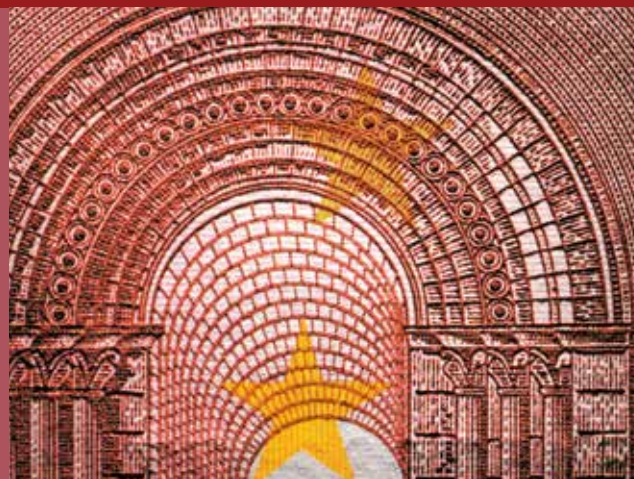


SUPPLEMENT TO THE  
STATISTICAL BULLETIN  
1 | 2013



Quality management in balance sheet  
statistics of monetary financial institutions

*September 2013*



*Banco de Portugal*

EUROSYSTEM



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EUROSYSTEM

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# QUALITY MANAGEMENT IN BALANCE SHEET STATISTICS OF MONETARY FINANCIAL INSTITUTIONS

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# QUALITY MANAGEMENT IN BALANCE SHEET STATISTICS OF MONETARY FINANCIAL INSTITUTIONS

## 1 INTRODUCTION

This *Supplement to the Statistical Bulletin* is part of a comprehensive statistical quality management process developed by the Statistics Department of Banco de Portugal, with the purpose of ensuring high quality standards in terms of statistical compilation and dissemination allowing for high user satisfaction.

This is the first of a series of supplements to the Statistical Bulletin on the quality of statistics which Banco de Portugal is responsible, pursuant to its Organic Law. Therefore, this supplement on the quality management in balance sheet statistics of monetary financial institutions should be viewed together with the *Supplement to the Statistical Bulletin 1/2012 A Gestão da Qualidade nas Estatísticas do Banco de Portugal* ("Quality management in Banco de Portugal statistics") of January 2012 ([www.bportugal.pt/pt-PT/Estatisticas/PublicacoesEstatisticas](http://www.bportugal.pt/pt-PT/Estatisticas/PublicacoesEstatisticas)), which presents the main procedures and good practices implemented in Banco de Portugal in terms of statistical data quality.

Therefore, it has been considered appropriate to prepare a document mainly aimed at users of banks' balance sheet statistics, i.e. balance sheet statistics of monetary financial institutions (MFIs) in the scope of monetary and financial statistics. Its objective is to disclose the main procedures and best practices used in the compilation of these statistics, thus allowing for a better understanding of their results, reducing the risk of misunderstandings and, at the same time, helping to consolidate the users' confidence in Banco de Portugal statistics.

In this context, Chapter 2 presents the main characteristics of MFI balance sheet statistics, addressing them in their wider context; Chapter 3 analyses the quality of statistics, in accordance with the International Monetary Fund quality benchmark; and Chapter 4 assesses the quality of MFI balance sheet statistics, on the basis of a series of quality indicators; finally, Chapter 5 presents some concluding remarks.

## 2 MAIN CHARACTERISTICS OF MFI BALANCE SHEET STATISTICS

Traditionally, **monetary and financial statistics** (MFSs) are produced by Banco de Portugal, as established in its Organic Law. Balance sheet statistics of monetary financial institutions, which fall within their scope, concern the **balance sheet of the monetary financial institutions (MFIs) sector**. This sector includes Banco de Portugal and other resident monetary financial institutions (OMFIs), commonly known as resident banks, which, in the case of Portugal, have included, on average, over the past decade: approximately 58 banks, 90 mutual agricultural credit banks, 4 savings banks and 7 money market funds, up to a total of 159 OMFIs, hereinafter referred to as ‘banks’.

In order to produce these statistics, **banks report** information on their statistical balance sheets to **Banco de Portugal on a monthly basis**, in accordance with a pre-set table structure. Reporting to Banco de Portugal is mandatory for all resident banks in Portugal. The **list of all resident MFIs, for statistical purposes**, is updated each month and released on Banco de Portugal’s institutional website ([www.bportugal.pt](http://www.bportugal.pt)) as well as on the European Central Bank’s (ECB) website ([www.ecb.europa.eu/home/html/index.en.html](http://www.ecb.europa.eu/home/html/index.en.html)).

Source data **reported by banks** include end-of-period positions of assets and liabilities in the statistical balance sheet, broken down by financial instrument (financial assets and liabilities) and counterparty institutional sector, usually in gross terms, in compliance with the accounting standards regularly set by Banco de Portugal and, preferably, at market value. Information on off-balance-sheet accounts, monthly flows of a number of transactions and reclassifications is also available.

MFI balance sheet statistics cover monetary aggregates and their internal and external counterparts, the monetary survey, Banco de Portugal’s balance sheet, banks’ consolidated balance sheet (by writing down/off resident interbank positions) and the aggregate balance sheet, and are compiled in accordance with international methodological principles, pursuant to the legal framework adopted by the ECB.

In general, **these statistics are compiled in order to generate the national input** to the Monetary Union’s **monetary aggregates**. They make it possible to continuously review monetary developments – via the calculation of money supply and its counterparts –, which are crucial for the conduct of monetary policy, and feed into the overall information needed to monitor the functioning of markets and financial institutions, so as to foster a stable and efficient financial system.

Therefore, this compilation of data aims to **meet the ECB’s statistical requirements** for the preparation of the MFI sector’s statistical balance sheet, indispensable for the European System of Central Banks (ESCB) to perform its tasks as established in its Statute. With these statistics, which fall under the national central banks’ responsibility, the ECB can draw upon a comprehensive statistical framework on monetary developments in ESCB Member States, which, in this context, are deemed to form a single economic area.

Depending on their degree of liquidity, liabilities in the MFI statistical balance sheet *vis-à-vis* the resident non-monetary sector are typically broken down into three **monetary aggregates**, from the more liquid to the broader aggregate:

- **M1** – money supply in the narrower sense, comprising currency in circulation and demand deposits (overnight deposits);
- **M2** – “intermediate” monetary aggregate that comprises M1 plus deposits with an agreed maturity of up to two years and deposits redeemable at notice of up to three months; and,
- **M3** – broad money supply that comprises M2 plus a number of negotiable instruments issued by resident MFIs, namely repurchase agreements, money market fund shares and money market bonds (debt securities with a maturity of up to two years).

Associated with these resident MFI liabilities are their **monetary counterparts** comprising the remaining items of the MFI consolidated balance sheet, namely credit to the non-monetary sector (securities and loans), MFIs' non-monetary liabilities (remaining deposits and deposit-like instruments, not included in the M2 currency aggregate) and net external assets.

These links can be illustrated by the basic equality of the monetary sector's consolidated balance sheet:

$$\text{DLX} + \text{CIT} = \text{M2} + \text{DIV}$$

Where, on the asset side, DLX and CIT represent, respectively, net external assets and total domestic credit (securities and loans) to the resident non-monetary sector and, on the liabilities side, M2 and DIV correspond, respectively, to the "intermediate" monetary aggregate and an aggregate comprising the remaining balance sheet items.

Data on the sector's balance sheet may also be organised as a **monetary survey**. It is obtained by summing up the central bank's balance sheet and banks' balance sheets after consolidation of inter-bank transactions. As such, assets and liabilities in the monetary survey provide a key analytical tool to identify links between the monetary sector (money-creating banking system) and the remaining sectors of the economy (money-holding sectors), broken down by institutional sector. One of the major goals of the monetary survey is to regularly release data on monetary and credit developments in the banking system as a whole, helping decision-makers to monitor these developments and, where necessary, to adjust monetary policy.

Furthermore, banks' balance sheet statistics are also used to calculate the **reserve base** of credit institutions subject to the ESCB's minimum reserve system.<sup>1</sup>

---

<sup>1</sup> The minimum amount of reserves a bank is required to hold with a central bank. In the Eurosystem, the reserve requirement of a credit institution is calculated by multiplying the reserve ratio for each category of items in the reserve base (liabilities) by the amount of those items on the institution's balance sheet.

Table 1

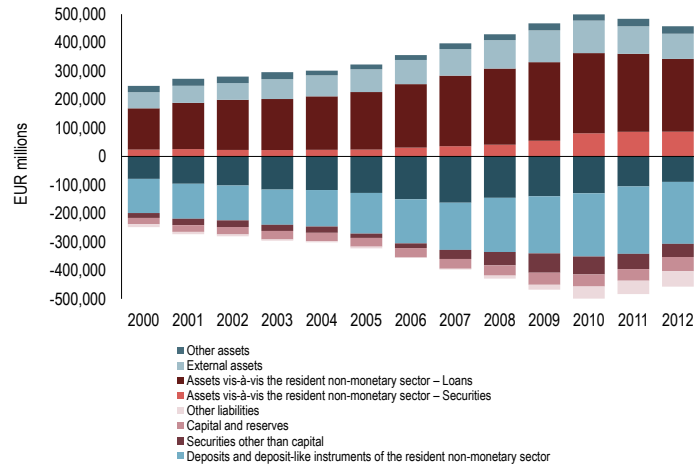
MONETARY SURVEY										
End-of-period positions (EUR millions)										
	Average weight in the past 13 years	2012	2011	2010	2009	2008	2007	2006	2005	2000
Net external assets (excludes liabilities for securities issued)	-13.9 %	-30,064	-31,744	-39,255	-24,906	-40,590	-52,227	-50,324	-38,302	-6,788
Credit to the general government (GG)	6.8 %	40,140	33,759	34,972	16,716	10,184	8,852	10,121	9,288	8,496
Credit to the non-monetary sector (except GG)	107.1 %	304,314	328,729	329,617	314,781	298,718	275,138	244,273	217,076	16,078
Households (including emigrants)	47.3 %	134,150	139,732	141,333	138,086	132,691	127,411	115,108	99,932	68,921
Non-financial corporations	47.1 %	123,257	135,434	138,153	142,340	138,614	122,188	106,715	97,900	70,667
Non-monetary financial institutions	12.6 %	46,907	53,563	50,132	34,356	27,413	25,539	22,450	19,244	21,194
<b>Total assets</b>	<b>100.0 %</b>	<b>314,390</b>	<b>330,744</b>	<b>325,334</b>	<b>306,590</b>	<b>268,312</b>	<b>231,764</b>	<b>204,070</b>	<b>188,062</b>	<b>162,491</b>
Notes and coins excluding those held by MFIs	5.5 %	19,952	19,396	18,223	17,344	16,033	14,095	13,083	11,883	5,392
Deposits and deposit-like instruments	71.3 %	222,980	242,047	222,210	200,723	190,191	165,571	154,613	142,629	120,125
General government	3.8 %	18,441	17,023	7,283	6,439	7,045	7,618	8,098	7,236	8,181
Households (including emigrants)	43.8 %	130,599	130,598	118,990	116,677	115,218	100,759	93,236	90,114	83,187
Non-financial corporations	11.5 %	27,137	33,412	36,516	30,896	29,329	29,913	30,354	28,463	18,913
Non-monetary financial institutions	12.2 %	46,803	61,015	59,422	46,710	38,600	27,282	22,925	16,816	9,843
Securities other than capital	14.7 %	45,488	52,435	61,749	67,414	46,970	317,56	16,591	15,438	17,476
Money market funds shares / units	0.2 %	1,208	65	46	12	14	376	751	1,098	115
Capital and reserves	17.8 %	66,315	56,859	56,778	52,828	44,416	41,315	38,640	34,897	25,920
Other (net)	-9.6 %	-41,553	-40,058	-33,672	-31,730	-29,311	-21,349	-19,609	-17,883	-6,537
<b>Total liabilities</b>	<b>100.0 %</b>	<b>314,390</b>	<b>330,744</b>	<b>325,334</b>	<b>306,590</b>	<b>268,312</b>	<b>231,764</b>	<b>204,070</b>	<b>188,062</b>	<b>162,491</b>

Looking at the items in this table, particular attention is drawn to the fact that *net external assets* (total assets of the central bank and the remaining monetary institutions *vis-à-vis* non residents minus the corresponding liabilities, excluding securities issued) are negative, which is offset, on the asset side, by the significant weight of *domestic credit* (total credit granted by the monetary sector to the remaining sectors of the economy, excluding the public sector). On the liabilities side, deposits and *deposit-like instruments* (total deposits of the various sectors of economy) also have a significant weight.

