

# The resilience of households in bank bail-ins

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*Potential losses incurred by households holding bail-in-able assets may be an issue in bank resolution matters and restructuring procedures – and are thus a financial stability issue. Yet, the range of households that may be affected by bank defaults is not sufficiently evident from aggregate statistics. Therefore, this paper uses the Eurosystem Household Finance and Consumption Survey (HFCS) to investigate the investment portfolio items of households from selected European countries that could potentially be eligible for bail-in. Doing so allows us to discuss the resilience of possibly affected households to shocks to their portfolio in terms of other household characteristics. Overall, the results show that, in addition to the relatively high resilience of households in terms of shock-absorbing capacity, the relatively few investors that exist are on average more inclined to take risks than the general population.*

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The global financial crisis led to a number of failures of large banks that were considered as too big to fail. Many of these banks were rescued via large-scale public bail-outs, shifting the costs of bank failure from the banking system, its shareholders and creditors to taxpayers. As a consequence, the European Union introduced a new legislative framework (Bank Recovery and Resolution Directive – BRRD) to equip the authorities with a set of tools to prevent future public bail-outs. One of these tools is the new bail-in regime (Article 46 et seq.) effective from January 1, 2016, unless implemented earlier. It enables resolution authorities to write down and convert into equity liabilities to a failing bank's creditors. The new regime should ensure that shareholders and creditors will bear the losses, thus minimizing the costs for taxpayers.

As the bail-in tool has to be applied to almost all liabilities of a credit institution, in line with the hierarchy of creditors, a range of shareholders and creditors will be affected. This article

focuses on the potential impact of a bail-in on households, complementing recent publications (Hüser et al., 2017; Pigrum et al., 2016; Schäfer et al., 2016) that have addressed effects on banks and other investors and on financial markets.

## 1 The data

We use the second wave of the Household Finance and Consumption Survey (HFCS) conducted essentially in 2014 and 2015 by national central banks and some national statistical institutes in the euro area, and coordinated by the European Central Bank (ECB). HFCS data provide detailed information on the entire balance sheet as well as several socioeconomic characteristics of households in the euro area. In particular, the survey provides information on various financial assets owned by households. ECB (2016a) provides a detailed account of the methodology.<sup>2</sup> The analysis at hand takes into account specific methodological complications that are inherent in the survey, such as

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<sup>2</sup> For a general overview of the results, see ECB (2016b). For more detailed information about the results in Austria, see Fessler et al. (2016). An extensive methodological documentation of the second wave of the HFCS in Austria can be found in Albacete et al. (2016).

the survey structure and multiple imputation. In analyzing the available data, we look at the euro area (EA)<sup>3</sup> as a whole, Austria (AT), Germany (DE), Italy (IT), France (FR), Spain (ES), Cyprus (CY), Ireland (IE), Greece (GR), Luxembourg (LU), and Portugal (PT). The investigation may be easily extended to the other survey countries (in total 20 countries were included in the second wave of the HFCS). With this selection, we cover the domestic market, some large countries, wealthy countries, and some southern European countries.

In line with the cascade of bail-in-able assets (as mandated in Article 48 BRRD), households may be invested in equity, subordinated debt, senior unsecured debt and/or secured debt. In practice, the actual bail-in sequence may differ, as the ability to bail in individual titles depends on the contract arrangements made between individual banks and investors. This contract-specific information is not evident from the HFCS data. Instead, we can look at specific portfolio categories that might be bail-in-able. As we include all households holding specific types of financial assets, we provide conservative results in the sense that they show an upper bound for the share of households that might be affected by developments in a given financial institution. Eligible asset classes are:

- Bank bonds

In the bond category, we are able to distinguish whether households hold bonds issued by (a) government entities, (b) banks/other financial intermediaries, (c) nonfinancial corporations

or (d) other. The amount invested in bonds is, however, collected only as a total in the HFCS and not broken down by individual types of bonds. Thus our analysis uses total bond assets for households holding bonds issued by banks/other financial intermediaries. Additionally, there are some – albeit mostly very few, i.e. one or two – households for which the indicator variables for the different bond types are missing in the data for Cyprus, France (where the breakdown into types is completely missing), Ireland and Portugal. For all these households and in the euro area as a whole (some other countries outside of the group of countries under investigation in this paper have missings in this variable) we assume the households to own bank bonds and use the total amount invested in bonds. This implies that our estimates are conservative estimates in the sense that we consider the maximum number of households affected with the maximum amount.

- Deposits in excess of EUR 100,000

This category of bail-in-able assets (Article 108 BRRD) refers to the sum of sight and savings accounts reported in the HFCS. Since savings are guaranteed up to an amount of EUR 100,000 by deposit guarantee schemes in the EU, we lowered the respective HFCS results by this amount for each household. What remains is either zero in case of lower savings or the amounts in excess of this threshold.<sup>4</sup>

- Investment funds

Regarding funds, the HFCS gathered

<sup>3</sup> Note that Hungary and Poland participated in the second HFCS wave while not being members of the euro area; therefore their data are not reflected in the euro area total. Moreover, the euro area total does not include data on Lithuania, which did not participate in the HFCS.

