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## How to identify “hidden securities assets” in the Balance of Payments: methods of Bank of France<sup>1</sup>

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<sup>1</sup> This paper was prepared for the meeting. The views expressed are those of the authors and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.

# How to identify “hidden securities assets” in the Balance of Payments: Methods of Banque de France

Emmanuel Gervais, Pierre Bui Quang

## Abstract

In International Investment Position (IIP) statistics, there is a significant discrepancy between the asset and the liability sides of portfolio investments. This reflects the difficulties faced by Balance of Payments (BOP) national compilers to cover investments of non-financial corporations and households located in other countries (“third party holdings”).

Building on this, the economic literature has used the existing gap between assets and liabilities to measure “hidden” investments. The insight of this stream of research has provided various estimates for the “hidden” wealth of the wealthiest households.

While these results clearly point out the importance of these amounts, the differences between estimation methods also justify some caution when considering how this research can be used for statistical purposes.

Given these considerations, this paper will (i) discuss the gap between assets and liabilities in IIP statistics and how it has been used by the economic literature to identify “hidden” wealth, (ii) assess the relevance of these estimations from a statistical point of view, (iii) present the French methodology for estimating investments in securities not covered by national reportings, and (iv) stress the need for an internationally coordinated effort to improve the coverage of third party holdings.

# Contents

- How to identify "hidden securities assets" in the Balance of Payments: Methods of Banque de France..... 1
- 1. The gap between assets and liabilities in international portfolio statistics and national BOP data points to "hidden assets" abroad..... 3
  - 1. "Hidden assets" can explain the inconsistencies in international investment positions (IIP) statistics..... 3
  - 2. "Hidden assets" may also contribute to the French BOP "errors and omissions" ..... 5
- 2. Are academic estimations of households' hidden wealth relevant for statistical purposes? ..... 7
  - 1. The academic literature provides rather large estimates of unrecorded holdings attributed to French households ..... 8
  - 2. Under-coverage of securities holdings is not limited to households' investments ..... 9
- 3. The methodology of the Banque de France for estimating securities located abroad..... 11
  - 1. Holdings by non-financial corporations ..... 11
  - 2. Holdings by households ..... 13
- 4. Sharing data on third party holdings would be the best way forward to measure households' hidden wealth ..... 14

## 1. The gap between assets and liabilities in international portfolio statistics and national BOP data points to “hidden assets” abroad

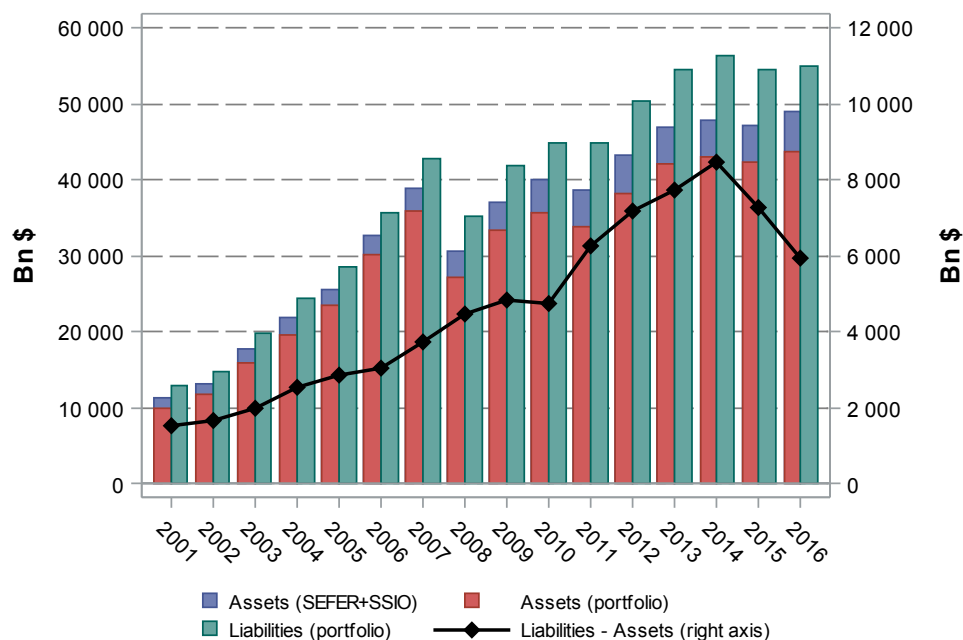
### 1. “Hidden assets” can explain the inconsistencies in international investment positions (IIP) statistics

Consistency in international statistics requires that global assets equal global liabilities. In securities statistics, this condition is not met. There is a persistent discrepancy between, on the one hand securities held in portfolio and reserve assets, and, on the other hand portfolio liabilities (the former being lower than the latter).

IMF data allows a clear illustration of this point. Aggregated portfolio assets in IIP, augmented with the amount of securities held as reserve assets or held by international organizations (SEFER and SSIO<sup>1</sup>, collected by the IMF), miss total liabilities in IIP by around 6 Tn \$ in 2016 (see Figure 1). This difference has significantly declined recently - it was close to 8.5 Tn \$ in 2014 – indicating a reversal in the previous trend (a steady increase observed since 2001). This recent evolution may notably be attributed to a better coverage in the collection of securities held as reserve assets. Indeed, their amount has grown by 12 % over 2014-2016, while assets held as portfolio investments have grown by only 2 %, and “other reserve assets” (the reserve assets category that includes securities) have declined by 8 %.

<sup>1</sup> SEFER : Securities Held as Foreign Exchange Reserves ; SSIO : Securities Held by International Organizations

Figure 1: Global discrepancy between assets and liabilities in international securities statistics



Sources: IIP, SEFER and SSIO (IMF), authors' calculations

Hence, some of the gap between global assets and liabilities in security statistics may be accounted for by the partial coverage of the SEFER as not all countries participate in the survey. Nonetheless, academic papers that have used estimated amounts of portfolio investments and reserve assets to fill missing data reach the same conclusion. Zucman (2013), using data from Lane and Milesi-Ferretti (2007) and adding other estimated amounts of securities held as reserve assets, estimates the discrepancy to be 4.5 Tn \$ in 2008.