In terms of the banks' consolidated balance sheet, items can be presented as follows:

**Chart 1**

**STRUCTURE OF BANKS' CONSOLIDATED BALANCE SHEET** | *End-year balances*



Information available in table **B.3.0** of Banco de Portugal's *Statistical Bulletin* and BPstat | Statistics online

**Figure 1**

**LINKS TO OTHER STATISTICS**



**MFI balance sheet statistics are linked** to interest rate statistics, which also fall within the Bank's responsibility, and both are governed by Eurosystem legislation. MFI balance sheet statistics are also linked to other statistical operations conducted by Banco de Portugal, namely non-monetary financial institutions (NMFIs) statistics, balance of payments (BOP) and international investment position (IIP) statistics, securities statistics, non-financial sector indebtedness and national financial accounts statistics.

These statistics are released on a monthly basis, providing time series starting from December 1979, typically with a lag of approximately five weeks from the reference month. Information is displayed according to various data dimensions (breakdown by financial instrument, institutional sector, maturity, purpose, country and currency) and is available on **BPstat | Statistics online** and the **Statistical Bulletin (SB)**. BPstat hosts several statistics on MFI balance sheets and their metadata.



### 3 MFI BALANCE SHEET STATISTICS QUALITY ASSESSMENT

One of the Bank’s priorities, particularly over the past 10 years, has been to develop a wide set of procedures and organisational solutions that have made it possible to ensure an effective quality control of statistics compilation and dissemination systems. These developments may be by cross-checked against international statistics quality assessment benchmarks.

The international benchmark adopted by Banco de Portugal to assess the quality of statistics is the **Data Quality Assessment Framework (DQAF)** of the International Monetary Fund (IMF), given that it covers the various stages of the statistical process, explicitly recognises trade-offs among the many quality aspects and, finally, is a fairly flexible structure that can easily adapt to different categories of data and users. This benchmark follows a cascade structure, which progresses from the abstract / general aspects to the more concrete / specific details.

Figure 2

DQAF	
DIMENSIONS	COMPONENTS
0. Prerequisites	<ul style="list-style-type: none"> <li>0.1 Legal and institutional environment</li> <li>0.2 Resources</li> <li>0.3 Relevance</li> <li>0.4 Quality awareness</li> </ul>
1. Integrity	<ul style="list-style-type: none"> <li>1.1 Professionalism</li> <li>1.2 Transparency</li> <li>1.3 Ethical standards</li> </ul>
2. Methodological soundness	<ul style="list-style-type: none"> <li>2.1 Concepts and definitions</li> <li>2.2 Scope</li> <li>2.3 Classification / sectorisation</li> <li>2.4 Basis for recording</li> </ul>
3. Accuracy and reliability	<ul style="list-style-type: none"> <li>3.1 Source data</li> <li>3.2 Validation of source data</li> <li>3.3 Statistical techniques</li> <li>3.4 Validation of intermediate data and statistical outputs</li> <li>3.5 Revision studies</li> </ul>
4. Serviceability	<ul style="list-style-type: none"> <li>4.1 Timeliness and periodicity</li> <li>4.2 Consistency</li> <li>4.3 Revision policy and practice</li> </ul>
5. Accessibility	<ul style="list-style-type: none"> <li>5.1 Data accessibility</li> <li>5.2 Metadata accessibility</li> <li>5.3 Assistance to users</li> </ul>

The first level of the Data Quality Assessment Framework (DQAF) is organised around five dimensions of data quality – **integrity, methodological soundness, accuracy and reliability, serviceability and accessibility** – and a set of quality prerequisites, although not dimensions of quality per se, that cover a group of preconditions to achieved the quality of statistics. In its remaining levels, DQAF assesses the components, indicators, key points and focal issues.

In this chapter, MFI balance sheet statistics are assessed according to their dimension of quality.

### 3.1 Prerequisites

*Set of conditions for the pursuit of statistical quality. This first set of aspects comprises the legal and institutional environment, resources, relevance and quality awareness.*

#### 3.1.1 Legal and institutional environment

In terms of legislation, the legal environment on which the compilation of MFI balance sheet statistics by Banco de Portugal is based comprises, at national level, the Organic Law of Banco de Portugal and the Law on the National Statistical System and, at international level, the Statute of the European System of Central Banks.

At national level, Article 13 of the **Organic Law of Banco de Portugal** (Law No 5/98 of 31 January 1998, as amended by Decree-Law Nos. 118/2001 of 17 April 2001, 50/2004 of 10 March 2004, 39/2007 of 20 February 2007 and 31-A/2012 of 10 February 2012) enshrines the Bank's responsibility to compile and produce monetary and financial statistics, namely in the context of its cooperation with the European Central Bank.

The **Law on the National Statistical System** (Law No 22/2008 of 13 May 2008) acknowledges Banco de Portugal as a statistical authority and enshrines its tasks in the scope of the national statistical system (NSS), in full compliance with those established in its Organic Law.

At international level, the collection of statistical information for the fulfilment of the ESCB's tasks is based on **Article 5 of the Statute of the ESCB and governed by Council Regulation (EC) No 2533/98** of 23 November 1998 (published in the Official Journal of the European Communities on 27 November 1998), as amended by Council Regulation (EC) No 951/2009 of 9 October 2009 concerning the collection of statistical information by the ECB.

In addition to these general legal acts, there is a series of specific Community rules on MFI balance sheet statistics, which lay down the legal framework applicable to the compilation of these statistics and their reporting to the ECB. Therefore, the following regulations / guidelines apply:

- Instruction of Banco de Portugal **No 12/2010** (and annexes) published in Official Bulletin of Banco de Portugal No 5 of 17 May 2010, with subsequent amendments, which governs statistical data reporting to Banco de Portugal for the compilation of MFI balance sheet and interest rate statistics;
- Regulation (EC) **No 25/2009** of the ECB of 19 December 2008, which governs statistical data reporting to the ECB by national central banks stemming from their participation in the Eurosystem, concerning the balance sheet of the monetary financial institutions sector (recast);
- Guideline **ECB/2007/9** of 1 August 2007, with subsequent amendments, which lays down statistical reporting requirements of the ECB, on monetary, financial institutions and markets statistics (recast); and,
- Decision **ECB/2010/10** of 19 August 2010 on non-compliance with statistical reporting requirements.

The principle of the **confidentiality of individual data** is explicitly set out in the Law of the National Statistical System (Article 6), in point 3.2 on professional secrecy of the *Code of Conduct of Banco de Portugal* and Article 80 of Decree-Law No 298/92 of 31 December 1992, on the Legal Framework of Credit Institutions and Financial Companies (to which Banco de Portugal is subject). This principle is enforced in the Organic Law with the obligation of professional secrecy that applies to the Bank's staff.

At European level, the confidentiality regime is established in Article 8 of Council Regulation (EC) No 2533/98 of 23 November 1998 as amended by Council Regulation (EC) No 951/2009 of 9 October 2009

concerning the collection of statistical information by the ECB for the fulfilment of the tasks entrusted to the ESCB. Protection of individual data is also specifically established in Guideline ECB/1998/NP28 of 22 December 1998 concerning the common rules and minimum standards to protect the confidentiality of the individual statistical information compiled by the ECB assisted by national central banks.

With regard to the **transmission of information to Banco de Portugal**, steps have been taken to ensure it is processed in a secure and unbreachable manner. In this context, there is a communication channel – developed by Banco de Portugal, known as **BPnet** – that acts as an electronic communication system between Banco de Portugal and banks and ensures the confidentiality of reported data. By using BPnet, it is easier to integrate information received from reporting institutions (in the Bank’s statistical systems), as well as to prepare and automatically return to these entities assessment reports on the quality of reported information. BPnet also has a secure e-mail account that, in addition to the exchange of written messages between institutions, makes it possible to send statistical data under exceptional circumstances (in cases where the procedure to send statistical data is not viable).

Still as regards **confidentiality at statistical dissemination level**, Banco de Portugal has put in place mechanisms that ensure that individual data are not publicly released nor deducible from published data. These procedures are in line with international guidelines in this field, in particular within the scope of the ESCB, as established in the previously mentioned rules on confidentiality.

The above mentioned legal framework gives Banco de Portugal full powers to compile statistical information and, in practice, is put in place through several instructions issued by Banco de Portugal. **Statistical reporting is mandatory**, which means that non-compliance is legally subject to a number of sanctions.

As a way to encourage the timely receipt of quality information, Banco de Portugal has implemented a set of **procedures and good practices** that fall within institutional concerns.

Under Banco de Portugal’s constant focus is the principle of **moderation concerning statistical reporting requirements** imposed on reporting entities, which should not be excessive, through the introduction of **simplification mechanisms for provisions concerning the reporting** of source data to Banco de Portugal. In the case of MFI balance sheet statistics, institutions with total assets below EUR 1,000 millions may request to report on a quarterly basis, thereby reporting to Banco de Portugal four times a year, instead of twelve as in the regular monthly reporting regime.

One goal consists in promoting the **involvement of reporting institutions**. Therefore, in general, before the launch of a new data collection system, banks are invited to a presentation session at Banco de Portugal detailing the system or, in the case of more complex changes to collection systems, working groups including banks’ representatives are established.

Another relevant procedure involves asking reporting institutions to appoint contact persons – **interlocutors or correspondents** – responsible for data quality and reporting and for the clarification of any questions that may arise in the course of data collection and, in turn, Banco de Portugal also informs institutions of their contact persons at the central bank. There should be some stability in terms of these correspondents, to ensure a more productive dialogue between the parties. As additional support to reporting entities, a **Manual of Procedures** for reporting is available on Banco de Portugal’s website and BPnet, with guidelines and practical examples that make it easier to fill in survey forms, thus complementing reporting instructions with more general specifications.

With the aim of making statistical reporting easier, a **specific designed software** is provided to reporting institutions, to be used on a voluntary basis and free of charge, which makes it possible to prepare information according to the reporting requirements. This application also incorporates a wide set of coherence checks. Coherence errors do not preclude reporting to Banco de Portugal, but may indicate non-compliance with minimum standards clearly defined in the dedicated ECB Regulation and the Instruction of Banco de Portugal concerning the quality of information to be reported (in the event

of non-compliance with the above-mentioned minimum standards, Banco de Portugal reserves the right to apply the scheme of penalties in force).