<sup>4</sup> In the results for Austria, savings in the form of life insurance policies are subtracted from the HFCS core variable on savings. The euro area figures, however, include that information in the core variable for Austria for comparability reasons.

information on investment made in funds predominantly investing in (a) equity, (b) bonds, (c) money market instruments, (d) real estate or (e) hedge funds and other fund types.<sup>5</sup> In keeping with our conservative approach, our analysis is based on the data for funds investing in bonds (independent of the type of bonds) and funds investing in the money market. Additionally, if the breakdown in the categories is not imputed, which happened in some cases in Cyprus, Ireland and Portugal, any fund assets held by households are assumed to be eligible for bail-in.<sup>6</sup>

Overall, two key features of the data that are used in the analysis have to be kept in mind while interpreting. On the one hand, the definitions used are based on a conservative approach, covering all assets potentially affected from a bail-in. Hence, if a given bank were to default, the range of households involved and the amount of wealth affected should actually be smaller than implied by this analysis. On the other hand, there is the well-known difficulty of reaching the far-right tail of the wealth distribution with surveys like the HFCS. Therefore, the differences between specific groups of households (as will be seen below, households are split into the top 10% and bottom 90% according to the gross wealth distribution for some results) might be even more pronounced.

Furthermore, another two financial asset classes might be considered as

bail-in-able. The HFCS also collects information about shares and private pension funds. However, the data collected on shares cannot be broken down further into the type of shares, and the data collected on private pension funds cover a very heterogeneous range of asset types, so that we refrain from including these results in this analysis. Yet to cross-check our analysis, we repeated the analysis including these types of assets and found the qualitative results to be generally stable.

## 2 Evidence from microdata

In the following, we use a two-step procedure to analyze all possible asset types. First, we provide general descriptive statistics, also covering the breakdown across the gross wealth distribution. In the second part we analyze households' investment attitude. This pattern should help readers to find specific information quickly. The last subsection rounds off this analysis by adding up the data. Generally speaking, one has to bear in mind that the survey is not an appropriate tool for looking at individual banks; it only provides the aggregate picture for specific asset categories. Thus, the results should be interpreted as an upper bound for the number of households being affected by potential bank bail-ins.

### 2.1 Holders of bank bonds

#### 2.1.1 Some general descriptives

As evidenced by table 1 the fraction of households who have invested in bank

<sup>5</sup> Another HFCS category covers various types of investment funds without further specification; these funds are not considered in this analysis.

<sup>6</sup> In the case of Finland and the Netherlands, where all or a substantial number of observations of the breakdown of funds are missing, we assume all these households to hold bail-in-able fund assets, which creates an upward bias for the share of euro area households holding these types of assets. There are very few cases in Slovakia and Germany for which the information on funds is apparently only partly imputed. In keeping with our conservative approach, all of these households are assumed to hold bail-in-able assets.

Table 1

**Households holding bank bonds versus all households – general results**

	AT	DE	IT	FR	ES	CY	IE	GR	LU	PT	EA
	%										
Bond participation rates	2.4	2.4	5.4	1.2	0.9	0.5	0.6	0.2	1.5	0.3	2.2
Bottom 90% of gross wealth distribution	1.6	1.7	4.2	0.8	0.8	0.4	0.5	0.1	1.2	0.2	1.7
Top 10% of gross wealth distribution	9.1	8.4	16.4	4.7	1.9	1.5	1.6	0.9	4.0	1.3	6.8
	EUR thousand										
Conditional mean bank bond holdings of households owning such assets	39.9	42.8	49.3	50.6	43.6	.	30.7	.	99.3	37.8	52.3
Conditional median bank bond holdings of households owning such assets	15.0	13.6	30.0	12.5	12.6	.	20.0	.	70.0	10.0	20.0
Mean net wealth of households owning bank bonds	691.6	616.4	518.0	820.6	513.1	.	454.8	.	1,220.8	548.5	589.6
Median net wealth of households owning bank bonds	393.3	359.7	345.0	377.8	287.0	.	344.5	.	971.2	261.8	355.5
Mean (yearly) gross income of households owning bank bonds	70.9	76.4	60.2	65.7	44.3	.	92.9	.	125.6	48.4	65.2
	%										
Median share of bank bond holdings in relation to gross wealth	3.3	3.0	8.8	4.0	4.8	.	4.2	.	7.4	4.0	5.5
Median share of bank bond holdings in relation to financial wealth	24.1	10.8	57.7	11.9	39.8	.	26.1	.	21.0	23.1	28.2
	EUR thousand										
Mean net wealth of all households	258.4	214.3	226.4	243.1	273.6	387.3	216.3	104.2	768.4	156.0	223.3
Median net wealth of all households	85.9	60.8	146.2	113.3	159.6	170.1	100.6	65.1	437.5	71.2	104.1
Mean (yearly) gross income of all households	43.3	48.4	33.4	37.6	31.9	30.5	54.6	21.2	87.2	21.5	39.4

Source: HFCS 2014, ECB.