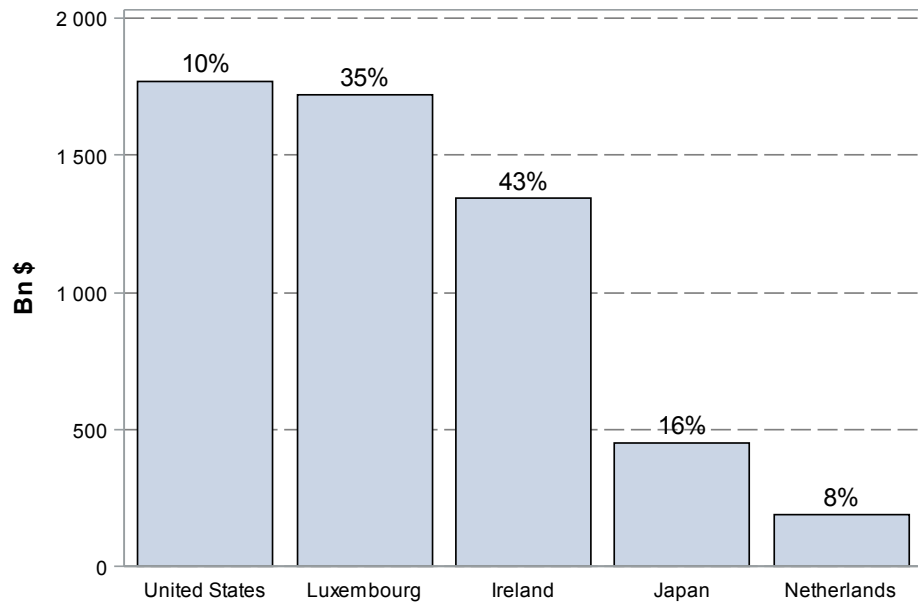
Another explanation for this discrepancy lies in the difficulties faced by Balance of Payments compilers to collect data on resident portfolios held in other jurisdictions ("third party holdings"). Indeed, the compilation of portfolio investments positions often relies on information collected from local custodians. Investments in custody abroad may thus be missed by the national compiler, leading to an understatement of assets that would not affect liabilities symmetrically.

Building on this explanation, Zucman (2013) has identified inconsistencies in international investment statistics with households' "hidden wealth", assuming that financial assets are well collected by statisticians except for the part that is owned by households in offshore centers. He has also noticed that the pattern of international investments is consistent with this identification, as most of the assets-liabilities gap is concentrated in financial centers, such as Luxembourg and Ireland, which are more likely to receive investments in custody in offshore securities accounts.

The Figure 2 plots the top 5 countries in differences between liabilities as reported by national compilers and liabilities derived from asset data in the CPIS and SEFER databases in 2016. In value, the largest difference is observed in the US (around 1770 Bn \$), but it represents only 10 % of nationally-compiled liabilities in

its IIP. Luxembourg and Ireland exhibit differences between nationally-compiled and derived liabilities close to the US level (1720 Bn \$ and 1341 Bn \$, respectively), however much larger in relation to the size of their liabilities (they represent 35 % and 43 % respectively, of nationally-compiled liabilities).

Figure 2: Differences between nationally-compiled liabilities and liabilities derived from counterparts assets

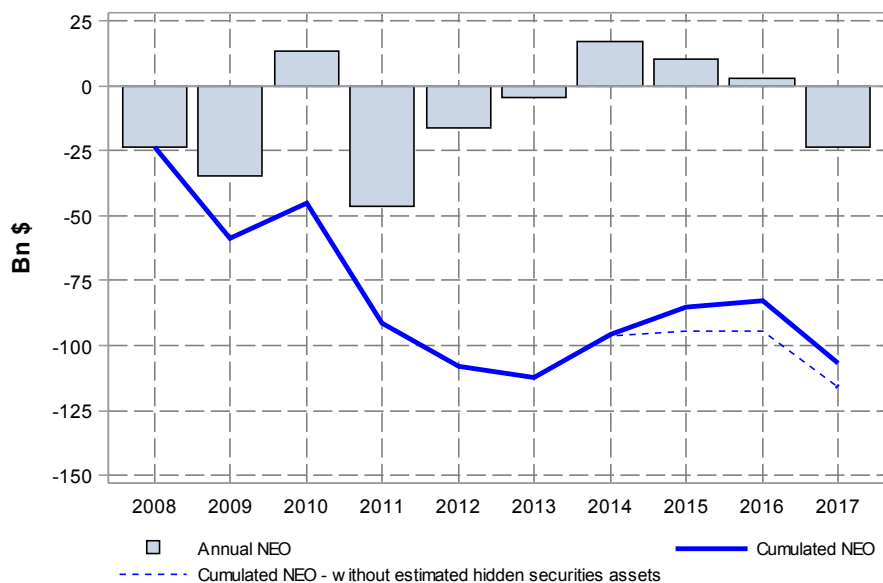


Sources: IIP and CPIS (IMF), authors' calculations

## 2. "Hidden assets" may also contribute to the French BOP "errors and omissions"

To the extent that their cash counterpart are yet recorded into the financial account of the balance of payments, "hidden investments" may also explain the persisting negative "errors and omissions (NEO)" in the French Balance of Payments. Since 2008, these errors have cumulated to around -100 Bn \$. And portfolio investments, at least arithmetically, are the main BOP counterparts to those cumulated errors and omissions.

Figure 3: Net errors and omissions in the French Balance of Payments



Source: Banque de France

Table 1: Counterparts to the French cumulated net errors and omissions

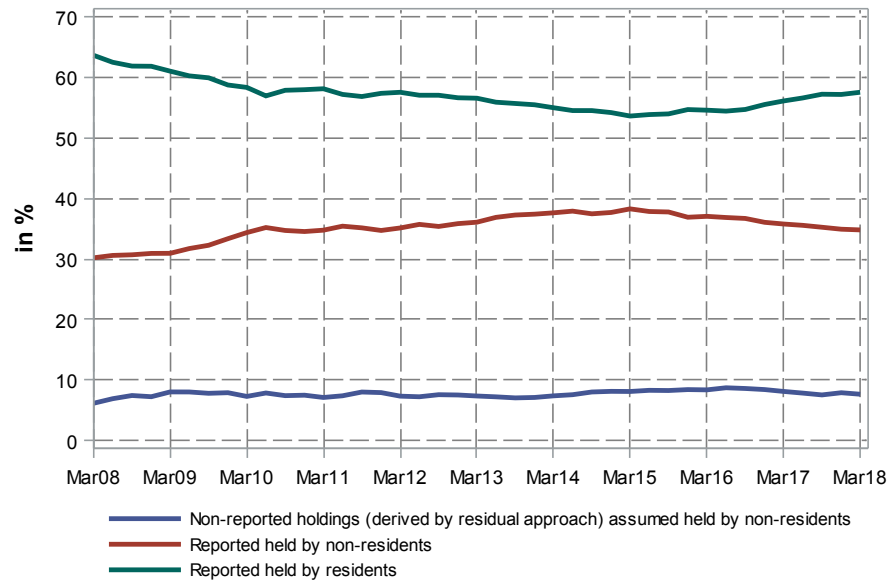
In this table, the balances and net values of each component of the French Balance of Payments are cumulated from 2008 to 2017, with (1)=(2)+(3)+(4)+(5)+(6)+(7)+(8)

