

Austrian households' indirect financial investment

Structural analysis based on a look-through approach using security-by-security data

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At end-2017, Austrian households' indirect investment (i.e. mutual fund shares, insurance entitlements as well as funded severance and pension entitlements) came to around EUR 198 billion, corresponding to around 30% of their total financial wealth. While households manage their direct capital market investment themselves (debt securities and quoted shares, totaling EUR 60 billion in 2017), their indirect investment is managed by institutional investors located both in Austria and abroad and is thus not fully transparent to the individual households. This study calculates households' investment using the so-called look-through approach based on security-by-security data, explaining the steps required for this calculation and presenting the results. It shows that households' indirect investment in debt securities is 3.4 times higher than their direct investment in debt securities and that they hold 1.6 times more shares via indirect investment than directly. This means that, under this approach, the home bias of Austrian households' financial wealth significantly shifts toward foreign exposures. Using average financial accounts data for the past ten years, we trace the high share indirect investment has in households' financial wealth.

How independent are households in deciding which financial products to hold in their financial investment portfolios, and what are their risk, liquidity and profit considerations? To answer these questions, the literature offers a number of ways how to employ a look-through approach to compare and assess data on households' direct (deposits, bonds, shares) and indirect financial investment (mutual fund shares, investment products such as life insurance plans) that are available at different levels of aggregation.²

Using the risk exposure indicators developed in a related financial stability analysis³, the present analysis discusses these questions for Austria and compares households' direct exposure to debt securities and shares with their indirect exposure resulting from mutual fund shares, insurance entitlements and funded severance and pension entitlements. In contrast to previous international studies, our detailed analysis relies on recent security-by-security data and on data on individual mutual fund shares derived from custody accounts statistics, mutual fund statistics, insurance statistics based on Solvency II and pension fund statistics as of December 31, 2017.

Section 1 illustrates the importance of indirect investment by analyzing the structure of Austrian households' financial wealth; most recent data (December 31, 2017) indicate the various indirect investment channels used. Using a look-through approach based on security-by-security data, section 2 analyzes the investment strategies employed by domestic institutional investors; section 3 compares households' direct

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² See Oheix and Sejourne (2001), Boutillier et al. (2007) as well as, based on these, Pavot (2017).

³ See Beer and Waschiczek (2007).

capital market activities with their indirect investment activities. Section 4 summarizes the results.

1 Structure of Austrian households' financial wealth

1.1 Households' financial wealth between 1980 and 2017

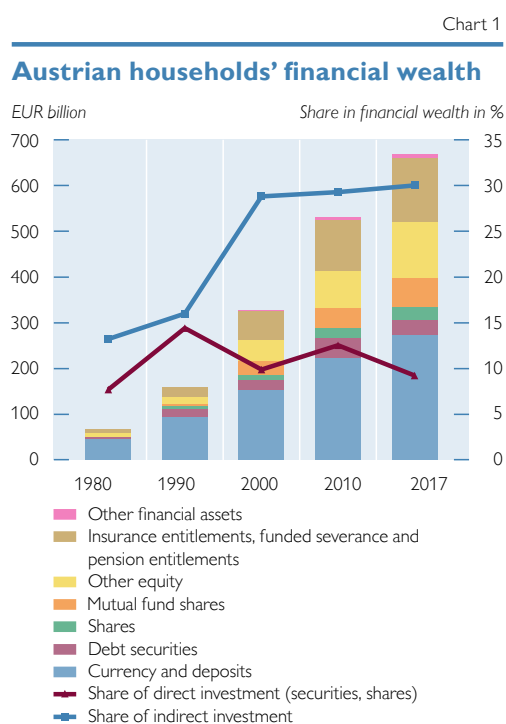
Between 1980 and 2017, Austrian households' financial wealth increased from EUR 67 billion to EUR 668 billion⁴.

In 1980, almost 70% of households' total financial wealth consisted of deposits, with bonds and shares accounting for just 8% and indirect investment for 13%. By 2017, these shares had changed significantly: According to most recent data, 42% of Austrian households' financial wealth consisted of currency and deposits, 9% of direct capital market investments (shares and debt securities), 17% of other equity (in particular, stakes in limited liability companies) and 30% of indirect investment. Indirect investment, in turn, was made up of investment in mutual funds (9 percentage points), insurance entitlements, funded severance and pension entitlements (21 percentage points in total).

When making long-term comparisons, we must account for changes that have occurred in the data basis capturing indirect investment since 1995. Data on households' funded pension entitlements vis-à-vis businesses, insurance companies and banks have only been available since the 1995 reporting year. Such entitlements came to roughly EUR 15 billion in 1995. If we considered a corresponding shift in

the level of funded pension entitlements also for the period from 1980 to 1994, the share of indirect investment in households' financial wealth would be 1 percentage point higher than the actual figures for 1980 and 5 percentage points higher than the actual figures for 1990. At the same time, the share of direct investment would decrease by 1 percentage point on average for the 1980–1994 observation period.

Chart 1 also shows, however, that over the last 20 years, private pension provisions (i.e. life insurance plans, funded severance and pension entitlements) have become gradually more important as households' total financial wealth expanded. There have been shifts from direct severance and pension benefit commitments by employers to investments with pension and severance funds, however. In addition, there was a shift from direct capital market investments



⁴ This figure refers to households including NIPSHs. At end-2017, around EUR 655 billion of this total were accounted for by households in the narrow sense of the word (consumer households and self-employed individuals). Detailed analyses refer to households in the narrow sense.

Chart 2

in the form of debt securities and shares to investments in indirect holdings via mutual fund shares.

Changes in the importance of both direct investment (securities and shares) and indirect investment over time are also reflected in transactions in financial assets. In the second half of the 1990s, investments in long-term debt securities other than shares and investments in mutual fund shares for the first time showed clearly opposite trends. Strong sales were recorded in 1997 and 1998 for corporate and government bonds and, above all, bonds issued by banks. While in 1995, households still held 28% of all outstanding bank bonds in their portfolios, this share went down to around 12% by end-1999 and has remained at this level up to 2018. This means that bank bonds accounted for between 4% and 6% of households' total financial wealth from 1999 up to 2012; a downward trend set in 2012, and by 2017, they stood at 2%. A marked and ongoing change in portfolio allocation can be observed since 2012 as households holding bank bonds have not replaced bonds redeemed by other debt securities, but by mutual fund shares. This decrease was not linear, as can be seen from the figures for 2007, 2008 and 2011. As an immediate effect of capital market uncertainties in the wake of the financial crisis and in the run-up to a change in investment income taxation envisaged for 2012, Austrian households temporarily stepped up their bank bond purchases.

