

THE ADVANTAGES OF DATA-SHARING:
THE USE OF MIRROR DATA AND
ADMINISTRATIVE DATA TO IMPROVE
THE ESTIMATION OF HOUSEHOLD
EXTERNAL ASSETS/LIABILITIES

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ABSTRACT

Compiling the financial assets/liabilities of households in the balance of payments (b.o.p.) / international investment position (i.i.p.) is commonly considered as one of the most challenging issues faced by statisticians. This is in light of the multiple limitations of this institutional sector when a direct collection system is designed in terms of complexity, coverage or accuracy. Therefore, it is necessary to find other alternatives or complementary information to enhance the estimation of these data with the aim of making them as real as possible. This is when data-sharing among institutions and countries can play an important role.

This paper presents the Spanish experience working towards an improvement in the regular production of official external statistics regarding transactions and positions of households, not subject to the sources of information collected in first instance by the compiler but using all available sources of information and taking advantage of its complementarity. The paper will present the usefulness of mirror data sources and administrative data going through different financial instruments held/taken abroad by this sector: deposits, loans, life insurance technical reserves, securities and real estate.

Keywords: mirror data, household assets/liabilities, data sources, international banking, data-sharing, financial account, international investment position.

JEL classification: C820, C800, F42, F300, G500.

RESUMEN

La compilación de los activos y pasivos financieros de los hogares en la balanza de pagos (BP)/ posición de inversión internacional (PII) es considerada generalmente como un gran desafío que los compiladores de estadísticas tienen que abordar. Cuando se pretende diseñar un sistema de declaración directa para este sector institucional, se encuentran numerosas limitaciones en términos de complejidad, cobertura y precisión. Esto genera la necesidad de encontrar otras alternativas o fuentes de información complementarias que permitan mejorar las estimaciones, de forma que se asemejen lo máximo posible a la realidad. En este sentido, el intercambio de datos entre instituciones y países puede desempeñar un papel muy importante.

Esta nota presenta la experiencia española buscando una mejora en la producción regular de las estadísticas oficiales exteriores sobre transacciones y posiciones financieras de los hogares, basando la compilación no solo en los datos recogidos en primera instancia por los compiladores de la BP/PII, sino también en otras fuentes disponibles que aportan información complementaria. Se presenta la utilidad de las fuentes de datos espejo y de los datos administrativos, que contienen información sobre activos y pasivos exteriores de los hogares, materializados en diferentes instrumentos financieros: depósitos, préstamos, reservas técnicas de seguros de vida, valores y bienes inmuebles.

Palabras clave: datos espejo, activos/pasivos de los hogares, fuentes de información, banca internacional, intercambio de datos, cuenta financiera, posición de inversión internacional.

Códigos JEL: C820, C800, F42, F300, G500.

1 Introduction

One of the main data sources used by balance of payments (b.o.p.) and international investment position (i.i.p.) compilers is the direct reporting system. This is predominantly considered as a data source with a very high quality due to the report being specifically designed for statistical purposes and to the fact that the reporting is by the entity carrying out the transaction or holding the position, which means that it should have full knowledge of all relevant details. This data-collecting system is feasible, first, if the authority in charge of compiling external statistics is able to collect the data needs through a specific legislative regulation which obliges reporters to provide them; and further, if most of the entities involved in the cross-border transaction are able to provide timely and reliable information on the required data. Moreover, the balance of payments and international investment position compilation guide also recommends replacing an international transactions reporting system (ITRS) by a survey-based collection system since cross-border transactions have become increasingly complex.

Concerning the Spanish direct reporting system for the compilation of non-bank financial and non-financial sectors, the Banco de España, under a legislative regulation², issued in 2012 a Circular³ that establishes the requirements to report. Under this Circular, any private individuals and legal entities resident in Spain who have financial assets and liabilities held abroad must report the data to the national bank. The threshold above which they are obliged to report is set in this way: if transactions reach €1 million in the previous year or total assets and liabilities are above this amount.

Nevertheless, the data coverage of financial balance sheets of the household sector through this type of collecting system have shortcomings, as this sector is logically more affected by a reporting threshold and missing responses. Consequently, statisticians face the difficult challenge of compiling this sector through other complementary data sources instead of the unique use of the direct reporting method.

1 The views expressed in this article are those of the author and not necessarily those of Banco de España. This paper was presented at the conference on external statistics “[Bridging measurement challenges and analytical needs of external statistics: evolution or revolution?](#)”, organised by the Irving Fisher Committee on Central Bank Statistics, the European Central Bank and Banco de Portugal. In Lisbon (Portugal) on February 17th-18th 2020.

2 Real Decreto 1816/1991, de 20 de diciembre. Transacciones Económicas con el Exterior (BOE de 27).

3 Circular 4/2012, de 25 de abril, del Banco de España, sobre normas para la comunicación por los residentes en España de las transacciones económicas y los saldos de activos y pasivos financieros con el exterior.

Various lines of work that can be found in the literature have been developed by analysts, which try to estimate the importance of “missing wealth” in official statistics. Taking into account the main characteristics of official statistics (high quality assurance and high requirements on frequency and timeliness), these research-type studies present the problems derived from, first, the heroic assumptions that incorporate both in the estimation of the total “missing wealth” and in its allocation by all countries in the world and, second, the insuperable difficulties to produce them with the frequency and timeliness of official statistics.

The alternative is to work towards an improvement in the regular production of official statistics not subject to the sources of information collected in first instance by the compiler but using all available sources of information and taking advantage of its complementarity. This paper presents the Spanish experience working in this direction. It will highlight the usefulness of mirror data sources and administrative data and the importance of data-sharing among institutions to make this alternative possible. The final objective is to improve the estimation of external households’ assets and liabilities in the different financial instruments held abroad by this sector: deposits, loans, securities, life insurance technical reserves and real estate.

The document is organised as follows. Section 2 describes data sources and methods used for the compilation of the household sector in the Spanish external statistics. This section is broken down by financial instrument focusing on loans and deposits (2.1), insurance technical reserves (2.2), securities (2.3) and real estate (2.4). And finally section 3 draws some conclusions.

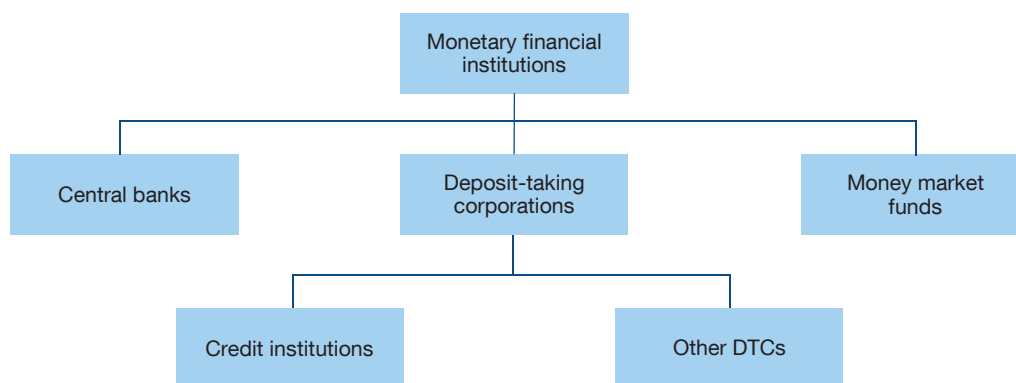
2 Sources and methods used for the compilation of cross-border assets and liabilities by Spanish households in b.o.p./ i.i.p.

2.1 Loans and deposits

The direct reporting system to the Banco de España provides data on cross-border flows and stocks for household sector, among others, and for all kinds of instruments, including loans and deposits. Nonetheless, it is logically subject to a threshold (€1 million), and owing to the nature of this sector, the system does not cover all operations. Therefore, it has been necessary to find other data sources which best address these coverage limitations. As a result, the estimation of the cross-border loans and deposits held by Spanish households is based on a combination of sources, the most significant being the two provided by the European Central Bank (ECB) and the Bank for International Settlements (BIS). Both sources are used as mirror data deriving assets deposits of households from the liability side of banks abroad, and liability loans of households from the asset side of banks abroad.

Figure 1

HIERARCHY OF CLASSIFICATION OF MFIs



SOURCE: Manual on MFI balance sheet statistics: Banco de España.

Balance Sheet Items Statistics (BSI)

Monetary Financial Institutions (MFIs) in the euro area are legally obliged to report data from their business and accounting systems to the national central bank of the Member State where they reside. These in turn report national aggregates to the ECB, which is in charge of preparing BSI statistics of the MFI sector in the euro area.⁴

For this purpose, the ECB defines MFIs as central banks and other MFIs, which comprise credit institutions, deposit-taking corporations other than credit institutions, and money market funds (see Figure 1).

Information is based on a census rather than a sample, although National Central Banks (NCBs) may grant derogations to small MFIs, provided that their combined contribution to the national MFI balance sheet in terms of stocks does not exceed 5%.

BSI data are broken down by type of instruments, country and sector counterparty, being in line with European System of Accounts (ESA) 2010 and the sixth edition of the Balance of Payments and International Investment Position Manual (BPM6). They are collected on a monthly and quarterly basis. Monthly data are reported to the ECB by close of business on the 15th working day following the end of the month to which the data relate, and quarterly data by close of business on the 28th working day following the end of the quarter to which the data relate.

⁴ The framework for the collection of BSI statistics is laid down in Regulation (EU) No 1071/2013 of the European Central Bank concerning the balance sheet of the monetary financial institutions sector (ECB/2013/33). Complemented by Guideline ECB/2014/15.

