Radke, Marc-Peter; Rupprecht, Manuel

Article

The Bill, Please! Households' Real Returns on Financial Assets Since the Introduction of the Euro

Intereconomics

Suggested Citation: Radke, Marc-Peter; Rupprecht, Manuel (2019) : The Bill, Please! Households' Real Returns on Financial Assets Since the Introduction of the Euro, Intereconomics, ISSN 1613-964X, Springer, Heidelberg, Vol. 54, Iss. 2, pp. 106-113, https://doi.org/10.1007/s10272-019-0803-6

This Version is available at:
https://hdl.handle.net/10419/213201

DOI: 10.1007/s10272-019-0803-6

Marc-Peter Radke, Manuel Rupprecht

The Bill, Please! Households' Real Returns on Financial Assets Since the Introduction of the Euro

This paper examines the real return that households in large euro area countries achieved with their financial portfolios since the onset of the euro. A newly compiled dataset shows that, contrary to widespread belief, overall real returns did not decline in the low interest environment. Indeed with the exception of Italy, they increased on average between 2008-2017. The determinants for this development, however, differ between the countries under consideration.

There was the widespread belief that the year 2018 would likely mark a turning point in the recent history of monetary policy in the euro area. After ten years of historically low interest rates and a massive expansion of the eurosystem's balance sheet due to non-standard monetary policy measures, net asset purchases were supposed in December 2018. Although policy rates were enunciated to remain at their present low levels through the summer of 2019, it is widely expected that they will rise immediately afterwards.[1] In March 2019, however, the ECB announced the introduction of a new set of longer-term refinancing operations and that it would keep key interest rates at their current low levels at least until the end of 2019 due to a weakening real sector and inflation outlook.[2]

Aside from the controversies regarding the effectiveness of the ECB's accommodating stance on output and inflation stabilisation, there has been an ongoing debate about the impact of the extended low interest rate environment on the financial wealth of euro area households. Some argue that low nominal policy rates have "hurt" savers due to declining returns of their financial portfolios.[3] While others argue, that household portfolios containing marketable financial instruments, such as shares or debt securities, benefited significantly in aggregate terms from low policy rates because the latter contributed to rising market valuations and, therefore, to a rise in the yields of these instruments.

In this paper, we examine the aforementioned arguments. To do so, we use a newly compiled dataset that allows us to discuss these issues from a macroeconomic perspective in a consistent manner. In particular, we ask what the past decade of low, zero or even negative policy rates has meant for euro area households in terms of the *ex-post* real rate of return on their aggregated financial portfolios and how this period has differed from the pre-2008 era. While it is understood that bank deposits typically generate only low real returns independent of the policy rate level, and that indebted households have even benefited from falling rates,[4] a comprehensive discussion of the complete financial portfolio is still missing. Moreover, we focus on the contribution of different asset classes to the overall real yield on aggregate financial portfolios over time. In order to account for potential heterogeneity, we compare developments in the euro area as a whole with developmemts in the four largest economies (France,

1 M. Draghi: Introductory statement to the press conference, European Central Bank, 24 January 2019, available at https://www.ecb.europa.eu/press/pressconf/2019/html/ecb.is190124~cd3821f8f5.en.html.

2 M. Draghi: Introductory statement to the press conference, European Central Bank, 7 March 2019, available at https://www.ecb.europa.eu/press/pressconf/2019/html/ecb.is190307~de1fdbd0b0.en.html.

3 For criticism of this kind, see, for instance, M. Heise: How the ECB Hurts Europe's Savers, The Wall Street Journal, 2 February 2016, available at https://www.wsj.com/articles/how-the-ecb-hurts-europes-savers-1454445450. For a more general discussion of these and similar issues from the ECB's perspective, see U. Bindseil, C. Domnick, J. Zeuner: Critique of accommodating central bank policies and the "expropriation of the saver" – a review, ECB Occasional Paper No. 161, 2015, European Central Bank.

4 European Central Bank: Low interest rates and households' net interest income, ECB Economic Bulletin No. 4, 2016, Box 3, pp. 38-40.

Marc-Peter Radke, HFU Business School, Villingen-Schwenningen, Germany.

Manuel Rupprecht, Münster School of Business, Germany.