Errors and Omissions (1)	Transaction Account (2)	Capital Account (3)	Direct Investment (4)	Portfolio Investment (5)	Derivatives (6)	Other investment (7)	Reserve Assets (8)
-107	173	2	258	-787	-72	309	8

Unrecorded investments by residents holding assets located abroad generate negative errors and omissions in two ways.

First, if invested instruments are debt securities issued by French residents, unrecorded residents' investments would wrongly be identified as inflows from foreign investors. In other words, inflows on the liability side would be overestimated. Indeed, following a common practice in BOP statistics, the residual between the total issued by French residents and the holdings reported by custodians or financial corporations is ascribed to non-residents in the French BOP. However, we deem this error insufficient to account for the negative trends in errors and omissions. First, anecdotal evidence supports the idea that the bulk of resident investments in French securities are entrusted to custodians in France or in the euro zone. Moreover, the share of computed liabilities in the total market value of French securities is quite stable since 2008: it is thus very unlikely that the bias induced by the use of the residual approach would explain the drift in errors and omissions.

Figure 3: Holdings of French securities by source (reported vs derived) and residence of the holder (in % of the total issued - market value)



Sources: Banque de France

Second, and more directly, unrecorded residents' investments with non-resident counterparts entails an underestimation of assets, and thus of outflows. However, this underestimation is mitigated by the fact that, according to ECB Regulation, financial corporations such as credit institutions (i.e. deposit taking institutions in the European context), mutual funds, insurance corporations and financial vehicle corporations are required to report directly to national compilers<sup>2</sup>. Hence, all securities booked in their balance sheet have to be reported, including those in the custody of foreign intermediaries. Regarding non-financial corporations and households, however, such an obligation does not exist and securities holdings statistics rely on information provided by local custodians. Hence, one can assume that "hidden assets" are held by these two sectors.

## 2. Are academic estimations of households' hidden wealth relevant for statistical purposes?

Recent academic papers have proposed countries' estimates for households' "hidden wealth". The results clearly point out the importance of the "missing wealth" in international statistics. However, the amounts being considered, and the uncertainties in the estimation methods, justify some caution when considering how this research can be integrated in a statistical production framework.

<sup>2</sup> Regulation (EU) No 1011/2012 of the European Central Bank of 17 October 2012 concerning statistics on holdings of securities (ECB/2012/24)



## 1. The academic literature provides rather large estimates of unrecorded holdings attributed to French households

Alstadsæter, Johannesen and Zucman (AJZ, 2017b) allocate across countries the global households' "hidden wealth" estimated in Zucman (2013). To this purpose, they rely, on the one hand on Swiss data on the ownership of fiduciary deposits, and on the other hand on BIS bilateral banking statistics on deposits owned by non-residents. Although they acknowledge that deposits are only a fraction of offshore financial wealth, they assume that the way they distribute internationally is a good indicator of the distribution of total offshore financial wealth. They obtain that in the case of France in 2007, offshore wealth of households would be as large as 15 % of GDP (i.e. 409 Bn \$), whereas the world average would be at 9.8 %. Given the global security/deposit breakdown of "hidden wealth" in Zucman (2013), we may deduce that securities held by French residents in custody abroad would amount to around 300 Bn \$. Moreover, they estimate<sup>3</sup> that most of this offshore wealth is owned by the richest households, such that including it would increase the share of wealth owned by the 5% richest households by around 2,5 pp<sup>4</sup>.

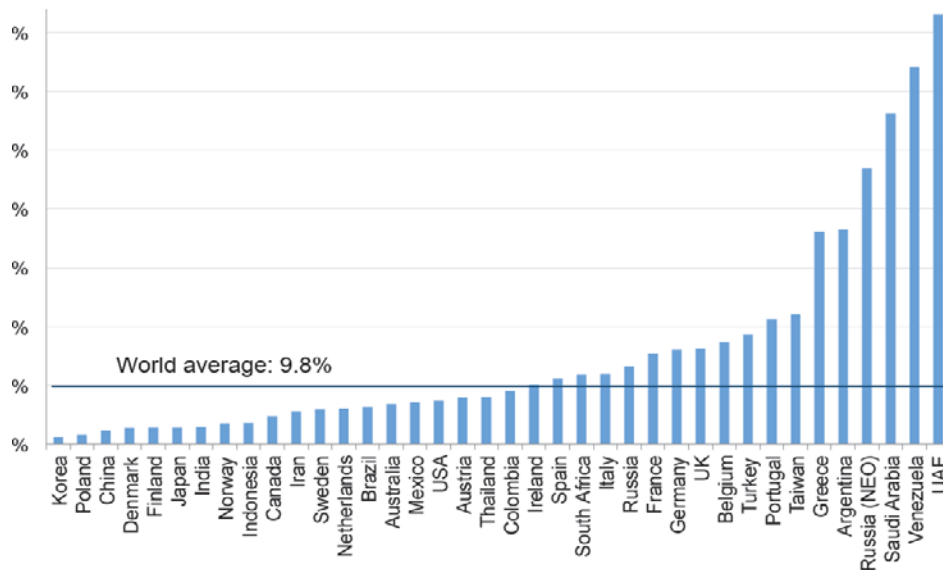
The amount estimated in AJZ (2017b) would almost double French households' holdings of securities (430 Bn \$ in 2017 in statistics based on national custodian reporting and data shared within the Eurosystem). Moreover, these estimations radically change the concentration of financial wealth in security holdings. Indeed, the authors estimate that three quarters of the securities in custody abroad are held by 0.1 % of the richest households. And according to BDF custodian statistics, the "large" portfolios (customers owning more than 450 000 euros) – which is a good proxy for first centile of the wealth distribution invested into securities - already account for one third of households' securities holdings<sup>5</sup>. This proportion would more than double if AJZ (2017b) estimations were to be included.