As a result, each Member State provides data to the ECB about deposits liabilities and loans assets of deposit-taking corporations held by the Spanish household sector.⁵

The fact that the ECB provides NCBs with full access to BSI statistics, enables this database to be treated as mirror data and deposits placed by the Spanish household sector on the asset side to be derived using the deposits reported on the liability side of banks in respective countries, and loans received by the Spanish household sector on the liability side to be likewise derived using the loans reported on the asset side of banks abroad.

Apart from euro area BSI data, a more limited dataset is available for non-euro area EU Member States.⁶ This information only allows counterparty positions with banks (or MFIs) and non-banks (or non-MFIs) to be distinguished. Hence, non-banks positions vis-à-vis Spain can be also used as mirror data, although it is necessary to estimate a subsector breakdown to allocate the amounts regarding the Spanish household sector.

The valuation of loans and deposits in BSI statistics is slightly different to ESA 2010 and BPM6 requirements. While in ESA 2010 (5.242) and BPM6 (3.88) loans and deposits refer to the nominal outstanding amount composed of the principal amount including any accrued interest, in BSI data loans and deposits are reported at the nominal outstanding amount, but the accrued interest has to be provided under a different item, named “accrued interest on loans” (a sub-item of the category “remaining assets”) in the case of loans, and “accrued interest on deposits” (a sub-item of “remaining liabilities”) in the case of deposits.⁷ However, these last items are specified at an aggregate level in terms of counterparty sector and total residency area, so the Spanish share is not directly available.⁸

The BIS locational banking statistics (LBS)

The BIS compiles the locational banking statistics (LBS), which provide information about the international business of banks broken down by instrument, sector and currency by each individual counterparty country (whom-to-whom basis). Banks submit data⁹ to an official authority in their country (usually the NCB), which is responsible for aggregating and submitting the data to the BIS.

5 For the purposes of reporting to the ECB, households are grouped together with non-profit institutions serving households (NPISHs).

6 Non-euro area EU countries have the obligation to design and implement at national level all the measures they consider appropriate to collect the statistical information needed to fulfil the ECB's statistical reporting requirements.

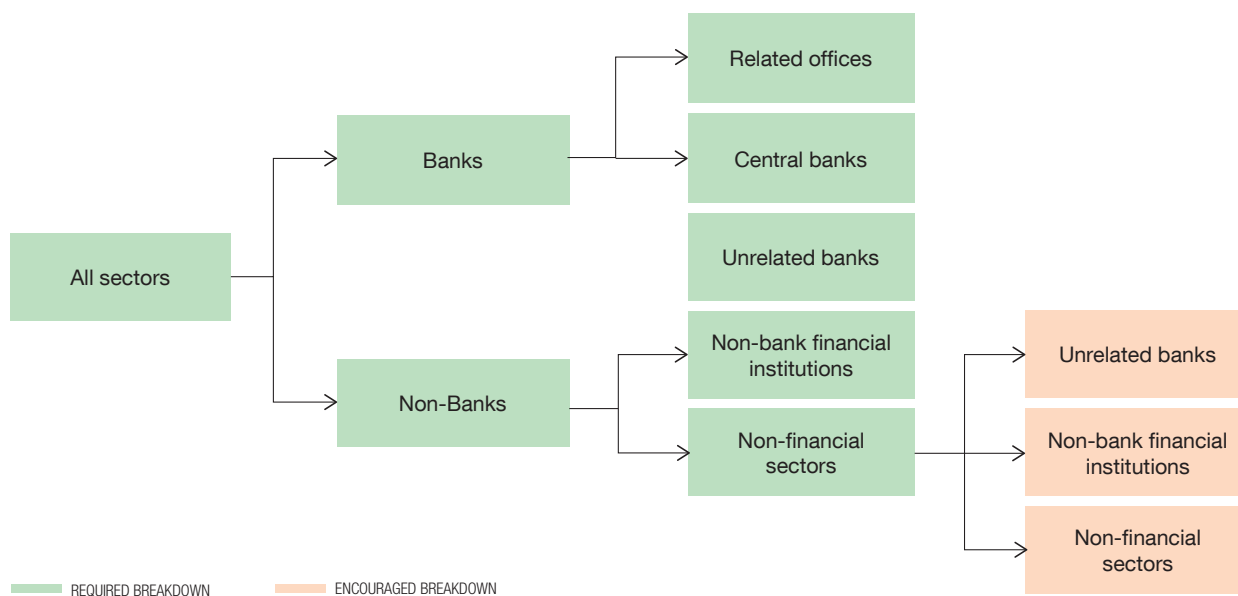
7 ECB/2013/33 (Annex I, Part 3, Table 2).

8 An estimation of the Spanish share is under way, although it is not a priority owing to the low impact on the total amounts.

9 The LBS data are compiled according to the residence of banks on an unconsolidated, standalone basis. This definition is aligned with b.o.p. and i.i.p. statistics.

Figure 2

SECTORAL BREAKDOWN IN THE LOCATIONAL BANKING STATISTICS (LBS)



SOURCE: Author's elaboration.

National reporting to BIS is voluntary and the number of LBS reporting countries has been increasing over the years, reaching 47 reporters as from 2016 (16 EU countries of which 13 are euro area members).¹⁰

LBS data refer to amounts outstanding on the last day of each quarter (giving also transactions and reclassifications) and cover information on cross-border assets and liabilities, categorised into four financial instruments: loans and deposits, debt securities, derivatives and other instruments. In terms of timeliness, data are published after 112 days.

Reporting authorities are required to allocate banks' financial assets and liabilities accounts by sector of their counterparty. The LBS definitions of counterparty sectors are consistent with the institutional sectors defined in BPM6. Historically, banks' positions had to be split into banks and non-banks counterparties. Then, the split of non-banks into non-bank financial and non-financials was required and first published in 2015 (Figure 2, green boxes). Apart from that, a separate reporting of positions with non-financial subsectors (government, non-financial corporations and households¹¹) is now encouraged but not required (Figure 2, orange boxes), and

10 The BIS, in consultation with the reporting countries, invites new authorities to participate in the LBS when the international business of banks in their country becomes substantial.

11 The household sector includes non-profit institutions serving households (NPISHs).

Table 1

SPANISH COUNTERPARTY SECTOR COVERAGE IN THE LBS STATISTICS**Share allocated by subsector, in per cent, at end-December 2018**

	Deposits (%)	Loans (%)
Historical bank/non-bank sectors	100	100
Of which: required non-bank sectors	98	99.7
Of which: encouraged non-financial sectors	90	99

SOURCE: BIS locational banking statistics (LBS).

thus not all reporting countries provide this complete subsector split. For each level of detail, there is also an “unallocated” sector for those countries that do not provide the disaggregated information.

The access to every detail provided by reporters is restricted for the internal use of reporting authorities and eligible receivers.¹² In the case of Spain, as one of the countries whose authority (Banco de España) reports the international business of national banks to the BIS, a fairly comprehensive dataset covering bilateral positions between countries is available. Hence, the Spanish households’ cross-border bank loans and deposits can be derived through a mirror data approach. The accuracy of the estimate will essentially rely on the availability of the subsector dataset provided by the countries.

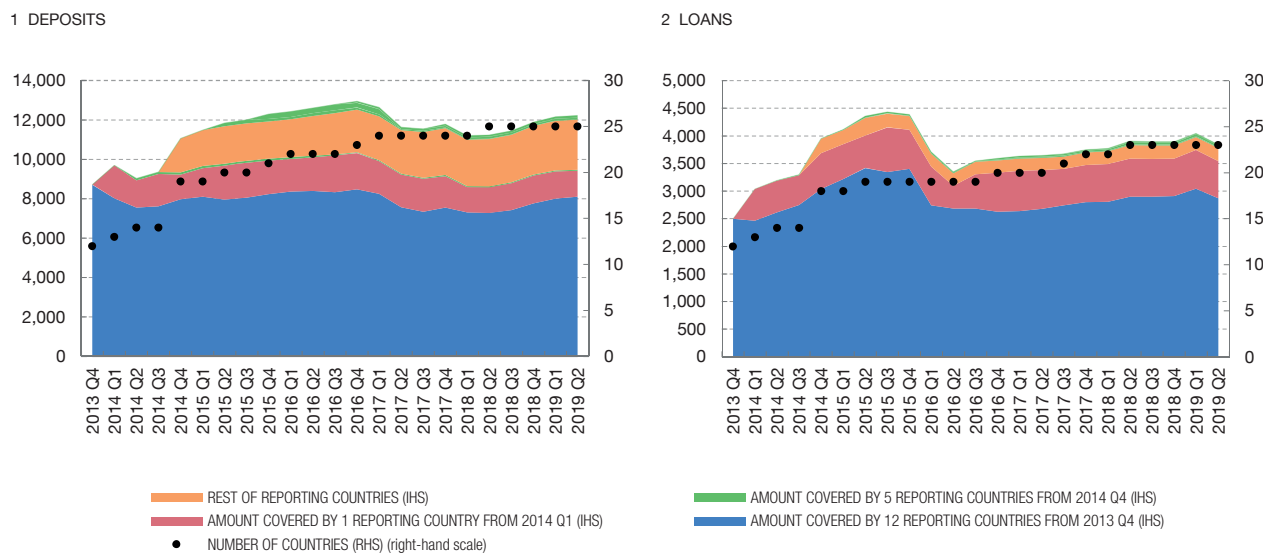
The valuation of loans and deposits in LBS statistics is in line with ESA 2010 and BPM6 requirements, valued at nominal value including accrued but not yet paid interest.