Germany, Italy and Spain). Our analysis refers to financial assets according to the definitions and classifications of the European System of Accounts (ESA) 2010,[5] and does not include any non-financial assets (such as dwellings and land) or liabilities.

The starting point of the computation of our dataset was the real *ex-post* returns of the financial wealth of German households as initially published by the Deutsche Bundesbank and described in more detail by Annuß and Rupprecht.[6] In addition to the real returns of total financial assets, this dataset also includes information on the real returns of all major asset types: bank deposits, claims against insurance companies and pension funds, and securities (shares, debt securities and mutual fund shares). To the best of our knowledge, this is the only source of this data; no such information is available for France, Italy, Spain and the euro area as a whole. We closely followed this approach in order to come up with similar information for those territories.

This implied two major challenges. First, the level of detail and comprehensiveness of the data used by the Bundesbank is not publically available – for Germany or for the other areas of interest. For instance, while euro area central banks officially collect information on individual mutual funds (inflow of funds, price developments, payouts etc.) as well as sectoral holdings of securities on a security-by-security basis, publically accessible databases contain only limited information of this sort. Second, some of the data sources that the Bundesbank uses for Germany are not available at all for other countries. This is inter alia true for aggregate information on the return of claims against insurance companies and pension funds. Although in some cases, related information is provided by international organisations (such as by the OECD), the data either suffers from limited international comparability, time inconsistencies or limited availability for only selected years.

To overcome these limitations, it was necessary to come up with a modified computational approach, alternative data sources and newly compiled data. Our approach follows the compilation of a standard financial portfolio return rate, where the rates of return of individual assets contained in the portfolio are weighted by their respective shares in the portfolio based on market prices – i.e. the share of asset *i* in the portfolio is computed as the market value of asset *i* divided by the market value of all assets included in the portfolio. We also considered the same major asset classes as the Bundesbank did for Germany (see above). Regarding the nominal (market) value of those asset classes, we used a variety of data sources, including providers of official statistics such as national central banks, the ECB, Eurostat and national statistical offices, as well as the OECD.

For data on yields, we followed a two-step approach. First, we determined the nominal yields of each asset class by referring to financial market data (e.g. interest rates, bond indices, stock market indices or distributions of shareholdings) and accounting data,[7] in which nominal yields of debt securities, shares and mutual fund shares were all based on performance or total return indices.[8] Data of this kind was mainly drawn from Thomson Reuters. Second, these nominal yields for each asset class were deflated into real *ex-post* yields by using national data on realised inflation in the respective years published by Eurostat.[9] This computation exercise allowed us to determine the real returns for both total financial assets and each asset type in the financial portfolio of households in the aforementioned territories, which are comparable across time.[10]

To assess the consistency and quality of our approach, we first compared our results for Germany with the Bundesbank's calculations. Figure 1 shows the real returns that German households achieved with their total financial assets, as officially published by the Deutsche Bundesbank and according to our own compilation. Although our data deviates from the Bundesbank results from time to time, it is evident that both the level and the dynamics correspond very closely. German households achieved on

5 ESA 2010 is the European counterpart of the global statistical standard of the System of National Accounts (SNA) 2008. For details, see European Commission: European system of accounts – ESA 2010, Luxembourg 2013, Publications Office of the European Union; and European Central Bank: New international standards in statistics – Enhancements to methodology and data availability, ECB Monthly Bulletin, August 2014, pp. 83-97.

6 Deutsche Bundesbank: German households' saving and investment behavior in light of the low-interest-rate environment, Monthly Report, October 2015, pp. 13-31; and C. Annuß, M. Rupprecht: Anlageverhalten privater Haushalte in Deutschland: Die Rolle der realen Rendite, in: DIW Quarterly Journal of Economic Research, Vol. 85, No. 1, 2016, pp. 95-109.