### 3.1.2 Resources

Human resources have proven adequate to ensure compliance with commitments undertaken by Banco de Portugal in terms of MFI balance sheet statistics, as shown by the timely and high-quality compilation of data both at national and international level, namely in the scope of the ESCB. This is also confirmed by internal audit and ECB reviews of Banco de Portugal's compilation of statistics.

Turning to the information system, procedures for the calculation of MFI balance sheet statistics are implemented in a specific system based on **Business Intelligence** (BI) architecture,<sup>2</sup> which helps to integrate data from various statistical fields, making it possible to cross-check and share data from different statistical sources and ensuring the linkage, coherence and quality of compiled statistical results.

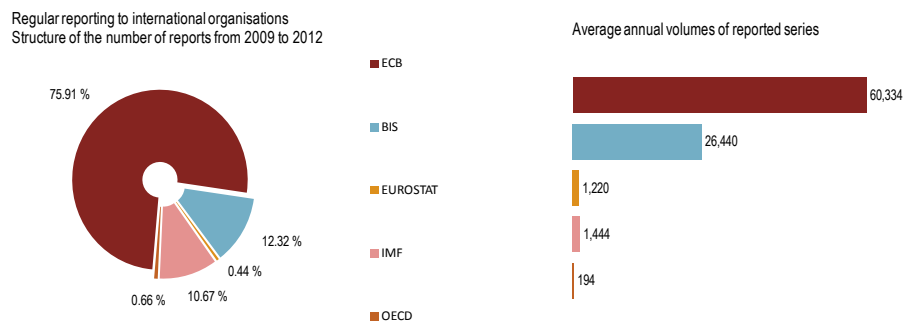
As regards financial resources, the production of MFI balance sheet statistics is funded in its entirety by Banco de Portugal and included in its annual operating budget.

### 3.1.3 Relevance

With regard to the relevance of MFI balance sheet statistics, which is reflected in the degree of user satisfaction, it should be noted **that these statistics are released to a wide group of external users.** At international level, this group chiefly comprises the ECB and the Bank for International Settlements (BIS), as well as the IMF (particularly as regards the Special Data Dissemination Standard – SDDS),<sup>3</sup> and the Statistical Office of the European Union (Eurostat).

Chart 2

#### INFORMATION REPORTED TO INTERNATIONAL ORGANISATIONS



In addition to information sent to international organisations, since 2011 a substantial volume of information has been released under the Economic and Financial Assistance Programme to Portugal, focusing on monthly and quarterly data, amounting to average annual volumes of approximately 8,000 series.

At national level, in addition to Banco de Portugal, these statistics are also used by Statistics Portugal (Instituto Nacional de Estatística – INE), the general government, banks and, naturally, the general public, namely companies, universities and the media.

2 Business Intelligence architecture is based on the articulated development of a statistical data warehouse and a centralised / shared system for reference data (*Sistema de Partilha de Informação de Referência – SPAI*), coupled with the implementation of integrated processes of compilation systems for statistics that fall within Banco de Portugal's responsibility.

3 SDDS is a set of standardised statistical indicators on macroeconomic data established by the IMF with a view to enhancing transparency, integrity, timeliness and quality of statistical data.

### 3.1.4 Quality awareness

Overall, quality awareness is a constant and common priority across all statistical areas at Banco de Portugal. For this reason, several procedures have been implemented to ensure effective quality control in terms MFI balance sheet statistical compilation. The main procedures are:

- the implementation of **counterpart information systems** (feedback information) for reporting entities, on the basis of standardised tables deemed useful by their addressees;
- the various **quality control mechanisms / procedures** across statistical compilation levels: collection, processing, analysis and dissemination; and,
- **monthly meetings** to analyse the results of these statistics allowing for the sharing of information and coordination between the staff responsible for the collection of these statistics and the remaining statistical fields within the Statistics Department.

Finally, this statistical field is subject to **regular audit operations** conducted by the Bank's Audit Department or by this Department together with the ECB, or internally within the Department.<sup>4</sup>

## 3.2 Integrity

*Making sure that tasks are performed in a professional and transparent manner and in accordance with ethical standards to ensure the implementation of the principle of objectivity in the collection, processing and dissemination of statistics.*

### 3.2.1 Professionalism

According to DQAF, one way to assess whether statistics are compiled on an impartial basis is to check for the existence of a legal framework that safeguards the professional independence of the compiling entity, particularly from political authorities. Article 1 of the Organic Law of Banco de Portugal formally establishes its independence in administrative and financial terms as well as concerning the allocation of its own funds.

In order to ensure the professionalism of the staff responsible for the production of MFI balance sheet statistics, the Bank has invested in the organisation of and / or participation in **training activities**. Similarly, it fosters participation in a number of external training activities, particularly those organised by the ECB, the Eurostat, the IMF and the World Bank, which sponsor several training initiatives (courses, seminars, workshops, etc.) on these statistics. Particularly noteworthy is also the cooperation between Banco de Portugal and the IMF in the joint organisation of courses on monetary and financial statistics, which are mainly aimed at the staff of central banks of Portuguese-speaking countries (also with the participation of its own staff), that have taken place at the Bank's premises.

As regards external communication, it is worth mentioning a **workshop** for journalists on the production and dissemination of MFI balance sheet statistics aimed at improving statistical literacy of target groups, as well as the general public. Also the monitoring of mentions to MFI balance sheet statistics on the media is common practice and, occasionally, it is necessary to make clarifications in the case of erroneous interpretations of the released statistical information.

<sup>4</sup> In early 2004 the **statistical auditing function** was created with the purpose of improving the quality management overall process. This function is twofold: (i) the conduct of statistical audits to analyse and assess the procedures put in place from the compilation of source data up to the clearance and dissemination of statistical results; and (ii) the preparation of Quality Reports on statistical results, basing their analysis on a series of quality indicators for the various statistics, taking into account their specific nature and critical points in their compilation process.

### 3.2.2 Transparency

The **principle of transparency** presides over the compilation of MFI balance sheet statistics. Indeed, the terms and conditions under which statistics are compiled at the various stages of the statistical process (collection, processing, analysis and dissemination) are clearly described in: (i) the (national and international) legal frameworks governing their compilation; (ii) the manuals of procedures associated with several statistical reports to Banco de Portugal; (iii) the Methodological Document (according to the model approved by the Statistical Council to describe statistical operations conducted in the scope of the National Statistical System); (iv) supplements and notes to the *Statistical Bulletin* and, (v) metadata available at BPstat | Statistics online. Furthermore, this information is published in its entirety in the Statistics section of the Bank's website.

It should also be noted that Banco de Portugal provides additional information concerning these statistics, in writing or by telephone, whenever further or more complex clarifications are required.

Finally, with the purpose of offering increased transparency to statistics users, information disseminated by Banco de Portugal is clearly identified as regards the compiling entity, being it Banco de Portugal or any other entity.

### 3.2.3 Ethical standards

As regards ethical standards, the **Code of Conduct for the Employees of Banco de Portugal**, available for consultation at the Bank's website (<https://www.bportugal.pt/SiteCollectionDocuments/codigoconduta-en.pdf>), governs the Bank's staff behaviour, in matters of professional ethics, namely in terms of professional secrecy, as well as the standard of conduct in their dealing with third parties. Within the scope of its statistical function, it is of particular importance that the principle of confidentiality / statistical secrecy be followed.

### 3.3 Methodological soundness

*Ensuring that the methodological basis for the statistical process follows the internationally accepted standards, guidelines or good practices. This is broken down into concepts and definitions, scope, classification / sectorisation and recording rules.*

The **methodology** used to compile MFI balance sheet statistics **is in compliance with the methods and sources described in the ECB Regulations**, previously laid down in legislation governing these statistics, and the IMF's Monetary and Financial Statistics Manual. In turn, the rules applicable to the compilation of information, as well as the concepts and classification / sectorisation (currencies, instruments, maturities, institutional sectors, countries / geographical distribution, etc.) underlying the compilation of these statistics are laid down in Instruction of Banco de Portugal No 12/2010 and the corresponding Manual of Procedures, also in full compliance with international benchmarks, particularly the European System of Accounts (ESA).

Grey areas and deviations from existing methodological rules are clearly identified and monitored until they are fully clarified, thus ensuring a treatment consistent with other statistical domains.

### 3.4 Accuracy and reliability

Assessing whether source data are timely, provide an adequate basis to compile statistics and sources are regularly reviewed. As regards statistical techniques, it should be assessed whether they are sound and employed in accordance with adequate statistical procedures. Also, intermediate and final results should be regularly assessed, statistical outputs should be validated against other information and statistical discrepancies should be investigated. Revision studies are also carried out routinely and used to inform statistical processes.

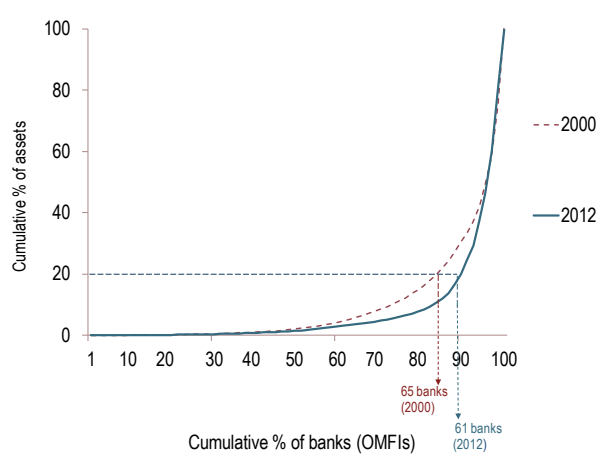
#### 3.4.1 Source data

The **universe** of these statistics covers all resident MFIs in Portugal, including Banco de Portugal and resident banks, and a comprehensive list of these entities is updated on a monthly basis (as mentioned in Chapter 2).

MFI balance sheet statistics are compiled on the basis of **monthly information** directly reported to Banco de Portugal by MFIs, in line with technical instructions laid down in Instruction of Banco de Portugal No 12/2010. Reporting to Banco de Portugal is mandatory for resident MFIs in Portugal and is done on an individual basis, except for mutual agricultural savings banks that are part of the Integrated Mutual Agricultural Credit Scheme (Portuguese acronym: SICAM), which may report collectively as a single MFI.

