF CBD”) to design and implement a revised reporting scheme for the CBD. The main focus of the mandate was to enhance the scope and the quality of these data and, at the same time, ensure continuity with the previous framework as far as possible.

Compared with the previous version, the revised CBD reporting scheme that was rolled out by the TF CBD provides significant value added and substantially enriches the analytical power of the dataset. Whole new sections were added to the framework, e.g. data on concentration risk (sectoral, geographic, economic activity and funding concentration) and liquidity and funding risk (including asset encumbrance). Existing sections of the previous data model were replaced by new ones; for instance for data on asset quality, the existing section of the CBD was largely replaced by new reporting based on a harmonised definition of non-performing loans, as well as a few key items on forbearance. This clearly led to a substantial increase in data completeness and comparability across jurisdictions. Importantly, the frequency of CBD collection, compilation and dissemination was increased from semi-annual to quarterly, allowing more frequent updates and analyses.

This paper describes some of the main issues in the challenging endeavour of deriving meaningful aggregates from firm-level supervisory returns that are often based on different accounting systems. The paper also deals with how to preserve (some) continuity in time series constructed by connecting data points reported according to successive and different data models.

In the next section we provide a description of the driving principles underlying the establishment of the new reporting framework for CBD. The following section gives an overview of the main issues faced in the implementation of this new framework. Some examples are then put forward and the last section concludes.

2 Creating the new CBD reporting framework – guiding principles

In order to ensure a level playing field and increase transparency in European banking markets, CRR/CRD IV lays down the requirements for reporting capital and financial information. CRR/CRD IV also requires the EBA to develop implementing technical standards to specify the uniform formats, frequencies and definitions to be applied to reporting in the EU. The aim is to implement uniform reporting requirements for credit institutions and investment firms. CRD IV introduced two sets of reports: **CO**mmun **RE**porting Standards (COREP), which detail the information required for capital adequacy and capital requirements and **FI**nan **RE**porting Standards (FINREP), which detail the financial information required. Since September 2014, banks located in the EU have been reporting COREP and FINREP templates to their regulators. FINREP applies to credit institutions that consolidate their financial reports based on International Financial Reporting Standards (IFRS). The EBA Implementing Technical Standards on Supervisory Reporting introduces FINREP templates for firms reporting under national Generally Accepted Accounting Principles (n-GAAP) which are simpler than the IFRS-FINREP templates. The package of Implementing Technical Standards on Supervisory Reporting covers other specific reporting templates as well (asset encumbrance, forbearance, liquidity, leverage ratio, large exposures and non-performing exposures). Under the new CBD framework, data collected from national central banks (NCBs) and national competent authorities (NCAs) are, as far as possible, aggregates of data reported by banks in FINREP and COREP templates. It has to be kept in mind that, while the Implementing Technical Standards extend to the entire banking system, not all banks have to submit all templates – in particular, those for financial statements (FINREP).

Within this general framework, a key objective of the CBD revision was continuing to provide internal users and the public with a complete dataset for the entire banking system at both national and EU level. With this objective in mind, the enhancement of the CBD was driven by the following principles:

- As a general rule, the previous CBD framework and data points were retained to ensure continuity in time series, at least for key data points and aggregates. This is particularly important for published indicators. Exceptions were made where the Implementing Technical Standards introduced clear benefits in terms of harmonisation and data availability.
- The revised CBD framework was based on the Implementing Technical Standards data templates covering (IFRS and n-GAAP) FINREP and COREP. Reporting cells for relevant data from non-FINREP banks (and the full sample, i.e. the set of all reporting firms) were provided in the reporting scheme, as was already the case under the previous reporting scheme. It was, however, recognised that estimates or proxies from sources other than supervisory returns may be needed for non-FINREP reporters.

- As far as possible the reporting framework was based on Implementing Technical Standards templates that ensure coverage of the entire (or the majority of) EU banking system. Hence, in general and when relevant, COREP templates were prioritised over FINREP, as the former covers all banks. Unnecessarily mixing the compilation of CBD series from both COREP and FINREP in a given block of series was also avoided, as the scope and definitions can be quite different.
- A balanced approach was kept between additional user needs ascertained by the TF CBD and the need to minimise the costs of data compilation.
- Undue overlapping and redundancies with existing data collection were avoided. For instance, while drafting the section on geographical concentration of exposures, attention was paid to avoiding possible overlaps with the statistics on international banking activity collected and disseminated by the Bank for International Settlements.
- Following these principles made it possible to implement the changes and optimise the stock of information available to internal users and the public, while at the same time keeping the burden on the compilers manageable.

2.1 Linking to previous CBD information as far as possible

The CBD framework in place since 2009 already provided a comprehensive set of data with fairly long time series. In order to preserve this information, consistency of at least the key items had to be ensured. Accordingly, the first step in the construction of the new CBD scheme was to produce a detailed mapping of the previous CBD data points against the Implementing Technical Standards. As a result of this exercise, some series from the previous CBD were removed owing to quality and availability issues, low value added for users or because they could not be mapped to the Implementing Technical Standards.

It needs to be underlined that due to the changes in the reporting framework and the related CBD framework, linking data reported under the old and the new framework can in general lead to a break in the time series. While the precise quantification of the changes and the significance of the break in time series is beyond the scope of this paper, it is necessary to bear in mind the possible presence of such a break when using CBD for time series analysis.

The **financial statements** section of the previous CBD was straightforward to map to the Implementing Technical Standards and continuity was ensured for all the main time series. Only a few granular breakdowns were dropped and some redefinition was needed.

For the **capital adequacy** section, the new CBD framework is based on the capital requirements introduced by the CRR/CRD IV. The CRR caused major revisions in the definition of own funds, capital ratios and capital requirements, and consequently many items in the capital adequacy section of the old CBD (own funds in particular)

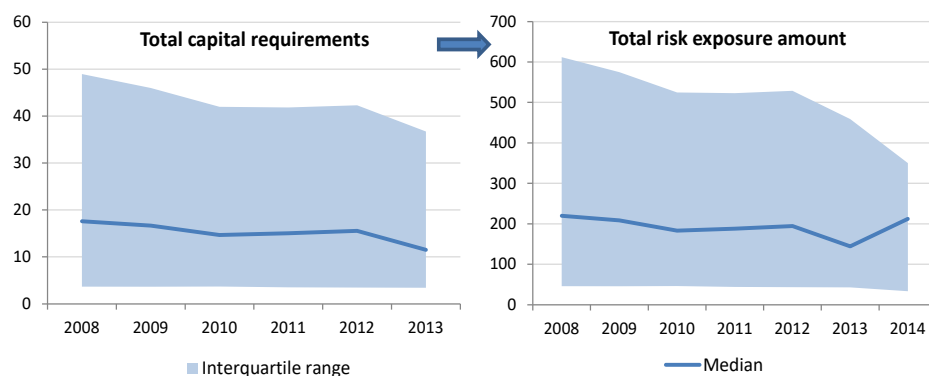
underwent breaks in series or had to be discontinued. Only the series for Tier 1, Tier 2 and Total Own Funds could be linked.

While the old CBD included a detailed section on capital requirements, the Implementing Technical Standards require the reporting of risk exposure amounts, which are effectively the amount of risk-weighted assets under the former regulation. The total capital requirement referred to the Pillar 1 requirement, generally calculated as 8% of the risk exposure amount (previously risk-weighted assets). However, after the introduction of the CRR/CRD IV package banks can be asked to maintain a number of macroprudential capital buffers (countercyclical capital buffer, capital buffer for globally or other systemically important institutions, etc.) beyond the Pillar 1 and Pillar 2 (supervisory) capital requirement. Therefore the total capital requirement can be misleading, as it may vary between banks. The TF CBD agreed that risk exposure amounts should be included in the reporting scheme, as this information can be a relevant input for analysing the solvency of a banking sector. As the shift from the total capital requirement to the risk exposure amount is a technical issue, it is possible to convert time series under the old framework into risk exposure amounts. As outlined above, capital requirements under the old CBD framework were calculated as 8% of risk-weighted assets (Pillar 1 capital requirement). Therefore the time series of capital requirements have been converted into risk exposure amounts by multiplying data on capital requirements by 12.5.

Chart 1

Total capital requirements and risk exposure amounts of EU countries

(EUR billions)



Source: ECB. Data represent the whole banking sector (domestic banks plus foreign subsidiaries and branches). 2014 data are not available for UK, therefore UK is not included in the chart.

Some further details on exposure classes (e.g. small and medium sized enterprises) were also included, as well as the new requirements on credit value adjustments and large exposures in the trading book. Chart 1 shows total risk exposures amounts.