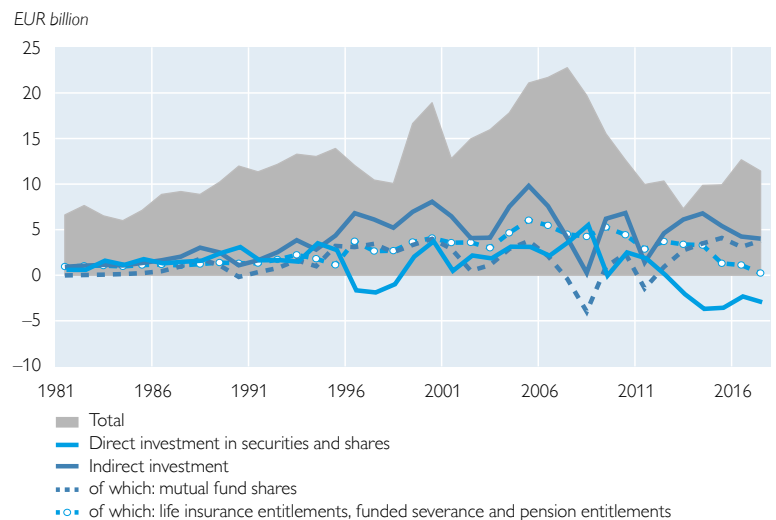
Up to the financial crisis, life insurance entitlements, funded pension entitlements and, as of 2003, severance fund entitlements were constants in households' increasing financial investment. Since 2015, significant decreases have been observed given that, on balance, benefits due exceeded premium payments for life insurance.

Over the entire observation period from 1981 to 2017, direct investment accounted for around 9% of households' total financial investment, while indirect investment accounted for around 33%. This means that the structure of households' financial wealth was strongly influenced by transactions and less markedly by valuation effects.

1.2 Structural information derived from financial accounts statistics

The matrix structure of financial accounts statistics captures the lender-borrower relationships ("from-whom-to-whom" relationships) by individual financing instrument and thus facilitates the calculation of direct investments with domestic and foreign issuers by sector. Financial accounts statistics therefore also contain information on the volume of indirect investment not directly captured in the national accounts and a breakdown of the entire financial assets held by domestic mutual funds, insurance companies, pension funds and severance funds. Moreover, they contain information on capital market investments by businesses recognizing funded pension entitlements in their balance sheets. However, households' entitlements

Austrian households' financial investment

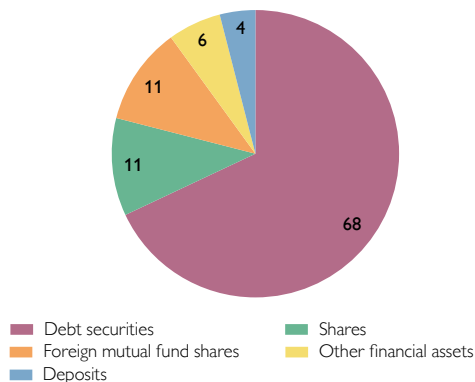


Source: OeNB.

Chart 3

Breakdown of Austrian households' claims by investment instruments used by insurance companies and pension funds

%, as on December 31, 2017

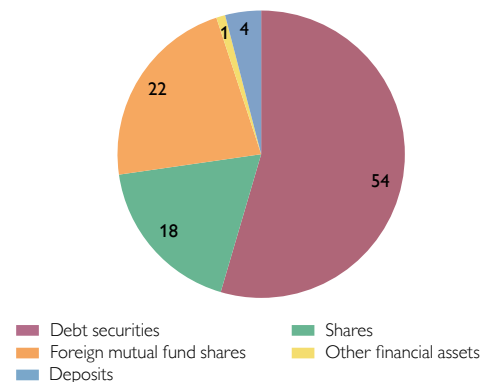


Source: OeNB.

Chart 4

Breakdown of domestic mutual fund shares held by Austrian households, insurance companies and pension funds by underlying financing instruments

%, as on December 31, 2017



Source: OeNB.

cannot be assigned directly to the various stocks of assets invested by financial intermediaries based on financial accounts data. It is possible to calculate pro rata participation rates, however, as insurance companies in particular make most of their investments to cover households' life insurance plans, and pension funds and severance funds invest their entire assets to cover households' entitlements. In addition, households, insurance companies and pension funds, via direct investments, together hold around half of the volumes invested by domestic mutual funds.

To calculate the pro rata participation rate of indirect investment, we use the share of households' holdings vis-à-vis individual institutional investors. Investment by these investors in different types of assets is used proportionally to calculate households' indirect investments.

In doing so, in a first step the claims on insurance companies and pension funds – exclusive of shares held in domestic mutual funds – are assigned to the household sector based on the share of households' claims resulting from insurance-technical reserves and pension entitlements as a share in the total liabilities of these institutions, broken down by investment and/or financing instrument. These claims by households amounted to EUR 55 billion as on December 31, 2017. Chart 3 shows that debt securities accounted for the lion's share (68%) of these EUR 55 billion.

Chart 4 shows the domestic mutual fund shares (around EUR 90 billion in total) held by households, insurance companies and pension funds, assigned on a pro rata basis to the financing instruments domestic mutual funds invested in.

It is evident from chart 4 that domestic fund management companies also invest around half of their financial assets (excluding real estate and financial derivatives) in debt securities. All in all, of a total of EUR 198 billion of indirect investments, EUR 145 billion resulting from the direct calculation of marginal totals can be assigned to individual financing instruments.

The foreign mutual fund shares held directly by Austrian households and by insurance companies and pension funds (on a pro rata basis for households) as well as the fund-of-fund investments in foreign assets held by domestic mutual funds

cannot be assigned on the basis of the calculation of marginal totals. The corresponding volume stood at around EUR 43 billion at end-2017 and thus at around 6% of Austrian households' total financial wealth. Therefore, we used data from mutual fund statistics as well as mirror data from foreign mutual funds as a proxy, deriving at indirectly calculated assets in the form of debt securities of around EUR 16.3 billion and shares of EUR 26.6 billion.⁵

The overall result from our pro rata calculation based on financial accounts data shows that when taking into account indirect financial assets, the share of debt securities held by households rises significantly. While private investors in 2017 directly held debt securities worth EUR 31.5 billion, this figure increases by EUR 102 billion to just under EUR 133 billion when considering indirect investment, including the share of assets invested via foreign mutual funds. According to this calculation, the combined share of directly held debt securities and indirect investments in debt securities goes up from around 5% to 21% of households' total financial wealth, thus equaling the share of overnight deposits. Performing the same calculation for shares produces a similar result: When the EUR 48 billion worth of indirectly held shares are added to the volume of shares directly held by the household sector (EUR 28 billion), the total volume of shares held by households increases to EUR 76 billion (i.e. 11% of households' total financial wealth). The proportional shift that results from this pro rata calculation of marginal totals for the respective shares in households' total wealth appears to have been relatively constant, on average, over the last ten years. In the following sections, the results of this initial pro rata calculation is analyzed more closely using security-by-security data.