<sup>1</sup> "." indicates that the results are suppressed because of too few observations.

bonds is actually very small. Participation rates run from 0.2% (Greece<sup>7</sup>) to about 5.4% (Italy) and translate into a figure of 2.2% for the euro area as a whole. Hence, only some 2% of all households account for the 24% of noncovered debt securities that are held by the residual sector including households (see Pigrum et al., 2016). In the case of Austria, about 2.4% of households holding bank bonds account for the 38% of noncovered debt securities that are held by the nonfinancial sector (including house-

holds).<sup>8</sup> The table also sheds light on how much households holding bank bonds have invested in this particular portfolio item in absolute as well as relative terms. In Germany, for instance the mean level of bank bond holdings is about EUR 43,000, with the median level running to only about EUR 14,000, which goes to show how highly skewed the distribution of bank bonds is even within the small group of bank bond holders. In relative terms, we can see that these German households have

<sup>7</sup> This result also shows the general quality of the HFCS. We know from the Securities Holdings Statistics (SHS) that in Greece this type of bonds accounts for a tiny share of the amounts invested by the nonfinancial sector, so that the two data sources reinforce and complement each other. Similarly, regarding Italy, both sources confirm the internationally relatively high share of households/aggregate share of the nonfinancial sector in this asset class.

<sup>8</sup> These aggregate figures are taken from Pigrum et al. (2016). The "euro area's nonfinancial sector" includes the sectors S.11 (nonfinancial corporations – NFCs), S.13 (general government), S.14 (households), S.15 (nonprofit institutions serving households) (see *ibid.*, p. 112). Households thus hold a lower share.

put only a small fraction, i.e. about 3% of their gross assets and 11% of their financial assets at the median, into this asset class. As the median share of bank bond holdings relative to gross and financial wealth is in general relatively small even for the group of investors, we expect a high resilience of these households in coping with a negative shock to one type of their financial assets.

Table 1, furthermore, looks at the general income and wealth levels of investors in bank bonds in comparison to all households.<sup>9</sup> We can see that households who invest in bank bonds are more affluent in terms of both wealth and income levels. The euro area mean net wealth level for bond holders is more than double the level of net wealth of all households. When we take the more robust median measure, the factor increases to about 3.5. Not only wealth but also income figures show that bond holders belong to the more affluent stratum of society if one compares EUR 39,400 mean yearly gross household income for all households with EUR 65,200 for investors. With some variation in the extent of these differences, this result holds for each country. Judging from the median level of net wealth in Germany, bond holders are about six times more affluent than the general household population. This holds true also for Italy, where the highest participation rate is observed, and for Luxembourg, which is the country with the highest overall wealth levels. Although not as high – since the distribution of income is less skewed than the distribution of wealth – we

still find significantly higher income figures for households owning bank bonds than for households in general.

Naturally, one may ask whether investment behavior is constant or varies across groups. Thus table 1 also breaks down participation rates for the top 10% and bottom 90% of the gross wealth distribution. We can see (lines 2 and 3 in table 1) that in each country the share of households holding bank bonds is significantly higher in the top 10% of households in terms of gross wealth than in the bottom 90%. Any potential losses from bank bond holdings, therefore, affect a very small fraction of households in the lower 90%, while even within the group of the top 10%, the share of households affected seems to be rather small. Furthermore, the data show that less affluent households also invest less and would hence be affected less severely by any bail-ins. Essentially, the breakdown of assets according to specific groups in the gross wealth distribution provides another piece of evidence suggesting that it is the more affluent households that invest in bank bonds, and that they tend to invest higher amounts into this portfolio item than other households.<sup>10</sup>

### 2.1.2 Investment behavior

Apart from the ability to invest in financial instruments given income and wealth restrictions (analyzed in section 2.1.1) the willingness of households to take financial risks is another important factor in the current discussion on bailing in investors. The decisions of (wealthy) individuals to buy financial instruments

<sup>9</sup> Note that the estimate for the general household population also includes bank bond holders. That means that if we were to compare bank bond holders with households not owning such assets, the differences would even be more pronounced.

<sup>10</sup> In interpreting these results one has to bear in mind that the survey as a scientific tool for economic research has weaknesses in gathering information about the far-right tail of the wealth distribution. Taking this into account, the results in the table provide a lower bound for the difference between the top 10% and the bottom 90% of households according to the gross wealth distribution.

Table 2

**Households holding bank bonds versus all households – share of risk-inclined investors**

	AT	DE	IT	FR	ES	CY	IE	GR	LU	PT	EA
	%										
Bank bond holders	70.5	54.5	67.1	34.0	22.3	.1	47.4	.	52.4	45.1	56.5
All households	41.2	30.8	42.0	13.6	12.1	13.5	22.7	18.4	26.1	7.4	25.5

Source: HFCS 2014, ECB.

<sup>1</sup> "." indicates that the results are suppressed because of too few observations.