The **asset quality** section of the template was rather arduous to map. Asset quality is a key part of macroprudential analysis and the assessment of systemic risk and is at the core of users' needs. In the previous CBD framework this section suffered from limitations due to reliance on (unharmonised) national definitions, lack of comparability and uneven coverage. There was a clear trade-off between moving towards new harmonised definitions and keeping the continuity of existing time

series. The drawback of limited data availability in jurisdictions where a relevant part of the banking system is not (yet) covered by FINREP had to be taken into account as well. In the end, after weighting the pros and cons, it was decided to move towards the new harmonised definitions. A new asset quality section based on the new harmonised EBA definition of non-performing exposures⁶ was introduced in the template to replace the existing one. This allowed comparability across EU countries, even at the price of breaking with the historical time series. However, a few items from the previous reporting scheme were retained, although changes in definitions led to breaks in the series anyway. For example, the change in non-performing debt instruments⁷ as a percentage of total debt instruments is shown below. Data may vary significantly from 2013 to 2014, as a consequence of the change in the definition of non-performing exposures.

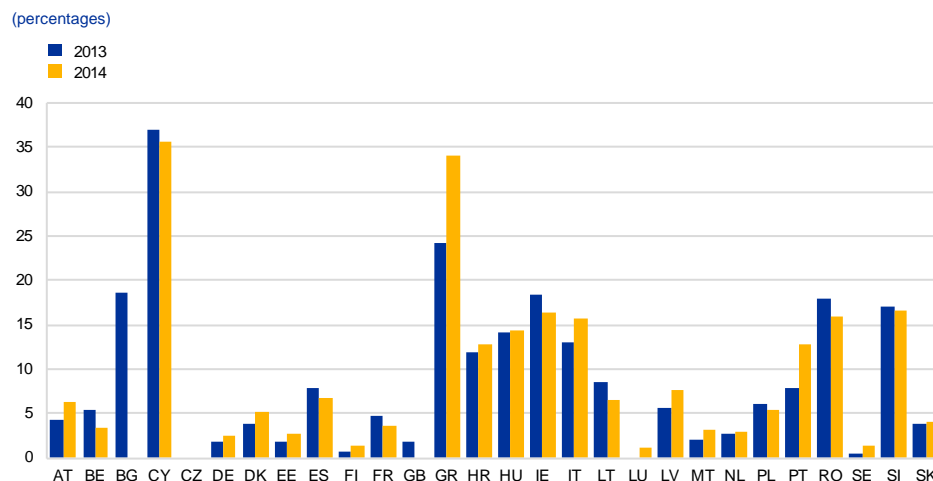
Chart 2 shows non-performing debt instruments as a percentage of total debt instruments; data for end-2013 are derived from the old CBD data model, while end-2014 data come from the revised one. Chart 3 shows the non-performing debt instruments as a percentage of total debt instruments by bank size. Again, end-2014 data refer to the revised CBD while earlier values are calculated from the previous data model. The EBA defines non-performing exposures as material exposures which are more than 90 days past-due or where the debtor is assessed as unlikely to pay its credit obligations in full without realisation of collateral, regardless of the existence of any past-due amount or the number of days past due. This means non-performing exposures also include defaulted and impaired exposures. Therefore implementation of the EBA definition should in general lead to an increase in the non-performing exposures ratio. However, due to other factors (such as the general trend in the amount of debt instruments, write-offs, etc.) it is not straightforward to quantify the exact impact of this shift in definition on the data.

⁶ <http://www.eba.europa.eu/regulation-and-policy/supervisory-reporting/draft-implementing-technical-standard-on-supervisory-reporting-forbearance-and-non-performing-exposures>

⁷ Debt instruments consist of debt securities and loans and advances.

Chart 2

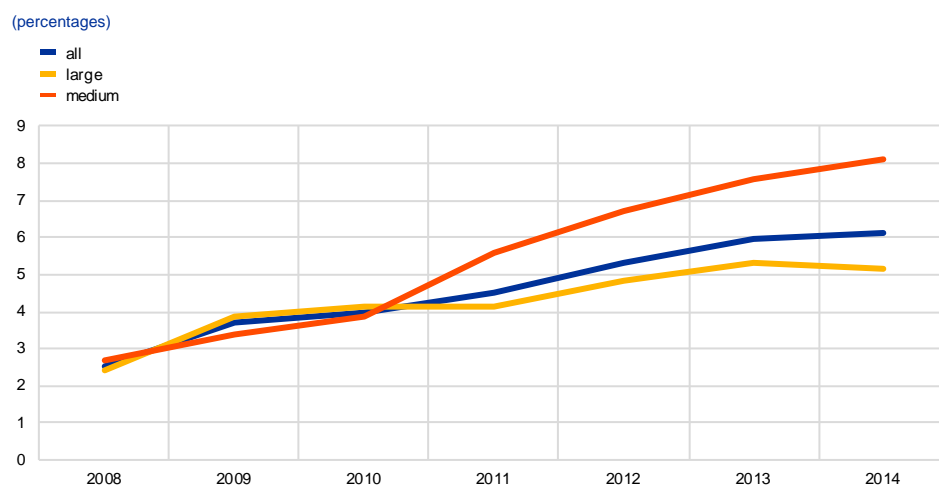
Non-performing debt instruments as a percentage of total debt instruments
– by country (end-2013 and end-2014)



Source: ECB. Data represent the whole banking sector (domestic banks plus foreign subsidiaries and branches).

Chart 3

Non-performing debt instruments as a percentage of total debt instruments
– euro area historical trend broken down by bank size



Source: ECB. Data represent the whole domestic population of EA banks and sector size breakdown.

2.2 New user requirements and choosing between COREP and FINREP

Changes in the financial world and real economy since 2008 are also driving user requirements. With an increased international role for macroprudential policy and the introduction of EA-wide supervision (the SSM), there is an increasing need for comparable and harmonised data across countries and banks. Furthermore, the new regulation means there are now new or changed definitions in several areas crucial

for analysing systemic risk: liquidity indicators like the liquidity coverage ratio (LCR), the net stable funding ratio (NSFR), asset encumbrance, asset forbearance and the new definitions of capital, to mention but a few. Therefore, while the mapping of the old CBD into the Implementing Technical Standards provided the initial core set of data points for the revised template, this was then supplemented with further data points that became available when the Implementing Technical Standards came into force and were deemed useful, after having weighed the cost of compilation. As a matter of fact the Implementing Technical Standards were the only data sources used to address new data requirements; since the objective was an internally consistent and robust database, no other data sources were explored (apart from the case of those institutions for which Implementing Technical Standards are not available, e.g. NON-FINREP reporters).

In order to achieve the highest harmonisation possible, COREP templates were given priority over FINREP ones whenever possible. While COREP templates have to be applied by [all](#) EU banks and banking groups uniformly, FINREP templates differentiate between IFRS banks and banks applying national accounting standards (GAAP-FINREP) and do not have to be reported by all institutions (e.g. non-consolidating credit institutions do not report based on FINREP). However, as outlined below, in some cases the necessary information is provided only in FINREP templates. In such cases it is obviously the FINREP template that is used to gather the data.

This is particularly relevant for the profit and loss, balance sheet and asset quality templates (financial information templates), which are treated below.

The template for the data points used to build [liquidity indicators](#) is an example of the preference for the COREP templates rather than the FINREP ones. Six liquidity indicators were ultimately selected by the TF CBD to be inserted in the new CBD (liquidity analysis was a rather weak area for the old one). Four liquidity indicators were then added following a survey of user needs; all are calculated from COREP templates (C 51.00, C 60.00 and C 61.00) in order to have them harmonised and available for the whole reporting population. Two of them came directly from the mapping exercise and are built starting from FINREP templates (F 01.01); these were retained in the new CBD to ensure continuity.

Although the COREP templates cover all banks, aggregation issues can still arise. The new [geographical concentration](#) template (using COREP templates C 09.01, C 09.02 and C 15.00) provides a good example of the problems of moving from the micro to the macro level. The final template is not broken down by exposure class because of the difficulties in mapping standardised approach (SA) and internal ratings-based (IRB) exposure classes, as the definitions are not exactly the same⁸.

⁸ For both the standardised (C 09.01) and IRB (C 09.02) approach there is a breakdown by exposure class in the COREP templates, i.e. a breakdown of exposures to central governments, institutions, corporates, retail, etc. However, the definitions of these classes are not exactly the same under the standardised and IRB approaches, nor is a breakdown available for template C 15.00. Providing only aggregated exposures (country by country) without distinguishing between corporate, retail, etc. overcomes the problem of comparability of definition and also makes it possible to link C 09.01 and C 09.02 with C 15.00.

Hence, only total exposures are reported, as exposure classes provide valuable information even at the highest level of aggregation. Another key issue was the coverage of the foreign (non-domestic) exposure information provided by the COREP templates (C 09.01 and C 09.02). Only banks with more than 10% foreign exposures in their total report geographical breakdown according to the Implementing Technical Standards. Evaluating competing options to bridge this gap, it was in the end decided to report the exposures of all banks under this threshold as domestic (i.e. exposures in the country where the headquarters of the bank are located).