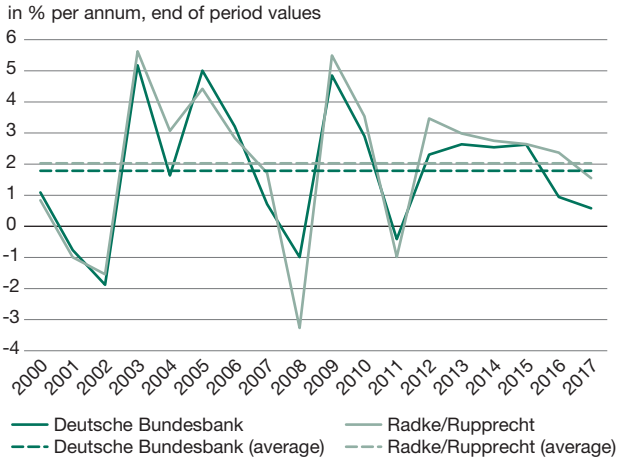
7 The yields of claims against insurance corporations and pension funds were determined by using accounting data of stock market-listed insurance companies in the respective territories.

8 Since there was no reliable data available for yields in the categories financial derivatives and employee stock options and other accounts receivable/payable, as well as for the sub-category "other equity" within the main category equity, we assumed a real rate of return of zero percent as an extremely conservative measurement. Insofar as the shares of those assets in the country portfolios were comparatively low, for example only five percent in Germany, the implied distortions in the aggregate yield seem to be very small and reasonable.

9 All real yields were computed according to the "exact" computation formula $r_t = [(1 + i_t)/(1 + \varpi_t)] - 1$, where r_t denotes the real yield in period t, i_t the nominal yield in period t, and ϖ_t the inflation rate in period t.

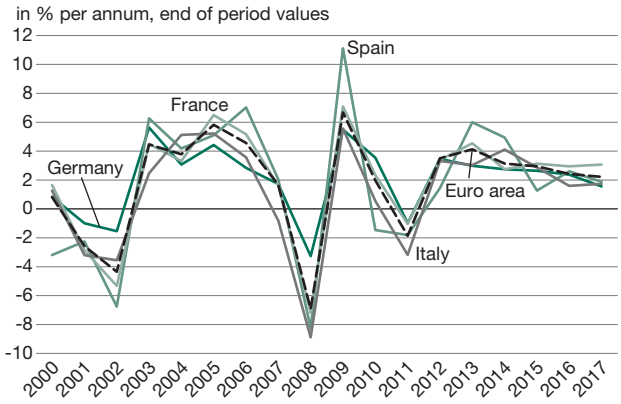
10 In most cases, data for the euro area were computed as a weighted average of all four countries' data due to data limitations.

Figure 1
Real returns on total financial assets of households in Germany, 2000-2017



Source: Deutsche Bundesbank: German households' saving and investment behavior in light of the low-interest-rate environment, Monthly Report, October 2015, pp. 13-31; own calculations.

Figure 2
Real returns on total financial assets of households in France, Germany, Italy, Spain and the euro area, 2000-2017



Source: Own calculations based on sources and methods previously mentioned in the text.

average a real return of 1.8% (Bundesbank) and 2% (our compilation) respectively between 2000 and 2017, while deviations in the dynamics do not follow any systematic pattern visibly or statistically. Similar developments, which are not included in Figure 1, can be observed on the level of the particular financial assets. We take this as an indication that our compilation is appropriate for overcoming the aforementioned shortcomings and therefore adequate for application in the remaining territories.

Figure 2 shows the overall real returns that households achieved with their financial portfolio in France, Germany, Italy, Spain and the euro area as a whole from 2000 onwards according to our compilation; Table 1 provides the corresponding summary statistics. Four things stand out. First, negative real returns are neither a new nor a unique characteristic of the low interest rate environment, although recent critics of the ECB's monetary policy tend to suggest this.[11] This phenomenon, which has already been documented for Germany by the Bundesbank as well as by Annuß and Rupprecht,[12] is apparently also true for the other countries.

Second, the general pattern of development is rather similar in all territories. Real returns became negative in the early 2000s after the dotcom crash; after the 'honeymoon phase' during which yields were positive, they turned negative again in 2008 when the financial crisis broke out and all economies entered a recession. Against the backdrop of severe economic and political distortions threatening the existence of the euro, a period of fluctuating real returns followed.[13] Nevertheless, from 2012 onwards, households in all countries achieved positive real returns in every year.