Regarding the Spanish counterparty sector coverage in the LBS statistics, Table 1 shows that 98% of total cross-border deposits liabilities and 99.7% of total cross-border loans assets are allocated to either the non-bank financial or non-financial sector. Furthermore, 90% (deposits) and 99% (loans) of the amounts allocated to the non-financial sector provide the household subsector split. This data is complemented by Table A and Table B (Annex), which provide deposits and loans amounts outstanding, respectively, at end-December 2018 for all reporting foreign banks with Spain as the counterpart country. These are all broken down, if available, by either required or encouraged sector of counterparty. As can be observed in Table A, the 90% of the deposits allocated to the non-financial sector are broken down by subsector and are reported by 24 countries over 32. Of the remaining 8 countries, which at end-December 2018 reported €2,652 million of unallocated amounts, the United States (US) and China (CN) hold the most significant share (covering the 90%

¹² Financial stability authorities from the same country as reporting authorities, and selected international and regional financial organisations.

Chart 1

REPORTING COUNTRIES PROVIDING A HOUSEHOLD SECTOR SPLIT. CROSS-BORDER ASSETS (LOANS) AND LIABILITIES (DEPOSITS) TO SPANISH HOUSEHOLDS, IN €M



SOURCE: BIS locational banking statistics (LBS); author's calculations.

of the total amount). Hence, a household subsector estimate for these two countries could be applied in order to increase the data coverage from 90% to 99%, ensuring, as loans (see Table B), the use of a complete and robust dataset for the compilation of Spanish household cross-border deposits and loans in external statistics.

Chart 1 tracks the reporting countries providing a household sector split of deposits (Chart 1.1) and loans (Chart 1.2) vis-à-vis Spain. The right-hand side (red points) shows the number of countries providing these data over the years; and the left hand side (coloured areas) shows the outstanding amount covered by the countries that start to provide this split as from the same point in time. As both charts show, the number of countries providing the encouraged non-financial sector data has varied over time. Data from 2013Q4 were first reported by 12 countries (in yellow), in 2014Q1 the number of countries increased by one (in grey), and so on until their number rose to 24 (deposits) and 23 (loans) countries, sending data from 2018Q2. Despite the number of reporting countries having doubled in 2018, the last ones have hardly impacted the level of deposits and loans and, thus, a time series could be directly available from 2014Q4 (when 19 (deposits) and 18 (loans) countries, covered an average of 98% of the 2018 total amount in both financial instruments).¹³

¹³ There is one country which is in the first group of reporting countries (Graph 1, in yellow) but it has only sent LBS data until 2016Q2. Stocks from that date have been projected forward taking into account changes in the exchange rate. Results are very close to BSI, in which the data of this country are provided.

Other data sources to supplement the estimation of Spanish households' deposits

Another complementary data source available for the compilation of Spanish household deposits is the administrative data provided by the Spanish Tax Agency.

In 2012, the Spanish Government approved, following a special tax regularisation, a law to combat tax evasion. They designed the 720 Form through which individuals that are tax-resident in Spain must provide the Spanish Tax Authority with: (i) their bank account balance in financial entities abroad; (ii) securities, insurance and taxes deposited, managed or obtained abroad; and (iii) real estate and any profit from real estate outside Spain.

This source of information provides stocks broken down by counterparty country and it is reported on an annual basis within the five months following the end of the year to which the data relate. The threshold value above which the declaration becomes mandatory is €50,000 held in any of the three groups of instruments mentioned in the previous parchart.

Nonetheless, this available dataset¹⁴ presents some shortcomings that have had to be addressed:

- Regarding bank accounts opened in foreign financial entities, the reporting agent is required to file the 720 Form only when (a) they open a bank account above €50,000; (b) the bank account increases by more than €20,000; or (c) the bank account is closed. The dataset provides a split by these three types of declarations and by counterparty country on an aggregate basis.¹⁵ As a result, it has been estimated the 2013-2018 annual stock by adding all the bank accounts reported the following years that were opened to the first available dataset in 2012, and subtracting bank accounts closed. It is, therefore, assumed that for those bank accounts opened in a specific year, the movements occurring in the future (except the closing of the account) are not included in the estimation.¹⁶ Consequently, the estimate by counterparty country could be considered as a minimum amount.
- The 720 Form is, for the moment, designed for informative purposes and not for tax purposes. As a result, it is known that there are Spanish households that have not yet reported these data to the tax authority.

14 Adapted to certain requirements requested by the Banco de España (disaggregation by instrument, counterparty country, individual or legal entity, among others).

15 No individual data are provided owing to confidentiality issues.

16 The available dataset provided by the tax authority only contains, apart from opened and closed bank accounts, the outstanding bank accounts for those which have increased by more than €20,000, so it is not feasible to ascertain the total amount with the rest of the bank accounts (those that have not exceeded the limit) included.

Once these administrative data were analysed from 2012 to 2018 on a geocharterial basis, it was noted that Spanish individuals had reported a significant amount of bank accounts in financial entities established in Andorra (€1.43 billion in 2018Q4¹⁷) which had not been provided as a counterpart by any of the data sources previously mentioned (BSI, LBS and direct reporting system). For this reason, and despite the assumptions that are necessary to make, the data provided in the 720 Form vis-à-vis this country have been included in the estimation of Spanish household cross-border deposits.

A closely related piece of information to the Spanish 720 Form is the common reporting standard (CRS) dataset. It was developed in response to the G20 request and approved in 2014 by the Organisation for Economic Cooperation and Development (OECD)¹⁸ owing to the fact that vast amounts of money are kept offshore and go untaxed, with taxpayers failing to comply with tax obligations in their home jurisdiction. Offshore tax evasion is a serious problem for jurisdictions all over the world (OECD, 2017)¹⁹. Hence, the aim is to help fight tax evasion and to protect the integrity of participating countries' tax systems. This is a new information-gathering and reporting requirement for financial institutions that relies on the financial account-related information of individuals and legal entities tax-resident in a country other than where the financial institution is established. The data are automatically exchanged with other jurisdictions (tax authorities) on an annual basis.²⁰ Currently, 97 countries have signed an agreement to implement it and the first reporting exercises have been conducted in 2017.

Financial institutions must provide the data broken down by 5 account number types:²¹ (i) IBAN (International Bank Account Number), (ii) OBAN (Other Bank Account Number), (iii) ISIN (International Securities Information Number), (iv) OSIN (Other Securities Information Number), and (v) Other (any other type of account number e.g. insurance contract). However, analysing for the first time the 2017 dataset related to Spanish households holding deposits abroad, some shortcomings have been identified as 54% of the total outstanding amount (60% of number of declarations) is not yet classified by any account/instrument type.

The Spanish Tax Authority is currently at a preliminary phase of data-checking and it is expected that the quality of the data will improve in the coming years. Nevertheless, they are performing a test exercise with the 720 Form, with the aim of identifying

17 Figure based on the estimation method explained above.

18 Its legal basis is the Convention on Mutual Administrative Assistance in Tax Matters.

19 OECD (2017), Standard for Automatic Exchange of Financial Account Information in Tax Matters, Second Edition, OECD Publishing, Paris.

20 The Spanish Tax Authority provides Banco de España with this dataset at the same time as the 720 Form, but referring to a previous year.

21 See OECD (2017), Standard for Automatic Exchange of Financial Account Information in Tax Matters, Second Edition, OECD Publishing, Paris. Annex 3. Common reporting standard user guide.

coverage gaps by agent and requiring a 720 Form declaration to be filed by them. As a result, thanks to this CRS dataset, the quality of the 720 data source will be sounder in the coming years and it will enable compilers to keep using it as a complementary data source in the compilation of Spanish households' cross-border deposits, improving the quality of b.o.p./i.i.p. statistics.

In the same context of CRS, there are FATCA (Foreign Account Tax Compliance Act) data. This legislation has been designed and introduced by the US Department of Treasury and the US Internal Revenue Service (IRS) to prevent tax evasion. Hence, the purpose of FATCA is also to encourage better tax compliance by preventing US persons from using foreign banks and other financial organisations in order to avoid US taxation on their income and assets.²² The data are, like CRS, automatically exchanged with tax authorities on an annual basis. However, so far these data cannot be used since the US financial institutions do not provide account balances. Nonetheless, they provide dividends and interest received, so an analysis could be done in the future comparing this data with the estimation included in the b.o.p.

Estimation method implemented in the Spanish b.o.p./i.i.p.

Spanish households' cross-border loans and deposits are compiled through a combination of BSI and LBS mirror data statistics and complemented by a direct reporting system and administrative data sources for those countries not included in the census of BSI or LBS. The compilation method is, thus, based on a defined priority criterion depending on country coverage along with the availability of a household subsector split, as follows:

- Euro area countries

The data provided by euro area countries in BSI and LBS are compared. As Chart 2 depicts, the household counterparty sector follows a very similar path in both datasets from 2014Q4 for both deposits and loans, with the amounts of BSI slightly above LBS figures.

The main reasons for these discrepancies are:

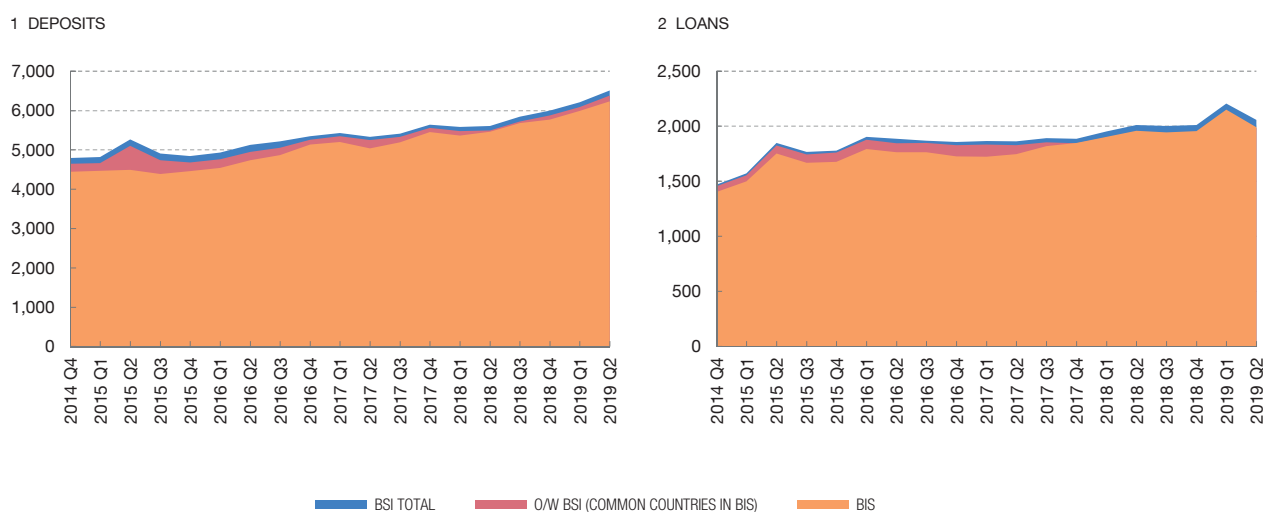
- a) Some countries do not provide the same amount in both datasets although the difference is not significant (Chart 2, area in blue).
- b) BSI census contains more countries than LBS from 2014Q4 (Chart 2, area in brown). These are Estonia, Finland, Greece, Lithuania, Latvia, Malta, Slovenia and Slovakia.