The CBD template for data on **concentration risk** is another case where, notwithstanding the preference given to COREP templates, data filtered from FINREP had to be used to cover some areas. FINREP data were necessary for instance to gauge domestic and non-domestic activities using the geographical breakdown of assets, liabilities and profit or loss by location of the activity (F 20.01, F 20.02 and F 20.03).

The information for **counterparty sector** concentration is also based on the FINREP breakdown of loans and advances by six sectors of counterparty (F 05.00), with a breakdown by NACE codes (codes for the statistical classification of economic activities) of loans and advances to non-financial corporations (F 06.00), a breakdown of debt securities by five sectors of counterparty (F 04.01 – F 04.09), and a breakdown of equity instruments by three sectors of counterparty (F 04.01 – F 04.03 and F 04.06 – F 04.08). These data cover only FINREP reporters and are complemented by a smaller amount of information collected from non-FINREP banks giving only simplified information on the breakdown of loans and advances (loans and advances to general governments, central banks and credit institutions are collected separately; those to other financial corporations, non-financial corporations and households are grouped under “other”).

The template for **funding concentration** had to be derived from FINREP too (F 08.01). Again, data covering only FINREP banks are complemented by a small amount of information on retail and wholesale funding derived from COREP templates (C 68.00) and thus covering the full sample of banks.

Finally, a few basic items on **forbearance** were included in the new CBD based on the relevant FINREP template (F 19.00). In this case it was deemed that the analytical value added provided by this information (missing in the old CBD) outweighs the fact that data are not available for most non-FINREP banks.

2.3 Integrating non-FINREP reporters into the framework

A distinctive and key value added of CBD has always been the coverage of the entire EU banking system and EU national banking systems. The previous CBD framework, which was built starting from the CEBS FINREP and COREP, was supplemented with information from other supervisory or statistical reports (or annual

accounts) on a best efforts basis, in order to accommodate the whole banking system.

In designing the new CBD, the conceptual issue of macro-level integration of micro supervisory returns that differ in terms of accounting basis had to be tackled once again.

While the Implementing Technical Standards stipulate that all banks in the EU must submit the full COREP templates, there are still gaps in the coverage of FINREP data, as some banks do not have to report FINREP (e.g. non-consolidating banks), and there is also a distinction between banks applying IFRS (IFRS-FINREP) and those applying national accounting standards (GAAP-FINREP). Since the entry into force of the SSM in November 2014, the ECB and national supervisors have developed a common approach for collecting supervisory reports from European credit institutions.⁹

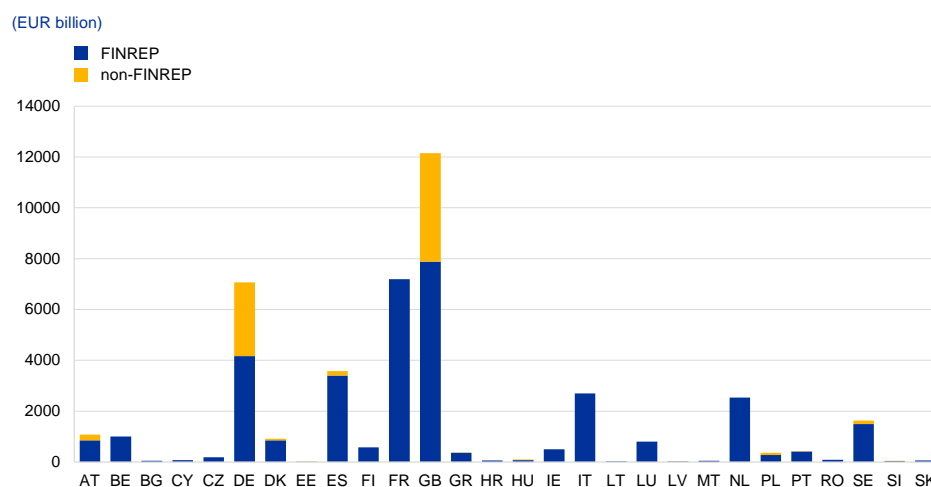
FINREP is only required for banks which compile consolidated accounts according to IFRS or are required to do so by NCAs. Reporting frequency for n-GAAP banks is also often not the same as in FINREP and tends to be lower. To overcome this, some jurisdictions have made FINREP reporting compulsory for every bank. However, looking ahead, even in the steady state¹⁰, n-GAAP reporting banks and/or non-consolidating banks will represent a non-trifling part of several national banking systems. The extent to which this is the case varies; FINREP reporting extends to the entire banking sector in a majority of jurisdictions, but in a few the share of total assets held by non-consolidating banks and/or reported according to n-GAAP is (and will be) non-negligible (see Chart 4).

⁹ See also the ECB Decision on [Supervisory Reporting](#).

¹⁰ All SSM supervised entities will be required to compile data according to FINREP at least using a simplified format by 2017 (see also https://www.bankingsupervision.europa.eu/ecb/legal/pdf/oj_jol_2015_086_r_0004_en_txt.pdf). The non-SSM NCAs that still have banks reporting according to n-GAAP do not currently any firm plans to extend FINREP (full or partial) to other institutions.

Chart 4

Volume of total net assets - by country (end-2014)



Source: ECB.

In order to have full coverage of the EU banking system and national ones, non-FINREP reporting intermediaries have to be integrated within the overall CBD reporting framework. This must be accomplished in a transparent way and be such that overall aggregates can be compiled and key financial information items reconciled across different class of reporters.

The enhanced CBD framework was constructed starting from the Implementing Technical Standards requirements and complementing these with specific data items for non-FINREP reporters from national reporting, annual accounts or other data sources. This integrated set of requirements allows full aggregation of the main items (interest income, total deposits, etc.) for the sub-components of the different banking systems.

Reconciliation is further complicated by the different reporting regimes allowed for different classes of firm under FINREP rules (full FINREP, reduced FINREP, etc.). The enhanced CBD reporting scheme has three separate templates for different categories of reporters:

- FINREP reporting banks (IFRS-FINREP reporters);
- n-GAAP consolidated banking groups that are asked to compile a simplified FINREP (GAAP-FINREP reporters);
- solo banks for which FINREP reporting is not envisaged (non-FINREP reporters).

Table 1 below summarises all the possible CBD treatments of different classes of firms.

Table 1

CBD treatment of banks subject to different reporting schemes

CBD reporting schemes	CBD reporting sources	
	Transitional period ¹¹	Steady state
Consolidated or Sub-consolidated IFRS banking groups	Harmonised FINREP Harmonised COREP	
Consolidated or sub-consolidated n-GAAP banking groups	National GAAP FINREP and/or national GAAP templates (proxy series) Harmonised COREP	SSM countries: Full FINREP (1) Other countries : National GAAP FINREP and/or national GAAP templates (proxy series) All countries: Harmonised COREP
Solo banks	National templates (proxy series) (2) Harmonised COREP	SSM countries: Full FINREP or simplified FINREP or over-simplified FINREP or data points FINREP (3) Other countries: National IFRS/GAAP and/or non-FINREP templates (proxy series) All countries: Harmonised COREP

Notes:

(1) and (3): For more details, refer to the Regulation of the ECB on [reporting of supervisory financial information](#), October 2014, first table, page 10;

(2): Some countries may have implemented FINREP-like reporting for solo institutions.

The definition of the templates for the first two categories of reporters (IFRS-FINREP and n-GAAP-FINREP reporters) was straightforward, being based on FINREP templates harmonised across countries.

More challenging was the **derivation of a template for non-FINREP reporters** that could accommodate data availability and frequency that is uneven across jurisdictions, while at the same time being detailed enough to contain information relevant for banking and financial stability analysis (not least because the items contained in the scheme for non-FINREP reporters would be the only ones for which total aggregates would be compiled).

In the end a **step-by-step approach** was used to assemble the template for non-FINREP reporters (and foreign controlled branches; see paragraph below). As a first step, a survey on data availability was carried out among jurisdictions where the activity of non-FINREP reporters is non-trivial. The main finding was that these countries shared very similar data availability for the main items in the profit and loss,

¹¹ On the transitional period see footnote 10 above.

balance sheet and asset quality templates. These common items were used as the basis and then complemented by a) the non-FINREP items that were mandatory in the previous CBD template (to ensure a certain continuity in the series), and b) further items that emerged as particularly relevant for important user needs (e.g. the statistical support the ECB has to provide to the ESRB, among others), reported on a best efforts basis.

The final template emerged from combining the results of the survey on data availability with what was prescribed for the old CBD reporting and a consideration of user needs. The template for non-FINREP reporters makes it possible to calculate aggregates and indicators for the whole banking system(s), at least for the most relevant items.

The 12 sections that make up the new CBD final template are presented in Appendix 3.