Chart 3

#### BREAKDOWN OF BANKS' ASSETS



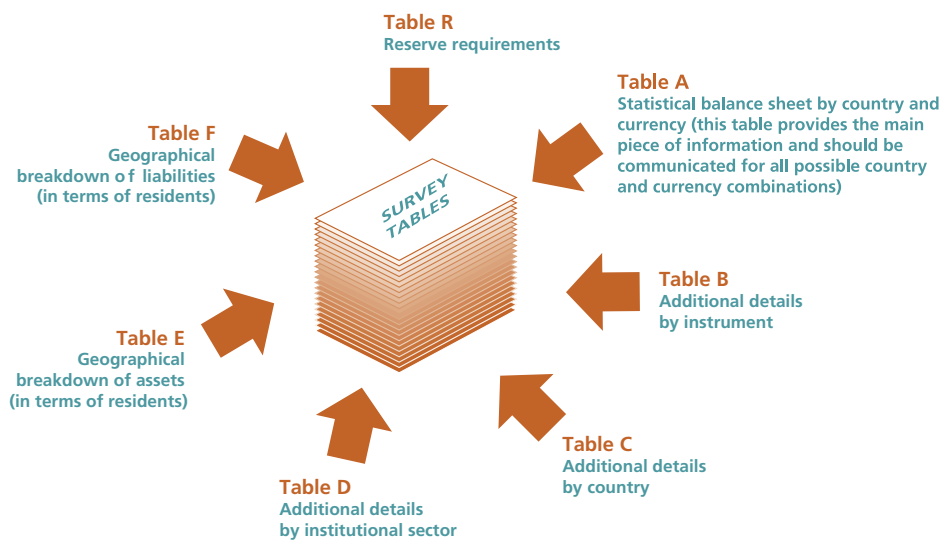
Overall, Banco de Portugal receives source data from around 70 reporting entities, which is used for balance sheet statistics, with reported assets / liabilities remaining highly concentrated. Indeed, while in 2000 84 per cent of institutions (65 banks) held only 20 per cent of assets (in terms of value), in 2012 this percentage was distributed by 90 per cent of institutions (61 banks), associated with a decrease in the total number of institutions in the system (from 76 to 68 banks in 2012). As such, between 2000 and 2012 the banking system remained highly concentrated, dropping from 11 to 7 the number of banks that make up for approximately 80 per cent of assets.

Therefore, and given the uneven statistical significance of reporting entities, although most institutions report on a monthly basis, a number of them can make use of the **Quarterly Reporting Regime (QRR)**. According to this regime, all institutions with total assets of EUR 1,000 millions or less may report statistical information for end-quarter months (March, June, September and December) to Banco de Portugal. Institutions may, at any given moment, request to change their current regime (moving from monthly to quarterly reporting or vice versa), which will only enter into force in the month following the end of the quarter when the request is made. However, the change from a quarterly to a monthly regime may also be decided by Banco de Portugal, in the course of the annual review of institutions, based on their December data. Institutions covered by the Quarterly Reporting Regime, which are approximately 30, account for less than 2 per cent of banks' balance sheets value.

Source data that must be sent by reporting entities refers to end-of-period positions (in some cases, monthly flows are also requested), denominated in euro millions (with an accuracy of two decimal places), recorded gross in compliance with accounting standards, and is **organised in the form of survey tables** for balance sheet data (see Instruction of Banco de Portugal No 12/2010), which were broken down so as to meet the needs of statistics users, particularly statistical requirements established by the ECB, in the scope of the ESCB. As such, there are:

**Figure 3**

**SURVEY TABLES**



These **survey tables** sent by MFIs make it possible to obtain statistical data from their accounting data and in accordance with the statistical concepts, rules and classifications laid down in the Instruction and corresponding manual of reporting procedures. These data are recorded as a balance sheet, which inherently means that information is recorded according to a closed model, with additional reliability and control over the source data used to compile these statistics.

Source data are organised and reported according to the counterpart's institutional sector. The Bank's website provides a **list of entities for statistical purposes**<sup>5</sup> to help reporting institutions to correctly classify information and, as such, contribute to a better delimitation of institutional sectors.

<sup>5</sup> Including a comprehensive list of the following sectors: monetary financial institutions; other financial intermediaries; financial auxiliaries; insurance corporations and pension funds; and general government.



For the compilation of these statistics, institutional sectors are broken down as follows:

**Figure 4**

**COUNTERPARTY INSTITUTIONAL SECTORS**

Sector	Sub-sectors	
Monetary financial institutions (MFI)	Banco de Portugal	
	Other monetary financial institutions (OMFIs)	<ul style="list-style-type: none"> <li>• Banks</li> <li>• Savings banks</li> <li>• Mutual agricultural credit banks</li> <li>• Money market funds</li> </ul>
Non-monetary financial institutions (NMFI)	Other financial intermediaries (OFIs)	<ul style="list-style-type: none"> <li>• Investment funds, except money market funds</li> <li>• Risk capital companies</li> <li>• Factoring companies</li> <li>• Dealers</li> <li>• Credit-purchase financing companies</li> <li>• Financial holding companies</li> <li>• Financial leasing companies</li> <li>• Financial intermediaries—other</li> </ul>
	Financial auxiliaries (FA)	<ul style="list-style-type: none"> <li>• Exchange offices</li> <li>• Brokers</li> <li>• Investment fund managing companies</li> <li>• Wealth managing companies</li> <li>• Financial auxiliaries—other</li> </ul>
	Insurance corporations and pension funds	
General Government (GG)	Central government Regional government Local government Social security funds	
Non-financial corporations (NFCs)	Non-financial public corporations Non-financial private corporations	
Private individuals	Households Non-profit institutions serving households	

When reporting to Banco de Portugal, up to the 10<sup>th</sup> working day of each month, a number of rules must be followed as laid down in the Bank’s technical instructions. In order to ensure that reporting dates are complied with, institutions receive an **annual timetable with the reporting deadlines to Banco de Portugal**.

As previously mentioned (see Section 3.1.1), as regards **reporting of information to Banco de Portugal** the **BPnet** communication channel helps to integrate the information received from reporting institutions in the Bank’s statistical systems.

### 3.4.2 Validation of source data

**Information is incorporated in Banco de Portugal databases** using an application that automatically processes it, as the received files are validated in terms of format, type of information reported, information suitability as regards the reference period and reporting deadlines. The results of these suitability tests to reporting requirements are reflected in a report that is automatically sent to the reporting entity, which acts as a notification to the financial institution that the file has been accepted and the quality of information received is adequate.

In addition to automatic validations included in applications, and contacts with reporting entities where needed, **each institution's source data is subject to non-automatic validations**, as a result of quality assessment and control by the Bank's teams. These validations are mostly conducted via three approaches:

- **Temporal**

Analysis of developments over time, study of the trend followed by each institution over the past few months and comparison with the same period one year earlier, outlier control, analysis / validation of any anomalous values;

- **Internal**

Data consistency by analysing the results in each table and all the tables as a whole and internal validation of concepts, definitions and classification / sectorisation; and,

- **External**

Cross-check against source data reported by banks to Banco de Portugal for other purposes, given that it receives information in the scope of other statistical information systems, financial supervision and regulation activities.

In this last approach, it is possible to **cross-check source data reported** in the scope of MFI balance sheet statistics against information on the: (i) interbank market transactions; (ii) accounting system of Banco de Portugal; (iii) data reported for supervisory purposes; (iv) securities statistics system (Portuguese acronym: SIET); (v) Central Credit Register (CCR);<sup>6</sup> (vi) balance of payments information system; and, (vii) Portuguese Securities Market Commission (Portuguese acronym: CMVM). In particular, **the quality of source data reported by the main resident financial groups** (accounting for around 75 per cent of statistical results) is assessed for monitoring purposes, by cross-checking against other information.

The results of these analyses as well as any clarification sent by reporting entities are incorporated in an application that centralises and stores all explanations associated with developments in figures over that period. Once the process for each financial institution is concluded, the corresponding **information should be certified**, which means that it now fulfils the necessary requirements for statistical production.

### 3.4.3 Statistical techniques

Once source data are treated and validated, **information is centralised**, which means that information from all institutions is aggregated, having already been analysed, integrated and certified (this procedure runs automatically through a specific application and concerns the reference period for statistical production). This centralisation covers all survey forms reported by MFIs, which means that forms for entities covered by the Quarterly Reporting Regime that are not subject to reporting outside end-of-quarter months are estimated on the basis of the figures for the latest end of quarter.

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<sup>6</sup> The CCR is a database managed by Banco de Portugal, comprising information reported by lenders – that are part of this register – on credit granted, associated with a series of processing and dissemination services, including the support given to participants when assessing their customers' credit risk.

### 3.4.4 Validation of intermediate and final data

After information has been centralised (aggregated), **validation tests may be performed on intermediate and final information** (similar to those for each institution's individual information). A routine procedure involves analysing developments in variables over time by looking to the results for the last four months available and to changes *vis-a-vis* the previous month. With this type of analysis it is possible to identify for each item any major change for that month and the financial institutions that contributed the most to it. This analysis is particularly useful in the case of more substantial changes and may even raise further questions. Furthermore, other comparisons are made against aggregate data from other sources of information, so as to check for outliers, and information released by the media at national and international level is monitored for indications on these statistical operations.

Using balance sheet data, **transactions can be calculated by** combining information on changes in positions with information on reclassification adjustments (reclassifications per se and changes in the reporting population), revaluation adjustments, write-offs and exchange rate and price changes. As such, this calculation is processed as follows:

**Figure 5**

#### CALCULATION OF TRANSACTIONS

$$F_t = (L_t - L_{t-1}) - C_t - E_t - V_t$$

where

$F_t$  means transaction in month t

$L_t$  means balance at the end of month t

$C_t$  means adjustment due to reclassifications in month t

$E_t$  means adjustment in the exchange rate in month t

$V_t$  means adjustment in prices, write-offs and other changes in month t

Often, reclassification adjustments must be made as a result of financial institutions' responses to doubts raised by Banco de Portugal. Such adjustments are manually incorporated in the application, and made directly on the source data of the corresponding financial institution, followed by the usual procedures, while reclassifications are also tested for consistency, similarly to those available to source data on positions.

### 3.4.5 Revision studies

With regard to **revision studies**, this practice does not apply to MFI balance sheet statistics as a rule, given that information on these statistics, which is disseminated through the typical channels (BPstat and *Statistical Bulletin*) on the Bank's website, is not regularly revised (see Section 4.2).

### 3.5 Serviceability

*Analysing aspects related to the dissemination frequency and deadlines, consistency (in terms of statistics per se, over time and against other statistics) and revision policies and practices.*

#### 3.5.1 Timeliness and periodicity

MFI balance sheet statistics are released **on a monthly** and regular basis according to a set timetable, with a **lag of around five weeks after the reference month**.<sup>7</sup>

The dissemination timetable for MFI balance sheet statistics is released at the end of the previous year, together with the timetables for other statistics produced by the Bank, on its website. **Dissemination deadlines are monitored** through dedicated monthly tables. These deadlines have always been fulfilled in accordance with the set timetables.

#### 3.5.2 Consistency

In addition to the analysis and quality control work mentioned above, mechanisms are in place to guarantee that disseminated information is fully consistent. These mechanisms are broken down into three levels:

- **Temporal**

With regard to time consistency analysis, the goal is to ensure that there are no **series breaks** in the disseminated series, e.g. due to substantial changes in the statistical information collection and / or the statistical treatment of data or significant changes in the methodology or sources of information.

This can be illustrated by the substantial changes in the compilation system for MFI balance sheet statistics, both in 1997 and 2003, which impacted on the concepts, classifications, methodologies and information treatment and gave rise to potential series breaks that were prevented by reconstructing long series, in both cases, so as to obtain consistent data starting from December 1979.

Significant changes in the methodology, sources of information or alterations / updates to the statistical information collection system are duly provided for so as to mitigate the effects associated with series breaks, thus ensuring that the series remain consistent over time. These changes are accompanied by explanatory notes, which, as a rule, are published in the Statistical Bulletin, on the Bank's website and / or sent to international bodies, where clarifications on such changes are warranted.

Finally, mention should be made to the compilation of "Long Series for the Portuguese Economy"<sup>8</sup> as regards the reconstruction of series for money and credit aggregates, as well as base money, for the 1947-95 period.

- **Internal**

Statistics compiled by Banco de Portugal are consistent within the dataset. Therefore, and strictly in conceptual terms, concepts, definitions and classifications used to compile statistics do not vary, regardless of the frequency of the corresponding statistics.