²² See the US treasury website (<https://www.treasury.gov/resource-center/tax-policy/treaties/pages/fatca.aspx>)

Chart 2

BSI-BIS COMPARISON OF EURO AREA REPORTING COUNTRIES

Amounts outstanding to Spanish households, in €m



SOURCES: BIS locational banking statistics (LBS) and ECB balance sheet items statistics (BSI) and author's calculations.

The fact that BSI data contain a complete coverage of euro area countries along with a household subsector split, due to mandatory requirements, in addition to being available earlier than BIS, determines the choice of using the BSI mirror data as the main source in the estimation of Spanish households' cross-border loans and deposits vis-à-vis euro area countries.

— Non-euro area countries

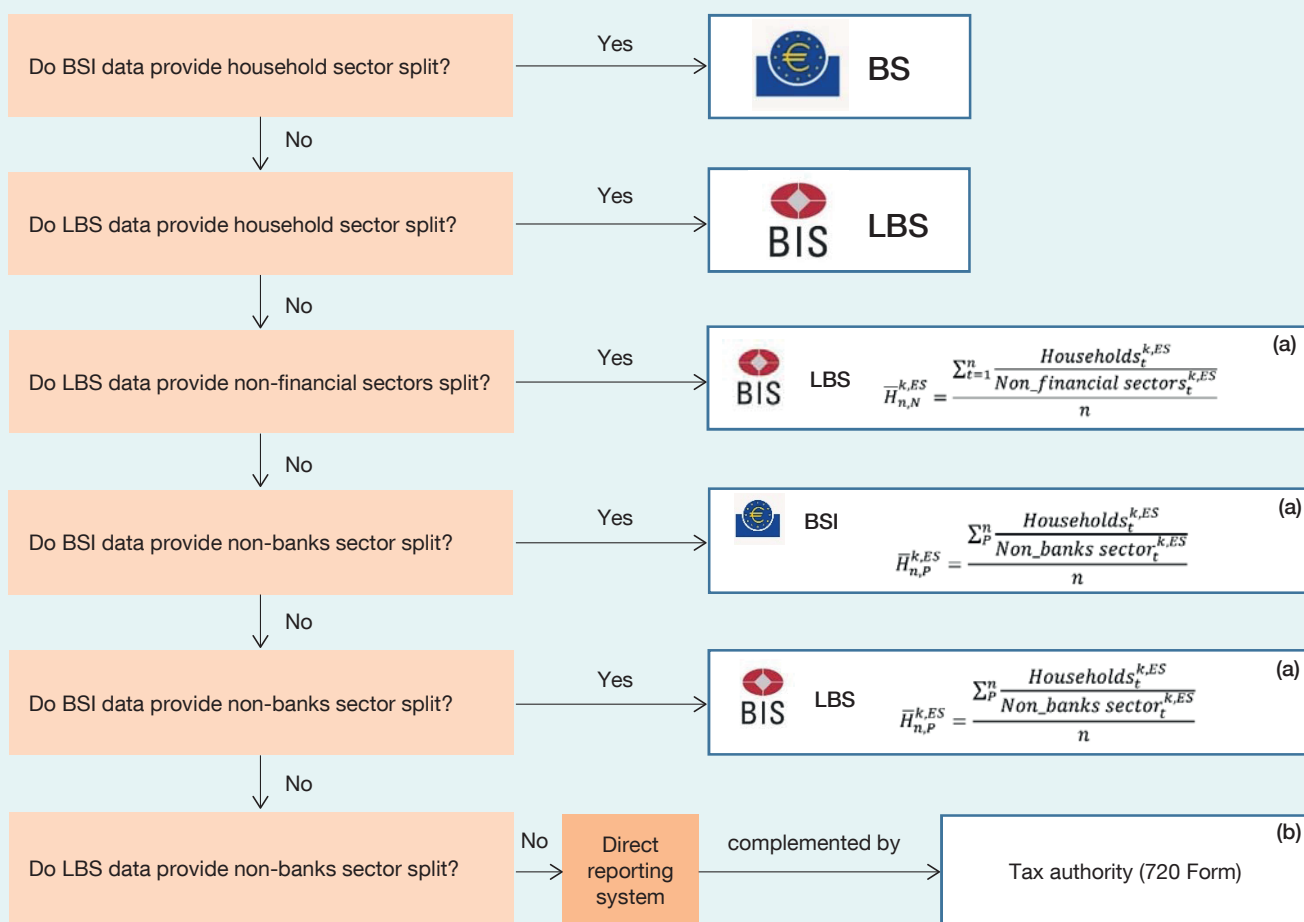
A distinction is made between different scenarios, summarized in the chart shown in Box 1.

The priority criterion is as follows:

- 1 A country provides LBS loans or deposits broken down by household subsector for any quarter. In this case, this source is chosen to compile the statistic. If this information is missing at some point in time (providing only aggregate figures of non-banks or non-financial sectors), bilateral positions can be estimated by applying to non-reported quarters the weighted average of households in non-financial sectors or non-banks (as available). E.g. Australia provides a household split from 2017Q4 and bilateral positions can be estimated backwards applying the weighted average of households from 2017Q4 to 2019Q2²³ of non-bank

23 The latest LBS period available.

SUMMARY OF PRIORITY CRITERION FOR THE COMPILATION OF SPANISH HOUSEHOLDS' CROSS-BORDER LOANS AND DEPOSITS IN THE B.O.P./I.I.P. FOR EACH COUNTERPARTY COUNTRY



SOURCE: Author's elaboration.

a t=1,2,3,...,n stands for quarterly periods (1 is the first reporting quarter and n the last one); ES stands for Spain; k stands for countries providing household sector vis-à-vis Spain; N stands for non-financial sectors; P stands for non-bank sector.
 b Only for deposits and significant countries.

sectors (as it provides only a bank/non-bank sectors split in the missing periods). The weighted average remains stable throughout all the available periods. Nevertheless, closer monitoring is necessary so that if the weighted average proves volatile, the estimation could be improved through a moving average.

- 2 A country has always provided LBS loans or deposits broken down by non-bank financial and non-financial sectors as the most detailed breakdown. The data are chosen and the estimation of the household subsector is based on the weighted average of households of other reporting countries in each quarter. E.g. the US solely provides a non-

bank financial/non-financial sector split, so bilateral household positions for the whole time series can be estimated applying the weighted average of this sector in all available countries.²⁴

- 3 A country provides LBS loans or deposits broken down by bank and non-bank sector as the most detailed breakdown:
 - a) If it is an EU (non-euro) area country, BSI data are prioritised as they cover the same detailed level and they are available earlier. The household subsector estimation method applied is the same as explained above in scenario 2. E.g. Bulgaria (only deposits), Czech Republic, Croatia, Hungary, Poland and Romania.
 - b) If an extra EU area country is involved, the data are chosen and the estimation method explained in scenario 2 is applied. E.g. Jersey, Panama, Bahrain, Chile or Mexico, among others.
- 4 A country does not provide either BSI or LBS data. Data from the Spanish direct reporting system are used as minimum amounts.
- 5 A country not covered by any of the three above-mentioned data sources. The 720 Form, only for deposits, is used in significant cases. E.g. Andorra.

As the periodicity and availability of LBS data differs to that required for the compilation of the b.o.p./ i.i.p., the way to address this limitation is as follows: for the monthly b.o.p., the transactions provided by the direct reporting system are used; and for the quarterly i.i.p., all the transactions and other flows reported by the direct reporting system are accumulated to the last available quarter. Once the latest update of LBS data is available, the data are replaced.

Results

Chart 3 shows how the unique use of the Spanish direct reporting system for the compilation of households' cross-border deposits and loans is not feasible since, owing to the nature of this sector, many individuals do not reach the reporting threshold and, thus, these operations are not covered.