2.4 Reporting scheme for foreign-controlled branches

In the previous CBD framework, foreign-controlled branches had in principle to report exactly the same items as domestic firms and foreign-controlled subsidiaries. However, data availability is less for foreign-controlled branches. This was already evident from the analysis of data points reported for these intermediaries for the previous CBD, and was further confirmed by an ad-hoc survey conducted by the TF CBD among all EU countries. Some data points were reported by just a few countries, possibly generating misleading information for the euro area and EU aggregates. Furthermore, even under the new reporting framework there is no harmonised supervisory reporting for branches, as all FINREP and COREP reporting relates only to credit institutions and their subsidiaries.

It was therefore decided to draft a streamlined reporting scheme to obtain better coverage and higher-quality data (by reducing the effort made to gather proxies for data not reported uniformly by branches). Moreover it emerged from the survey and the data in the old CBD that the data points available for foreign-controlled branches overlap significantly with those available for non-FINREP reporters. For this reason it was decided to have the same reporting scheme for foreign-controlled branches as was drafted for non-FINREP reporters (see paragraph above).

3 Implementation

The implementation of the new CBD framework, together with the provision of all supporting documentation needed to communicate with users and compilers at NCBs/NCAs, started immediately once the TF CBD had rolled out the revised reporting scheme. The main steps included creating the new data structure for the CBD, defining the indicators and aggregates calculated from the elementary data points reported, linking the new data with the old and the implementation of the quality checks.

The first fundamental step was the creation of the new Data Structure Definition (DSD), a set of dimensions that provides a unique description of each item in the dataset.

Given the large amount of additional information available under the revised CBD framework, the DSD already in place for the previous CBD dataset did not allow a sufficiently detailed description of the newly defined data items. New dimensions needed to be created. Whereas the old CBD series keys consist of 11 dimensions, the new ones have 16 (see Appendix 1). A detailed description of the series keys and single dimensions under the new CBD framework is given in Appendix 2.

3.1 Definition of the aggregates and indicators

The CBD dataset was considerably enhanced and a whole new set of information has become available. A large number of aggregates and indicators are derived from the raw data received from NCBs/NCAs. These are defined to meet user needs and are the basic items used in different kinds of banking and financial analysis.

3.1.1 Aggregates

Three types of aggregates are calculated: across reporting frameworks, within reporting frameworks and across countries. In several cases data are reported by IFRS-FINREP, GAAP-FINREP (or direct FINREP) and non-FINREP banks, but the information is missing for the full sample of banks. The aggregate figure for the full sample is calculated from the reported data as the sum of FINREP (IFRS + GAAP if the FINREP figure is not directly available) and non-FINREP contributions (e.g. interest income). Some items are available for IFRS-FINREP and GAAP-FINREP reporters but not directly reported for the FINREP aggregate (e.g. dividend income), which is then calculated. The aggregation of different reporting sectors poses a problem of data harmonisation. The full sample aggregate includes data from FINREP reporters and non-FINREP reporters, so possible methodological discrepancies have to be taken into account. However, this represents a real issue in only a very few countries.

Data aggregation within reporting frameworks covers the calculation of aggregate figures from the available breakdowns. According to the CBD template, in several cases only breakdowns are reported, but the total figures are not part of the reporting templates. Net interest income is an example. This information is available for non-FINREP reporters and for the full sample, but is not reported directly for IFRS-FINREP, GAAP-FINREP and FINREP reporters. Therefore, net interest income is calculated from the interest income and interest expense items for IFRS- and GAAP-FINREP reporters and then aggregated for FINREP reporters too.

Finally, a cross-country aggregation is performed. As data are available for all EU countries, it is possible to calculate both EU and EA aggregates. In each case, the aggregate figure takes into account the changing composition of the EU and EA. To derive these aggregates, the overlap caused by the double counting of foreign-controlled subsidiaries and branches must be dealt with. The problem is the following: if a banking group has its headquarters in country X (an EA country) and has a subsidiary in country Y (also an EA country), then the data relating to the subsidiary are reported by both country X (under the consolidated data of the banking group) and country Y (the data for the foreign-controlled subsidiary). Thus a simple sum of values for countries X and Y includes the figures for the subsidiary twice. To overcome this issue, two aggregates are calculated: clean EU and clean EA aggregates. Clean EU represents all domestic banking groups and stand-alone banks, foreign (non-EU) controlled subsidiaries and foreign (non-EU) controlled branches, while clean EA represents all domestic banking groups and stand-alone banks, foreign (non-EA) controlled subsidiaries and foreign (non-EA) controlled branches. The difference between the clean EU and EU aggregates is that clean EU does not include subsidiaries of EU banks located in EU countries (i.e. both EA and non-EA subsidiaries), while the difference between clean EA and EA is that the clean EA aggregate does not include subsidiaries of EA banks located in EA countries.

3.1.2 Indicators

There are four types of indicators calculated: profitability and efficiency (e.g. return on equity, return on assets); asset quality (e.g. non-performing loans, or the NPL ratio), balance sheet and liquidity (e.g. the leverage ratio); and capital adequacy (e.g. the solvency ratio). With the introduction of the new regulatory framework and the new EBA Implementing Technical Standards, it was possible to derive new indicators or enhance the definition of indicators already in use. In some cases, the definition of the indicator had to be changed due to the change in the definition of the underlying items.

New indicators were calculated mainly in the area of asset quality, liquidity and capital adequacy. New asset quality indicators include net non-performing debt instruments as a percentage of gross non-performing debt instruments. This is calculated for FINREP reporters and is also available for the breakdown for non-financial corporates and households; under the new framework it is not just total provisions that are available but provisions for non-performing exposures too, therefore a proxy for the coverage ratio can be calculated. The list of balance sheet

and liquidity indicators has been enhanced thanks to the more accurate data on the amount of liquid assets and short term liabilities available under the revised CBD framework, and now includes indicators such as liquid assets to short-term liabilities. The available indicators on capital adequacy have been revised as well. Due to the new regulation, the definition of capital has changed and this has affected the definition of the solvency ratio. Important new measures of solvency such as the CET1 ratio (Common Equity Tier 1 ratio) now need to be reported and are included in the list of CBD indicators.

3.2 Linking the old and new CBD to make time series available under the new framework

As previously mentioned, old and the new CBD items were mapped whenever possible, to ensure continuity of the series¹². However, mapping was not always straightforward, due to changes in the reporting and regulatory frameworks. Previously, all data points were reported for the full sample of the banks¹³, while selected data points were reported for non-IFRS and non-portfolio reporting IFRS banks. Under the new framework there are five categories of different aggregate reporters (IFRS-FINREP, GAAP-FINREP, non-FINREP, FINREP and full sample).

Where possible, the old framework full sample data were mapped to the new framework full sample data. For example, total assets were reported under the old framework for the full sample of banks. Under the new framework, total assets are collected separately for IFRS-FINREP, GAAP-FINREP and non-FINREP banks and then aggregated to obtain the volume of total assets for the full sample of banks. This means that the volume of total assets calculated for the full sample of banks from 2014 onwards can be consistently linked to the volume of total assets obtained under the old framework for the full sample of banks up to 2013 to create time series of the volume of total assets since 2007 (Table 2).

In the case of items reported as full sample under the old framework but provided only by FINREP banks, but which are reported under the new framework by both IFRS-FINREP and GAAP-FINREP banks (or directly by the aggregate of FINREP banks), the history is attached to the FINREP aggregate (interest income and interest expenses, for example, are provided separately under the old framework only by FINREP banks; therefore aggregated net interest income is attached as the history for the FINREP aggregate under the new framework in Table 3). Conversely, net interest income under the old framework is provided for the full sample and the history is directly attached to the full sample. This also means that the sum of

¹² Mapping means that for selected items collected under the old CBD framework it had to be decided which item collected under the new CBD framework should be joined to the time series available under the old framework. When an item under the old framework and an item under the new framework are linked, data for the item under the old framework up to 2013 are stored in the database under the new framework and the data collected under the new framework will be gradually added to the time series from 2014 onwards.

¹³ However, not all the data were necessarily available for the full sample of banks, e.g. an available for sale (AFS) portfolio is defined only for IFRS banks.

interest income and interest expenses is not equal to net interest income under the old framework.

Some items are mapped between the old framework of non-IFRS and non-portfolio reporting IFRS banks and the new framework of non-FINREP banks (e.g. net interest income. In this case, the sum of net interest income for FINREP banks and non-FINREP banks is then attached to the full sample). In some cases the history is attached only to IFRS-FINREP banks, as some of the items are reported only by these banks. The available for sale portfolio, for example, is defined only for IFRS banks and under the new framework is required to be reported only by IFRS-FINREP banks. However, under the old framework, while provided only by IFRS-FINREP banks, the data were reported under full sample. Therefore the history up to 2013 (reported as full sample) is in the new framework attached to the IFRS-FINREP category only, as shown in Table 4.