2 A closer look at investment strategies in indirect financial investment

2.1 Investment channels in indirect financial investment

Further breakdowns of Austrian households' indirect investment are made possible by the detailed structure of statistics, in particular on unit-linked and non-unit-linked life insurance contracts, on statistics related to the securities custody accounts and on mutual funds, which facilitates breakdowns on a security-by-security basis or by type of funds and thus supports look-through calculations on a security-by-security basis. Chart 5 illustrates the channels relevant for households' indirect investment.

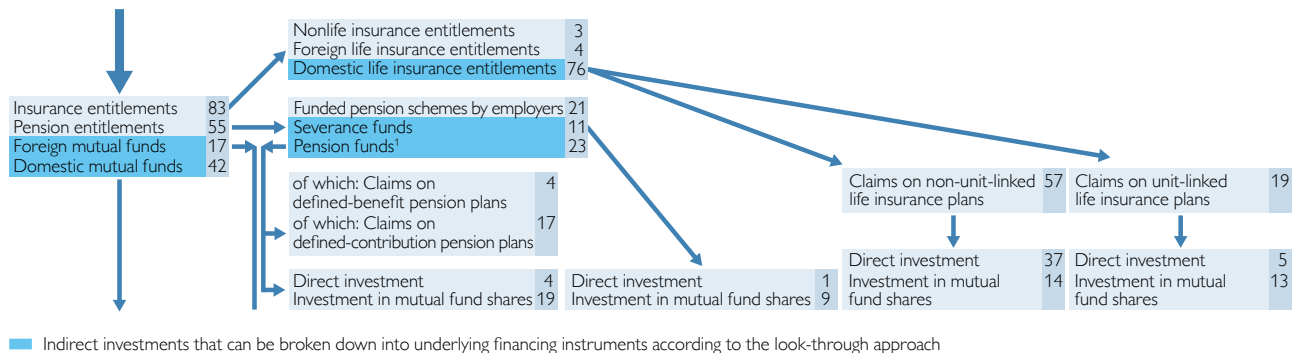
Our further considerations rely on a breakdown of indirect investments into two main areas:

- *Households' direct investments in mutual funds*

Based on profit, liquidity and risk considerations, households decide in which type of fund to invest, while the fund management company is responsible for the portfolio allocation of the investment. In the case of domestic fund management companies, investment details can be derived from security-by-security data on each mutual fund share. This also holds for fund-of-fund investments, as long as they are with domestic fund management companies. The respective investment volume stood at EUR 45 billion at end-2017. To analyze foreign fund shares directly held by Austrian households (EUR 17 billion), a different approach must be applied (see section 2.2 for details).

⁵ See section 2.1 for details.

Austrian households' financial wealth includes EUR 198 billion of indirect investments (30% of total investments) as on December 31, 2017



Source: OeNB.

¹ Including pension entitlements from company group insurance schemes.

Note: Figures indicate EUR billion. Rounding differences are possible.

- *Indirect investment via domestic life insurance plans, domestic pension and severance fund entitlements*

Households decide on the form of hedging⁶ and/or employers settle severance or pension entitlements via institutional investors. While for insurance entitlements, separate data are already available for both unit-linked and non-unit-linked life insurance contracts, it is currently not possible to separate entitlements accrued under defined-contribution pension plans and those accrued under defined-benefit pension plans. Our analysis therefore treats these entitlements as an aggregate. Institutional investors invest their actuarial reserve funds to cover households' entitlements either directly (deposits, capital market instruments or real assets) or indirectly (via mutual funds). Shares in domestic mutual funds can be analyzed as described under item 1, "Households direct investments in mutual funds." The volume of Austrian households' indirect financial investment calculated in this way came to EUR 109 billion at end-2017. For indirect financial investments made in foreign life insurance plans or funded pension plans with employers (enterprises, banks, insurance companies), no direct security-by-security data are available. In this case, investments can only be estimated.

The look-through approach based on security-by-security data can be applied to break down just under one-fourth (EUR 152 billion) of Austrian households' total financial wealth into the underlying financing instruments. For the volume of foreign mutual fund shares held directly by domestic households (EUR 17 billion), the look-through approach can be inferred, by analogy, from the detailed data available on domestic mutual funds investing in foreign funds. This way, around EUR 170 billion can be assigned directly to underlying financing instruments. Both the marginal totals model based on financial accounts data and the look-through approach based on security-by-security data cannot analyze investments in

⁶ This also applies to hedging transactions in connection with foreign currency bullet loans linked to repayment vehicles. In this segment, investment is mainly made in unit-linked life insurance contracts; accumulated savings serve to repay the loan at the end of its term.

funded pension entitlements with employers for lack of detailed data. The volumes of nonlife insurance entitlements and foreign life insurance entitlements are too low to warrant detailed analysis.

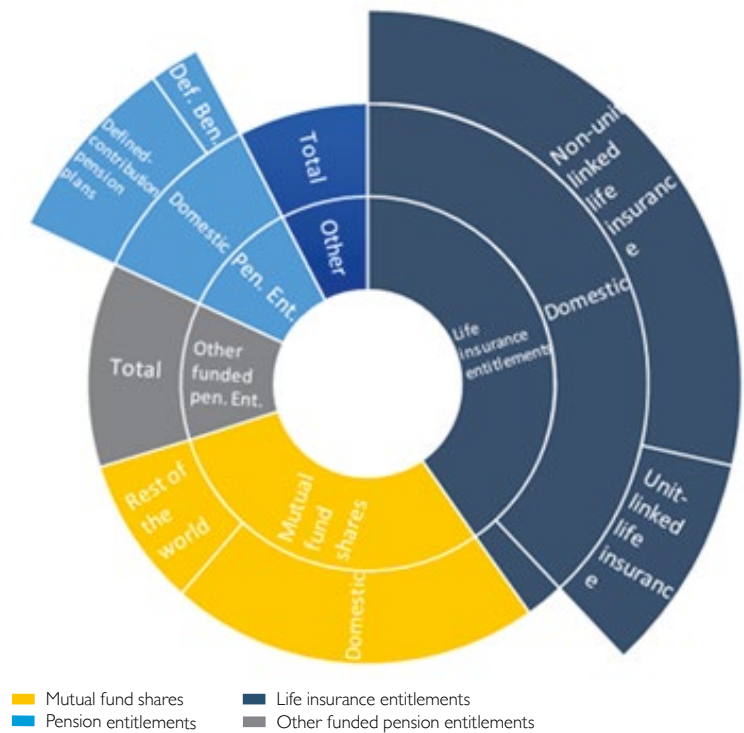
2.2 Domestic mutual funds' investment in retail funds and institutional funds