Third, the arithmetic mean returns for the whole period do not differ significantly. Germany and France exhibit slightly higher (both +0.2 percentage points (pp)), while Italy (-0.6 pp) and Spain (-0.1 pp) have slightly lower values compared to the euro area average of 1.8%. As all real return distributions are skewed left,[14] the median values are generally higher, where France (+0.3 pp) again lies slightly

11 See, for instance, M. Heise, op. cit.
12 See Deutsche Bundesbank, op. cit.; and C. Annuß, M. Rupprecht, op. cit.

13 It was in this period that criticism of the ECB's policy intensified. Up until then, there was a broad consensus among (academic and applied) economists that the policy stance was adequate despite the application of unconventional measures, as the main aim was to overcome liquidity constraints within the banking system, and, hence, preserve price stability. With the intensification of the crisis in the euro area, the announcement of the OMT programme in July 2012 and the eventual implication of the asset purchase programme, critics stressed that the ECB had changed its monetary policy strategy, thereby inter alia spurring the wrong incentives and threatening savers. For a more detailed discussion of these issues, see S. Eijffinger, L. Hoogduin: ECB: Quo Vadis?, in: Intereconomics, Vol. 52, No. 3, 2018, pp. 170-173; and A. Winkler: Zehn Jahre nach dem Konkurs von Lehman Brothers – Ordnungspolitische Irrtümer in der Bewertung der EZB-Geldpolitik seit der globalen Finanzkrise, in: Perspektiven der Wirtschaftspolitik, Vol. 19, No. 2, 2018, pp. 141-162.
14 The skew exhibits negative values for all real return series, indicating that the mass of all distributions is located "on the right", and that the distributions' tails "on the left" are "longer".

Table 1
Real returns on households' financial assets, 2000-2017
in % per annum

	Mean (arithmetic)			Standard deviation		
	2000-2017	2000-2007	2008-2017	2000-2017	2000-2007	2008-2017
France	1.98	1.82	2.10	3.82	4.06	3.83
Germany	2.03	2.00	2.05	2.42	2.50	2.48
Italy	1.16	1.26	1.07	3.79	3.48	4.21
Spain	1.67	1.55	1.77	4.96	5.04	5.16
Euro area	1.80	1.77	1.82	3.58	3.64	3.73
	Median			Mean (geometric)		
	2000-2017	2000-2007	2008-2017	2000-2017	2000-2007	2008-2017
France	3.01	2.49	3.01	1.91	1.75	2.03
Germany	2.70	2.28	2.70	2.00	1.97	2.03
Italy	2.10	1.87	2.30	1.09	1.21	0.99
Spain	1.96	3.12	1.66	1.56	1.44	1.65
Euro area	2.68	2.71	2.68	1.74	1.72	1.76

Note: The geometric mean represents compound annual real returns.

Source: Own calculations based on sources and methods previously mentioned in the text.

above, and Italy (-0.6 pp) as well as Spain (-0.7 pp) are below the euro-area average of 2.7%, which is equal to Germany's median returns. Geometric means, corresponding to the compound annual rate of returns, are close to the arithmetic means, with France (+0.2 pp) and Germany (+0.3 pp) lying somewhat above, and Italy (-0.7 pp) as well as Spain (-0.2 pp) are slightly below the euro area average of 1.7%. Overall, the fact that long-run average returns do not significantly differ between countries is hardly surprising, considering their highly integrated economies.

Fourth, in contrast to mean returns, volatility measures point to significant differences between countries. Spanish households experienced rather high volatility during the entire time span with a standard deviation of five percent. Germany marks the other end of the spectrum with households' average real returns showing relatively little fluctuation (standard deviation of 2.4%). Fluctuations in France and Italy (both 3.8%) are somewhere in between and very close to the euro area's standard deviation of 3.6%.[15] The fact that volatility significantly varied between countries inter alia indicates that the particular assets contributed differently to overall real returns.

In order to study this issue more closely, we broke down the aggregate portfolio yields into yield contributions of the individual asset classes, where the yield of each asset was weighted with its respective portfolio share. Figure 3 illustrates the results and allows us to highlight three facts. First, bank deposits had either only a low positive (France and Germany) or even a primarily negative impact (Italy and Spain), with almost no fluctuations over time. Second, in stark contrast to deposits, the yield contribution of securities was much greater and more volatile in all countries and dominated the volatility of the overall real portfolio yield over time. Still, there was a great deal of cross-country heterogeneity. The contribution of securities – both in level and volatility – was particularly pronounced in Spain and Italy. Third, the contributions of claims against insurance companies and pension funds relative to the overall portfolio yield were particularly important in France and Germany, but less so in Italy and Spain. Considering these country-specific roles of the particular assets, it is less surprising that fluctuations of overall real returns differed between countries.