Another procedure aimed at ensuring the internal consistency of statistics is the monitoring of residual items, given that by definition they include aspects **with a residual nature** which, when amounting to significant values, should be analysed with particular care. In the case of MFI balance sheet statistics, the monitored residual items are "other assets and liabilities", which close up MFI balance sheets; and,

<sup>7</sup> In the case of reporting to the IMF, in the scope of the SDDS, these statistics are released six weeks after the end of the reference period.

<sup>8</sup> "Long Series for the Portuguese Economy" was published by Banco de Portugal with the purpose of constructing long series for the Portuguese economy in the post-Second World War period (1947-95).

- **External**

In terms of external consistency, comparisons are made against other statistics, namely with statistics on securities portfolios and issues (excluding capital) compiled in the scope of the integrated securities statistics system, statistical information from the CCR, balance of payments data and financial accounts statistics.

The quarterly compilation of financial accounts acts as a test for consistency among the various basic statistics, given that they are derivative statistics that combine several primary statistics, as is the case of MFI balance sheet statistics.

### 3.5.3 Revision policy and practice

The revision policy is substantiated in a **series of revision practices** synchronised across the various statistics, in compliance with European and internationally agreed standards, guidelines and good practices. In this context, as previously mentioned, results on MFI balance sheet statistics are not, as a rule, regularly revised, as they are only eventually subject to revisions regarding the previous month, in the framework of the ESCB revision policy.

As a rule, revision practices are made public together with metadata published in the statistics section of the Bank's website, BPstat | Statistics online, the *Statistical Bulletin* and in the SDDS reporting to the IMF.

## 3.6 Accessibility

*This section looks into data and metadata accessibility (in a clear and understandable manner, on an impartial basis and in adequate dissemination media and formats), on a pre-announced schedule and with the provision of knowledgeable support service.*

### 3.6.1 Data and metadata accessibility

Statistical dissemination by Banco de Portugal follows internationally set standards and guidelines with the purpose of meeting users' needs and complying with reporting requirements to international bodies, particularly the ECB, Eurostat, the IMF, BIS and the OECD.

In order to ensure / guarantee the centralisation and quality of the various statistical results, series compiled in the scope of MFI balance sheet statistics are incorporated in a time series database (**Statistical Information Database**; Portuguese acronym: BDIE) that acts as a repository for all statistical information of Banco de Portugal, on the basis of which a substantial amount of statistical results produced by Banco de Portugal is disseminated and used to feed reports to the ECB and other international bodies, as well as BPstat and tables published in the *Statistical Bulletin*.

MFI balance sheet statistics are released on a monthly basis and published: (i) at different levels of detail (breakdown of assets and liabilities by financial instrument, institutional sector, maturity, purpose, country and currency); and (ii) using different media and formats to meet the needs of various domestic and foreign users.

As such, MFI balance sheet statistics are published via different channels (electronic and Internet). Through **BPstat**, users can access a wide set of series comprising these statistics and corresponding metadata and create their own tables, using the "Favourites" functionality. These tables are automatically refreshed whenever information is updated. On a monthly basis, the **Statistical Bulletin** is released on the Bank's website in pdf and csv format, including data (long series in the csv files) and corresponding metadata. MFI balance statistics are accompanied by **statistical press releases** whenever it is necessary to highlight statistical results, new statistical information is introduced or changes are made to statistical dissemination instruments (*Statistical Bulletin* or BPstat). Links are also available for other metadata associated with MFI balance sheet statistics.

To sum up, the main outputs / dissemination media are:

- **Statistical Bulletin** (available online and in CD-ROM format) – namely, tables for Chapters A (tables A7 to A9) and B (tables B.0 to B.6);
- **BPstat | Statistics online** – dissemination of MFI balance sheet statistics both in a time series and a multidimensional approach, where users can make their own combinations when designing tables. Information is available in the time series format starting in December 1979 and in the multidimensional analysis since 2003. Both analyses comprise data and a wide set of metadata. Information on time series for MFI balance sheet statistics is available under monetary and financial statistics (tree of statistical domains) as shown in the figure below:

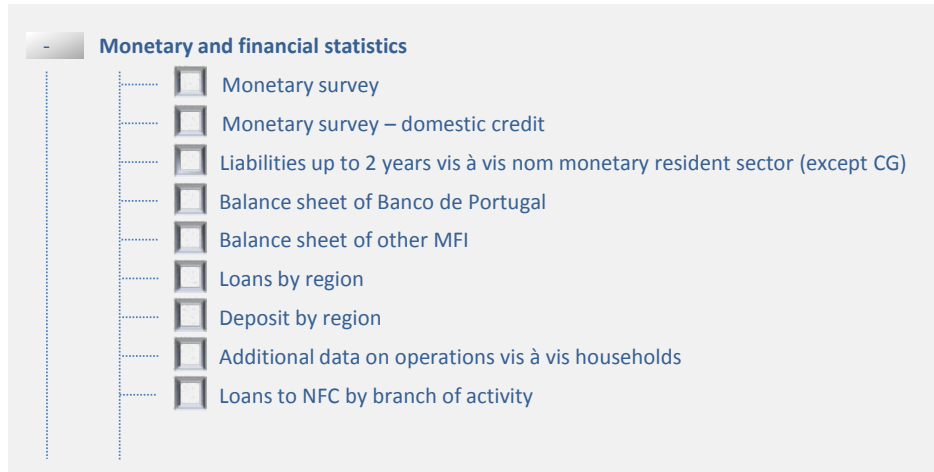
Figure 6

BPSTAT | ESTATÍSTICAS ONLINE – TIME SERIES ANALYSIS



Information on the multidimensional analysis for these statistics is as shown below:

Figure 7



- **BPstat mobile** – dissemination of indicators and MFI balance sheet statistics via mobile devices.

MFI balance sheet statistics are also released with the following publications of Banco de Portugal:

- **Monthly Economic Indicators** of Banco de Portugal (on paper and online);
- **Financial Stability Report** (on paper and online); and,
- **Annual Report** of Banco de Portugal (on paper and online).

MFI balance sheet statistics **are disseminated to a wide range of external users** and one of their purposes is to meet the statistical requirements of international bodies. In the case of the ECB, and pursuant to the provisions of Guideline ECB/2007/9 of 1 August 2007, two monthly reports are made after the end of the reference month: the first, by the 15<sup>th</sup> working day, when provisional data are sent, and the second, by the 25<sup>th</sup> working day, when final data are sent, on positions and flow adjustments. A quarterly report is also sent to the ECB (up to the 28<sup>th</sup> working day after the end of the quarter), in addition to any replies to requests for additional information. At the same time, these statistics are also sent to other international bodies, namely the IMF (particularly as regards the SDDS), Eurostat and BIS, and are also fed into the information collected under the Economic and Financial Assistance Programme to Portugal. At national level, and as mentioned above, there are requests for information from entities such as Statistics Portugal (INE), the general government and banks, in addition to the media and the general public (in particular, companies and universities).

### 3.6.2 Assistance to users

With regard to assistance to users, a contact person at Banco de Portugal is made public should any doubts arise regarding released information. There is also an electronic form (on the Bank's website) for information requests, with a field for suggestions and commentaries. With the purpose of gauging the interest and needs of the Bank's statistics users, the received requests for statistical information (on published and unpublished data) are monitored and analysed on a regular basis, to identify and assess any new statistical dissemination contents.

## 4 QUALITY INDICATORS IN MFI BALANCE SHEET STATISTICS

In order to assess the quality of compiled and disseminated statistics, Banco de Portugal has released **Quality Reports** on its statistics. These reports focus on statistical results, basing the analysis on a series of quality indicators for the different statistics, taking into account their specific nature and critical points in their compilation process, and the various aspects that may provide greater quality to these statistics are assessed.<sup>9</sup> **DQAF**'s basic structure (the IMF's benchmark to assess statistical quality) is used as the key reference for this analysis. To obtain a measure of this assessment, where possible, quantitative indicators are used focusing the analysis, as a rule, on the main results of these statistics.

The analysis is broken down into five assessment levels: **statistical analysis measures, revision analysis, internal consistency, external consistency** and **consistency over time**.

### 4.1 Statistical analysis measures

At this level, the goal is to assess whether results for MFI balance sheet statistics adequately reflect the economic reality, using statistical description and analysis measures to assess the quality of statistical calculations, by analysing data starting from 2000. Charts are used to assess developments (internal, external and temporal validation) in the main items of resident banks' balance sheets and to analyse discrepancies and outliers.

Chart 4

DEPOSITS AND DEPOSIT-LIKE INSTRUMENTS | Structure by institutional sector (percentage)



Information available in tables B.3.1 to B.3.7.2 of Banco de Portugal's *Statistical Bulletin* and BPstat | Statistics online

Over a period of 13 years, the structure by institutional sector of deposits and deposit-like instruments with resident banks has undergone some changes, with a decline in the relative weight of deposits by non-residents (from 40 to 29 per cent) and a greater importance (from 5 to 15 per cent) of NMFI deposits, as a consequence of a higher volume of on-balance sheet derecognised securitisation transactions, whose statistical counterpart impacts on deposits with maturity of over two years of credit securitisation companies and funds.

Households and emigrants,<sup>10</sup> which account for around 43 per cent, together with non-residents continue to account for the highest share in bank deposits, while non-financial corporations (NFCs) and general government post the smallest weight, with 9 and 4 per cent respectively.

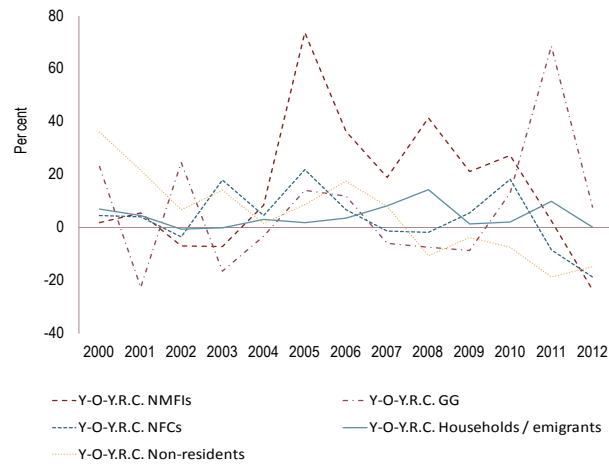
<sup>9</sup> Given that statistical quality hinges on the quality of source data sent by reporting entities, data obtained from other primary sources of information and, also, information systems and procedures implemented in the scope of statistics compilation and dissemination.

<sup>10</sup> Although, for statistical purposes, emigrants are deemed to be non-residents in Portugal, emigrants' accounts are considered to be resident accounts, given that they are often co-owned by residents.



Chart 5

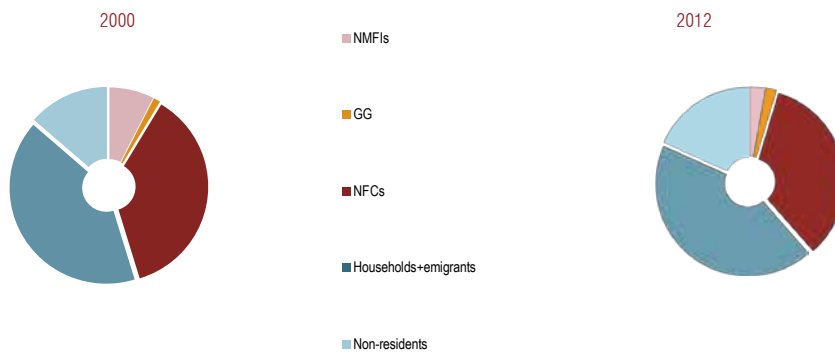
## DEPOSITS AND DEPOSIT-LIKE INSTRUMENTS | Year-on-year rates of change (y-o-y.r.c.)