Owing to changes in the regulatory framework, there are some items available in both the old and new frameworks, but for which the definition may have changed significantly.¹⁴ This is the case, for instance, with the definition of non-performing exposures. When a change of definition has occurred, the old series are considered to be discontinued at the level of raw data, but, where possible, a mapping has been retained at the indicator level. As an example, gross non-performing debt instruments [% of total gross debt instruments] exists under both the old and the new frameworks (although the name is slightly different), and historical values are available under the new indicator. However, historical observations of the underlying series, i.e. provisions (accumulated impairment) and non-performing exposures, have not been made available under the new series, because of potentially large differences in the definition of these items.

Table 2
Mapping the history – full sample data linked to full sample

(EUR thousands)

	Total assets - Austria, all domestic banks, full sample	
	Old CBD data	New CBD data
2008	830,294,460	830,294,460
2009	867,842,605	867,842,605
2010	856,667,295	856,667,295
2011	873,509,134	873,509,134
2012	847,589,865	847,589,865
2013	788,427,096	788,427,096
2014		750,818,312

Source: ECB.

The history is also attached, where possible, for calculated indicators. There are two possible ways to proceed. The first is to calculate the indicator for the full period available using the latest version of the underlying data points (which means using

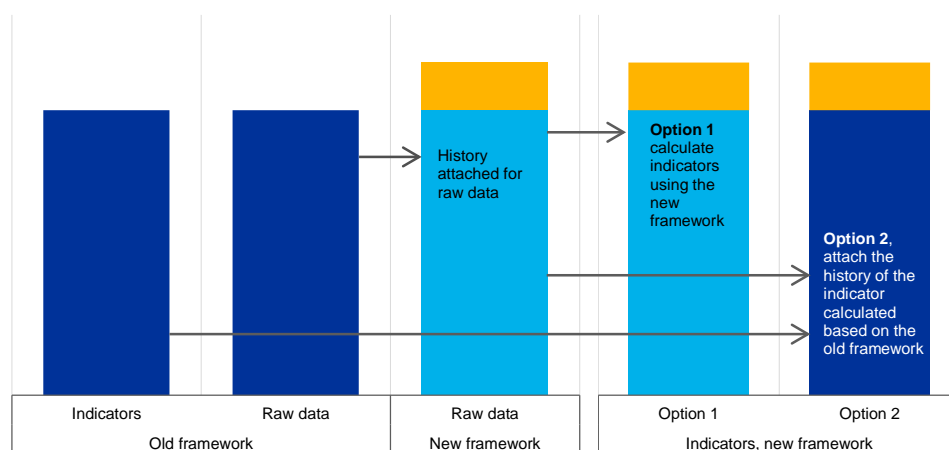
¹⁴ This change is in most cases related to implementation of the Basel III framework.

the new CBD framework to calculate the entire time series for the indicator), as the history should be already matched for the underlying items of raw data (see Option 1 in Chart 5). The second is to calculate the indicator based on the new framework only for the period when the data are available based on this framework (basically from end-2014 onwards) and attach this to the history of the indicator calculated based on the old framework (see Option 2 in Chart 5).

However, there are several errors or shortcomings with the first option. Under the new scheme, indicators are calculated for several reporting frameworks, but when an indicator is calculated for a particular framework, only items reported under this framework are used. (This means that when an indicator is calculated for the full sample, only full sample raw data are used, when an indicator is calculated for FINREP banks, only FINREP raw data are used, etc.) However, in some cases the history of the data is not attached for all the underlying series under that particular framework (e.g. all full sample items have a history except one, when the history is attached to FINREP). Moreover, when there are just a few series in the calculation, it can happen that the whole numerator or denominator may lack a history. In such cases, the calculated history does not match the real historical data, or possibly cannot even be calculated for that particular framework. As mixing up items using different reporting framework in the calculations should be avoided, the second option was ultimately used.

Chart 5
Indicators – options to calculate

(y-axis: time series)




Source: ECB.

As an example, staff expenses [% of total assets] are calculated for the full sample. The indicator is calculated as staff expenses over total assets. However, while for total assets the history is attached to the full sample, for staff expenses the history is attached only to the FINREP reporters. This means that using the first option, calculation for the full sample, would fail, as only the denominator has historical data while the numerator is available under the new framework only from 2014.

Table 3

Mapping the history – two items under the old framework attached to one FINREP item under the new framework, all domestic banks

(EUR thousands)

	Old CBD data - Germany, all domestic banks			New CBD data - Germany, all domestic banks, FINREP reporters	
	Interest income		Interest expenses		Net interest income
2008	281,361,359		-238,521,996		42,839,363
2009	184,710,315		-144,185,831		40,524,484
2010	156,129,662		-118,862,714		37,266,948
2011	170,248,763		-132,933,671		37,315,092
2012	143,976,389		-110,414,744		33,561,645
2013	108,689,279		-76,369,304		32,319,975
2014					32,808,176

Source: ECB.

Table 4

Mapping the history – full sample data linked to IFRS-FINREP

(EUR thousands)

	Available for sale financial assets, Belgium, all banks	
	Old CBD data, full sample	New CBD data, IFRS-FINREP
2007	216,613,334	216,613,334
2008	221,996,776	221,996,776
2009	176,644,447	176,644,447
2010	159,658,775	159,658,775
2011	150,167,313	150,167,313
2012	120,134,863	120,134,863
2013	113,560,245	113,560,245
2014		132,198,167

Source: ECB.

3.3 Validation rules and data quality checks

The ECB Statistics Quality Framework sets out the main quality principles and elements guiding the production of any ECB statistics¹⁵ and the CBD adhere to this framework. Several validation rules and checks are applied to the raw data received from the NCBs/NCAs to detect possible problems in the national contributions that may affect also the quality of euro area aggregates.

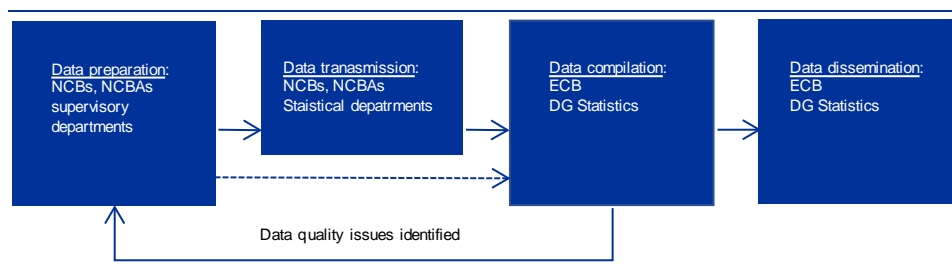
Within the cycle of a single collection, data are revised several times until sufficient quality is assured. This is done through an iterative approach which requires intense

¹⁵ More information about the ECB [Statistics Quality Framework](#).

interaction between the ECB and NCBs/NCAs. Not just raw data are checked, aggregated figures and indicators calculated by the ECB are also subject to the quality review process to ensure an accurate description of the respective banking sectors. The length of this process differs across templates. For the fully-fledged annual template, with data at end-December, a production cycle of around eight weeks is normally envisaged from data reception to publication. For the leaner quarterly template (used for the other three quarters) this shrinks to around six weeks.

Chart 6

The process of data collection and compilation



Source: ECB.

Data quality assessment is carried out along different dimensions¹⁶.

Completeness and correctness. It is verified that all the expected data points have been reported to the ECB. In the event of missing information NCBs/NCAs are contacted and asked to explain and possibly fill in the data gaps. According to the EBA Implementing Technical Standards, several items are expected to be reported with a negative sign (e.g. interest expense) or a positive sign (e.g. interest income), and others have to be reported as percentage values. During the data quality assessment, it is checked whether data have been transmitted according to the EBA Implementing Technical Standards guidelines or corrections are needed.¹⁷

Consistency over time. Reported data should be consistent with historical values. Large changes and discrepancies are analysed and NCBs/NCAs asked to provide explanations. As an example, NCBs/NCAs are asked to explain any change in the number of reporting banks, which is submitted in the CBD template. Also, the trend in total assets for each reporting sector (domestic large, medium and small banks, foreign EU and non-EU controlled branches and subsidiaries, etc.) is assessed. For the most relevant reported data points, NCBs/NCAs are asked to double-check the reported value where the variation between this latter and the value reported for the previous period exceeds 15%.

¹⁶ These dimensions are consistent with the ECB quality assurance procedures related to compilation and statistical analysis as described in the [Quality Assurance Procedures Within the ECB Statistical Function](#).

¹⁷ The CBD framework differs from the EBA Implementing Technical Standards regarding the reporting of data related to accumulated impairment or allowances. According to the CBD framework, all these items should be reported as positive (if they decrease the gross value of the exposure), while they are reported differently in several FINREP templates (e.g. in F04.03 accumulated impairment is reported with a negative sign).