Note: The HFCS question on which this table is based was: "Which of the following statements comes closest to describing the amount of financial risk that you (and your husband/wife/partner) are willing to take when you save or make investments?" There were four answer categories to choose from: willing to "(1) take substantial financial risks expecting to earn substantial returns; (2) take above-average financial risks expecting to earn above average returns; (3) take average financial risks expecting to earn average returns; (4) not willing to take any financial risk." Here, categories 1–3 are aggregated into a dummy being equal to one for these categories.

are influenced by many factors, including the degree of financial literacy of households, cultural trends and political reforms to promote private investment in financial markets (Mooslechner et al., 2009). It is therefore difficult to estimate to which degree households were fully aware of the investment risk they incurred and whether their investment decisions were obscured by miss-selling practices. Any information in this regard is hard to observe empirically; however, we are able to use the information on investment attitudes of households in the HFCS in this regard. Having identified households who expressed a willingness to take at least some risks in the hope of earning investment returns,<sup>11</sup> we look at the differences in shares of households falling into this category broken down by bond holders and all households (see table 2). In the following, we denote households who are willing to take at least some risks as risk-inclined households.

In Spain for instance, where an estimated 22% of investors are willing to

take risks, bond holders are almost twice as likely to fall into the risk-seeking category – compared to only 12% in the general population. In terms of level, the results are higher for almost all other countries, e.g. looking at Italy we see that the majority (67%) of bond holders are willing to take risks. In the two countries where bail-in tools have been tested in practice, namely Italy and Spain, households who invest in bank bonds are also more willing to take risks than the general population. They also have a comparably high capability to take risks due to the relatively high level of wealth and income. Yet, recent developments reflect diverging policies. Overall, at the euro area level the results show that bond holders are more than twice as likely to be willing to take risks in financial investments as the general population. Households which are willing to take risks in order to profit from higher returns should also be expected to appropriately judge the potential loss if a default occurs.

<sup>11</sup> The corresponding HFCS question was: "Which of the following statements comes closest to describing the amount of financial risk that you (and your husband/wife/partner) are willing to take when you save or make investments?" There were four answer categories to choose from: willing to "(1) take substantial financial risks expecting to earn substantial returns; (2) take above-average financial risks expecting to earn above-average returns; (3) take average financial risks expecting to earn average returns; or (4) not willing to take any financial risk." We aggregate this information at the household level to a binary variable. This means that we generate a dummy that is equal to one for all households other than those who were not willing to take financial risks.

Table 3

**Households with deposits above EUR 100,000 versus all households – general results**

	AT	DE	IT	FR	ES	CY	IE	GR	LU	PT	EA
	%										
Deposit participation rates (deposits above EUR 100,000)	1.6	5.5	1.5	2.6	3.4	4.3	3.6	0.8	17.0	2.3	3.6
Bottom 90% of gross wealth distribution	0.9	3.4	0.6	1.3	1.9	2.8	2.0	0.1	12.9	1.2	2.0
Top 10% of gross wealth distribution	7.7	24.8	9.2	14.6	16.7	17.7	18.0	6.9	53.3	12.8	18.4
	EUR thousand										
Conditional mean deposits above EUR 100,000 for households exceeding this limit	123.6	116.1	136.1	82.7	128.3	91.2	156.4	114.7	169.2	76.7	109.4
Conditional median deposits above EUR 100,000 for households exceeding this limit	66.3	81.9	50.0	42.3	71.8	62.8	56.0	88.2	90.7	40.3	61.1
Mean net wealth of households with deposits above EUR 100,000	648.6	907.7	955.1	1,006.3	1,071.8	1,168.3	877.1	496.9	1,955.3	690.3	929.2
Median net wealth of households with deposits above EUR 100,000	532.7	445.4	615.0	646.5	574.2	725.7	598.3	447.8	1,105.6	430.1	530.3
Mean (yearly) gross income of households with deposits above EUR 100,000	69.7	91.3	86.5	86.0	65.9	67.5	111.3	43.7	137.0	50.0	82.7
	%										
Median share of deposits above EUR 100,000 in relation to gross wealth	15.1	13.7	8.8	6.5	11.1	5.8	9.7	17.8	6.5	8.4	9.8
Median share of deposits above EUR 100,000 in relation to financial wealth	31.0	31.3	28.6	17.3	33.5	30.9	30.3	45.8	32.1	24.7	27.0
	EUR thousand										
Mean net wealth of all households	258.4	214.3	226.4	243.1	273.6	387.3	216.3	104.2	768.4	156.0	223.3
Median net wealth of all households	85.9	60.8	146.2	113.3	159.6	170.1	100.6	65.1	437.5	71.2	104.1
Mean (yearly) gross income of all households	43.3	48.4	33.4	37.6	31.9	30.5	54.6	21.2	87.2	21.5	39.4

Source: HFCS 2014, ECB.

**2.2 Deposits above EUR 100,000****2.2.1 Some general descriptives**

Next, we turn to deposits exceeding the threshold of EUR 100,000. As mentioned above, savings below this threshold are covered by deposit guarantee schemes (see Article 44(2) and 108 BRRD). Hence our analysis refers only to assets in this category that may be used to absorb potential losses of a given bank. In other words, the mean and median levels of deposits<sup>12</sup> in table 3 reflect only any amounts held in excess of the threshold. Likewise, the participation rate shows the share of households holding more than EUR 100,000 in saving and deposit accounts (includ-

ing sight accounts) (hereafter called deposits).