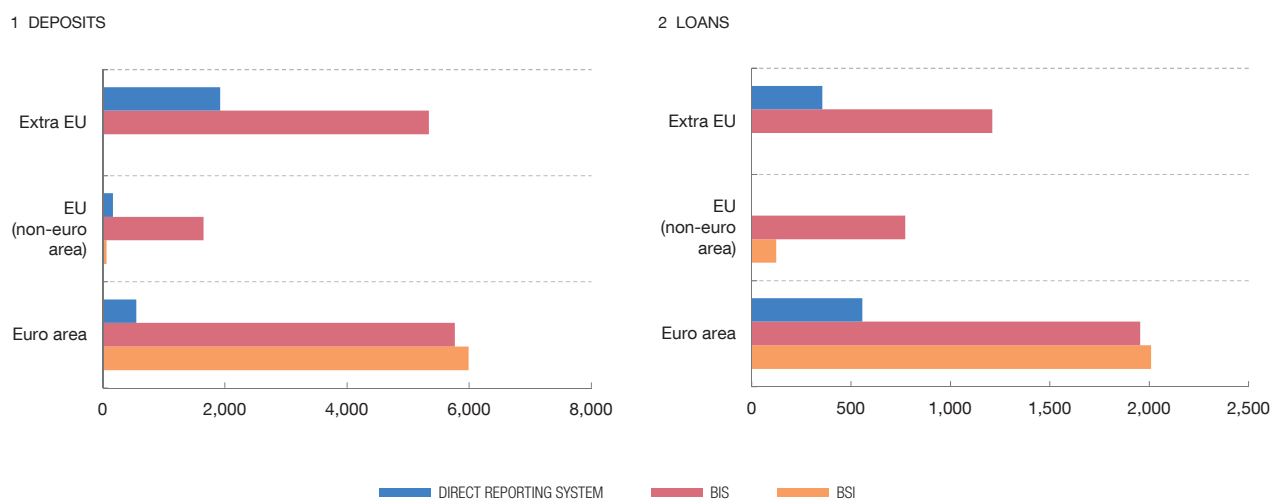
Therefore, the use of complementary data sources through the mirror data approach better reflects the financial situation of Spanish households holding deposits or

²⁴ The US estimation based on all available countries could be refined and a possible enhancement is under consideration (e.g. basing it on a close group of countries or the use of FATCA data if possible in the future).

Chart 3

DATA COVERAGE OF SPANISH HOUSEHOLDS' CROSS-BORDER DEPOSITS AND LOANS BY DATA SOURCE

Amounts outstanding, in €m, at end-December 2018



SOURCES: BIS, BSI and Spanish direct reporting system; author's calculations.

receiving loans abroad. Furthermore, administrative data, such as the 720 Form, help to complement and improve the estimation of deposits.

Chart 4 shows the final estimate of cross-border deposits and loans held by the Spanish household sector and included in the i.i.p. from two perspectives: data source composition (Charts 4.1 and 4.2) and geochartical area composition (Charts 4.3 and 4.4).

Regarding deposits, Chart 4.1 shows that, in the last five years, the BSI mirror data source covers an average of 36.5% relative to the average total amount. Regarding the LBS mirror data source, it covers an average of 54.4%. From the 720 Form provided by the Spanish Tax Authority, the amount included in the estimation covers an average share of 9%. And finally, the amounts included from the Spanish direct reporting system are not significant and hardly impact the total figures, accounting an average share of 0.1%.

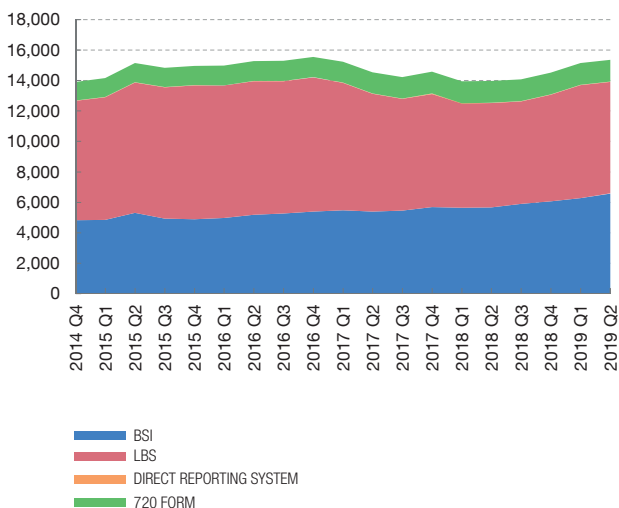
In terms of geochartical area composition, Chart 4.3 shows that, in the last five years, Spanish households have held deposits in euro area countries totalling an average of 36% relative to the average total amount. The most representative countries are France, Germany and Luxembourg, covering the 75% of the average euro area total amount. Regarding EU non-euro area countries, these account for an average of 13%. And finally the average outstanding amount in non-EU countries represents the 51% and the most representative countries are Switzerland, Andorra and United States, covering an average of 88% in terms of the average non-EU area total amount.

Chart 4

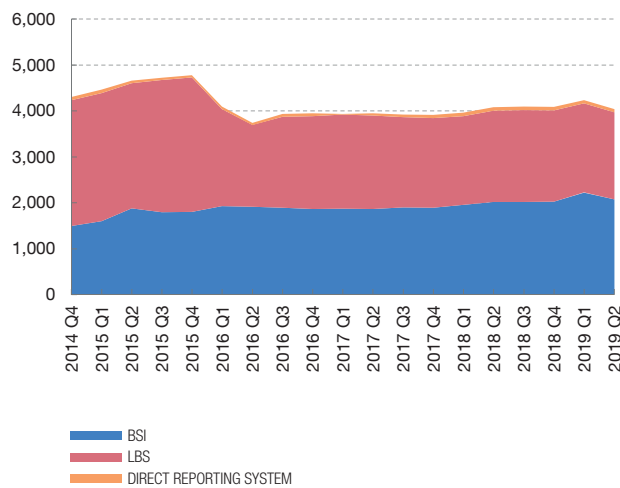
SPANISH HOUSEHOLDS' CROSS-BORDER DEPOSITS AND LOANS INCLUDED IN THE INTERNATIONAL INVESTMENT POSITION

Amounts outstanding, in €m

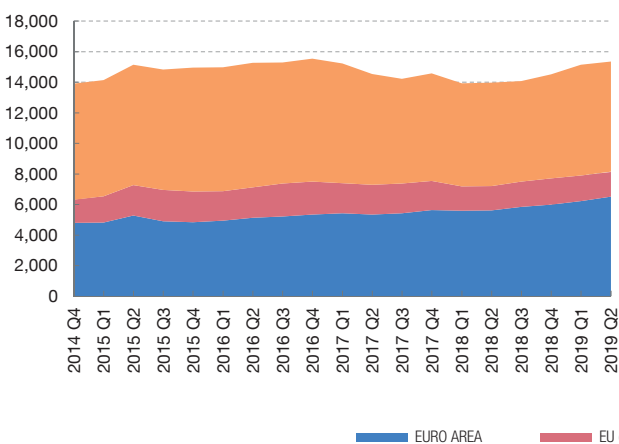
1 DEPOSITS, DATA SOURCE COMPOSITION



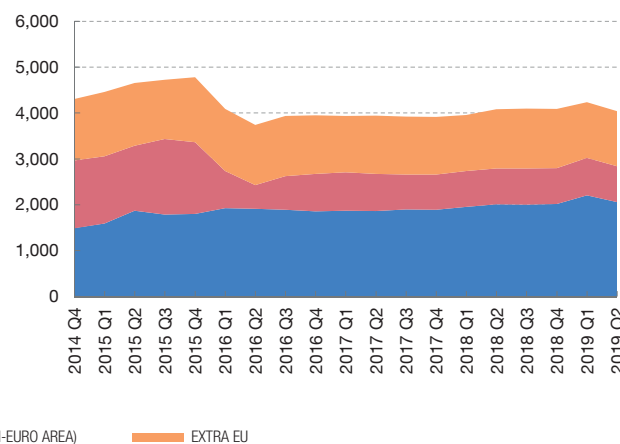
2 LOANS, DATA SOURCE COMPOSITION



3 DEPOSITS, GEOGRAPHICAL AREA COMPOSITION



4 LOANS, GEOGRAPHICAL AREA COMPOSITION



SOURCES: BIS, BSI, 720 Form and Spanish direct reporting system; author's calculations.

Regarding loans, Chart 4.2 shows that in the last five years, the BSI mirror data source covers an average share of 46% and LBS mirror data source covers an average share of 53%. Finally, from the Spanish direct reporting system, the amount included in the estimation covers an average share of 1%.

In terms of geographical area composition, Chart 4.4 shows that, in the last five years, Spanish households have received loans from euro area countries totalling an average share of 46%. The most representative countries are, as well as deposits,

France, Germany and Luxembourg, covering an average of 69%. Regarding EU non-euro area countries, these represent an average of 23%. And finally, the average outstanding amount in non-EU countries represents the 31% with Switzerland the most representative country.

2.2 Insurance technical reserves

In 2017 the Working Group in Financial Accounts (WG FA) and External Statistics (WG ES), of the European System of Central Banks (ESCB),²⁵ agreed to launch a stock-taking exercise to have a better understanding of national practices regarding the statistical recording of assets held abroad for the household sector.²⁶ 25 out of 28 countries participated in this exercise and they provided some details about data sources and compilation methods involving households. The results showed that less than half of the countries are still not compiling insurance, pension and standardised guarantee schemes for household sector in b.o.p./i.i.p. and national accounts statistics. This is because either the amounts are negligible or the data are not available (this may be related to the high cost of obtaining this information in relation to its relevance). In an attempt to resolve this data gap, the outcome of the exercise highlighted the use of existing newer data sources (e.g. Solvency II data) to obtain a better coverage of cross-border insurance schemes. Spain was one of the countries that had not been able to estimate this instrument in the Spanish household sector until the last benchmark revision²⁷ carried out in 2019.

The international transactions reporting system (ITRS) - the main data source used for the compilation of historical b.o.p./i.i.p. data until 2012 - and subsequently the Spanish direct reporting system for the compilation of b.o.p./i.i.p. of non-bank financial and non-financial sectors, did not provide any details about this financial instrument. However, investigating the availability of new data sources, it was found that cross-border insurance policies held by Spanish households were significant.