Deposits and deposit-like instruments of the general government and non-monetary financial institutions showed more volatile developments, with greater swings in year-on-year rates of change.

Chart 6

## LOANS AND OTHER CLAIMS | Structure by institutional sector (percentage)

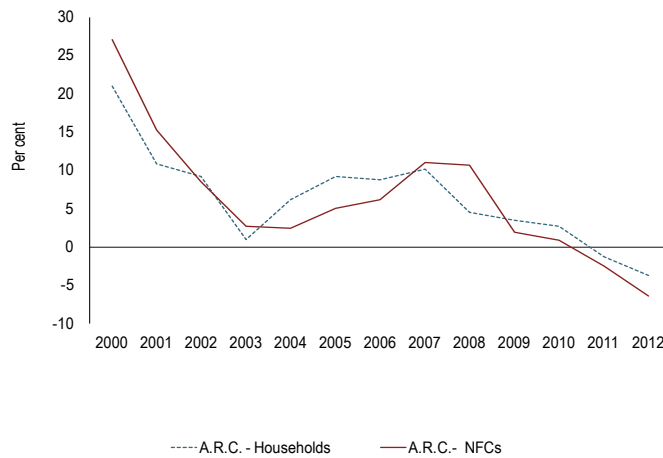


Information available in tables B.4.1.1 to B.4.1.4 of Banco de Portugal's *Statistical Bulletin* and BPstat | Statistics online

This structure remained relatively unchanged over a period of 13 years, by institutional sector borrowing from resident banks. Households and emigrants (43 per cent) and non-financial corporations (34 per cent) continued to borrow the most from resident banks in 2012.

Chart 7

## BANK LOANS TO NFCs AND HOUSEHOLDS | Annual rates of change (a.r.c.)

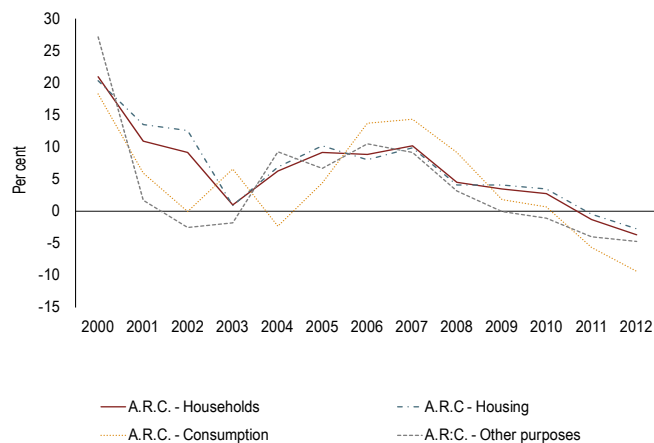


Information available in tables B.4.1.5 and B.4.2.3 of Banco de Portugal's *Statistical Bulletin* and BPstat | Statistics online

Results indicate annual rates of change (not adjusted for off-balance sheet securitisation transactions) with a negative sign, as of 2011, for bank loans to non-financial corporations (from -6.4 to -4.2 per cent, adjusted for loans associated with credit portfolio sales) and households (-3.7 per cent), which reflects a contraction in credit in the economy as whole. The declining trend in developments in loan positions continues for the two main sectors in this type of transactions with resident banks.

Chart 8

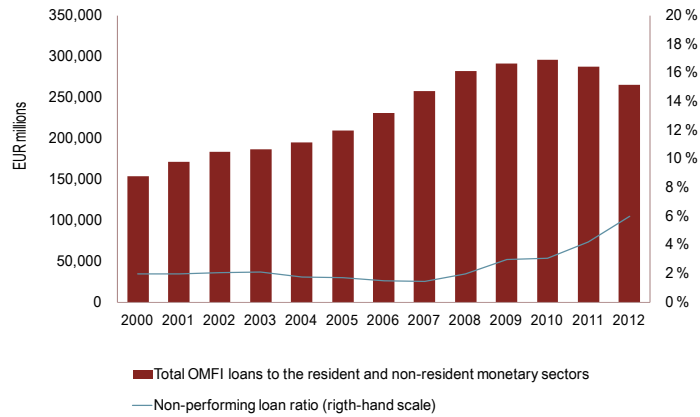
## BANK LOANS TO HOUSEHOLDS | Annual rates of change (a.r.c.)



Over the past six years, the annual rate of change in housing loans has followed a declining trend, in line with developments in the annual rate of change in total loans. Loans for other purposes recorded similar developments, entering into negative territory in 2011.

Chart 9

## NON-PERFORMING LOANS IN TOTAL LOANS



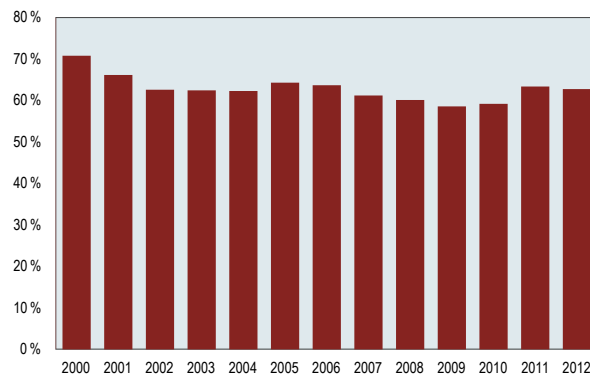
Information available in tables B.3.2.1 to B.3.7.1 of Banco de Portugal's *Statistical Bulletin* and BPstat | Statistics online

The non-performing loan ratio followed an upward trend in the period under review, while total bank loans to resident and non-resident monetary sectors have shifted downwards over the past two years.

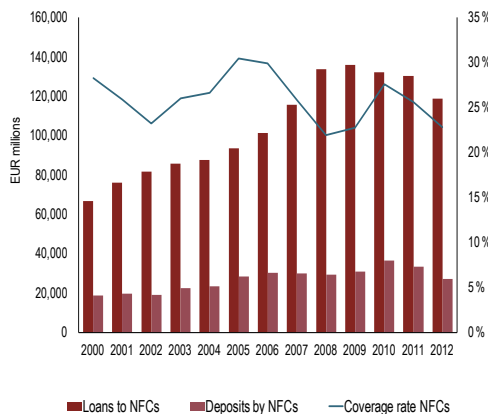
Chart 10

## COVERAGE OF CREDITS BY DEPOSITS

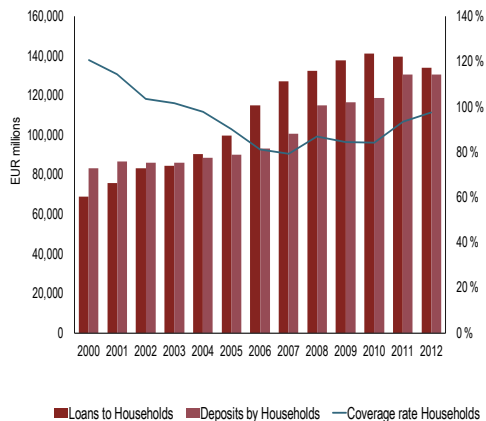
Non-monetary sector: Total deposits / total credits (loans + securities)

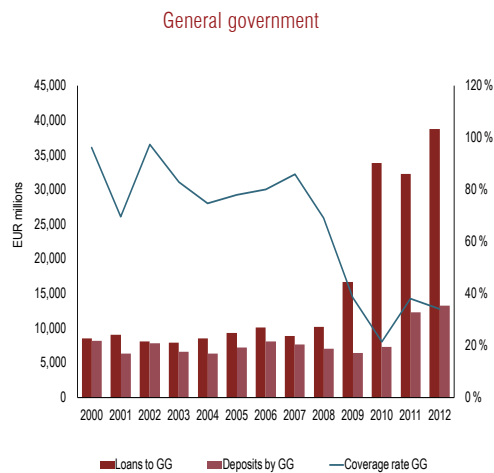


Non-financial corporations



Households

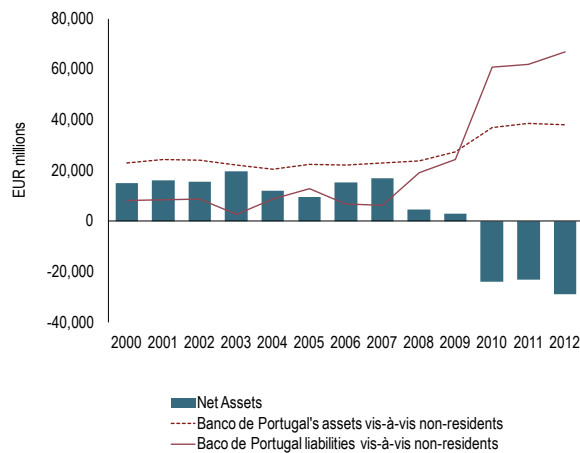




The coverage of credits by households' deposits has followed an upward trend, particularly as of 2010, reaching nearly 100 cent in 2012, while the remaining resident non-financial sectors posted coverage rates of between 20 and 35 per cent.

**Chart 11**

**BANCO DE PORTUGAL | Foreign exposure**

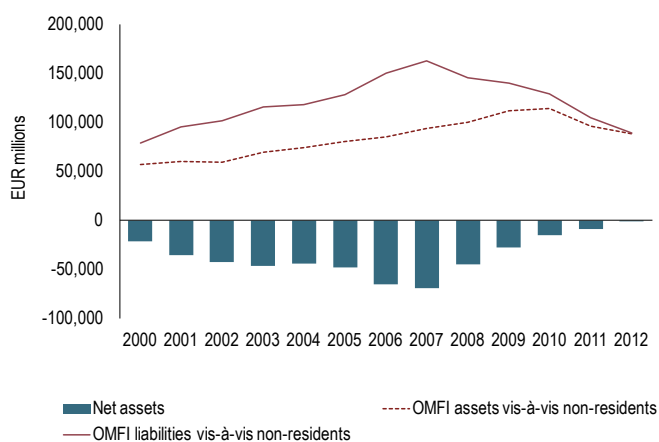


Information available in table **B.2.1** of Banco de Portugal's *Statistical Bulletin* and BPstat | Statistics online

Banco de Portugal's net external assets (assets – liabilities) have posted a negative sign, as of 2010, following Eurosystem's liquidity-providing operations directed towards the resident banking system, with an impact on the Bank's balance sheet through the increase in assets *vis-à-vis* residents and liabilities *vis-à-vis* non-residents.

Chart 12

OTHER MONETARY FINANCIAL INSTITUTIONS | Foreign exposure



Information available in tables B.3.7.1 and B.3.7.2 of Banco de Portugal's *Statistical Bulletin* and BPstat | Statistics online

Since 2007, there has been a decline in the weight of the banking sector's external liabilities, reflecting a gradual reduction in direct financing through foreign markets, which was replaced by Eurosystem liquidity provision through Banco de Portugal. The balance of net external assets was virtually nil in 2012.

4.2 Revision analysis

At this level, the goal is to gauge the impact of revisions and the degree of confidence that users can place in the early publications of balance sheet statistics. For this assessment, specific quality indicators are used to compare the first and last versions released, for data regarding the 2010-12 period, thus making it possible to assess the size / magnitude of such revisions.