Domestic mutual funds can be assigned to various types of funds depending on their investment strategy (e.g. equity funds, fixed-income funds, mixed funds, etc.) or their availability to certain groups of investors (retail funds or institutional funds). Retail funds are open to all groups of investors; the majority of their fund shares are held directly by households. Institutional funds, by contrast, are intended for a limited group of big investors (above all institutional investors such as insurance companies and pension funds). 64% (or EUR 18 billion) of domestic fund shares held by insurance companies were specialized fund shares; pension funds held 98% (EUR 18 billion) of their domestic fund shares with institutional funds.

When taking into account indirect investment, households' share of indirect investments in mutual fund shares can be derived from their life insurance, funded severance and pension entitlements. As on December 31, 2017, the investment volume of domestic retail funds came to EUR 98 billion (of which EUR 10 billion are accounted for by retail funds for big investors, which normally are not intended for households) and that of institutional funds came to EUR 87 billion. While both categories of funds posted almost equal shares of debt securities (46% and 43%, respectively), retail funds held more shares and other equity in their portfolios (18%) than institutional funds did (12%). Moreover, retail funds directly held considerably more foreign shares and other equity than institutional funds (85% of all directly held shares and other equity, or EUR 13 billion vs. 79%, or EUR 8 billion). When comparing the investment structures of these two types of funds as of end-2017, we note that the balance sheet composition of institutional funds in particular shows a higher share of directly held mutual fund shares (for retail funds, this share is 26% or EUR 22 billion; for institutional funds, it is 40% or EUR 43 billion).

A closer look at directly held mutual fund shares shows that the share of foreign shares in fund-of-fund investments is high for both types of funds. Altogether, 45% (or EUR 27 billion) of fund-of-fund investments were made with domestic investment companies and 55% (or EUR 33 billion) with foreign investment companies.

Breakdown of Austrian households' indirect investment in 2017



Source: OeNB.

Investments by domestic retail funds and institutional funds

Type of funds	Investment	Retail funds			Retail funds for big investors			Institutional funds		
		EUR million	Composition of investments by type of funds	Funds' share in total value of investments	EUR million	Composition of investments by type of funds	Funds' share in total value of investments	EUR million	Composition of investments by type of funds	Funds' share in total value of investments
Equity funds	Total	17,423		20	1,288		13	10,335		12
	Loans and deposits	430	2		22	2		367	4	
	Debt securities	48	0		554	43		106	1	
	Shares	13,544	78		712	55		6,027	58	
	Domestic fund-of-funds	833	5		0	0		2,293	22	
	Foreign fund-of-funds	2,562	15		0	0		1,460	14	
	Other assets	6	0		0	0		83	1	
Fixed-income funds	Total	39,255		44	3,953		41	27,747		32
	Loans and deposits	1,143	3		175	4		683	2	
	Debt securities	35,402	90		3,640	92		21,535	78	
	Shares	7	0		1	0		1	0	
	Domestic fund-of-funds	1,886	5		84	2		2,701	10	
	Foreign fund-of-funds	747	2		52	1		2,736	10	
	Other assets	71	0		2	0		90	0	
Mixed funds	Total	23,827		27	4,285		44	48,014		55
	Loans and deposits	924	4		107	2		2,234	5	
	Debt securities	4,132	17		389	9		16,170	34	
	Shares	2,136	9		734	17		4,266	9	
	Domestic fund-of-funds	6,793	29		890	21		11,777	25	
	Foreign fund-of-funds	9,811	41		2,162	50		13,532	28	
	Other assets	31	0		2	0		35	0	
Other funds	Total	8,046		9	119		1	933		1
	Loans and deposits	1,395	17		10	8		92	10	
	Debt securities	734	9		20	17		7	1	
	Shares	0	0		0	0		0	0	
	Domestic fund-of-funds	188	2		0	0		0	0	
	Foreign fund-of-funds	133	2		64	53		57	6	
	Other assets	341	4		4	3		293	31	
	Real estate	5,255	65		22	19		485	52	
All types of funds	Total	88,551			9,645			87,029		
	Loans and deposits	3,892	4		313	3		3,375	4	
	Debt securities	40,315	46		4,603	48		37,818	43	
	Shares	15,687	18		1,447	15		10,295	12	
	Domestic fund-of-funds	9,700	11		973	10		16,771	19	
	Foreign fund-of-funds	13,254	15		2,278	24		17,784	20	
	Other assets	449	1		8	0		501	1	
	Real estate	5,255	6		22	0		485	1	
Memorandum item	Foreign fund-of-funds	13,254			2,278			17,784		
	of which:									
	equity funds	8,000	60					7,602	43	
	fixed-income funds	5,020	38					8,400	47	
	other funds	234	2					1,782	10	

Source: OeNB, Centralised Securities Database (ECB).

Chart 7

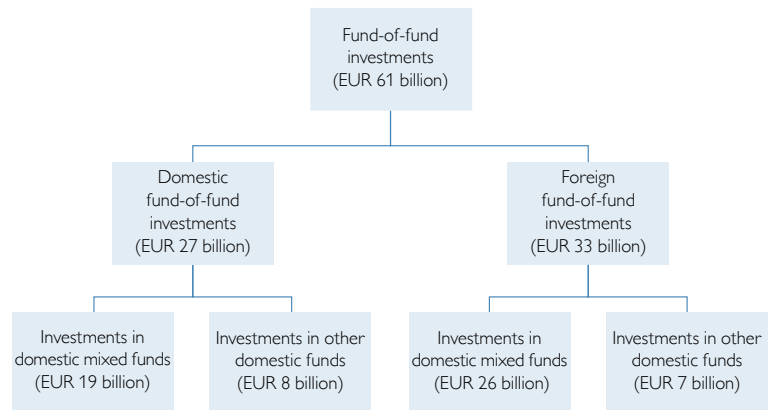
Most fund-of-fund investments both at home and abroad were made by domestic mixed funds, which invested EUR 19 billion of the above-mentioned EUR 27 billion in domestic funds and EUR 26 billion of the above-mentioned EUR 33 billion in foreign funds.