Accuracy/horizontal and vertical consistency. According to the CBD templates, data are reported within the same table and in different tables both on an aggregate level and with different breakdowns. For instance, data can be broken down by reporting sector, meaning that full sample data and IFRS-FINREP, GAAP-FINREP and non-FINREP data are reported. Other examples include counterparty breakdowns, as in the case of total loans. In these cases a check is performed to confirm that the sum of the breakdown is equal to the aggregate figures.

It has to be noted that although a thorough data quality assessment is performed, data quality constraints may still remain. This is the reason why for certain countries some data points are not published. Data quality issues are diminishing over time and the amount of available public data is consequently increasing. Some data points are also subject to confidentiality constraints imposed by national authorities and are therefore not published.

4 Examples and applications

The significantly enlarged dataset described so far, together with the considerable amount of new CBD based indicators, offer potential starting points for new and more in-depth analysis of EU banking systems. A further value added of the revised and enriched CBD framework is its use as one of the main inputs to the ECB Macroprudential Database¹⁸, a comprehensive and harmonised dataset of indicators covering variables deemed relevant for macroprudential analysis. The database consists of several domains and the CBD are one of the main contributors.

In this section we present as an example a small sub-group of indicators selected from the whole set of indicators that are built and published on the basis of the CBD elementary data points collected. The aim is to provide an overview of the EU banking sector and demonstrate the value added of the CBD series for macroprudential analysis. The focus is on the indicators based on newly collected data (such as forborne exposures, asset encumbrance and liquidity) that were not reported under the old CBD framework and that are also available in the ECB Macroprudential Database.

Looking at the charts it has to be borne in mind that the changes in the reporting framework have created data quality constraints, as well as some confidentiality issues. Therefore, as it is clear also from the examples below, in some cases the indicators cannot be published for all countries. However, while confidentiality issues are expected to continue to affect data availability in the future, quality issues should gradually diminish.

The first example is the forbearance ratio. As forborne exposures are debt contracts where forbearance measures have been introduced¹⁹, this indicator gives a first picture of the quality of banks' credit portfolios and possible future credit losses (as banks with a higher forbearance ratio are more likely to face higher credit losses due to their lower quality exposures). An overview of this indicator for all EU countries is displayed in Chart 7 (as at end-2014). The new Implementing Technical Standards introduced harmonised definitions on non-performing exposures and forbearance, which are crucial in addressing questions about the correct valuation of assets in banks' balance sheets. The new standards allow supervisors to assess the level of forbearance activities and non-performing loans on a comparable basis across the EU, supporting monitoring of levels and changes in asset quality²⁰. The new CBD can be used to monitor the level of forborne exposures. The bar chart shows a comparison of the forbearance ratio (i.e. forborne exposures over total debt instruments) across countries, comparing the domestic and the whole banking sector

¹⁸ Available under the [link](#).

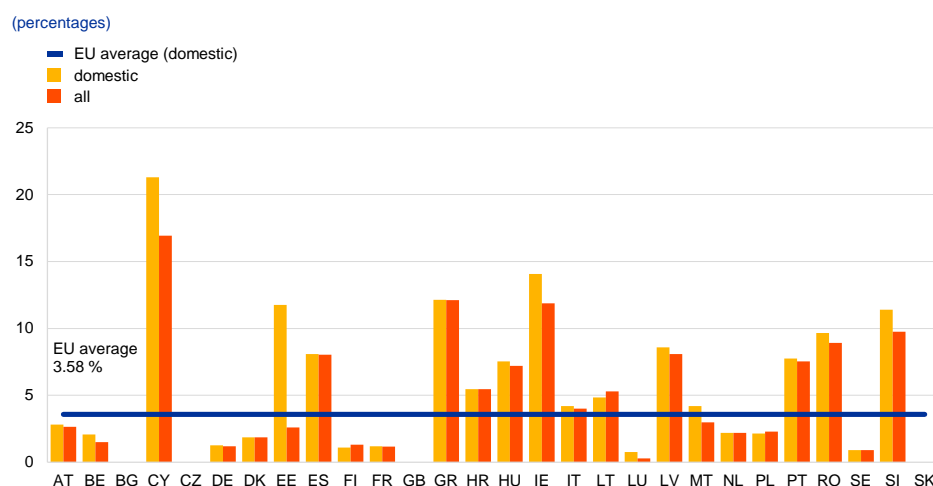
¹⁹ Consisting of concessions towards a debtor facing or about to face difficulties in repaying his debt (e.g. modifications of the previous terms and conditions of a contract like increasing maturity and decreasing monthly instalments, etc.).

²⁰ European Banking Authority, (2013), "Draft Implementing Technical Standard (ITS) on Supervisory Reporting on forbearance and nonperforming exposures", EBA Consultation Paper.

(i.e. domestic sector plus foreign subsidiaries and branches). Values varied significantly across Member States, with the highest observed for Cyprus, Greece and Ireland. For some countries (e.g. Estonia and Cyprus), the ratio calculated for the domestic banking sector alone was considerably higher than the same indicator calculated over the whole banking sector including foreign subsidiaries and branches, while in general the two values were comparable. In the cases of Finland, Lithuania and Poland, the ratio is lower if calculated taking into account only domestic banks, meaning that foreign subsidiaries and branches contribute to the increase of forbore exposures. Turning the focus to the four largest euro area countries, the level of forbore exposures (as a percentage of total debt instruments) calculated for the domestic banking sector alone was comparable to the ratio for the whole banking sector. While Germany and France presented a ratio significantly below the EU average, the values were above-average for Italy and Spain.

Chart 7

Forbearance ratio for total debt instruments by country (end-2014)



Source: ECB.

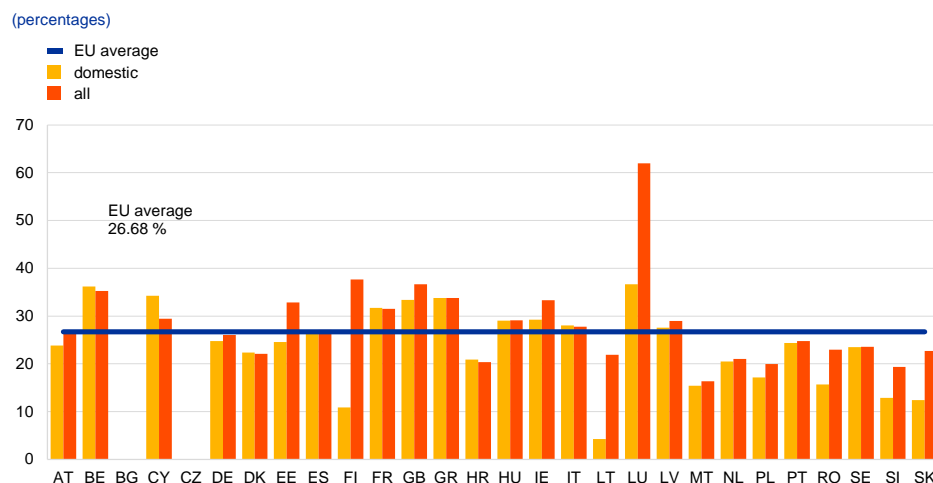
The new CBD allow also analysis of banking liquidity and funding. As an example, Chart 8 shows the short-term wholesale funding ratio (at end-2014). Funding structures matter for financial stability.²¹ It was observed that overreliance by some banks on certain types of wholesale funding contributed to the global financial crisis and unstable sources of short-term funding may be associated with an increase in the likelihood of bank distress. In order to comply with the net stable funding ratio (NSFR), one of the Basel Committee's key reforms to promote a more resilient banking sector, most banks have made their funding structures more resilient by reducing their dependence on short-term wholesale funding. As shown in Chart 8, the reliance on short-term wholesale funding varied across countries, with significantly lower values in the domestic banking sectors of some countries, such as Finland and Lithuania. The ratio is particularly high in the case of Luxembourg: the wholesale funding ratio of domestic banks is higher than average, but the ratio is as

²¹ International Monetary Fund (2013).

much as 50% higher if foreign subsidiaries and branches, which seem to heavily rely on wholesale funding, are also considered. As for the four largest euro area countries, the short-term wholesale funding ratio was in line with the EU average, with slightly lower values for Germany, and higher reliance on short term funding in France.