Since 2016, the ECB has provided to NCBs financial activity data from insurance corporations placed in euro area countries under Regulation (EU) No 1374/2014 of

25 Committees and Working Groups of the Eurosystem/the ESCB are responsible for drafting documents and conducting analysis on matters to be discussed by the decision-making bodies of the Eurosystem and the ESCB, covering different areas such as monetary policy, banking supervision and statistics, among others. The decisions taken at the Governing Council and the General Council meetings are based on the work of the Committees of the Eurosystem/the ESCB.

26 The results were assessed in a dedicated workshop named “Estimating households’ foreign assets/liabilities”, which resulted in a number of follow-up actions to enhance the regular production of b.o.p./i.i.p. statistics for the household sector.

27 Benchmark revisions are a coordinated major European revision carried out at least once every five years to incorporate new data sources and major changes in international statistical methodology. They ensure a maximum degree of consistency within national accounts: the longest possible time series as well as consistency across Member States and between domains.

the European Central Bank of 28 November 2014 on statistical reporting requirements for insurance corporations (ECB/2014/50).

The reporting population consist of insurance corporations resident in the territory of the relevant euro area Member State (“host approach”), in accordance with ESA 2010. Nevertheless, in order to limit the administrative burden and avoid the duplication of tasks, NCBs may derive the data required under this Regulation from data collected by national competent authorities (NCAs) for supervisory purposes (Solvency II).²⁸ This latter approach, while potentially not in line with ESA 2010 as the data are compiled following the “home approach”, is acceptable as long as the difference with the “host approach” data is not deemed significant (Guideline (EU) ECB, 2016).²⁹

Insurance corporations shall provide the relevant NCB, on a quarterly basis, with end-of-quarter stock data on assets and liabilities.³⁰ On the asset side, they provide non-life insurance technical reserves (ITRs)³¹, and on the liabilities side they provide ITRs broken down by life and non-life type. They provide the counterparty country of all these data except by line of business, which is provided on an annual basis (see Table 2).

This dataset is based on a census rather than a sample. Entities are required to report: (i) on a quarterly basis until at least 80% of the total market share of insurance corporations is covered in each euro area Member State; (ii) on an annual basis until reaching 95% share of the total market; and (iii) a reduced set of information to all the rest, normally small entities.

Regarding timeliness, reporting agents shall transmit to the relevant NCB or NCA the required quarterly data, at the latest, five weeks following the end of the quarter to which the data relate; and the annual data, at the latest, 14 weeks following the end of the year to which the data relate. This reporting arrangement has been in place since 2016.

Therefore, the fact that the ECB provides NCBs with full access to data reported by each Euro Area Member State enables compilers to derive Spanish policyholders’ ITRs assets vis-à-vis insurers in the Euro Area using the geochartic counterpart information of insurance corporations’ liabilities in ITRs. The Regulation does not require insurance corporations to provide the counterparty sector, nevertheless only light assumptions are needed to derive the data.

28 See Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II).

29 NCBs that wish to adjust their data may, on a voluntary and best efforts basis, derive host approach data from data collected in accordance with the home approach. For this purpose, bilateral contacts and exchanges of data may take place between the NCBs concerned (Guideline, 2016).

30 Also quarterly revaluation adjustments or financial transactions, where applicable.

31 It relates to financial claims of ICs against reinsurance corporations based on life and non-life reinsurance policies.

Table 2

STATISTICAL REPORTING ITRS REQUIREMENTS FOR INSURANCE CORPORATIONS**Insurance technical reserves**

	Total	Euro area		Rest of the world	
		Domestic	Euro area Member States other than domestic (country- by-country information)	Non-participating Member States (country-by-country information)	Main counterparties outside the EU (a)
Assets					
Non-life insurance technical reserves	SUM	Quarterly	Quarterly	Quarterly	Quarterly
Liabilities					
Insurance technical reserves	SUM				
Life ITRs	SUM	Quarterly	Quarterly	Quarterly	Quarterly
Of which:					
Unit-linked	Quarterly				
Non unit-linked	Quarterly				
Pension entitlements	Quarterly				
Defined contribution schemes	Quarterly				
Defined benefit schemes	Quarterly				
Hybrid schemes	Quarterly				
Non-life ITRs	SUM	Quarterly	Quarterly	Quarterly	Quarterly
By line of business	Quarterly	Annual	Annual	Annual	Annual

SOURCE: Regulation (EU) No 1374/2014 of ECB (Part 3, Table 1a-1b); author's elaboration.

a Country-by-country information for Brazil, Canada, China, Hong Kong, India, Japan, Russia, Switzerland, USA.

On the one hand, it is assumed that life ITRs should, by definition, be held by households. Hence, these data have been included in the household sector of the Spanish i.i.p./b.o.p, with Luxembourg³² the most significant country (more than 50% of the total amount), followed by Ireland, France, Portugal and Belgium.

On the other hand, non-life ITRs could be held by any sector and not only by households. However, analysing the figures by line of business³³ vis-à-vis Spain (see Chart 5), approximately 80% of the total amount comprises reinsurance³⁴, this being allocated on the basis of its nature (insurance for insurance companies) in the Spanish insurance sector. Therefore, these data are also covered in the dataset provided by the Spanish insurance corporations³⁵ to the Banco de España and they are already included in the b.o.p./i.i.p. The remaining non-life ITRs (Chart 5, in dark orange) have still not been taken into account because it would be necessary to estimate a sector breakdown in order to allocate a weight to the household sector.

³² Bilateral exchanges with Luxembourg confirmed the same figure.

³³ Available on an annual basis (see Table 2).

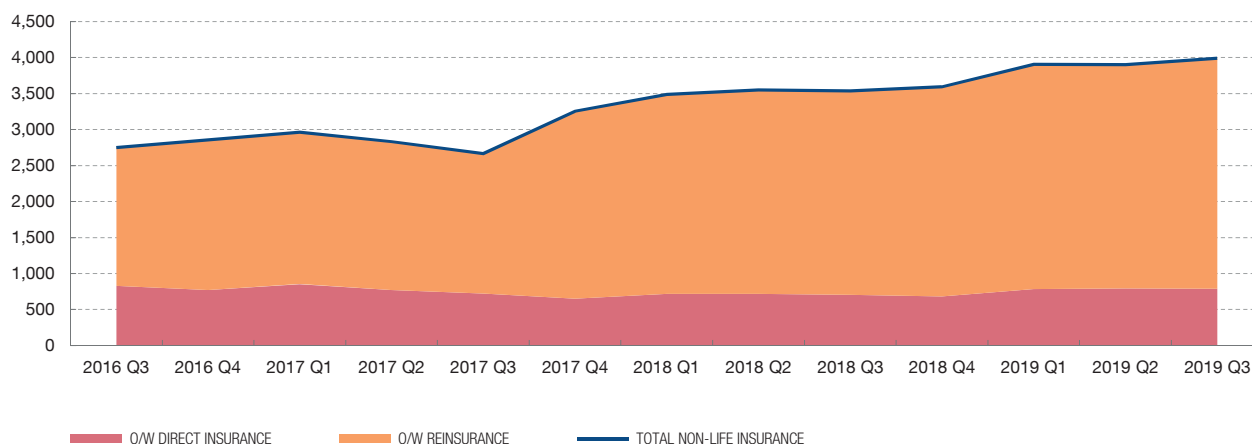
³⁴ An insurer may protect against an unexpectedly large number of claims, or exceptionally heavy claims, by taking out a reinsurance policy with a reinsurer (16.16, ESA 2010).

³⁵ A comparison exercise was performed to verify non-bilateral asymmetries.

Chart 5

NON-LIFE INSURANCE TECHNICAL RESERVES ON THE LIABILITIES SIDE OF EURO AREA INSURANCE CORPORATIONS VIS-À-VIS SPAIN

Amounts outstanding, in €m



SOURCES: ECB and author's calculations.

This is a possible enhancement that it has still not considered owing to the low weight of these data in relation to the total amount.

As the Regulation only covers euro area Member States, this data source has been complemented, as well as deposits, by the 720 Form provided by the Spanish Tax Authority. As explained in the deposits chapter, one of the three categories which individuals that are tax-resident in Spain must provide comprises securities, insurance and taxes deposited, managed or obtained abroad if, as a whole, they total more than €50,000. In subsequent years, the form must be re-submitted if they increase by more than €20,000.

Regarding insurance data, these contain life insurance policies as well as life or temporary annuities held in insurance corporations abroad. Taking this information on a geochartical basis, the 2012-2018 annual stock is estimated by the same method used in household cross-border deposits. As a result, it was noted that the non-euro area countries where Spanish households hold significant amounts of insurance policies are United Kingdom and Andorra. Consequently, the data referring to these two countries have been included in the cross-border insurance assets of the Spanish household sector.

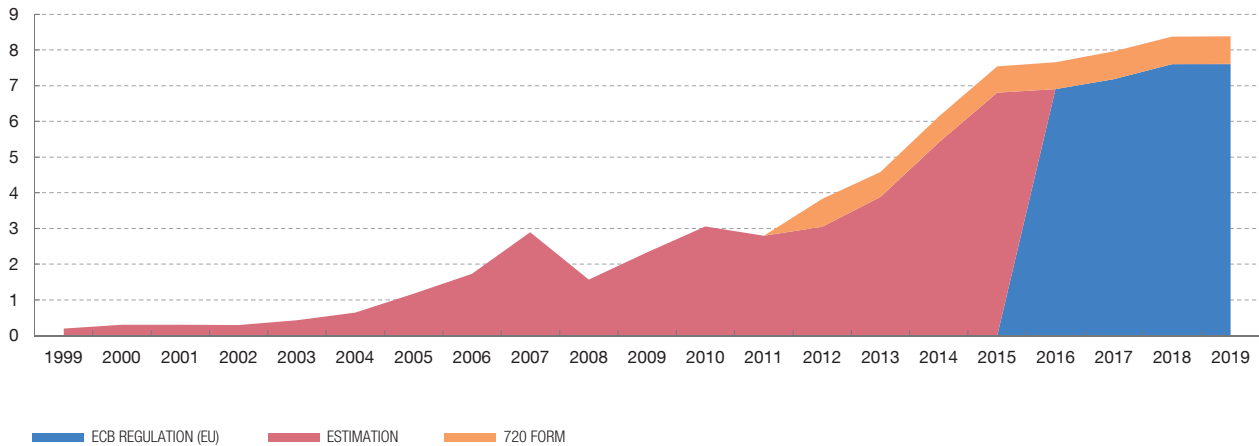
Results

As data provided by the ECB Regulation are available from 2016 and data provided by the 720 Form is available from 2012, it has been necessary to estimate a historical series of household cross-border ITRs assets to be included in external statistics.