3 Using micro data from the "Swiss Leaks" and tax amnesty data of Scandinavian countries, see also AJZ (2017a).

4 Author's calculations using AJZ estimates provided in online appendix. Bach, Thierman and Zucco (2018) use the "Household Finance Consumption Survey" corrected with public information on French, German and Spanish great fortunes to estimate the parameters of a Pareto distribution that describes the upper tail of wealth distribution. According to their calculation, the share of the top 0.1 % in the total wealth should be revised from 7,3 % to 10,0%.

5 Available via the website of the BDF : <http://webstat.banque-france.fr/fr/browse.do?node=5384942>

Figure 4: Estimated households' hidden wealth by country (from AJZ 2017b)



This figure shows the amount of household wealth owned offshore as a percentage of GDP, in 2007. The sample includes all the world's countries with more than \$200 billion in GDP in 2007. Offshore wealth is estimated by allocating the global offshore wealth estimated by Zucman (2013), on the basis of the geographical distribution of bilateral cross-border bank deposits in offshore centers—see text. For Russia, we also report an alternative estimate (NEO) obtained by cumulating net errors and omissions in the balance of payment, as estimated in Novokmet, Piketty and Zucman (2017): Appendix Table A.3

Sources: AJZ (2017b)

## 2. Under-coverage of securities holdings is not limited to households' investments

Despite their interests for unveiling the significance of “hidden assets”, these academic findings cannot be directly taken into account in the compilation of BOP statistics for several reasons. First, they must be adjusted to statistical methodologies and concepts. For example, if large households' investments in securities are held via captive vehicles registered abroad, they could be recognized as outward direct investments in their home country whereas portfolio investments should be recorded in the country of residence of the captive vehicle. Second, AJZ (2017b), due to data limitations well explained by the authors and to the need of combining sources referring to different points in time, can only give insights about their recent developments. On the other hand, statisticians have to maintain time series and might prefer consistency over time rather than completeness achieved between too large time intervals.

Third, AJZ (2017b) base their estimations on the assumption of Zucman (2013) that the gap between assets and liabilities at a global level can be identified as households' “hidden assets”. From the point of view of a statistician, it is not natural to assume that inconsistencies can be reduced to a single explanation.

On this particular matter, it is somewhat too simplistic to limit under-coverage of securities holdings to households' investments. For many countries, securities in custody abroad held by non-financial corporations, or even by institutional investors, would also be missed by the national compilers, probably to a lesser extent (as large entities are usually subject to higher reporting constraints) but possibly with a significant impact on the gap in international statistics.

This point is notably illustrated by CPIS metadata<sup>6</sup>. In these metadata, contributing countries are asked to provide an assessment of the coverage of their statistics for the different holding sectors. In the figure below, we have plotted how countries' answers distribute for each holding sectors. Only countries satisfying a consistency condition on the comparison between CPIS assets and IIP portfolio assets are considered, in order to legitimate the claim that these metadata are also a proxy for the coverage in IIP portfolio assets<sup>7</sup>. All countries are weighted by their total IIP portfolio assets, so that the impact of under-coverage on international statistics consistency can be better assessed.

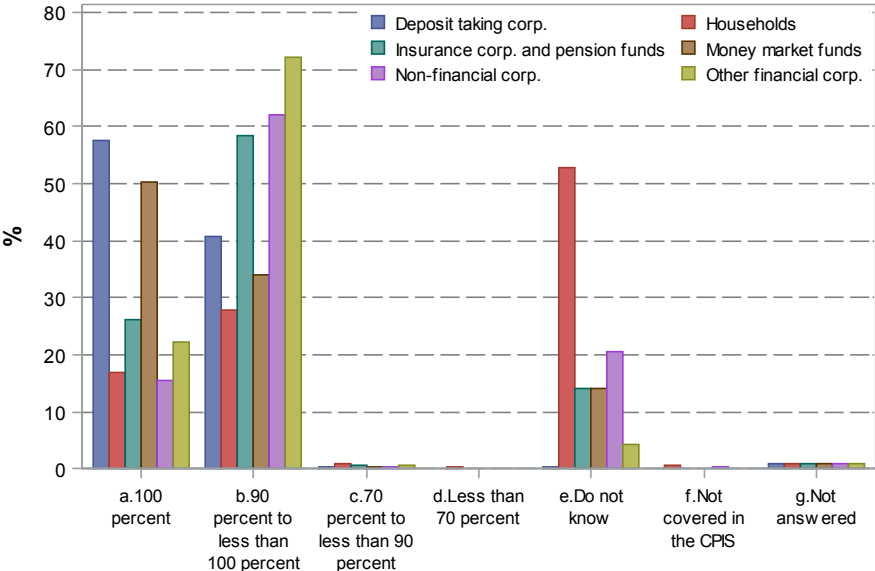
The results clearly confirm that households are the holding sector for which uncertainties regarding statistical coverage are most important. In the sample, countries admitting they "do not know" exactly how well households' holdings of securities are covered account for more than 50 % of the sample's IIP portfolio assets. Those claiming to have a perfect coverage account for less than 20 %.

Nonetheless, other holding sectors are not perfectly covered either. For non-financial corporations, the response "do not know" gathers countries that represent 20 % of the sample's IIP portfolio assets, while the proportion for the response of "90% to less than 100%" is 60 %. For insurance companies and pension funds, the shares are around 15 %, respectively 60 %.

Figure 5: Countries' assessments of the coverage of their CPIS statistics, by holding sectors

*These statistics are based on CPIS metadata for a sample of 53 countries accounting for 87 % of total assets in international portfolio positions in 2016.*

*Plotted bars are referring to assessments' frequencies (in %) for each investing sector, with countries being weighted by their total IIP assets. Otherwise said, they indicate the share of the sample IIP assets that countries reporting the specified coverage rate for the specified investing sectors are accounting for.*



Sources: CPIS and IIP (IMF), authors' calculations

6 It is also illustrated by Euro Area mutualized data on securities holdings, see 3.1.

7 The condition is that CPIS assets are between 98% and 102% of IIP portfolio assets.

### 3. The methodology of the Banque de France for estimating securities located abroad

At the Banque de France, the estimation of securities holdings in custody abroad relies on different methodologies depending on the holding sector.