Chart 8

Short-term wholesale funding ratio by country (end-2014)

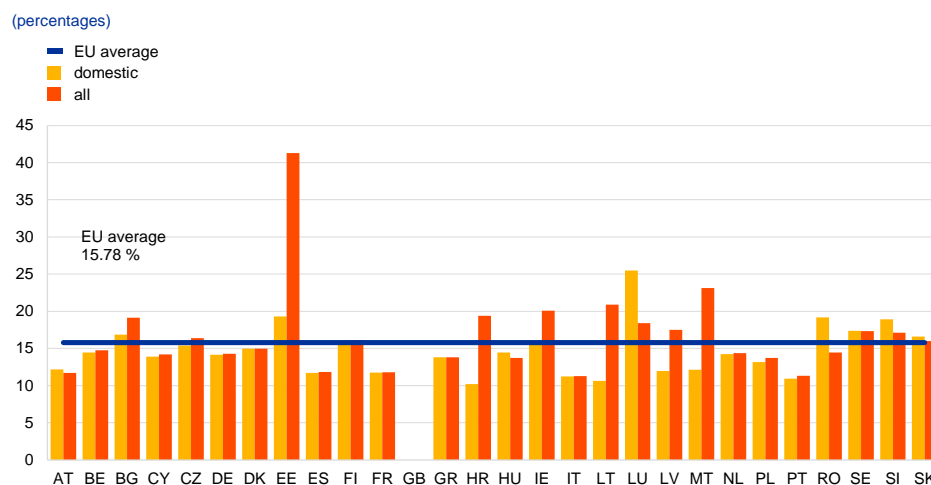


Source: ECB.

Chart 9 provides an overview of the Common Equity Tier 1 (CET1) ratio. While Basel II distinguished between Tier 1, Tier 2 and Tier 3 capital, Basel III and consequently the CRR/CRD IV package introduced new definitions of CET1, Additional Tier 1 (AT1) and Tier 2 (T2) capital. Therefore the CBD series for Tier 1 ratios were discontinued and the new series for CET1 ratios were introduced. CET1 consists of the highest quality capital, such as equity and retained earnings. Moreover, different policy tools (e.g. macroprudential buffers) require the capital buffer to be held in the form of CET1. With the increase in the capital requirements introduced by the CRR/CRD IV, this indicator is fundamental for monitoring the level of capitalisation of banks and it is one of the most widely used by supervisors and financial stability analysts. As shown in Chart 9, the level of the CET1 ratio is not uniform across countries. Banks in the Baltic countries, and Estonia in particular, appear highly capitalised, while the ratio is generally below the EU average in countries with large banking sectors.

Chart 9

Common Equity Tier 1 ratio by country (end-2014)

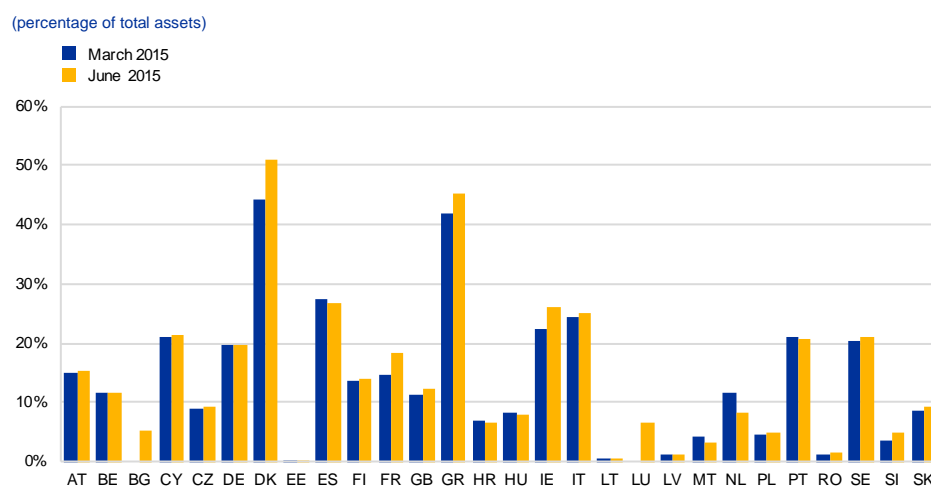


Source: ECB.

As a last example, Chart 10 shows encumbered assets as a percentage of total assets by country. In times of increased stress when there is a lack of liquidity on the interbank or broader wholesale funding markets, secured funding or funding from the central bank is more heavily used by banks. In these situations, the ratio of encumbered assets increases. A comparison of this ratio across countries can thus give a first view of how heavily banks are relying on central bank funding or secured funding. Chart 10 shows that the highest ratio was in Denmark, while among the EA countries the highest ratio was reported by the Greek banking sector, followed by Spain, Ireland and Italy.

Chart 10

Asset encumbrance by country (Q1 and Q2 2015)



Source: ECB.

5 Conclusion

Since the outbreak of the financial crisis there has been a continuously increasing appetite for more comprehensive and detailed data, not only at micro level for supervisory purposes, but also at macro level to support macroprudential analyses and decisions.

Using the CBD as an example, this paper describes the methodological and practical issues involved in deriving aggregate statistics from micro (supervisory) data which were not originally designed for statistical needs and are built on different accounting and conceptual bases. The ECB Consolidated Banking Data are a key dataset for macroprudential and banking analyses and this paper describes how they are derived from the aggregation of firm-level supervisory reports. The paper offers valuable insights in understanding the steps that should be taken during such a process, such as dealing with the issue of unharmonised data or the possible aggregation of data collected under different accounting regimes.

A new and improved CBD framework was introduced in the course of 2015 and the paper describes the value added of this new framework compared with the previous one in terms of data availability and quality. Whole new sections were added to the framework, for instance data on concentration risk (sectoral, geographic and funding concentration), liquidity and funding risk including asset encumbrance. Existing sections of the previous data model were replaced by new and enhanced ones, as in the case of data on asset quality. A substantial increase in data completeness and comparability across jurisdictions was achieved. Furthermore the new CBD statistics are available at higher frequency, moving from semi-annual to quarterly reporting. Therefore users have access to a much improved and frequently updated dataset. As the time series dimension of the data is of the utmost importance for analytical purposes and to monitor trends in the banking sector, it was decided to link the old and new CBD data where possible. The paper also deals with the problem of how to potentially preserve meaningful continuity in time series constructed by linking data points reported according to successive and different data models.

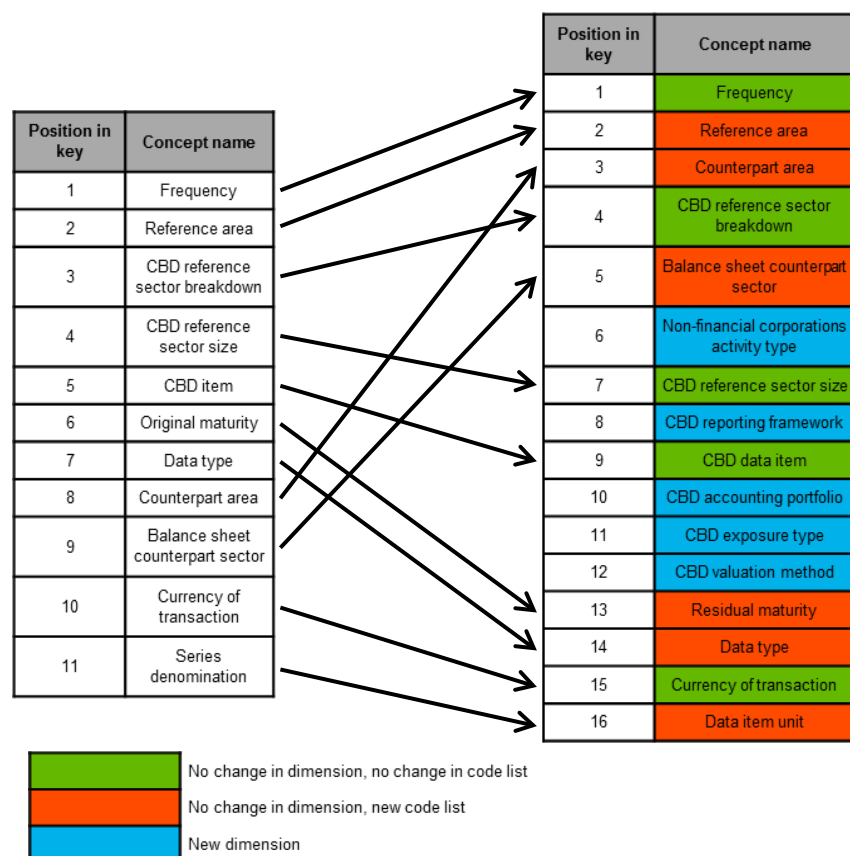
This paper brings good news to statisticians, data compilers and users, showing that it is indeed possible to derive comprehensive and high-quality macro databases starting from previously available micro-level data. This means in turn that it is possible to support economists, policymakers and academia without significantly increasing the reporting burden on financial intermediaries and compilers. Moreover, the paper shows that, provided relevant methodological practices are applied, aggregate statistics can also bridge changes in the underlying micro-level data and maintain meaningful time series. On the other hand, when this is not attainable, it is of the utmost importance to inform users about breaks in series and prepare adequate metadata.

The road from micro to macro is not straightforward and much methodological attention has to be paid to designing and implementing the relevant data model, but

meaningful statistics can be derived from data that were not designed for that specific purpose.