Next, we split up the whole period into two phases: the pre-crisis years (2000-2007, phase one) and the crisis and post-crisis years (2008-2017, phase two). We have done this in order to examine whether the years with historically low policy rates (phase two) were in some way different from the 'old normal' of monetary policy (phase one). Referring to Table 1, it turns out that country-specific mean returns are very similar and remarkably stable over time. While Italy and Spain exhibit below-average values in both phases compared to euro area mean returns, households in France and Germany achieved above average returns. In all countries (except Italy), mean returns in phase two are even slightly higher. However, these average figures should not mask the obvious downward trend in annual returns since 2012 (Figures 2 and 3). Furthermore, although volatility differed between countries, it did not differ significantly between the two phases. While standard deviations for Italy, Spain and the Eurozone increased only slightly in phase two, volatility in France and Germany decreased slightly on average.

Summing up the evidence, the data presented here suggests that, contrary to popular belief, an environment of low policy rates is not necessarily bad for savers, at least, not yet. Even in 2017, and with the exception of Germany, overall real returns of households were above the long-term average everywhere. With regards to volatility, things look very similar. That is, on the country level, developments did not visibly change in the low interest rate environment.

15 Statistical equality tests for arithmetic means, medians and standard deviations across countries mostly indicate that the observed differences are statistically insignificant. These results, however, should be treated with caution due to the rather small number of observations and the non-normality of the distributions.

Figure 3

Contributions of particular assets in France, Germany, Italy and Spain over time, 2000-2017

Overall real returns in % per annum, contributions in percentage points

Source: Own calculations.

In order to shed more light on the observed cross-country heterogeneities in mean returns and volatilities, we broke down the country-specific overall real return developments into (i) changes in real returns on particular asset classes (price effects),[16] and (ii) changes in portfolio structures (quantity effects).[17] Starting with real returns, Table 2 illustrates the fact that there are significant differences across countries both in mean returns and volatility of shares, mutual fund shares as well as claims against insurance companies and pension funds. In contrast, currency and deposits and debt securities exhibit only small differences. For almost all countries and most asset classes, the real returns in phase two were higher. Nevertheless, the latter have been subject to downward trends since 2012, albeit to varying degrees.

Referring to individual assets and, hence, the price effects, currency and deposits earned on average negative rates of return after the creation of the monetary union in almost all countries (except for France). Though real deposit returns became less negative in phase two in Italy, Spain and the euro area, the German yield went from positive to negative. Debt securities were the most homogenous group, where the overall rise in average yields between phase one and phase two was most pronounced in Spain. Average real returns of shares varied greatly between countries and were highly volatile in all periods considered. Contrary to the general upward trend in stock markets in phase two, Italy and Spain experienced a decline in the average real return of shares, reflecting the weakness in real sector developments. Average real yields on mutual fund shares exhibited a similar range like

16 Cross-country differences in the developments of real returns on specific assets can be split up even further into cross-country differences in nominal yields and inflation rates. In the following, we limit our analysis to differences in real returns for the sake of clarity.

17 For a more detailed discussion of country-specific financial portfolios, see M. Rupprecht: Low Interest Rates and Household Portfolio Behaviour in Euro Area Countries, in: Intereconomics, Vol. 53, No. 3, 2018, pp. 174-178.