Chart 6

SPANISH HOUSEHOLDS' CROSS-BORDER LIFE INSURANCE TECHNICAL RESERVES INCLUDED IN THE INTERNATIONAL INVESTMENT POSITION (I.I.P.)

Amounts outstanding, in €bn



SOURCES: ECB and 720 Form; author's calculations.

A relevant consideration when estimating the historical series was the information confirmed on the bilateral exchange with Luxembourg, which provided more details about the product composition of the life ITRs³⁶, these mainly comprising unit-linked products. This is a type of insurance product which, unlike a pure insurance policy, enables the holder to combine an investment portfolio in a range of qualified investments with the coverage of an insurance policy.

Hence, given the similar characteristics of unit-linked products and investment funds, the estimation of the historical series³⁷ is based on the evolution of Spanish households' shares in investment funds issued by the seven counterparty countries (LU, IE, BE, PT, FR, AD and GB) and contrasted with the evolution of ITRs held by Spanish insurance corporations and issued by non-residents, and the life-insurance premiums paid by Spanish households to these countries.

Chart 6 shows the final estimated series of the ITRs assets held by the Spanish household sector in the i.i.p. The Regulation dataset used as mirror data covers an average of 84% of the total amount, and it is complemented by the administrative data source provided by the Spanish Tax Authority (720 Form).

36 NCBs are required to provide life insurance technical reserves by line of business on an aggregate basis, as no counterparty country composition is required (See Table 2)

37 It was decided to estimate data backwards until 1999, the first year when stocks began to be significant.

2.3 Securities

Another relevant instrument in the households' balance sheet is the foreign securities holdings. B.o.p. compilers often rely, for the compilation of securities, on information provided by local custodians. However, they face difficulties in compiling securities holdings held abroad via non-resident custodians. To address this challenge, the ESCB provides a database that, used as mirror data, allows compilers to cover these missing data for euro area custodians.

In the case of Spain, however, both securities deposited in Spain and securities in custody abroad are covered by the direct reporting system. Nonetheless, the availability of an alternative data source provided by the ESCB allows to cross-check the data and find possible shortcomings that must be taken into account.

The Spanish compilation system

The securities compilation system for the compilation of Portfolio Investment, Reserve assets and Direct Investment (for quoted securities) dates from 2001.³⁸

The Spanish compilation system relies primarily on monthly direct reporting by Spanish holders and custodians. The reporting systems are based in a security-by-security and holder-by-holder declaration. This information is supplemented with the Centralised Securities Database (CSDB).

Table 3 shows an approximation to the securities compilation system. For some sectors (mainly the non-bank financial sectors under supervision with the exception of the money market funds), securities deposited in Spain are declared directly by both the holder and the custodian. Although the chosen data source in the compilation of b.o.p./i.i.p. is that provided by the holder, the two datasets are cross-checked to identify possible errors. For non-financial sectors, the securities held in Spain are provided by custodians. Regarding securities deposited abroad, there is direct reporting by the holder for all sectors.

Therefore, the compilation of households' securities in custody abroad relies on information provided by the holders to Banco de España through the direct reporting system.

From January 2013 onwards, Banco de España obliges all natural and legal persons resident in Spain (other than payment service providers registered in the official

³⁸ Data collection is covered by Law 19/2003 on transactions with the foreign sector and by Royal Decree 1360/2011 on reporting obligations to the Banco de España under Banco de España's Circulars 1/2012, 4/2012, 3/2013 and 4/2017.

Table 3

SPANISH SECURITIES COMPILATION SYSTEM

Sector of the holder	Non-resident Issuers		Resident Issuers	
	In a resident custodian	Abroad	In a resident custodian	Abroad
S.1 Resident Sectors				
S.121 Banco de España	Direct reporting		Direct reporting	
S.122 Deposit-taking corporations, except the Central Bank	Direct reporting		Direct reporting	
S.123 Money market funds (MMFs)	Direct/Custodian reporting	Direct reporting	Direct/Custodian reporting	Direct reporting
S.124 Non-MMF investment funds	Custodian reporting	Direct reporting	Direct/Custodian reporting	Direct reporting
S.128 Insurance corporations	Direct/Custodian reporting	Direct reporting	Direct/Custodian reporting	Direct reporting
Other Financial corporations	Custodian reporting	Direct reporting	Custodian reporting	Direct reporting
S.13 General Government	Custodian reporting	Direct reporting	Custodian reporting	Direct reporting
S.11 Non-financial corporations	Custodian reporting	Direct reporting	Custodian reporting	Direct reporting
S.14/S.15 Households and Non-profit institutions serving households	Custodian reporting	Direct reporting	Custodian reporting	Direct reporting
S.2 Non-resident holders	-	-	Custodian reporting	Mixed approach (a)

SOURCE: author's elaboration.

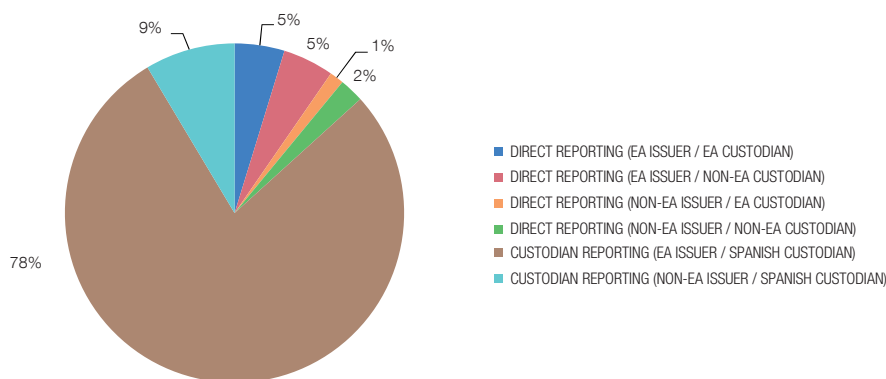
a Portfolio investment liabilities are calculated as the net balance of all cross-border custody holdings between issuers, central securities depository data (CSDs), custodians and resident end-investors.

registers of the Banco de España) to report their transactions and positions with non-residents, giving sufficient details about securities directly deposited in a non-resident custodian. The exemption threshold is the same as for loans and deposits of €1 million. Besides the threshold, which depends on the amount of the transactions and/or balances of the year immediately before, there are two declaration forms, one detailed and the other summary. Detailed declaration includes the ISIN code (from January 2014) and the country of the custodian (from January 2018). The summary reporting form (which is annual and provides solely total assets and liabilities) should be filed if the amount of neither the balances nor the transactions exceeds €50 million. The summary reporting form is distributed taking into account the detailed form. However, the distribution is made for instrument, country, currency and NACE activity, but not for country of the custodian (until 2018) and ISIN codes.

Figures under the simplification threshold are distributed by item using estimates, and the portion assigned to portfolio assets is logically unallocated by ISIN. The results obtained after the distribution of the summary reporting show that the weight of the securities deposited abroad represent the 46% of the total amount declared, followed by other equity, deposits and loans. And the weight of the distributed amount in securities abroad (including the summary and the detailed declaration) represents the 75%.

Chart 7

SPANISH HOUSEHOLDS' CROSS-BORDER SECURITIES INCLUDED IN THE INTERNATIONAL INVESTMENT POSITION (I.I.P.)
Amounts outstanding, in per cent, at end-December 2018



SOURCE: Spanish direct reporting system; author's calculations.

Chart 7 shows the current composition of Spanish households' cross-border securities broken down by issuer and custodian area. At end-December 2018, when the country of custodian is provided in the direct reporting system and thus, a distribution of the summary form is taken by this item, a further analysis can be made. As can be seen in the chart, 87% (78% EA issuer and 9% non-EA issuer) of the total amount is covered by the Spanish custodian reporting. The remaining amount (13%) is covered by the direct reporting form provided by the Spanish holder.

At the same time, since 2014 the ESCB has made available another data source that could be useful for the compilation of households' holdings of securities abroad. This is the Eurosystem's Securities Holdings DataBase (SHSDB). Therefore, this complementary data source could be useful for checking the current direct reporting used and, if applicable, it could be switched for the euro area countries.

The ESCB Securities Holdings Statistics

The SHSDB has been compiled by the ESCB since the beginning of 2014 and is based on a security-by-security system broken down by instrument type, issuer/holder country and further classifications.³⁹

The Regulation and the Guideline set the requirements that holders and custodians have to submit to the respective NCB: (i) holdings of securities by resident investors; (ii) securities held in custody on behalf of investors resident in other euro area

³⁹ The legal basis for collecting SHS data is laid down in Regulation ECB/2012/24 and subsequent amendments. This Regulation is complemented by Guideline ECB/2013/7 and subsequent amendments, which sets out the procedures to be followed by NCBs when reporting to the ECB.

Member States (the so-called third party holdings, TPH); and (iii) securities issued by euro area entities held in custody with resident custodians on behalf of non-euro area resident investors.

These data are consolidated by the ECB and disseminated to contributing NCBs via the Securities Holdings DataBase (SHSDB), so that they may be integrated into national statistics and compared, where appropriate, with a direct declaration.