Again, we find only a small fraction of households to hold deposits in this range, which would make them liable for bank losses. There is only one exception to this observation, namely Luxembourg, where 17% of households own deposits in excess of the threshold. Conditional median deposits above the threshold run to about EUR 61,000 at the euro area level, which corresponds to about 10% of the gross wealth of households at the median.

Compared to the general household population, households holding large deposits belong to the more affluent

<sup>12</sup> One has to keep in mind that the HFCS collects information at the household level, so that the data may be related to several household members and several banks. Therefore, the HFCS provides an upper limit for the funds invested in this category.

Table 4

**Households with deposits above EUR 100,000 versus all households – share of risk-inclined investors**

	AT	DE	IT	FR	ES	CY	IE	GR	LU	PT	EA
	%										
Holders of deposits above EUR 100,000	56.9	44.7	58.7	27.6	22.5	25.5	41.3	45.1	35.8	27.4	40.8
All households	41.2	30.8	42.0	13.6	12.1	13.5	22.7	18.4	26.1	7.4	25.5

Source: HFCS 2014, ECB.

strata of society. At the median, net wealth is about five times larger for households with large deposits. Also, their mean income levels are about twice as high in the euro area figure. In general, this finding holds in all countries, subject to variations. We can see that large deposits are even more strongly correlated with relatively high levels of income and wealth than the bank bonds discussed above. It is clear from table 3 that the deposits exceeding the deposit guarantee threshold are almost exclusively held by households in the top 10% of the gross wealth distribution. In all countries except Luxembourg is the participation rate in this level of deposits below 3.5% for the bottom 90% of all households. In the top 10%, on the other hand, participation rates reach levels as high as around 20% in various countries (and more than 50% in Luxembourg). The conditional median levels of investment show that households in the bottom 90% of the gross wealth distribution, if holding more than EUR 100,000 in deposits, do so to a relatively limited extent. The median excess amount in the euro area runs to about EUR 41,000 whereas the median level of the top 10% is more than twice this figure (about EUR 94,000). In Austria, the difference is even more pronounced: EUR 42,000 for the bottom 90%

compares with more than EUR 165,000 for the top 10%, which translates into a ratio of about 1:4.

### 2.2.2 Investment behavior

Households might hold deposits at more than one bank, so the bail-in-able figures we established are once again close to the maximum amount affected as analyzed above. More prudent investors owning more than EUR 100,000 and holding this sum in bank accounts as deposits may split their deposits across various banks (or even countries if necessary) in order to take full advantage of savings guarantees for amounts up to EUR 100,000. Having said this, we might expect the relatively more risk-averse investors to keep financial wealth in excess of EUR 100,000 in deposit accounts, thus foregoing potential interest income from other forms of potentially riskier investments (such as bank bonds). Table 4 shows what we find in the data.

Indeed, we find a lower discrepancy between investors in bail-in-able deposits and the general population. At the euro area level, the discrepancy is about 15 percentage points, which is relatively closely matched by the individual country results. For investors of both bonds and funds (see below) the discrepancy is at least twice as high.



Table 5

**Fund-holding households<sup>1</sup> versus all households – general results**

	AT	DE	IT	FR	ES	CY	IE	GR	LU	PT	EA
	%										
Fund participation rates	4.9	4.5	3.6	0.3	1.6	0.4	1.1	0.1	8.3	1.4	3.7
Bottom 90% of gross wealth distribution	3.5	3.9	2.6	0.2	1.1	0.4	0.8	0.1	6.3	1.0	2.9
Top 10% of gross wealth distribution	17.9	9.9	12.7	1.6	5.6	0.5	3.9	0.5	25.7	5.1	10.0
	EUR thousand										
Conditional mean fund assets of fund-holding households	36.0	31.5	53.5	27.1	34.0	.	72.2	.	117.4	29.8	40.0
Conditional median fund assets of fund-holding households	14.7	7.8	20.0	10.0	11.2	.	22.5	.	49.7	9.6	10.0
Mean net wealth of fund-holding households	557.7	454.2	563.8	1,421.0	756.6	.	694.1	.	1,870.7	555.1	490.5
Median net wealth of fund-holding households	400.7	250.2	373.5	544.0	413.4	.	353.4	.	1,125.1	240.3	291.5
Mean (yearly) gross income of fund-holding households	65.5	73.2	63.2	67.8	63.4	.	119.4	.	149.7	53.2	66.6
	%										
Median share of fund assets in relation to gross wealth	4.6	3.1	6.8	2.2	1.9	.	6.3	.	4.0	3.4	3.7
Median share of fund assets in relation to financial wealth	22.2	10.8	39.2	7.9	20.0	.	33.2	.	18.6	14.0	15.4
	EUR thousand										
Mean net wealth of all households	258.4	214.3	226.4	243.1	273.6	387.3	216.3	104.2	768.4	156.0	223.3
Median net wealth of all households	85.9	60.8	146.2	113.3	159.6	170.1	100.6	65.1	437.5	71.2	104.1
Mean (yearly) gross income of all households	43.3	48.4	33.4	37.6	31.9	30.5	54.6	21.2	87.2	21.5	39.4

Source: HFCS 2014, ECB.