#### 1. Holdings by non-financial corporations

Concerning the non-financial sector, estimations are based on two sources. Regarding assets located in the Euro Area, they rely on the Eurosystem's Securities Holdings DataBase (SHSDB). Regarding other assets, aggregated positions from NFCs' balance sheet are used.

The integration of securities holdings data collected in partner countries of the Eurozone is the most straightforward way of reducing the under-coverage caused by third party holdings in other euro area countries. According to an ECB Regulation, National Central Banks (NCBs) of the Eurozone are indeed required to collect security-by-security data directly from financial corporations and also from custodians<sup>8</sup>. The latter should identify the sector and the residency of their customers. All third party holdings - that is to say all holdings by non-residents - are covered by this reporting, regardless of the country the issuer of the securities is located in. For example, the German central bank is able to identify Italian securities held by French residents in the custody of German intermediaries. These data are consolidated by the ECB and disseminated to contributing NCBs via a mutualized Securities Holdings DataBase (SHSDB), so that they can be integrated in national statistics<sup>9</sup>.

The main advantage of this source is that it is totally consistent with the granular data we use for compiling securities holding statistics. Its drawback is that it does not cover assets located outside the Euro Area. To capture investments in custody outside the Euro Area, the total position of non-financial corporations collected on a granular basis is compared to their balance sheet. These balance sheet data are collected by the Banque de France for NFCs with an annual turn-over greater than 0.75 M€. They contain information on securities assets regardless of the location of the custody. Hence, we can estimate the under-coverage of NFCs by comparing these balance sheet data with securities holdings statistics based on custodian reporting.

<sup>8</sup> See [https://www.ecb.europa.eu/stats/financial\\_markets\\_and\\_interest\\_rates/securities\\_holdings/html/ind ex.en.html](https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/securities_holdings/html/ind ex.en.html).

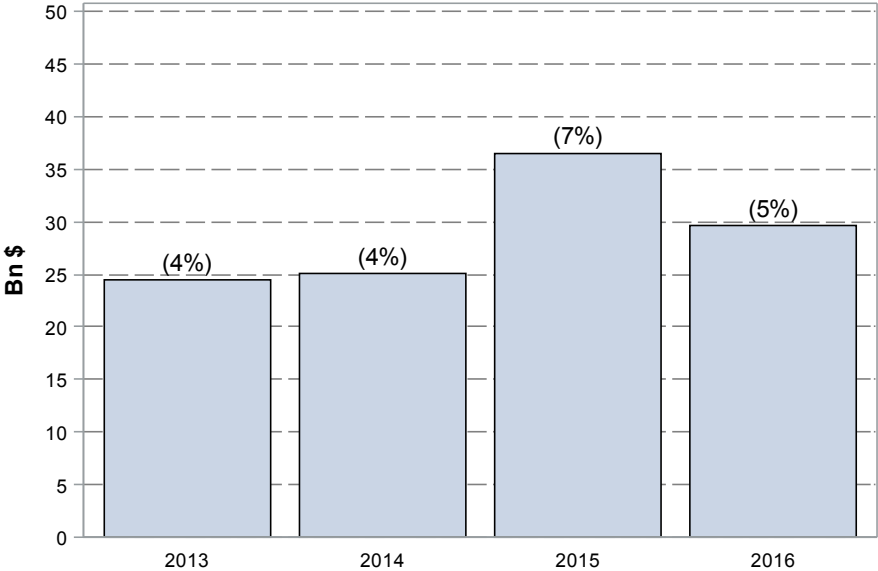
<sup>9</sup> See for further information about ESCB holding statistics: [https://www.ecb.europa.eu/stats/financial\\_markets\\_and\\_interest\\_rates/securities\\_holdings/html/ind ex.en.html](https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/securities_holdings/html/ind ex.en.html).

However, these two sources are not perfectly congruent. First, NFC balance sheet data do not distinguish securities assets according to the counterpart residency. Second, they do not distinguish between types of securities, and in particular, they mix quoted and unquoted shares, whereas securities holdings statistics exclude unquoted shares.

Integrating these data in Balance of Payments statistics thus requires some adjustments to ensure that balance sheet data and custodian reported data are comparable in all extent but the issue of third party holdings. To this end, participating interests<sup>10</sup> are removed from balance sheet data, as they are likely to include mainly unquoted shares. Symmetrically, direct investments (collected independently at the Banque de France) are removed from securities holdings statistics, as well as holdings of quoted shares issued by NFC that are likely to represent participating interests. After these operations, residual mismatches between the two sources are assumed to be largely driven by third party holdings, which are further assumed to be invested in foreign securities. All in all, the combined use of these two sources leads us to add 30 Bn \$ of NFCs securities holdings not reported by French custodians (5 % of their total securities holdings, unquoted shares and direct investments excluded).

Figure 6: Estimations of non-financial corporations’ holdings of securities located abroad

*In parenthesis, amounts are expressed in relation to the total of the sector’s holdings in securities statistics (hence excluding direct investments and holdings of unquoted shares)*



Source: Banque de France, authors’ calculation

<sup>10</sup> Securities holdings are presumed to be participating interests if they represent more than 10 % of the shares of the invested entity.

## 2. Holdings by households

Concerning households, Banque de France's estimates also use the SHSDB as a source to cover assets located in the Euro Area. Regarding investments in custody outside the Euro Area, the approach applied is close to the one described by Henry (2012)<sup>11</sup>. The idea is to extrapolate to securities the dynamics of French households' deposits abroad. This extrapolation relies on the BIS detailed Locational Banking Statistics on French deposits in foreign banks, and data on securities custody for non-resident customers published by the Swiss National Bank (SNB).

Several contributing countries provide the amount of deposits held by French households in their local banks to the BIS. Deposits, however, are only a minor part of offshore financial wealth. Zucman (2013) estimates that globally, the amount of offshore securities portfolios is 3 to 4 times bigger, while Henry (2012) considers (based on information from wealth managers) that the ratio between liquidity assets and total assets for wealthy individuals ranges between 3 and 4.5.

To scale up offshore securities holdings from offshore deposits, statistics published by the BNS on securities custody in Swiss banks owned by non-resident households are used to calculate the ratio of positions in securities compared to positions in deposits.