2.2.1 Look-through analysis: domestic mutual funds

A look at fund-of-fund investments in domestic mutual fund shares reveals that

- mixed funds make 62% of their securities investments in domestic and foreign mutual fund shares, surpassing any other types of funds. The look-through approach shows that the most important investment category for mixed funds are debt securities (48%, or EUR 34,7 billion, of which EUR 30.9 billion were invested in foreign debt

Austrian households' fund-of-fund investments



Source: OeNB.

Table 2

Investments by domestic mutual funds: breakdown by holding sector and type of funds

	Funds held by				All holders (total)
	Household sector	Insurance corporations	Pension funds	Severance funds	
Securities investments by type of funds	<i>% per type of fund</i>				
Fixed-income funds					
Shares	0	1	0	0	0
Mutual fund shares	4	4	32	4	5
Debt securities	96	95	68	96	95
Securitized financial derivatives	0	0	0	–	0
Equity funds					
Shares	78	79	61	100	82
Mutual fund shares	22	19	39	0	17
Debt securities	0	2	0	–	1
Securitized financial derivatives	0	0	0	–	0
Hedge funds					
Mutual fund shares	97	95	100	–	98
Debt securities	3	5	0	–	2
Mixed funds					
Shares	15	13	13	12	16
Mutual fund shares	45	26	49	7	36
Debt securities	40	61	38	81	48
Securitized financial derivatives	0	0	0	0	0
Real estate funds					
Mutual fund shares	8	5	–	48	8
Debt securities	92	95	–	52	92
Other funds					
Mutual fund shares	2	–	–	–	1
Debt securities	98	–	–	–	99

Source: OeNB.

securities). 16% of mixed funds' investments go into domestic (EUR 1.7 billion) and foreign (EUR 9.6 billion) shares, and another 36% into mutual fund shares (EUR 25.9 billion, almost exclusively foreign mutual fund shares).

- Fixed-income funds directly and indirectly invest EUR 65 billion in debt securities (95% of their securities investments, EUR 56.3 billion of which are invested in foreign and EUR 8.7 billion in domestic debt securities).
- Equity funds invest 82% (EUR 22.9 billion) of their total investments in domestic (EUR 3.5 billion) and foreign (EUR 19.4 billion) shares.

2.2.2 Look-through analysis: foreign mutual funds

Investments with foreign fund management companies are interesting with regard to their ownership chain, in particular in view of evaluating households' indirectly held shares and securities abroad.

Retail funds invested around 16%, or EUR 15 billion, of their total investments in foreign fund-of-funds (institutional funds: 20%, or around EUR 18 billion).

Of the total of retail funds' EUR 15 billion of foreign fund-of-fund investments, EUR 12 billion went into mixed funds (institutional funds: EUR 14 billion).

Given limited data availability, our analysis of the underlying investment of foreign funds assumes that all investment companies abroad basically invest in accordance with the investment category they belong to, meaning that e.g. an equity fund invests mostly into shares and other equity.

When analyzing the counterparts of fund-of-fund investments in more detail, we found out that foreign fund-of-fund investments of Austrian investment companies concentrate mainly on foreign equity funds and fixed-income funds and can thus be assigned, by way of estimation, to shares and bonds held indirectly by households.

A comparison of the investment structures of foreign fund-of-fund investments shows that retail funds make substantial investments in foreign equity funds (60%, or EUR 8 billion of a total of EUR 13 billion invested in foreign fund-of-funds), while institutional funds' investments in equity funds and fixed-income funds are more balanced (with 43%, or EUR 7.6 billion, of a total of EUR 18 billion invested in foreign fund-of-funds going into foreign equity funds and 48%, or EUR 8.4 billion, into foreign fixed-income funds). Moreover, a substantial part of investments in both foreign fund types can be traced to investments by domestic mixed funds.

2.2.3 Look-through analysis: domestic households

Traditionally, Austrian households invest strongly in domestic mutual fund shares (36%), which only require investment decisions for purchases or sales, while any further investment decisions can be left to the fund manager. Another advantage of mutual funds is the distribution of risk (given the high investment volume of individual mutual funds compared with the volume directly invested by a single household, investment companies can invest in large numbers of securities, while households can only invest the budget at their disposal). Cluster risk (which might arise if households invest both directly and indirectly e.g. in the same euro area government bond) cannot be excluded, however.

While around 36% (or EUR 21.7 billion) of Austrian household' total holdings of bonds and shares (EUR 60 billion) were issued abroad, households' foreign exposure was significantly higher for mutual fund shares. Around EUR 46 billion of a total of EUR 50 billion invested in capital market instruments were invested

Table 3

Austrian households' direct and indirect investments

	Direct investment		Indirect investment		Sum of direct and indirect investment	
	EUR million	% of total investment	EUR million	% of total investment	EUR million	% of total investment
Year-end figures at market prices						
Domestic securities, total	80,158	68	4,014	11	41,715	37
of which:						
mutual fund shares	42,456		65		65	
bank bonds	16,164		1,415		17,579	
corporate shares	9,534		634		10,168	
government bonds	1,066		1,380		2,446	
Foreign mutual fund shares	17,063	14	9,799	27	26,862	24
of which:						
issued in Luxembourg	10,821		6,507		17,328	
issued in Germany	2,689		387		3,076	
issued in Ireland	1,122		1,796		2,919	
Foreign corporate shares	12,363	10	5,778	16	18,141	16
of which:						
issued in United States	4,330		1,896		6,226	
issued in Germany	3,111		601		3,712	
issued in Switzerland	1,726		289		2,015	
issued in United Kingdom	793		387		1,180	
Foreign government bonds	2,206	2	7,121	20	9,327	8
of which:						
issued by the euro area	1,051		4,804		5,855	
of which: issued by Germany	717		878		1,595	
issued by France	24		1,185		1,210	
issued by Italy	4		1,103		1,107	
issued by Spain	3		736		739	
issued by the United States	415		536		951	
Other foreign bonds	3,724	3	8,376	23	12,101	11
of which: financial sector bonds	0		5,730		5,730	
Other foreign securities	2,388	2	1,348	4	3,736	3
Total investment	117,902	100	36,436	100	111,882	100

Source: OeNB.

in instruments issued by foreign issuers. These EUR 46 billion were almost equally distributed across debt securities and shares. While households preferred bonds issued by the financial and government sectors, their shares holdings were dominated by the corporate sector (see table 3).