<sup>1</sup> Funds refer to assets held in funds predominantly investing in bonds and/or in money market instruments.<sup>2</sup> "." indicates that the results are suppressed because of too few observations.**2.3 Investment funds****2.3.1 Some general descriptives**

We now turn to funds predominantly investing in bonds and the money market. Again, the data are not broken down by individual banks, which means that the default of a given bank would affect a considerably smaller range of households. Table 5 reports the results on funds in the same form as above.

With the slight exception of Luxembourg, we can see that – as was the case with bank bonds – the fraction of households investing in funds is rather small. The highest participation rates are found in Luxembourg (8.3%), Austria (4.9%), and Germany (4.5%), with the euro area figure coming to 3.7% of households. The invested

amounts are somewhat smaller than the amounts established for bank bonds, running to EUR 40,000 at the mean and EUR 10,000 at the median for the euro area as a whole. Similarly, when looking at the ratio of fund assets to gross assets and financial wealth, we find lower median values than for bank bonds. Again, it is the more affluent households with regard to wealth as well as income which invest in funds.

Also for this type of investment we split all households according to the gross wealth distribution into the bottom 90% and the top 10%. Table 5 (lines 2 and 3) shows the fund participation rates for the two groups of households. Accordingly, most investors belong to the top 10% of the gross wealth distri-

Table 6

**Fund-holding households<sup>1</sup> versus all households – share of risk-inclined investors**

	AT	DE	IT	FR	ES	CY	IE	GR	LU	PT	EA
	%										
Fund-holding households	65.4	69.0	70.9	35.5	44.7	. <sup>2</sup>	60.9	.	68.2	53.1	62.5
All households	41.2	30.8	42.0	13.6	12.1	13.5	22.7	18.4	26.1	7.4	25.5

Source: HFCS 2014, ECB.

<sup>1</sup> Funds refer to assets held in money market funds as well as funds predominantly investing in bonds and/or in money market instruments.

<sup>2</sup> ".": indicates that the results are suppressed because of too few observations.

bution. In Italy for example, only about 2.6% of households in the bottom 90% group invest in funds whereas this figure is 12.7% for the top 10% according to the gross wealth distribution. If households hold such assets, both the mean and the median levels of investments are substantially higher for households belonging to the more affluent group than for households in the bottom 90%. In the euro area aggregate, for example, fund assets held by the bottom 90% of households average about EUR 18,000 compared to EUR 99,000 for the relatively larger group belonging to the top 10% according to the gross wealth distribution. Overall, we see this general pattern in all countries under investigation.

### 2.3.2 Investment behavior

Analyzing the question whether households holding funds are more willing to take risk than the overall population, table 6 provides information about the share of households which expressed a willingness to take risks in financial investments.

Again, we see large differences in the share of households answering in the affirmative between fund investors and the general population. In the most extreme case, in Portugal, more than half of all fund holders indicated a willingness to take financial risks compared to an overall share of 7.4% of risk-inclined households. At the euro area

level, the difference is not as big, but a large majority of households owning funds is willing to take risks.

## 2.4 Putting everything together

### 2.4.1 Some general descriptives

Clearly the most interesting part of the analysis is the question who might be affected in the end, i.e. when the full range of bail-in-able assets is used when a bank is being restructured. Table 7 puts all items of households' investment portfolios as discussed in detail above together to provide an overview of investments and of the general level of affluence of investors. In the euro area we see that 8.3% of households own potentially bail-in-able instruments of some kind. The overall median and mean of these investments is around EUR 30,000 and EUR 80,000, respectively. In relation to gross wealth, these assets account for 7.3% of the balance sheet of potentially affected households at the median. In terms of financial wealth, the relation runs to about 27.9% at the median, showing that in general these investors actually pursue a more broad financial investment strategy, reaffirming the fact from above that these investors are the more risk-inclined households.

With a median and mean net wealth level of about EUR 374,000 and EUR 642,000 in comparison to the respective figures for the entire population of