Applying this ratio as a scaling factor to available data on French households' deposits in non-Euro Area countries<sup>12</sup> brings a rough estimate of households' securities in third party holdings outside the Eurozone.

One caveat of this estimation is that not all countries provide detailed information on French households' deposits in their countries. To improve these estimates, ad hoc methodologies are applied for the most important ones. For example, if a country provides data on French deposits owned by non-bank entities, it is assumed (based on what is observed for countries providing the detailed decomposition of non-banks) that one third of this amount refers to households' ownership.

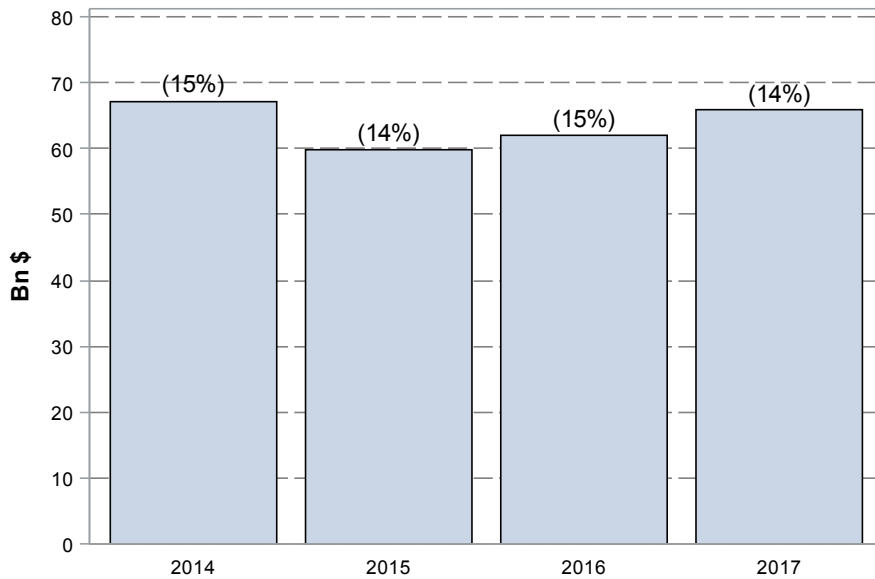
Eventually, total securities held by French households in custody abroad (in and out of the Euro Area) are estimated at around 65 Bn \$ (see Figure 7).

### Figure 7: Estimations of households' holdings of securities located abroad

*In parenthesis, amounts are expressed in relation to the total of the sector's holdings in securities statistics (hence excluding direct investments and holdings of unquoted shares)*

11 Henry (2012) uses Locational Banking Statistics and extrapolates from cross-border deposits amounts to total value of offshore wealth, assuming that deposits account for one quarter of the total.

12 French households' holdings of securities in custody in the Euro Area are covered by the mutualized Securities Holdings Statistics DataBase of the ECB.



Source: Banque de France, authors' calculation

It is worth noticing that despite the similarities between the two methodologies, Henry's (2012) estimates of global households' hidden wealth are three times higher than those of Zucman (2013) (between 20-30 Tn \$ vs 8 Tn \$), whereas the ones of the Banque de France are much lower than those derived for France by AJZ (2017b) (65 Bn \$ vs 300 Bn \$<sup>13</sup>). One explanation may be that Henry's (2012) estimates are based on the Locational Banking Statistics for the non-bank sector, whereas ours use detailed series on the household sector.

#### 4. Sharing data on third party holdings would be the best way forward to measure households' hidden wealth

Any estimate of third party holdings should be considered as uncertain. This is true for both the Banque de France's estimates and the ones provided by the academic literature.

Clearly, the most solid of the methodologies presented in section 3 is the one based on French holdings collected in Euro Area partner countries, and consolidated by the ECB in the Securities Holdings DataBase. However, this database does not include those countries that are expected to manage the larger share of securities in foreign accounts (notably Switzerland, the United Kingdom, and other major financial centers).

Therefore, a more global approach is required, that could be integrated to the CPIS. In fact, this issue was raised at the very beginning of the implementation of

<sup>13</sup> Estimates for French households' hidden wealth in securities only. For this comparison, AJZ (2017b) original estimates referring to total financial wealth (deposits + securities) have been scaled down using securities/deposits ratio in Zucman (2013)

the CPIS by the IMF Committee on Balance Of Payments Statistics, who had set up a Working Group on Third Party Holdings (WGTPH) in 2001.

Among the conclusions in the report of the WGTPH in 2004, it is suggested that a Third Party Holdings Survey could be conducted annually. This survey:

- Would be limited to holdings of the household sector, as it is the sector for which under-coverage of third party holdings is expected to be most critical;
- Requires that each contributing country breaks down third party holdings in custody in their jurisdiction by residency of the holder and of its counterpart;
- May require that - in addition to custodians - brokers/dealers, investments companies, and private banks contribute to reporting;
- Could ensure confidentiality by trusting the IMF for receiving all national contributions and releasing only aggregated data, such that the specific amounts located in a given country would not be identifiable.



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Irving Fisher Committee on  
Central Bank Statistics

BANK FOR INTERNATIONAL SETTLEMENTS

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## How to identify "hidden securities assets" in the Balance of Payments: methods of Bank of France<sup>1</sup>

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**Irving Fisher Committee**  
**30<sup>th</sup> – 31<sup>st</sup> August 2018**