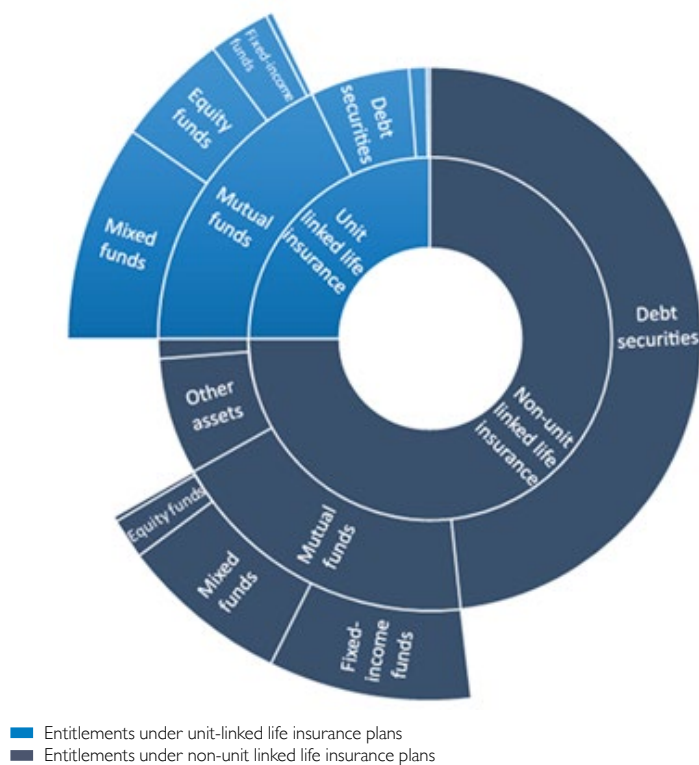
Domestic households invested most strongly in mixed funds (EUR 14.8 billion; 43% of investments in domestic mutual fund shares), followed by fixed-income funds (EUR 11.7 billion, or 27%), equity funds (EUR 7 billion, or 17%) and real estate funds (EUR 5.4 billion, or 13%). Austrian households' investments in money market funds, hedge funds or other funds are negligible (EUR 108 million).

At end-2017, debt securities accounted for 96% of fixed-income fund shares held by domestic households; of these 96%, 80 percentage points were attributable to foreign issuers. Government bonds accounted for the lion's share in these investments (EUR 4.2 billion).

Domestic equity fund shares held by Austrian households had made 78% of their securities investments as of end-2017 in shares (EUR 5.3 billion, of which EUR 4.7 billion in foreign shares; of the latter, in turn, EUR 3.8 billion were invested in foreign corporate shares).

Chart 8

Investments made by domestic insurance companies to cover life insurance entitlements in 2017



Source: OeNB.

60%⁷ of foreign mutual fund shares totaling EUR 27 billion were invested in foreign shares, 38% in foreign bonds. Deposits and other assets accounted for the remainder.

2.3 Investments by domestic insurance companies to cover unit-linked and non-unit-linked life insurance plans

Life insurance plans are either unit-linked (unit- and index-linked) life insurance plans or non-unit-linked (traditional) life insurance plans. The difference between the two groups lies in the risks assumed. For non-unit-linked life insurance plans, the insurance company guarantees payment of accumulated contributions to the policyholder at the end of the term. For unit-linked life insurance plans, by contrast, the policyholder bears the investment risk. At end-2017, domestic households' claims arising from non-unit-linked life insurance products came to around EUR 57 billion (75% of total life insurance entitlements) while their claims arising from unit- and

index-linked life insurance plans amounted to EUR 19 billion (25%). The majority of underlying assets (90%) consisted of debt securities, shares and mutual fund shares. Insurance companies make different portfolio allocations for non-unit-linked life insurance plans and for unit-linked life insurance plans.

2.3.1 Non-unit-linked life insurance plans

To cover non-unit-linked life insurance plans, domestic insurance companies invested 70% (EUR 36 billion) of the respective underlying assets in this category in debt securities and 27% (EUR 14 billion) in mutual fund shares. Smaller volumes were invested in shares and other equity (2%, or EUR 0.9 billion) and other securities (1%, or EUR 0.7 billion). Of a total of EUR 36 billion invested in debt securities, domestic government bonds accounted for 10%, or EUR 3.5 billion, thus dominating this category ahead of domestic bank bonds (8%, or EUR 2.9 billion). At 4%, or EUR 1.6 billion, investments in domestic corporate bonds are also significant. With regard to investments in foreign securities, French bank bonds took the lead at 5%, or EUR 1.8 billion, of total investments in this category, followed by Belgian government bonds (4%, or EUR 1.5 billion) and French government bonds (3%, or

⁷ We assume that for foreign mutual fund shares directly held by households, the ratio of investments in shares to investments in debt securities corresponds to the ratio that applies to foreign mutual fund shares held via domestic fund shares.

Table 4

1.1 billion). Investments in American businesses that engage in auxiliary financial activities (EUR 1.2 billion, or 3%) must also be mentioned in this context, as well as investments in other financial institutions located in Luxembourg (EUR 1.1 billion, or 3%).

The most dominant types of funds in the category of mutual fund shares were fixed-income funds (EUR 6.8 billion) – around 90% of which were issued in Austria –, followed by mixed funds (EUR 5.7 billion, of which 95% were issued in Austria; 55% of these domestic funds, in turn, were invested in shares and 45% in debt securities). Regarding investments in equity funds (EUR 1.4 billion), the lion's share (around 80%) was also invested in mutual fund shares issued in Austria.

A look-through analysis of individual mutual fund shares held as statutory premium reserves for households' non-unit-linked life insurance plans shows that of the EUR 14 billion invested in total, around EUR 12.8 billion were invested in securities that can be broken down further on the basis of security-by-security data. Of these EUR 12.8 billion, around 85% were accounted for by foreign securities, of which 14 percentage points were accounted for by foreign fund shares. The majority of investments were made in debt securities (75%) issued by a wide range of issuer sectors, with government bonds taking the lead (26%). Only 11% of investments are made indirectly in domestic and foreign shares.