Table 2

BANKS' BALANCE SHEET STATISTICS   Revision indicators		Average weight over the past 3 years	MAPE	Direction indicator	Correlation between the two series
Total assets / liabilities					
Assets vis-à-vis on Banco de Portugal					
External assets					
Assets vis-à-vis the resident non-monetary sector – Loans					
Assets vis-à-vis the resident non-monetary sector – Securities					
2010		3.2 %	303.2 %	85.7 %	35.6 %
to		9.3 %	0.0 %	100.0 %	100.0 %
2012		24.1 %	0.0 %	100.0 %	100.0 %
Deposits and deposits-like instruments of non-residents					
Deposits and deposits-like instruments of the resident non-monetary setor					
Securities other than capital					
Capital and reserves					
Of which: Provisions for non-performing					
Others liabilities					

Chart 13

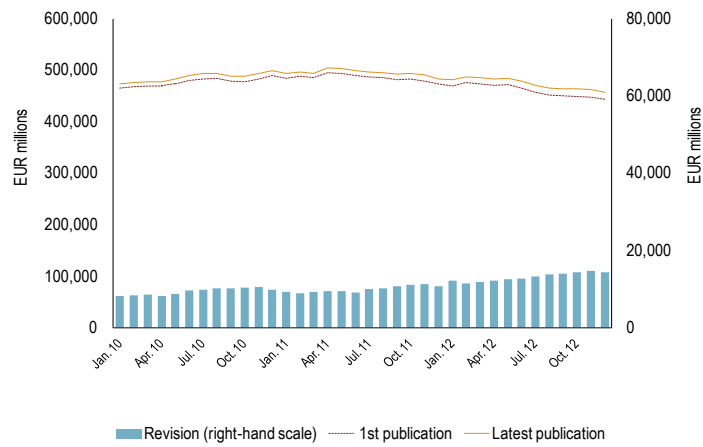
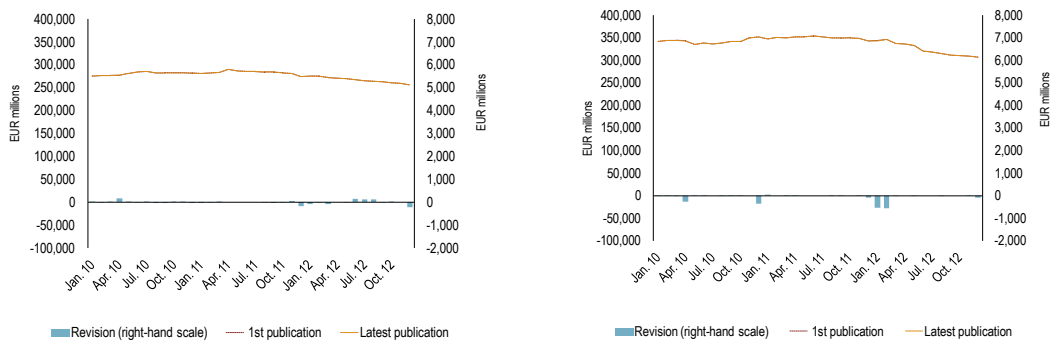
REVISION INDICATORS | *Total assets*

Chart 14

REVISION INDICATORS | *Loans and deposits*

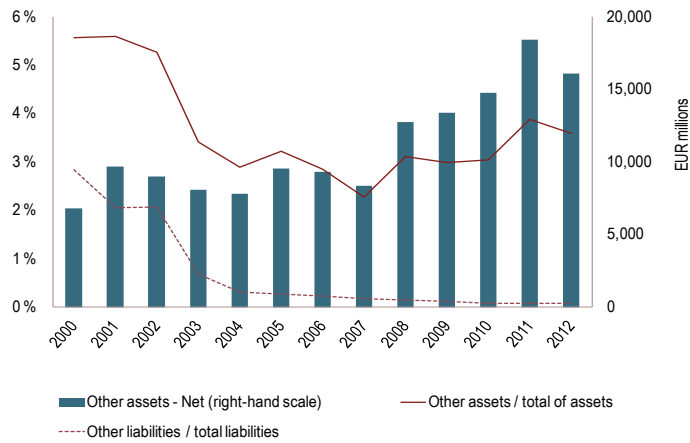
The analysis of indicators measuring successive data releases (by comparing the first and latest publications) shows that revisions have a negligible impact on the main aggregates for banks' balance sheet statistics (see the table on revision indicators), except for residual items adjusted in the course of the series.

### 4.3 Consistency

At this level, the residual item that maintains the statistical balance sheet's equilibrium (other assets and liabilities) is monitored in order to ensure the overall quality of information disseminated by the Bank by cross-checking statistics, for comparable phenomena, so as to prevent any inconsistency among statistical results.

Chart 15

OTHER ASSETS AND LIABILITY

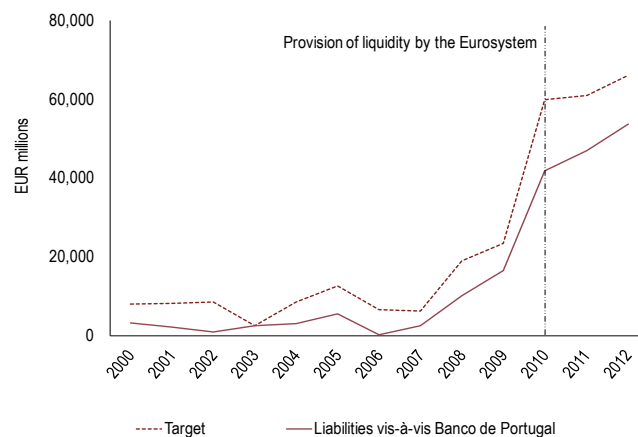


Information available in table B.3.0 of Banco de Portugal's *Statistical Bulletin* and BPstat | Statistics online

There was a declining trend in residual items of banks' balance sheet, corresponding to figures with negligible statistical significance (other assets and liabilities weighted around 3.5 per cent and 0 per cent respectively of total assets). Other net assets (other assets – other liabilities) with a positive sign *i.e.* a largest residual component under banks' assets.

Chart 16

BANCO DE PORTUGAL'S EXTERNAL ASSETS VS. BANKS' LIABILITIES VIS-À-VIS BANCO DE PORTUGAL



Information available in tables B.2.4 and B.3.0 of Banco de Portugal's *Statistical Bulletin* and BPstat | Statistics online

It is possible to check for consistency between Banco de Portugal's balance sheet data and banks' consolidated balance sheet by comparing external liabilities of Banco de Portugal (*vis-à-vis* non-resident monetary financial institutions, including operations conducted through TARGET – the Eurosystem's real-time gross settlement system) and banks' liabilities *vis-à-vis* Banco de Portugal, with consistent results over the period under review on the basis of this cross-check between statistics.

Chart 17

## COMPARISON BETWEEN STATISTICS ON TRANSACTIONS AND STATISTICS ON CHANGES IN POSITIONS

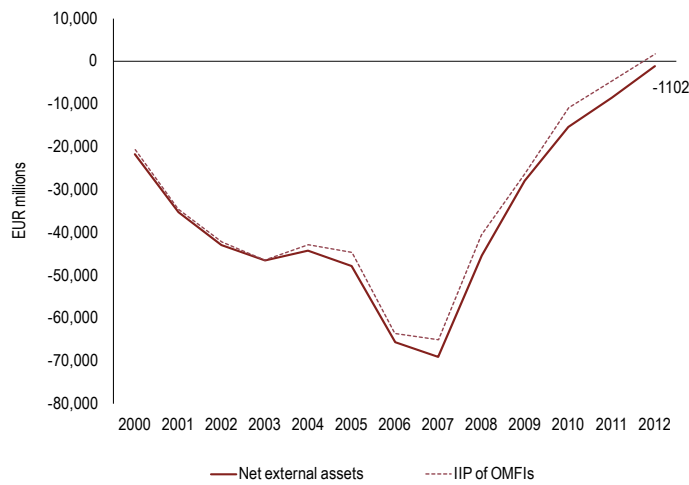


The comparison between statistics on transactions and statistics on changes in positions shows very substantial amounts in terms of other changes of volume and prices (OCVP) in balance sheet items under capital and reserves, mostly reflecting marked swings in the market value of securities in the corresponding portfolios. Results for this comparison as regards domestic credit items, deposits (excluding central government) and securities held by residents did not record other substantial changes in terms of volume and prices in the period under review.



**Chart 18**

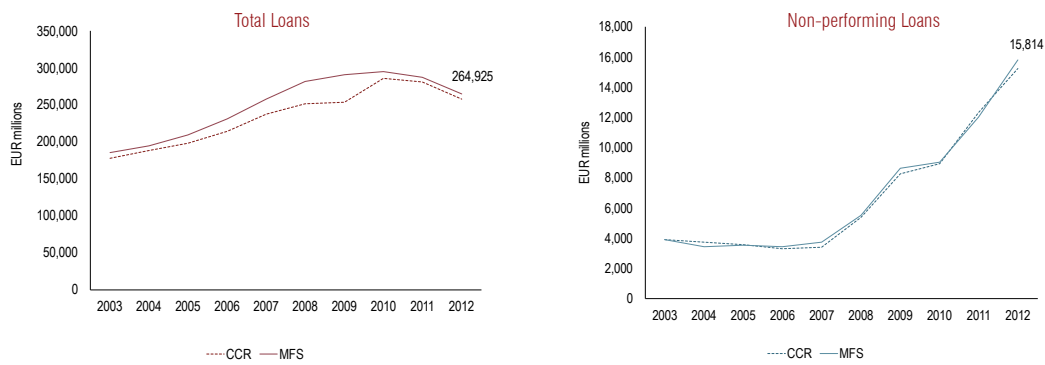
**NET EXTERNAL ASSETS VS. INTERNATIONAL INVESTMENT POSITION OF BANKS**



By cross-checking banks' balance sheet statistics and international investment position statistics, there is an adequate consistency between the series corresponding to net external assets, in balance sheet statistics, and the same series compiled in the scope of international investment position statistics, for the banking sub-sector.

**Chart 19**

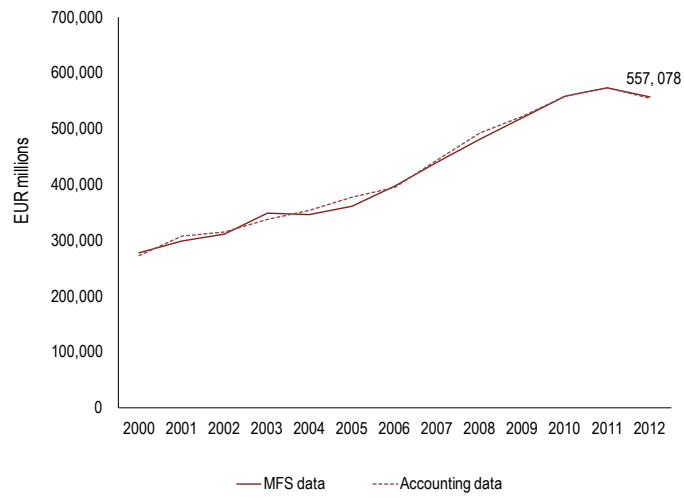
**LOANS GRANTED BY RESIDENT BANKS TO THE RESIDENT NON-MONETARY SECTOR | MFS vs. CCR**



The comparison between data reported by banks on loans (credits and credit-like instruments) and non-performing loans in the scope of banks' balance sheet statistics and the CCR's information makes it possible to gauge the consistency of statistical results for such operations in both systems.