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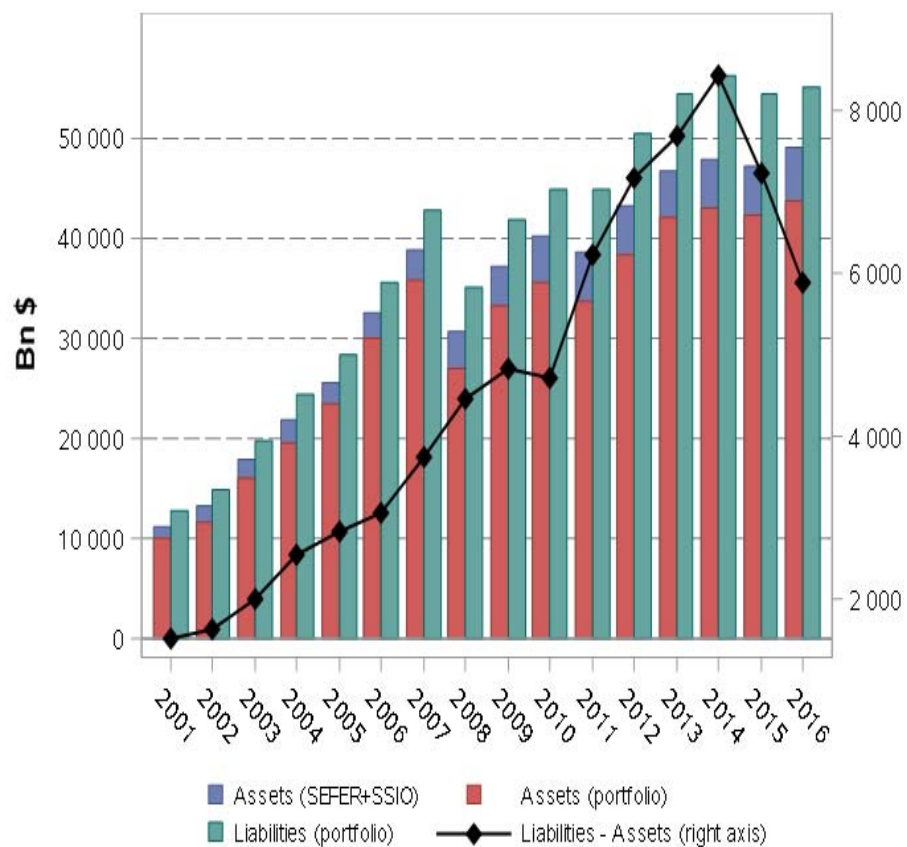
**How to identify “hidden securities  
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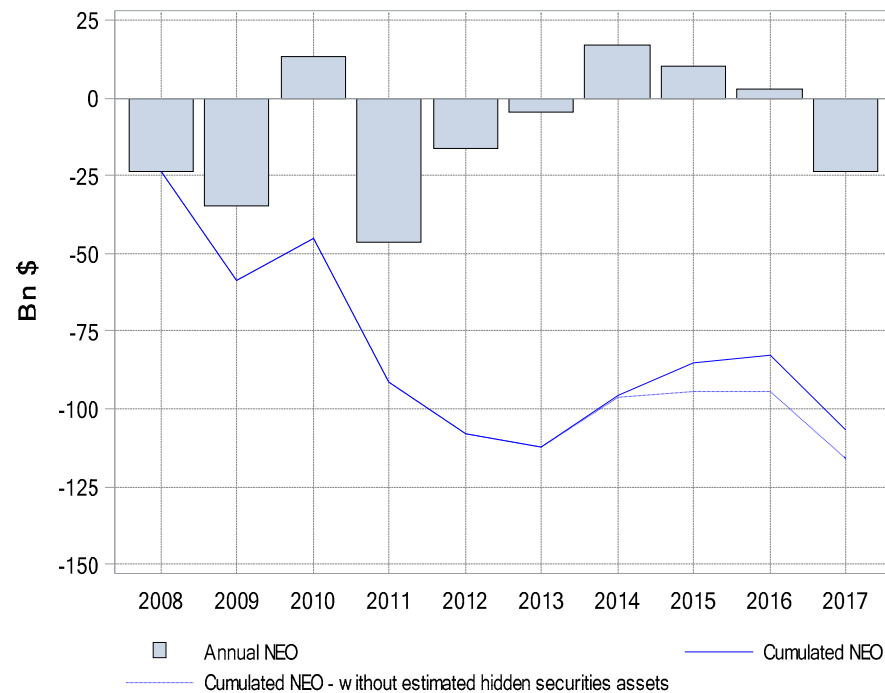
# Statistical inconsistencies may be accounted for by « hidden assets »

Global portfolio positions : assets versus liabilities



Source: IMF – Authors' calculations

Errors and omissions in French BOP



Source: Banque de France

# Likely impact of hidden assets on French IIP

- More on the assets side than on the liabilities side
  - Anecdotal evidence supports the idea that most of resident positions on French securities are held in France or in the Euro Area.
  - The share of liabilities calculated as a residual and thus estimated has been rather stable since 2008 (less than 10 %).
- Mainly held by households and non-financial corporations
  - In European law, financial corporations are required to report their whole portfolios whatever the « physical » location of their assets

# Academic literature provides rather large estimates of unrecorded holdings attributed to French households

- Alstadsæter, Johannesen and Zucman (2017) allocate global households' "hidden wealth" across countries
  - Using Zucman (2013) estimates of global hidden wealth based on international inconsistencies
  - With BIS bilateral banking statistics and Swiss data
- For France, households' offshore financial wealth would be as large as 15 % of GDP in 2007 (vs. world average = 9.8 %)
  - → Additional position in portfolio investments would amount to 300 Bn \$
  - To be compared with 480 Bn \$ of households' holdings of securities in BDF statistics in 2017

## Can these estimations be used in statistics?

- They should be adjusted to statistics concepts and methodology
  - Difference between nationality and residency
  - Splitting between direct investments and portfolio investment
- Derivation of time series using these estimations would be difficult
- Non-financial corporations should also be taken into account