2.3.2 Unit- and index-linked life insurance plans

To cover unit-linked life insurance plans, insurance companies invested around 70% (EUR 13 billion) of their total underlying assets in mutual fund shares and 23% (EUR 4 billion) in debt securities. Comparatively small amounts were invested in other securities (EUR 1 billion, 6%) and shares and other equity (EUR 0.2 billion, 1%). As regards investments in mutual fund shares, insurance companies invested EUR 7.3 billion (54%) in mixed funds that were mostly issued in Austria; these mixed funds, in turn, invested 55% of their total investments in shares and 45% in debt securities. In the same category, insurance companies invested 29%, or EUR 3.9 billion, in equity funds as underlying assets of unit-linked life insurance plans; more than two-thirds of these investments (EUR 2.6 billion) went into Austrian equity funds, followed by funds issued in Luxembourg (EUR 0.9 billion, or 23%). Insurance companies invested 15%, or EUR 2.1 billion, in fixed-income funds, with Austrian fixed-income funds dominating the field here as well (more than two-thirds, or EUR 1.4 billion, of investments), followed again by fixed-income funds in Luxembourg

Indirect investments in domestic mutual fund shares by insurance companies providing non-unit-linked life insurance

	Domestic	Rest of the world	Total
<i>Total volume: EUR 10.0 billion; broken down by financing instruments; %</i>			
Shares	3	9	11
MFIs excluding money market funds	0	1	1
Money market funds and other investment funds	0	1	1
Other financial sector	0	0	0
General government	0	0	0
Nonfinancial corporations	2	7	9
Mutual fund shares	0	14	14
Money market funds and other investment funds	0	14	14
Debt securities	12	63	75
MFIs excluding money market funds	4	13	17
Money market funds and other investment funds	0	0	0
Other financial sector	0	16	16
General government	6	21	26
Nonfinancial corporations	2	13	15
Securitized financial derivatives	0	0	0
Other financial sector	0	0	0
General government	0	0	0
Nonfinancial corporations	0	0	0
Total	15	85	100

Source: OeNB.

Table 5

Indirect investments in domestic mutual fund shares by insurance companies providing unit-linked life insurance

	Domestic	Rest of the world	Total
<i>Total volume: EUR 12.8 billion; broken down by financing instruments; %</i>			
Shares	24	12	36
MFIs excluding money market funds	6	1	6
Money market funds and other investment funds	0	0	0
Other financial sector	2	2	3
General government	0	0	0
Nonfinancial corporations	17	9	26
Mutual fund shares	0	21	21
Money market funds and other investment funds	0	21	21
Debt securities	7	36	43
MFIs excluding money market funds	2	4	6
Other financial sector	0	5	5
General government	5	24	28
Nonfinancial corporations	0	3	4
Securitized financial derivatives	0	0	0
MFIs excluding money market funds	0	0	0
Other financial sector	0	0	0
General government	0	0	0
Nonfinancial corporations	0	0	0
Total	31	69	100

Source: OeNB.

Table 6

Pension funds' indirect investment in domestic mutual fund shares

	Domestic	Rest of the world	Total
<i>Total volume of EUR 17.4 billion, broken down by financing instruments, %</i>			
Shares	1	16	17
MFIs excluding money market funds	0	1	1
Other financial sector	0	2	2
General government	0	0	0
Nonfinancial corporations	1	13	14
Mutual fund shares	0	40	40
Money market funds and other investment funds	0	40	40
Debt securities	3	39	42
MFIs excluding money market funds	0	3	4
Money market funds and other investment funds	0	0	0
Other financial sector	0	6	7
General government	3	24	26
Nonfinancial corporations	0	5	6
Securitized financial derivatives	0	0	0
MFIs excluding money market funds	0	0	0
General government	0	0	0
Total	5	95	100

Source: OeNB.

(EUR 0.6 billion, or 29%). Altogether, 16% (or EUR 2.1 billion) of investments made to cover unit-linked life insurance plans were made in bonds: Nearly 80% (or EUR 1.6 billion) were invested in debt securities issued by domestic banks.

The look-through assessment of households' unit-linked life insurance plans shows that compared with non-unit-linked life insurance plans, these post a clearly higher share of mutual fund shares in their underlying assets (EUR 13.5 billion, of which EUR 10 billion were invested in domestic mutual fund shares). The major part of the underlying assets of these mutual funds shares was invested in securities, of which around 70% in foreign securities, 21 percentage points of which, in turn, were accounted for by foreign mutual fund shares. Of the remaining around EUR 8 billion, a significantly higher share was invested in shares (36%). Another 28% were invested in domestic and foreign government bonds.

2.4 Investment by Austrian pension funds

According to financial accounts data, the financial assets invested for households in collective investment schemes came to around EUR 21 billion as on December 31, 2017, with entitlements accrued under defined-benefit plans accounting for around EUR 4 billion and entitlements accrued under defined-contribution plans for around EUR 17 billion. Pension funds invested in domestic (EUR 18.7 billion) and foreign (EUR 3 billion) mutual fund shares on behalf of collective investment schemes.

According to the look-through approach, the domestic share of the underlying assets can be broken down as follows: Of these assets resulting from mutual fund shares and invested in securities (EUR 17.6 billion), pension funds invested

95% of the underlying assets abroad on behalf of domestic households (40% of which in foreign funds). Apart from these investments, investments in foreign government bonds and foreign corporate shares played a substantial role.

In addition, investments of EUR 2.3 billion were made for households in company group insurance schemes (comparable to pension entitlements) offered by insurance companies.

2.5 Investments by domestic severance funds

Investments by domestic severance funds result from contributions to the new severance pay scheme introduced in 2003. As on December 31, 2017, financial assets invested for collective investment schemes came to EUR 11 billion. The portfolio allocation is similar to the allocation of pension funds. Severance funds mainly invested in domestic mutual fund shares, with such investments coming to around EUR 9 billion at end-2017. Of these EUR 9 billion, investments with domestic issuers came to just EUR 0.8 billion and EUR 7.1 billion foreign securities. The majority of investments were made in debt securities (EUR 5.3 billion), followed by shares (EUR 1.2 billion).

3 Overall result for Austrian households' direct and indirect investment as of December 31, 2017

On December 31, 2017, Austrian households' financial wealth stood at EUR 655 billion, of which EUR 198 billion were accounted for by managed – indirect – financial investments (i.e. investments in mutual fund shares as well as life insurance, funded severance and pension entitlements classified as household assets). Of these EUR 198 billion, we analyzed EUR 169 billion on the basis of security-by-security data and data on foreign investment companies' investment behavior. Chart 9 shows details on households' indirect financial investment.