Table 7

**Households holding assets that might be bail-in-able versus all households – general results**

	AT	DE	IT	FR	ES	CY	IE	GR	LU	PT	EA
%											
Participation rates for bail-in-able assets	7.9	10.4	9.3	3.9	5.5	5.0	5.1	1.1	22.4	3.6	8.3
Bottom 90% of gross wealth distribution	5.6	7.8	6.8	2.3	3.6	3.4	3.2	0.3	18.0	2.2	6.0
Top 10% of gross wealth distribution	28.9	34.1	32.1	18.3	22.8	19.3	22.1	7.9	61.9	16.4	29.3
<i>EUR thousand</i>											
Conditional mean holdings of bail-in-able assets	58.9	85.1	70.7	74.4	95.1	117.9	129.7	90.6	178.3	64.6	79.1
Conditional median holdings of bail-in-able assets	23.0	29.8	30.0	30.0	41.3	48.4	43.3	39.1	90.6	24.2	28.1
Mean net wealth of households owning bail-in-able assets	570.9	650.8	539.8	932.1	879.2	1,181.2	769.0	438.0	1,761.1	611.8	641.8
Median net wealth of households owning bail-in-able assets	401.0	340.4	369.7	531.9	488.6	650.3	503.4	386.0	1,073.9	332.7	373.6
Mean (yearly) gross income of households owning bail-in-able assets	63.8	80.8	61.4	76.5	60.5	65.1	108.8	42.0	131.3	49.9	70.4
%											
Median share of bail-in-able assets in relation to gross wealth	6.3	7.9	9.1	6.1	7.1	5.6	8.3	13.3	6.9	6.5	7.3
Median share of bail-in-able assets in relation to financial wealth	30.4	22.1	54.2	15.3	33.0	32.4	32.0	40.0	36.4	24.7	27.9
<i>EUR thousand</i>											
Mean net wealth of all households	258.4	214.3	226.4	243.1	273.6	387.3	216.3	104.2	768.4	156.0	223.3
Median net wealth of all households	85.9	60.8	146.2	113.3	159.6	170.1	100.6	65.1	437.5	71.2	104.1
Mean (yearly) gross income of all households	43.3	48.4	33.4	37.6	31.9	30.5	54.6	21.2	87.2	21.5	39.4

Source: HFCS 2014, ECB.

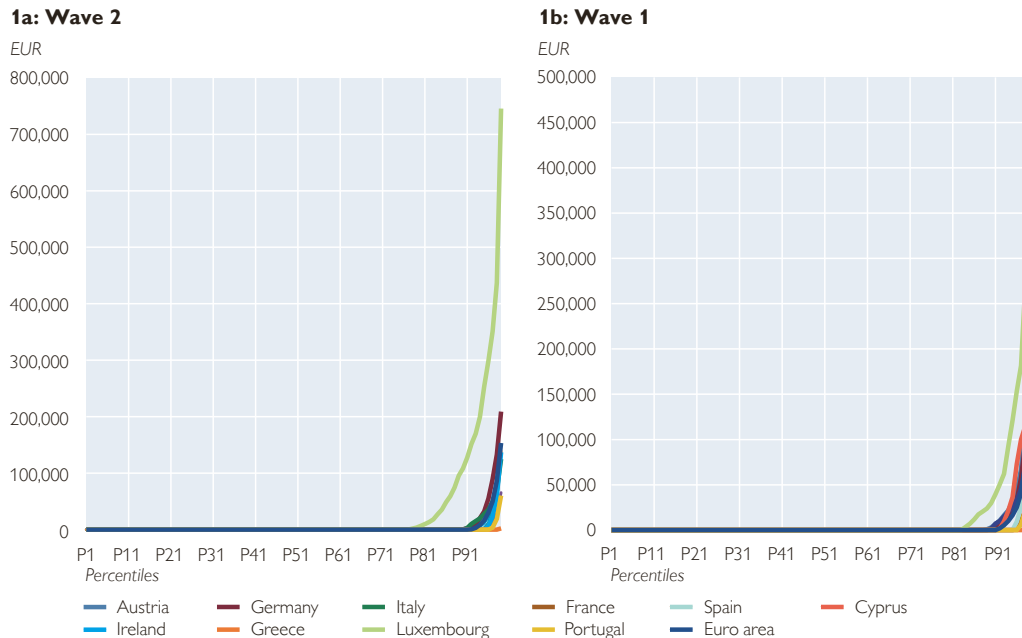
EUR 104,000 and EUR 223,000, these investors are about three times as affluent as the general population in the euro area. This finding holds not only for wealth but also for income figures. Thus, affluent households in terms of wealth and income are the main investors in these types of riskier financial assets. The overall finding for the euro area holds in each country displayed in the table. Specific results vary, however. We see that participation rates for example range from 1.1% in Greece to about 22.4% in Luxembourg. Luxembourg in particular displays the expected pattern, with a higher share of relatively affluent households holding bail-in-able financial assets. Also the factor

by which investors are more affluent varies across countries, reaching levels of about 5 to 6 in countries such as Germany, France and Ireland with regard to the median net wealth level.

Table 7 also shows that bail-in-able assets are held by a small fraction of the bottom 90% of the population according to the gross wealth distribution. Even within the group of the most affluent households, such assets are held by a minority (usually below 30%, the euro area figure being 29.3%). Therefore, households holding such assets should display a relatively high resilience concerning a shock stemming from revaluations of bail-in-able assets.

Chart 1

### Distribution of bail-in-able investments across all households



Source: 1a: HFCS 2014, ECB; 1b: HFCS 2010, ECB.

Note: For the first wave of the HFCS, savings in Austria are taken as derived by the ECB (without separation of wealth held in life insurance); one German household and about 160 French households who had missing values in funds were left out.