Comparing TPH with the direct reporting system

Data on holdings by Spanish households deposited in custodians located in euro area countries (regardless of the country the issuer of the securities is located in) or deposited in non-EA custodians but issued by EA countries are provided by both the holder in the Spanish direct reporting system (Chart 7, blue colours) and also by the custodian in the TPH data of the SHSDB, e.g. Italian securities held by Spanish households in the custody of German or Italian intermediaries. Hence, whenever possible, both datasets could be compared at ISIN level and at the country of the custodian basis to check the data and to help determine which best covers these kinds of securities.

In the comparison exercise, TPH figures at end 2018 are around 20% higher than direct reporting, which firstly suggests that direct reporting might be incomplete. Nonetheless, analysing the data by country of the custodian (once the summary reporting form is distributed), there are differences between some countries such as Belgium, Luxembourg and Germany that they are currently being assessed.

There are some limitations that makes it difficult to conclude.

- *Risk of wrong sectorization*

As compilers of TPH, some cases have been identified in which the sector of the non-resident holder is not properly declared by custodians, confusing financial and non-financial sector. The main limitation is that a check is not possible.

- *Risk of duplication*

Cases in which the data could be duplicated because they are reported by the non-resident custodian data (TPH) and are also included by the Spanish security compilation system. This is the case of resident investment fund distributors which sell foreign investment funds in Spain.⁴⁰ On the one

⁴⁰ Circular 3/2013 on the reporting of transaction and balances in securities establishes that these kinds of entities, in addition to custodians, are also obliged to report these data.

hand, even though it was not really a custodian, this entity must provide the Spanish investor shares in the custodian dataset⁴¹ and, on the other hand, the foreign management entity or custodian reports the data to the corresponding authority. Hence, if the TPH data are intended to be directly used in the compilation of Households' securities in custodians abroad, it is necessary to take into account these cases in order to avoid duplications.

Cases where the custodian country by ISIN is not the same in both datasets, e.g. an ISIN issued in Japan whose custodian country is Japan in the direct reporting system and yet the TPH reports Germany as the custodian country. This case could generate duplicity if the TPH is used to cover the euro area and the direct reporting system to cover the non-euro area.

— *Lack of sufficient detail*

As 75% of Spanish households' holdings of securities abroad are unallocated by ISIN and the custodian country is estimated, this hampers checking the data with TPH at ISIN level.

In conclusion, it has been decided to use the direct reporting system for the compilation of households' securities abroad until the TPH figures are confirmed with additional information, contacting the reporting countries bilaterally.

2.4 Real estate

Within the accounting framework of the national accounts and the b.o.p./i.i.p., real estate assets are always considered to be the property of the economy in which they are located. Accordingly, the ownership of a real estate asset cannot directly give rise to an external asset or liability. If a resident household owns such an asset, it is assumed that, instead of owning the asset itself, the household owns a notional company, resident in the same country as the real estate asset, which in turn owns the asset. Therefore, foreign investment in real estate abroad is reflected in the b.o.p./i.i.p. as direct investment assets.

Until 2013, assets in real estate abroad included in direct investment figures were estimated by the method of accumulation of flows, using data from the settlement system (ITRS) and including an estimate of the distribution of the amounts under the simplification threshold. From the stocks at December 2012, the direct reporting system, described before in this paper, provides transactions and stocks abroad

⁴¹ In Spain, there should be an agreement between the Spanish entity distributor and the management entity in order not to duplicate reporting (see Law 35/2003 on Collective Investment Institutions). However, in this example each entity is located in a different country and this law does not apply.

covering, among others, this instrument. Nevertheless, for the periods for which there were figures available from the old (ITRS) and from the new (direct reporting) system, figures from the new one were significantly lower than those from the former.

Again, in this case, taking into account the uncertainty derived from the threshold and possible missing data, particularly applicable to this instrument/sector, it was not considered convenient to revise the figures down to those of the new system and, instead, stocks from the old system were projected forward. With the benchmark revision that was implemented in 2019, the stock of real estate properties situated abroad and owned by households resident in Spain has been revised upwards, taking as reference the declaration of assets abroad data supplied by the Spanish Tax Authority. The 720 Form, as introduced in page 8, is an administrative source of information that provides data about household real estate investment outside Spain, among others. This form gives information from 2012 about the acquisitions in real estate as well as their revaluations, broken down by counterpart country. Nevertheless, it is necessary to continue working in close coordination with this authority in order to improve the usefulness of the data for statistical purposes.

Besides, there is another source of information, also resulting from the sharing of data that has to be explored in the future: the exchange of bilateral real estate data within compilers in the euro area. Cases of relevant asymmetries can be investigated and sources and methods confronted looking for possible improvements.

3 Conclusions

The general need to enhance the current scope and quality of the data collected on the household sector can be fulfilled through data-sharing among institutions and countries. This also enables data asymmetries to be minimised and ensures consistency within and across statistical domains.

The Spanish experience in the compilation of the household sector in the b.o.p./ i.i.p. shows how using a mirror approach, allows compilers to increase the quality of selected instrument types such as loans, deposits and securities, and to collect missing information on others such as life insurance technical reserves. Besides, the experience also demonstrates how using the tax authorities' information, such as the 720 Form in Spain, is also useful for supplementing the estimation of several financial instruments.

So far, recent academic papers have proposed countries' estimates for households' "hidden wealth". The results clearly highlight the importance of "missing wealth" in international statistics owing to the deposits in offshore financial centres and securities held with custodians abroad. However, the uncertainties in the estimation methods and the strong assumptions warrant some caution when considering how

this research can be integrated into a statistical production framework of official statistics under macroeconomic imbalance procedure (MIP)⁴² and with the existing data requirements in terms of periodicity, time lags and breakdowns. Hence, the search for new available data sources, as they are assessed in the paper, allows working towards a more regular, realistic and assessed estimation of the household sector in external statistics, which is one of the issues addressed in the ESCB medium-term strategy and the respective work programme for b.o.p./i.i.p. statistics.

Naturally, the effectiveness of this methodological framework relies on the availability of granular information. A growing number of countries are reporting bilaterally using a further breakdown. But there are still countries, mainly non-EU economies, which solely provide data on an aggregate basis. Nonetheless, the estimation method applied appears to be consistent within a statistically reasonable level of error with no major negative impact on total aggregates.

Going forward, it will be necessary to continue working on data-sharing initiatives, exchanging bilateral data and seeking access to the data that national tax authorities receive.

42 The Macroeconomic Imbalance Procedure aims to identify, prevent and address the emergence of potentially harmful macroeconomic imbalances that could adversely affect economic stability in a particular Member State, the euro area, or the EU as a whole.

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ANNEX

Annex 1

LBS STATISTICS BY SPANISH SECTOR OF COUNTERPARTY (DEPOSITS ON THE LIABILITY SIDE)

Amounts outstanding at end-December 2018, in €m

	Deposits			
	All reporting countries	Of which:		
		All encouraged non-financial sectors	Required non-bank sectors	Historical bank/non-bank sectors
Non-banks, total	33,013	29,045	3,442	526
Non-banks financial institutions	7,111	6,322	789	-
Non-financial sectors	25,375	22,723	2,652	-
General Government	306	306	-	-
Non-financial corporations	7,069	7,069	-	-
General Government and Non-financial corporations, unallocated (a)	4,726	4,726	-	-
Households including NPISHs	10,622	10,622	-	-
Non-financial sectors, unallocated	2,652	-	2,652	-
Non-banks, unallocated by sector	527	-	-	-
<i>Number of reporting countries</i>	38	24	8	6

SOURCES: BIS locational banking statistics (LBS); author's calculations.

a There are two countries which report only the household subsector. This item refers to the other two not provided unallocated subsectors.

Annex 2

LBS statistics by Spanish sector of counterparty (loans on the asset side)

Amounts outstanding at end-December 2018, in €m

	Loans			
	All reporting countries	Of which:		
		All encouraged non-financial sectors	Required non-bank sectors	Historical bank/non-bank sectors
Non-banks, total	57,106	56,070	857	179
Non-bank financial institutions	10,362	9,985	376	-
Non-financial sectors	46,565	46,085	480	-
General Government	2,574	2,574	-	-
Non-financial corporations	40,037	40,037	-	-
Households including NPISHs	3,474	3,474	-	-
Non-financial sectors, unallocated	480	-	480	-
Non-banks, unallocated by sector	179	-	-	-
<i>Number of reporting countries</i>	34	23	7	4

SOURCES: BIS locational banking statistics (LBS); author's calculations.

- 1 DEPARTAMENTO DE ESTADÍSTICA Y CENTRAL DE BALANCES: Registro de los Servicios de Intermediación Financiera en Contabilidad Nacional a partir de 2005. (Publicada una edición en inglés con el mismo número.)
- 2 DEPARTAMENTO DE ESTADÍSTICA Y CENTRAL DE BALANCES: Valoración de las acciones y otras participaciones en las *Cuentas Financieras de la Economía Española*. (Publicada una edición en inglés con el mismo número.)
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- 4 LUIS GORDO MORA Y JOÃO NOGUEIRA MARTINS: How reliable are the statistics for the stability and growth pact?
- 5 DEPARTAMENTO DE ESTADÍSTICA: Nota metodológica de las *Cuentas Financieras de la Economía Española*.
- 6 DEPARTAMENTO DE ESTADÍSTICA: Nota metodológica de las *Cuentas Financieras de la Economía Española*. SEC-2010.
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- 12 DEPARTAMENTO DE ESTADÍSTICA: Revisión extraordinaria de las Cuentas Financieras de la Economía Española (2019).
- 13 DANIEL SÁNCHEZ MENESES: The advantages of data-sharing: the use of mirror data and administrative data to improve the estimation of household external assets/liabilities (2020).

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