Appendix 1

Changes in the dimensions used in the Data Structure Definition for the old and new Consolidated Banking Data



Appendix 2

Description of the dimensions used in the Data Structure Definition for Consolidated Banking Data

Dimension No 1, Frequency: This dimension indicates the frequency of the reported time series and can take the value “A” (Annual) or “Q” (Quarterly).

Dimension No 2, Reference area: This dimension represents the country of residence of the reporting institution.

Dimension No 3, Counterpart area: This dimension represents the area of residence of the counterpart of the data item. For the purpose of the CBD2 key family, the dimension value “_Z” (Not applicable) is used in the “Reporters” part and the value “W0” (World (all entities, including reference area, including international organisations)) is used where the data item to be reported is not allocated to a specific area.

Dimension No 4, Consolidated Banking Data reference sector breakdown: This dimension indicates the reporting sector (domestic institutions, foreign EU subsidiaries, etc.).

Dimension No 5, Balance sheet counterpart sector: This dimension indicates the sector of the counterpart, e.g. S11 financial corporations, S1M households, etc. For items within the CBD2 key family where the sector is not specified, the dimension value “_Z” (not applicable) is used.

Dimension No 6, Non-financial corporations' activity type: This dimension represents the activity type of non-financial corporations (manufacturing, construction, etc.). For items within the CBD2 key family where the activity type is not specified or where the balance sheet counterpart sector (dimension No 5) is not “S11” (non-financial corporations), the dimension value “_Z” (Not applicable) is used.

Dimension No 7, Consolidated Banking Data reference sector size: This dimension refers to the size group of the corresponding reporting sector. The following six values apply to the CBD: “L” (Large institution), “M” (Medium-size institution), “S” (Small institution), “A” (All institutions, where no size group is specified), “F” (SSM significant bank) and “N” (SSM less significant bank).

Dimension No 8, Consolidated Banking Data reporting framework: This dimension refers to the reporting framework of the corresponding reporting sector. The following five values apply to the CBD: “A” (Full sample (all banks/groups irrespective of the reporting framework)), “F” (FINREP reporting institutions (IFRS + GAAP)), “I” (IFRS-FINREP reporting institutions), “G” (GAAP-FINREP reporting institutions) and “N” (Non-FINREP reporting institutions).

Dimension No 9, Consolidated Banking Data item: This dimension represents the item of the CBD reporting scheme. The first character of the item codes is always a letter specifying the main domain of the data item following this list: “A” (Assets), “D” (Distributions), “E” (Exposures), “I” (Indicators), “L” (Liabilities), “LE” (Equity), “LF” (Off-balance-sheet items), “O” (Own funds), “P” (Profit and loss items), “Q” (Liquidity), “R” (Reporters).

Dimension No 10, Consolidated Banking Data accounting portfolio: This dimension represents accounting portfolios of the CBD reporting items (Available for Sale, Held to Maturity, etc.). For items within the CBD2 key family which refer to the number of institutions where a portfolio is not applicable, the dimension value “_Z” (Not applicable) is used. For other items where the portfolio is not specified, the dimension value “_X” (Not specified) is used.

Dimension No 11, Consolidated Banking Data exposure type: This dimension represents the exposure type of the CBD reporting items (performing exposures, non-performing exposures, encumbered assets, etc.). For items within the CBD2 key family which refer to the number of institutions, the dimension value “_Z” (Not applicable) is used. For other items where the exposure type is not specified, the dimension value “_X” (All exposures) is used.

Dimension No 12, Consolidated Banking Data valuation method: This dimension represents the valuation method for the CBD reporting items (carrying amount, original exposure value, etc.). For items within the CBD2 key family for which the valuation method is not applicable, the dimension value “_Z” (Not applicable) is used.

Dimension No 13, Residual maturity: This dimension represents the residual maturity of the CBD reporting items. For all items, where the residual maturity is not specified, or where it is not applicable, the dimension value “_Z” (Not applicable) is used.

Dimension No 14, Data type: This dimension indicates the type of data to be reported. In the data flow under consideration the following three values are relevant: “LE” (Closing balance sheet/Positions/Stocks), “T” (Transactions), and “_Z” (Not applicable).

Dimension No 15, Currency of transaction: This dimension describes the currency in which reported items are denominated. For the CBD data flow, two code values are relevant: “_T” (All currencies of denomination) and “_Z” (Not applicable).

Dimension No 16, Data item unit: This dimension specifies the measure in which the reported series is expressed. In the case of data expressed in the common currency (EUR), the code value assigned must be “EUR”. Countries that do not use the common currency (EUR) should convert the data into EUR using the foreign exchange rate as at the end of the corresponding reporting period. All items reported as a percentage should be characterised within this dimension by “PC” (Percent). For other items that are reported as plain numbers, such as the number of credit institutions, the code value “PN” (Pure number) is used.

Appendix 3

Description of Consolidated Banking Data templates

1st part	Reporting population	Information on the number of credit institutions
2nd part	Profitability and efficiency	Income statement and distribution data
3rd part	Profitability and efficiency (ratios)	Information on the distribution of the ROE
4th part	Consolidated balance sheet	Information on assets, liabilities, equity and off-balance-sheet items
5th part	Balance sheet breakdowns	Breakdown of main financial assets and liabilities by counterparty economic sector
6th part	Measures of asset quality	Information on non-performing loans and impaired assets
7th part	Concentration	Geographical, sectorial concentration of assets and funding concentration by sector and instruments
8th part	Liquidity and funding	Information on liquid assets and asset encumbrance
9th part	Capital adequacy – own funds	Information on own funds
10th part	Capital adequacy – exposures	Information on the type of exposures
11th part	Capital adequacy – other	Information on capital buffers
12th part	Capital adequacy – ratios	Information on distribution of institutions by risk approach, solvency ratio and Tier 1 ratio

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Abbreviations

Countries

BE	Belgium	HR	Croatia	PL	Poland
BG	Bulgaria	IT	Italy	PT	Portugal
CZ	Czech Republic	CY	Cyprus	RO	Romania
DK	Denmark	LV	Latvia	SI	Slovenia
DE	Germany	LT	Lithuania	SK	Slovakia
EE	Estonia	LU	Luxembourg	FI	Finland
IE	Ireland	HU	Hungary	SE	Sweden
GR	Greece	MT	Malta	UK	United Kingdom
ES	Spain	NL	Netherlands	US	United States
FR	France	AT	Austria		

In accordance with EU practice, the EU Member States are listed in this report using the alphabetical order of the country names in the national languages.

Others

AT 1	Additional Tier 1	GDP	gross domestic product
BIS	Bank for International Settlements	HICP	Harmonised Index of Consumer Prices
CBD	Consolidated Banking Data	IFRS	International Financial Reporting Standards
CEBS	Committee of European Banking Supervisors	i.i.p.	international investment position
CET1	Common Equity Tier 1	ILO	International Labour Organization
COREP	Common Reporting	IMF	International Monetary Fund
CPI	Consumer Price Index	ITS	Implementing Technical Standards
CRD	Capital Requirements Directive and Regulation	MFI	monetary financial institution
IV/CRR		MIP	macroeconomic imbalance procedure
DG ECFIN	Directorate General for Economic and Financial Affairs, European Commission	MPAG	Macro-Prudential Analysis Group
DSD	Data Structure Definition	NACE	Statistical Classification of Economic Activities
EA	euro area	NCA	national competent authority
EBA	European Banking Authority	NCB	national central bank
ECB	European Central Bank	NPL	non-performing loans
EDP	excessive deficit procedure	NSFR	net stable funding ratio
EER	effective exchange rate	OECD	Organisation for Economic Co-operation and Development
EMI	European Monetary Institute	SCOP	Standing Committee on Oversight and Practices
EMU	Economic and Monetary Union	SMEs	small and medium-sized enterprises
ERM	exchange rate mechanism	SSM	Single Supervisory Mechanism
ESA 95	European System of Accounts 1995	T2	Tier 2
ESCB	European System of Central Banks	TF CBD	Joint Task Force on Consolidated Banking Data
ESRB	European Systemic Risk Board	TSCG	Treaty on Stability, Coordination and Governance in the Economic and Monetary Union
EU	European Union	WG MFS	Working Group on Monetary and Financial Statistics
EUR	euro		
FINREP	Financial Reporting		
GAAP	Generally Accepted Accounting Principles		

Acknowledgements

The authors are grateful for the useful comments of Meri Rimmanen, Patrick Sandars, Jean-Marc Israël, Samo Boh, Bogdan Chiriacescu, Maria Luisa Viticchiè, Ľuboš Šesták and of the .Editorial Board of the Statistics Paper Series.

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ISSN	2314-9248 (pdf)	DOI	10.2866/754138 (pdf)
ISBN	978-92-899-2834-2 (pdf)	EU catalogue No	QB-BF-17-002-EN-N (pdf)