Table 2
Real returns on different types of assets, 2000-2017
in % per annum

Real return on	Mean (arithmetic)			Standard deviation		
	2000-2017	2000-2007	2008-2017	2000-2017	2000-2007	2008-2017
Currency and deposits						
France	0.21	0.22	0.21	0.51	0.27	0.66
Germany	-0.04	0.36	-0.37	0.74	0.41	0.79
Italy	-0.93	-1.27	-0.67	0.86	0.44	1.04
Spain	-1.11	-2.18	-0.25	1.39	0.73	1.18
Euro area	-0.28	-0.30	-0.27	0.60	0.26	0.79
Debt securities						
France	3.34	3.07	3.55	3.61	3.12	4.11
Germany	3.49	3.23	3.70	3.59	3.27	3.98
Italy	3.12	2.75	3.42	4.13	3.20	4.90
Spain	3.01	1.91	3.89	3.79	3.22	4.14
Euro area	3.23	2.88	3.51	3.85	3.20	4.46
Shares						
France	3.68	1.44	5.47	19.26	19.48	19.94
Germany	4.92	3.43	6.12	22.44	25.35	21.16
Italy	1.15	1.42	0.94	18.59	17.27	20.50
Spain	3.58	4.58	2.78	20.27	20.29	21.32
Euro area	3.32	2.33	4.10	20.41	20.57	21.36
Mutual fund shares						
France	1.86	1.64	2.04	4.12	3.50	4.74
Germany	5.01	3.70	6.06	9.65	8.97	10.52
Italy	3.05	2.53	3.47	4.15	3.04	4.99
Spain	2.00	0.96	2.83	3.15	2.23	3.63
Euro area	3.37	2.59	3.99	5.84	4.94	6.66
Claims against insurance corporations and pension funds						
France	3.22	3.65	2.87	3.31	3.51	3.30
Germany	2.95	3.14	2.79	1.30	1.43	1.25
Italy	2.27	2.56	2.04	2.21	1.10	2.85
Spain	4.61	3.93	5.15	1.69	1.55	1.66
Euro area	3.06	3.30	2.86	1.80	1.33	2.16

Source: Own calculations based on sources and methods previously mentioned in the text.

shares on the country levels. Their volatility, however, was much lower. In all countries, real returns of mutual fund shares rose in phase two, particularly in Germany. By way of contrast, average real yields of claims against insurance corporations and pension funds decreased almost everywhere after 2008, partly reflecting the limited ability of these institutional investors to restructure their portfolios due to regulatory requirements. Not surprisingly, the volatility of the real return of this asset class was significantly lower than that of securities.

As regards the household portfolio structures, the quantity effects, Table 3 illustrates that German and French households' portfolios were generally dominated by currency and deposits as well as claims against insurance corporations and pension funds. Italian households also had a strong preference for currency and deposits, but held fewer insurance and pension fund products than their German and French counterparts did. In contrast, the share of securities in Italy was almost twice as high as it was in Germany and France. Spanish households' portfolios resembled the Italian portfolio structure. Spanish households exhibited the highest share of currency and deposits of all countries; they held a share of insurance and pension fund products similar to Italy's, but a lower average share of securities. The household portfolio structure of the euro area as a whole was similar to those of Germany and France. All in all, Italian and Spanish households were much more capital market-oriented than German and French households, and, therefore, were more prone to financial market fluctuations.

Table 3 documents various changes in households' portfolio adjustments from phase one to phase two. In all territories, there was a reduction in the share of securities, ranging from -7.0 pp in France to -15.5 pp in Italy. As Rupprecht has previously shown, this reduction can mainly be attributed to active portfolio restructuring rather than to a change in market prices. It was ultimately the result of the financial crisis and the subsequent euro area debt crisis.[18] In contrast, households in all countries increased their share of currency and deposits by up to +6.4 pp, except in France. Claims against insurance corporations and pension funds gained importance in all countries as well, where France experienced the most significant increase.

Merging the information regarding these price and quantity effects allows us to pin down three main developments that drove the changes in aggregate real portfolio yields from phase one to phase two. First, households in most territories increased their share of currency and deposits, which earned either a less negative return (Italy, Spain, euro area), or whose return decreased to lower positive (France) or negative (Germany) values in phase

18 See M. Rupprecht, op. cit. for a more detailed discussion of the portfolio developments in the territories under review. In general, a change in the share of securities can be caused by two effects: first, due to changes in market prices and second, due to inflows and outflows (purchases/sales) of assets. While the aforementioned reduction in holdings of securities may be the result of both, Rupprecht has shown that in all countries under review, this declining share can mainly be attributed to (net) outflows (sales).