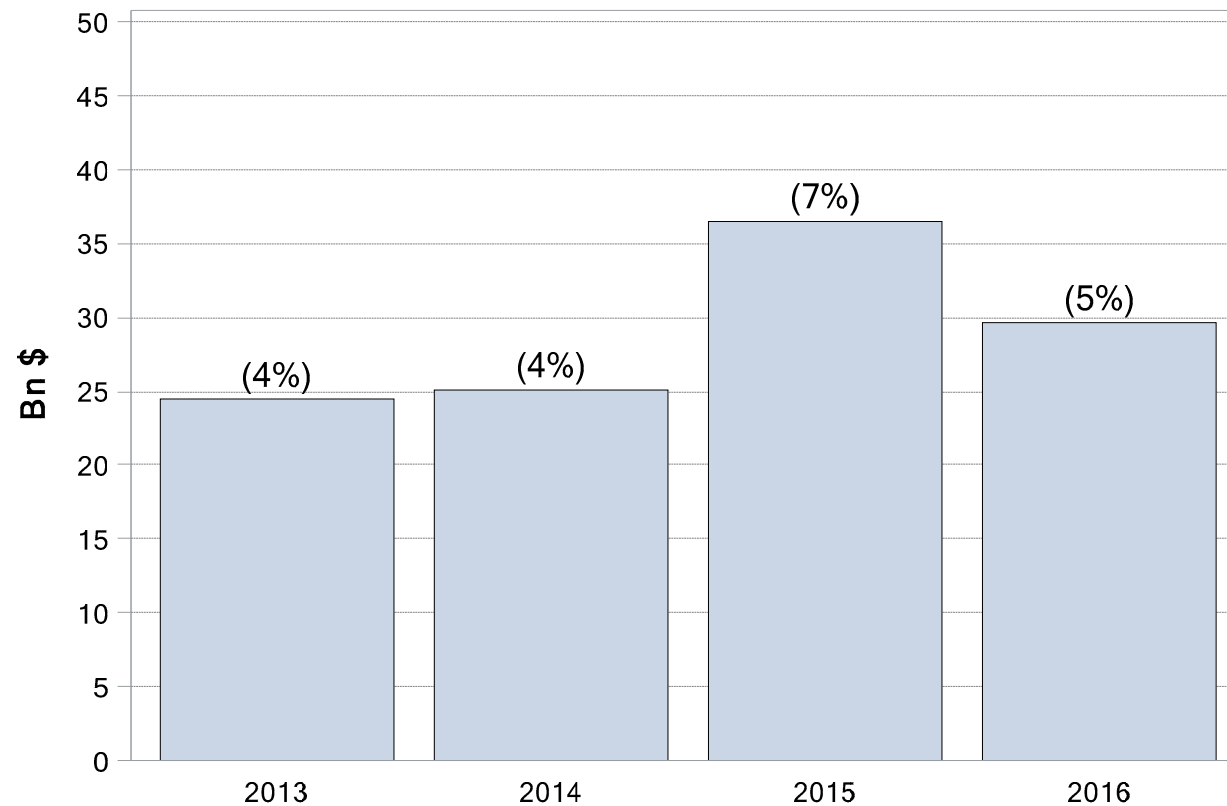
# Estimation of non-financial corporations' offshore assets

- Regarding assets located in the Euro Area, we rely on the Eurosystem *Securities Holdings Statistics DataBase* (SHSDB)
  - SHSDB centralizes granular contributions from NCBs all compiled according to SHS Regulation
- For remaining assets, we compare the total of granular data to the aggregated portfolios of non financial corporations according to their balance sheet
  - These data come from a database maintained by the BDF
- The difference is deemed to be the assets located outside the Euro Area



# Estimation of non-financial corporations' offshore assets

**Estimated NFCs' offshore assets integrated in securities holdings statistics**



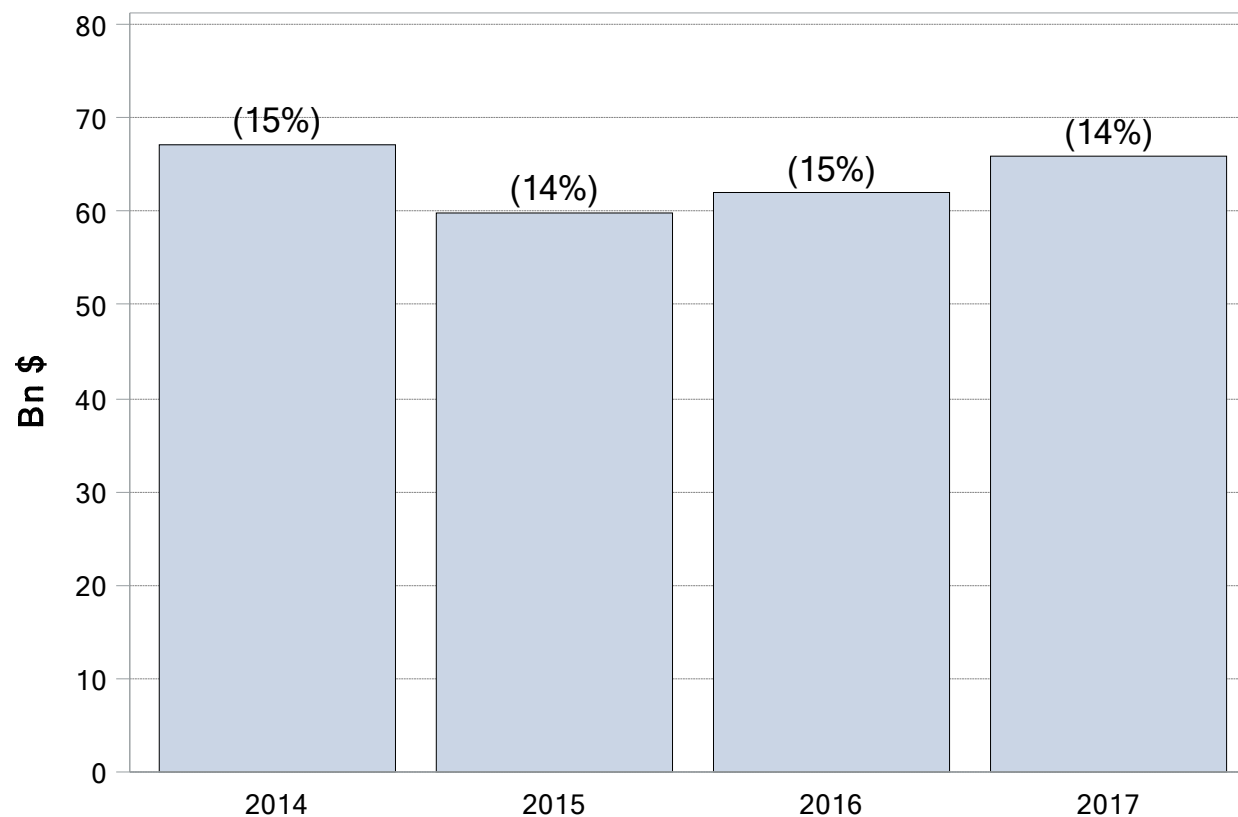
Source: Banque de France

# Estimation of households' offshore assets

- Regarding assets located in the Euro Area, our source is SHSDB
- Regarding assets located outside the Euro Area, we extrapolate from French households' deposits in foreign banks
  - Based on BIS detailed Locational Banking Statistics
  - Using Swiss National Bank (SNB) published data on securities custody for non-resident customers to estimate a securities / deposits ratio for households' offshore wealth

# Estimation of households' offshore assets

## Estimated households' offshore assets integrated in securities holdings statistics



Source: Banque de France