#### 2.4.2 Distribution of bail-in-able assets

Chart 1a displays the overall distribution of the sum of all bail-in-able assets. This chart is only shown for the total of all bail-in-able assets as this chart looks generally similar for all separate asset types.<sup>13</sup> The displayed distribution takes all households into account in the sense that if households do not have any bail-in-able assets their level of investment is zero. The chart shows that the large majority of households is not prone to any revaluation of such assets since they do not hold any. In almost all countries, it is only the top 10% of bail-in-able investors that own such assets.

This is evident from all the charts except the one for Luxembourg, where a positive amount is already registered around the 80<sup>th</sup> percentile. Further to

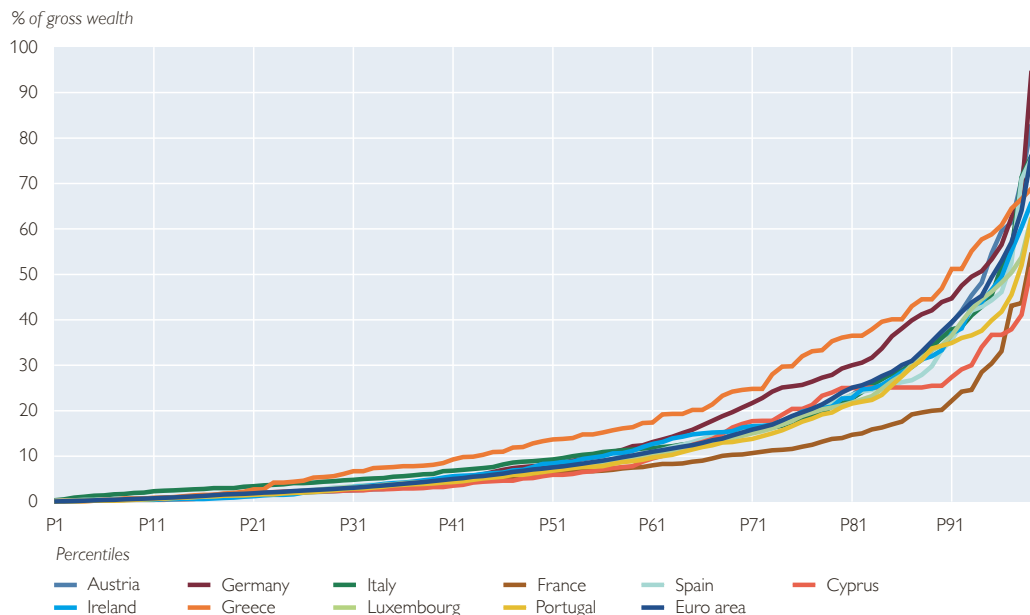
the right, the distribution is relatively steep, indicating that even across owners of this type of assets the distribution is relatively skewed. Greece shows a somewhat different pattern since the positive amount is only relatively small at the far-right tail of the distribution, coming to less than EUR 3,000 for the 99<sup>th</sup> percentile. Chart 1b adds the results from the first wave of the HFCS<sup>14</sup> conducted in 2010–2011. The results show the stability of findings over the time horizon so that the results for the second wave should be valid not only for the time of the interview, but for a longer time span. In general, the investment behavior of households seems to be very stable.

Chart 2 shows the distribution of the conditional share of investments in

<sup>13</sup> Note that some charts for the specific investment types are more skewed, especially if participation rates are below 1%.

<sup>14</sup> Note that the sample of countries comprising the euro area figure in the first wave is different from the one of the second wave since not all countries took part in the first wave of the HFCS.

### Conditional distribution of bail-in-able assets in relation to gross wealth across potentially affected households



Source: HFCS 2014, ECB.

relation to gross wealth. In contrast to the charts above, this chart considers only those households who are invested in bail-in-able funds. All other households – the large majority – are left out from the calculation of this chart.

By definition, this result is bounded between 0% and 100% (vertical axis). The chart shows 99 percentiles of the conditional distribution taking only investors in bail-in-able financial products into account. Thus, in the euro area for example it is based on 8.3% of all households. Within this group of households, chart 2 shows that in all countries most households invest only a small fraction of their assets in these types of products, making the impact of a potential shock to their portfolio less severe. For all countries but Greece, which exhibits relatively few investors, even the 80<sup>th</sup> percentile is below 30% of gross wealth. Less than 10% of all investors hold more than half of their wealth in bail-in-able vehicles.

### 3 Summary of the findings – concluding remarks

As households are among the groups potentially affected by bail-in activities of European resolution authorities, it is important to find out whether (partial) impairments of their assets have implications for financial stability. Data from the Eurosystem Household Finance and Consumption Survey show that the participation rate of households in bail-in-able instruments, in particular bank bonds, is rather low, ranging from 0.2% to 5.5% for bank bonds in selected euro area countries. Households owning such instruments earn higher incomes and are more affluent in terms of wealth than the overall population, which means that their financial resilience to absorb shocks from asset devaluation is high. The high loss absorption capacity of the households concerned shows further that direct risks to current financial stability stemming from a bail-in of households assets are economically speaking very low.

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