Chart 20

TOTAL ASSETS OF THE BANKING SYSTEM | MFS data vs. accounting data



By cross-checking information reported in the scope of banks' balance sheet statistics with accounting data received by Banco de Portugal for supervisory procedures, it is possible to verify the consistency of results reported by the banking system to Banco de Portugal.

## 5 CONCLUDING REMARKS

The quality assessment on banks' balance sheet statistics in line with DQAF shows that the compilation system used by these statistics meets most statistical quality requirements established in the IMF's quality benchmark. By using quality indicators – namely as regards the validation and reliability of source data and the temporal, internal and external consistency of statistical results –, the set of specific aspects analysed adequately meets the compilation needs and commitments made by Banco de Portugal in this statistical field.

This general overview is reflected in the summary table of quality assessment, which summarises the conclusions for a number of quality aspects analysed:

**Table 3**

SUMMARY TABLE OF QUALITY ASSESSMENT				
	<i>Indicators</i>	<i>Objectives of indicators</i>	<i>Results of indicators</i>	<i>Conclusions</i>
Statistical analysis measures	Internal, temporal and external validation	To assess whether the main balance sheet statistical items reflect the economic reality and to assess possible discrepancies and outliers.	The analysis of the various indicators shows that the specified behavioural changes and any other changes in indicator developments are due to the identified phenomena and economic developments.	In general, the results for balance sheet statistics have remained consistent and stable over the years.
	Revisions	To measure the impact of revision and the degree of confidence in the first publications.	The analysis of the successive data releases (comparing the 1 <sup>st</sup> and latest publications) shows that revisions do not have a significant impact on the main aggregates of banks' balance sheet statistics, as illustrated by the results of the indicators presented here (MAPE, direction indicator and correlation between series), with the exception of residual items that are adjusted during the life of the series, with negligible values.	The figures presented in the 1 <sup>st</sup> publication are reliable.
Consistency	Internal	To monitor items that maintain the balance sheet's equilibrium.	Residual items of banks' balance sheets (other assets and liabilities) follow a declining trend. Other net assets (other assets – other liabilities) with a positive sign <i>i.e.</i> a largest residual component under banks' assets.	Internal consistency guaranteed.
		To guarantee consistency with other statistics in the scope of monetary and financial statistics.	The comparison of banks' balance sheet statistics with Banco de Portugal's balance sheet statistics, and statistics on transactions with statistics on changes in positions shows that, in general, the results are consistent.	
	Temporal	To ensure comparable series for adequate periods of time.	Consistent series over time with no series breaks.	Time consistency confirmed.
	External	To guarantee consistency with other statistics produced or information available in Banco de Portugal.	The analysis of the successive cross-checks between banks' balance sheet statistics and other statistical results (international investment position, CCR) and also accounting data shows that, for comparable phenomena, banks' balance sheet statistics confirm their consistency with other statistics.	External consistency guaranteed compared with other statistics produced by Banco de Portugal.

## ACRONYMS AND ABBREVIATIONS

- a.r.c.** – Annual Rate of Change
- BDIE** – *Base de Dados de Informação Estatística* (Statistical Information Database)
- BI** – Business Intelligence
- BIS** – Bank for International Settlements
- BOP** – Balance of Payments
- CCR** – Central Credit Register
- CMVM** – Comissão do Mercado de Valores Mobiliários Portugueses (Securities Market Commission)
- DQAF** – Data Quality Assessment Framework
- EC** – European Commission
- ECB** – European Central Bank
- ESA 95** – Manual on the European System of National and Regional Accounts for 1995
- ESCB** – European System of Central Banks
- Eurostat** – Statistical Office of the European Union
- FA** – Financial Auxiliaries
- GG** – General Government
- IIP** – International Investment Position
- IMF** – International Monetary Fund
- INE** – Instituto Nacional de Estatística (Statistics Portugal)
- MAPE** – Mean Absolute Percentage Error
- MFIs** – Monetary Financial Institutions
- MFSs** – Monetary And Financial Statistics
- NFCs** – Non-Financial Corporations
- NMFIs** – Non-Monetary Financial Institutions
- NSS** – National Statistical System
- OCVP** – Other Changes in Volume and Prices
- OECD** – Organisation for Economic Co-operation and Development
- OFIs** – Other Financial Intermediaries
- OMFIs** – Other Monetary Financial Institutions
- Q** – Direction Indicator
- QRR** – Quarterly Reporting Regime
- SB** – *Statistical Bulletin*
- SDDS** – Special Data Dissemination Standard
- SICAM** – *Sistema Integrado de Crédito Agrícola Mútuo* (Integrated Mutual Agricultural Credit Scheme)
- SIET** – *Sistema Integrado de Estatísticas de Títulos* (Integrated Securities Statistics System)
- TARGET** – Eurosystem’s Real-Time Gross Settlement System
- WB** – World Bank
- y-o-y.r.c.** – Year-On-Year Rate of Change

## GLOSSARY

**Correlation coefficient** makes it possible to measure the linear relationship between two quantitative variables; in the scope of revision indicators it makes it possible to compare the first and latest estimates.

$$R_{X,Y} = \frac{\sum X_i Y_i}{\sqrt{\sum X_i^2 \sum Y_i^2}}$$

$X_i$  : first estimate

$Y_i$  : latest estimate

**Mean absolute percentage error (MAPE)** produces a relative measure of revisions, comparing the first and latest estimates in percentage terms. Given that differences may be positive or negative and, therefore, offset each other, this indicator is shown in absolute terms. This indicator should be used in gross value series on the basis of 36 observations.

$$MAPE = \frac{1}{N} \sum_{t=1}^N \left| \frac{X_t - X_1}{X_1} \right|$$

$N$ : number of observations

$X_t$  : latest estimate

$X_1$ : first estimate

**Q – Direction indicator** measures the percentage of cases where the signals of the first differences between the two series coincide, i.e. where the first and latest estimates move in the same direction, and is calculated on the basis of the figures of the contingency table's main diagonal.

	$\Delta x_t > 0$	$\Delta x_t \leq 0$	Subtotal
$\Delta y > 0$	$N_{11}$	$N_{12}$	$N_{11} + N_{12}$
$\Delta y_t \leq 0$	$N_{21}$	$N_{22}$	$N_{21} + N_{22}$
Subtotal	$N_{11} + N_{21}$	$N_{12} + N_{22}$	$N$

$$Q = \frac{N_{11} + N_{22}}{N}$$

$N$  – number of observations

$N_{11}$  – number of times where, at the same time,

$$X_t > 0 \text{ and } X_1 > 0$$

$N_{22}$  – number of times where, at the same time,

$$X_t < 0 \text{ and } X_1 < 0$$

**Year-on-year rate of change (y-o-y.r.c.)** is the percentage change in the value of the variable analysed in the period under review (month, quarter or year) *vis-à-vis* the same period (month, quarter or year)



in the previous year. It aims at providing a measure of changes / variations from a given phenomenon without the impact of seasonal effects.

$$\left( \frac{X_i}{X_{i-p}} - 1 \right) * 100$$

x: original values

i: month, quarter or year analysed

p: data frequency

**Annual rate of change (a.r.c.)** calculated on the basis of the relationship between end-of-month balances and monthly transactions. Monthly transactions are calculated on the basis of differences between end-of-month balances adjusted for reclassifications, write-offs, exchange rate / price revaluations and any other change not due to financial transactions. This measure makes it possible to identify business cycles.

$$\left[ \prod_{i=0}^1 \left( 1 + \frac{F_{t-i}}{L_{t-1-i}} \right) - 1 \right] * 100$$

$L_t$ : balance at the end of month t

$F_t$ : monthly flows

## REFERENCES

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Banco de Portugal, Methodological document on MFI balance sheet statistics;

Banco de Portugal (2012), *Supplement to Statistical Bulletin 1/2012* on quality management of Banco de Portugal statistics;

Decision ECB/2010/10 of 19 August 2010 on non-compliance with statistical reporting requirements;

Instruction of Banco de Portugal No 12/2010 do Banco de Portugal and its annexes, published in *Official Bulletin No 5* of Banco de Portugal of 17 May 2010, with subsequent amendments, which governs statistical reporting to Banco de Portugal for the purpose of compiling MFI balance sheet and interest rate statistics;

International Monetary Fund (July 2003), *Data Quality Assessment Framework*;

Law No 5/98 of 31 January 1998, on the Organic Law of Banco de Portugal, with subsequent amendments;

Law No 22/2008 of 13 May 2008, Law on the national statistical system;

Guideline ECB/2007/9 of 1 August 2007, with subsequent amendments, which lays down the ECB's statistical reporting requirements, on monetary, financial institutions and markets statistics (recast);

Regulation (EC) No 25/2009 of the ECB of 19 December 2008, which regulates statistical reporting to the ECB by central banks, associated with their participation in the Eurosystem, concerning the balance sheet of the monetary financial institutions sector (recast);

Council Regulation (EC) No 2533/98 of 23 November 1998, as amended by Council Regulation (EC) No 951/2009 of 9 October 2009, concerning the collection of statistical information by the ECB;

European Statistical System and European Commission (September 2011), European Statistics Code of Practice;

European System of Central Banks (2012), *ESCB public commitment on European statistics*.

## SUPPLEMENTS TO THE STATISTICAL BULLETIN

- 1/98 *Statistical information on non-monetary financial institutions (Portuguese version only)*, December 1998
- 2/98 *Foreign direct investment in Portugal: stocks and flows statistics for 1996 and stocks estimates for 1997 (Portuguese version only)*, December 1998
- 1/99 *New presentation of balance of payments statistics (Portuguese version only)*, February / March 1999
- 2/99 *Statistical information on mutual funds*, December 1999
- 1/00 *Portuguese direct investment abroad (Portuguese version only)*, December 2000
- 1/01 *"Statistical balance sheet" and "accounting balance sheet" of other monetary financial institutions*, August 2001.
- 1/05 *A new source for monetary and financial statistics: the Central Credit Register*, April 2005
- 2/05 *National financial accounts for the Portuguese economy: methodological notes and statistical results for 2000-2004*, June 2005
- 3/05 *National financial accounts for the Portuguese economy. Statistics on financial assets and liabilities for 1999-2004*, November 2005
- 4/05 *Seasonal adjustment of balance of payments statistics*, November 2005
- 5/05 *Statistics on non-financial corporations from the Central Balance-Sheet Database*, December 2005
- 1/07 *Papers presented by Banco de Portugal representatives at the 56<sup>th</sup> session of the International Statistical Institute, held in Lisbon 22-29 August 2007*, August 2007
- 1/08 *Simplified reporting: inclusion of the Simplified Corporate Information on non-financial corporations from the Central Balance-Sheet Database*, May 2008
- 2/08 *Securities statistics: integrated system features and main results*, June 2008
- 1/09 *Papers presented by Banco de Portugal representatives at the 57<sup>th</sup> Session of the International Statistical Institute, held in Durban, South Africa, 16-22 August 2009*, August 2009
- 1/11 *Papers presented by the Statistics Department in national and international fora*, October 2011
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- 1/12 *Quality management in Banco de Portugal statistics (Portuguese version only)*, January 2012
- 2/12 *General government statistics*, October 2012
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- 1/13 *Quality management in balance sheet statistics of monetary financial institutions*, September 2013