Table 3
Household portfolio structures, 2000-2017
Share of particular asset class in %

	Mean		
	2000-2017	2000-2007	2008-2017
France			
Currency and deposits	29.5	30.4	28.8
Securities	23.8	27.7	20.7
Debt securities	2.2	2.7	1.8
Shares	13.9	16.1	12.1
Mutual fund shares	7.7	8.9	6.8
Claims against insurance corporations and pension funds	34.0	30.5	36.8
Other assets	12.7	11.5	13.7
Germany			
Currency and deposits	37.7	35.8	39.3
Securities	23.0	27.2	19.6
Debt securities	5.7	7.2	4.5
Shares	6.9	8.4	5.7
Mutual fund shares	10.4	11.7	9.5
Claims against insurance corporations and pension funds	33.9	31,0	36.2
Other assets	5.4	6.0	4.9
Italy			
Currency and deposits	27.9	24.3	30.7
Securities	42.5	51.1	35.6
Debt securities	17.0	18,8	15.5
Shares	15.1	19.9	11.2
Mutual fund shares	10.5	12.4	8.9
Claims against insurance corporations and pension funds	17.5	14,5	19.8
Other assets	12.2	10.1	13.9
Spain			
Currency and deposits	41.8	38.4	44.5
Securities	36.5	40.8	33.0
Debt securities	2,6	2.5	2.7
Shares	22.8	25.8	20.4
Mutual fund shares	11.1	12.5	10.0
Claims against insurance corporations and pension funds	15.4	14.7	16.0
Other assets	6.3	6.1	6.4
Euro area			
Currency and deposits	32.0	29.9	33.7
Securities	29.0	34.6	24.6
Debt securities	6.6	7.9	5.6
Shares	13.4	16.2	11.2
Mutual fund shares	9.0	10.5	7.8
Claims against insurance corporations and pension funds	29.6	26.5	32.0
Other assets	9.4	9.0	9.6

Note: Figures may not add up to 100% due to rounding. Other assets comprise financial derivatives and employee stock options as well as other accounts receivable.

Source: Own calculations based on sources and methods previously mentioned in the text.

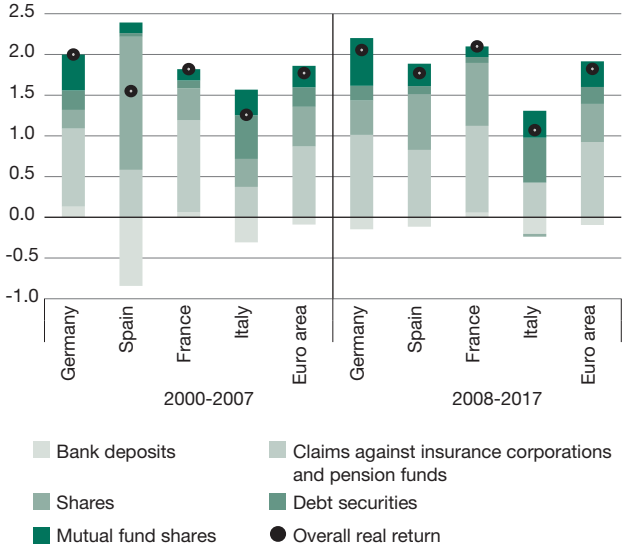
two. Second, households in all countries reduced their share of securities, but real yields increased during that time. Spain and Italy are exceptions, however, who saw real yields on shares decline. Third, households in all territories increased their share of insurance and pension fund assets while real yields declined simultaneously; the exception was Spain, where real yields increased. Depending on the relative strength of the respective quantity and price effects, different developments of aggregate real yields emerged in the particular territories as shown in Figure 4.

Despite comparatively high portfolio shares, bank deposits contributed very little to overall real returns in both phases in all countries under review. Only in France did deposits have on average a small positive impact on the overall real return in both phases. In Germany, a rising average portfolio share and a dip in the average yield into negative territory led to a negative contribution in phase two. In Italy, Spain and the euro area as a whole, bank deposits were more of a burden than a gain, reducing total real returns in both phases, and in fact, even in most of the individual years. The negative contribution, however, declined in Spain and Italy due to less negative average returns, despite rising portfolio shares.

In contrast to currency and deposits, all other asset types continuously contributed in a positive way to overall yields (except for shares in Italy in phase two). The particular roles, however, varied between countries. In Germany and France, claims against insurance corporations and pension funds were particularly important in both phases. With the exception of France, the contribution of this asset class to average overall real returns actually increased in all territories, despite lower yields (except in Spain), but due to higher average portfolio shares. The contribution of securities to overall real returns was very important in Italy and Spain, especially in phase one. In phase two, however, their average contribution declined significantly. This is mainly due to a decline in the average portfolio share, while the reduction in the average real returns from shares was less important. In Germany and France, their contribution increased in phase two, caused by a distinct rise in real returns which more than compensated for the reductions in average portfolio shares.

To conclude, contrary to widespread belief, average real returns of households' financial portfolios – with the exception of Italy – did not decline in the low interest environment. Indeed, they have even increased on average since 2008. However, as already highlighted above, average yields should not mask the overall downward trend visible since 2012. In contrast to the view based on average yields, aggregate real portfolio yields could continue

Figure 4
Contributions of particular assets to overall real returns
Overall real returns in %, contributions in percentage points, arithmetic means



Source: Own calculations based on sources and methods previously mentioned in the text.

their downward path if the low interest environment persists.

Furthermore, our analysis highlights the fact that the extent to which the role of securities changes over time differs from country to country. It has been argued that low policy rates can create asset price bubbles (e.g. on stock markets), which in turn drive overall real returns.[19] From a microeconomic perspective, this development is said to benefit only households with shares in their portfolio, whereas others would be left unaffected. As a consequence, this line of argument claims that low policy rates foster a redistribution of wealth in favour of rich households (that is, shareholders).[20] Of course, there is no doubt that only shareholders benefit from rising share prices, irrespective of the reasons for this increase. However, considering the evidence presented here, this does not necessarily imply only shareholders achieve a positive real return when policy rates are low. From an aggregate perspective, the direct holding of shares, debt securities and mutual fund shares contributed even less to the overall real return of households in Spain and Italy in crisis and post-crisis years than it did before. General claims that low policy rates only benefit the rich, therefore, seem to need some reconsideration.

Though redistribution concerns due to low policy rates may be less severe than believed, our analysis also highlights the need to strengthen the financial literacy of households. Although bank deposits exhibited only small positive real returns over the period considered, if any, and barely contributed to overall real returns, almost every household in the euro area holds this asset type.[21] Securities, in contrast, are much less common in spite of their significantly higher real returns. Although the latter comes at the cost of comparatively high volatility, which discourages particularly risk-averse households, research shows that households are increasingly willing to invest in this asset class once they have basic financial and economic skills.[22] This, in turn, could boost their individual overall real returns.[23] Considering the lower future revenues of public pension systems caused by lower birth rates, higher life expectancies and low productivity growth, financial education seems more important than ever.[24]

Although our dataset is unique and allows for consistent household portfolio analysis across time and countries, particularly by disentangling price and quantity effects across all major asset classes, it still has some limitations. First, it is restricted to an aggregate perspective and does not allow any conclusions regarding individual household portfolios. Our analysis also does not consider other aspects of the low interest rate environment (e.g. implications for financial stability) and their potential impact on household portfolio yields. Analyses of this kind inter alia require an even more complex dataset with consistent macro and micro data.

Finally, our approach is restricted to financial assets. Since non-financial assets such as dwellings and land represent a substantial part of household wealth, future research should ideally include those assets in order to obtain a full understanding of households' real portfolio returns. This is also true for the liability side, which would allow for the determination of a 'net' real household portfolio return.

19 See, for instance, M. Brunnermeier, I. Schnabel: Bubbles and Central Banks: Historical Perspectives, GSME Discussion Paper No. 1411, Gutenberg School of Management and Economics, 2014.
20 For a comprehensive discussion on the potential distributional effects of monetary policy, see Deutsche Bundesbank: Distributional effects of monetary policy, Monthly Report, September 2016, pp. 13-36.
21 L. Arrondel et al.: How do households allocate their assets? Stylized facts from the Eurosystem household finance and consumption survey, ECB Working Paper No. 1722, 2014, European Central Bank.
22 M. Lührmann, M. Serra-Garcia, J. Winter: Teaching teenagers in finance: Does it work?, in: Journal of Banking and Finance, Vol. 54, 2015, pp. 160-174.
23 F. Deuflhard, D. Georgarakos, R. Inderst: Financial literacy and savings account returns, ECB Working Paper No. 1852, 2015, European Central Bank.
24 For a detailed analysis of the current challenges of pension systems and possible solutions, see, for example, Organisation for Economic Co-operation and Development (OECD): OECD Pensions Outlook 2016, Paris 2016, OECD Publishing.