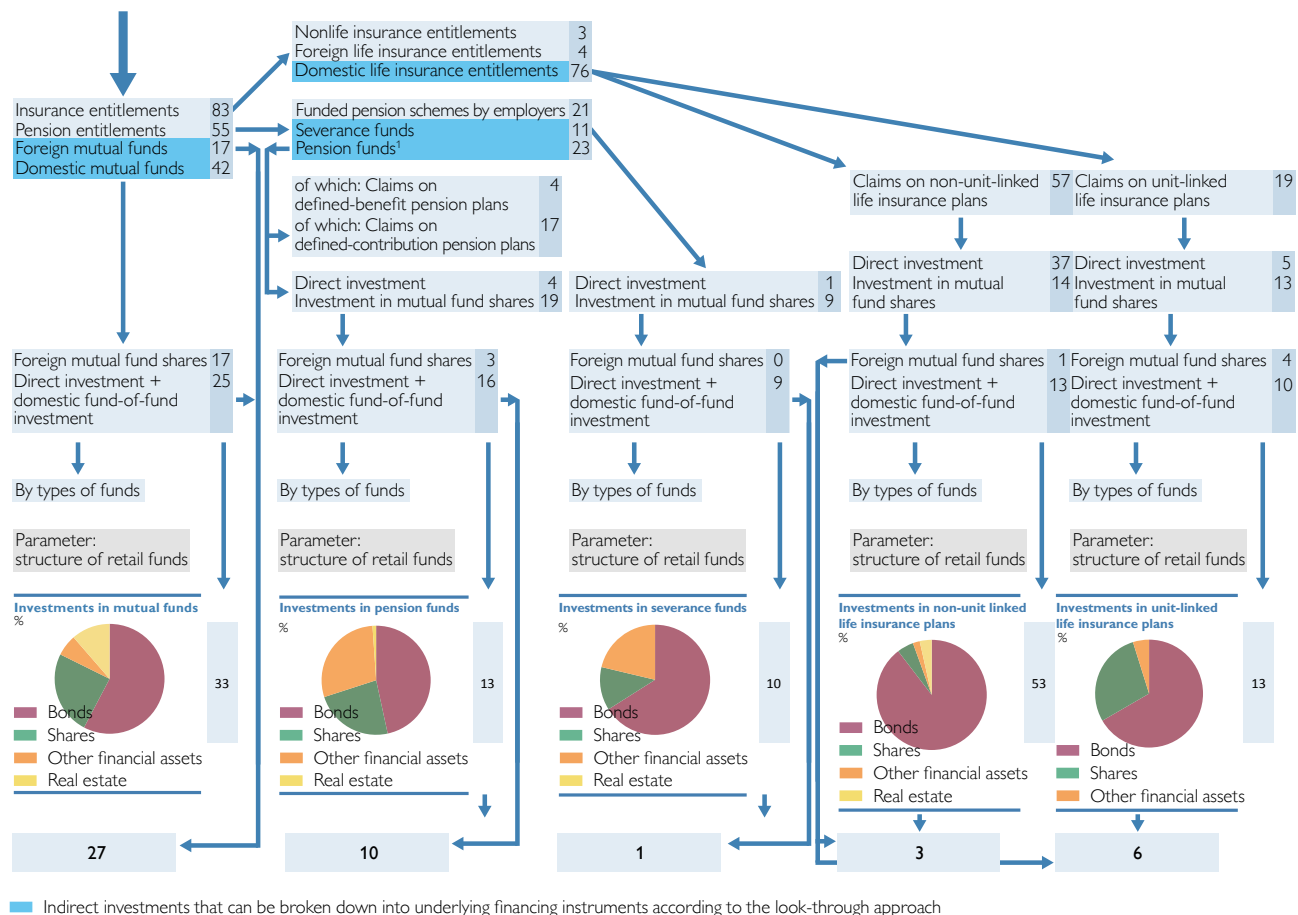
Of the EUR 169 billion mentioned above, we were able to analyze a share of around EUR 122 billion directly on the basis of security-by-security data, using data on direct investments and/or investments of assets as underlying instruments of domestic mutual funds (as long as these did not invest in foreign funds).

A breakdown by financial instruments shows that in particular for non-unit-linked life insurance contracts, the share of bonds is very high, while for investments made by a group of mutual funds, pension funds and unit-linked life insurance plans, shares account for at least around one-fourth of invested assets, respectively. Risk considerations play a significant role in this context.

Together, foreign funds held directly by households and wealth held via domestic fund-of-funds came to EUR 47 billion. For this investment volume, information was available from domestic mutual funds by type of fund category (both for retail funds and institutional funds), from which conclusions can be drawn on underlying shares or bonds. Looking at the overall structure of Austrian households' financial wealth as on December 31, 2017, chart 10 provides an overview of shifts per financing instrument.

We can see that the larger part of indirect financial investments analyzed was, in the end, invested in debt securities, with foreign issuers by far dominating the picture. Moreover, in the underlying portfolio, the share of foreign shares was clearly higher than in direct investment. Households held around 9% of their financial wealth directly in the form of bonds and shares. When including indirect investment

Austrian households' financial wealth includes EUR 198 billion of indirect investments (30% of total investments) as on December 31, 2017



Source: OeNB.

¹ Including pension entitlements from company group insurance offered by insurance companies.

Note: Figures indicate EUR billion. Rounding differences are possible.

resulting from financial investment in mutual funds, life insurance plans and pension entitlements, the share of bonds and shares goes up to 33% and is thus only 9 percentage points below the share of currency and deposits. Securities holdings increased according to these calculations: for debt securities, 3.5-fold from EUR 32 billion to EUR 138 billion; for shares 1.6-fold from just under EUR 28 billion to around EUR 74 billion. While the ratio of directly purchased debt securities to shares was around 1:1, in computed asset holdings, debt securities clearly dominate – owing to indirect investments – at a ratio of 7:3. Foreign bonds issued by the financial and government sectors (mainly issued by entities located in Europe) and held indirectly accounted for the lion's share compared with mutual fund shares and the direct underlying assets of non-unit-linked life insurance plans and corporate shares, which were mainly purchased indirectly via domestic and foreign fund management companies.

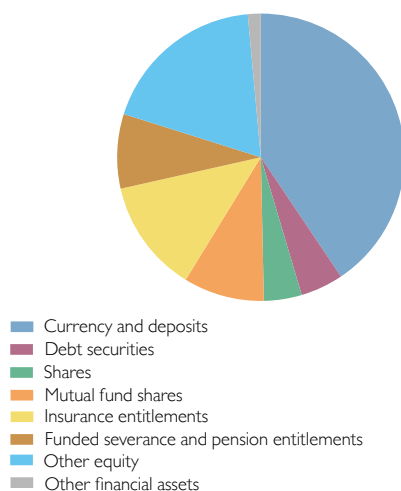
An analysis based on assets underlying indirect financial investments illustrates the shift from investment in Austria to investment abroad. Securities, including shares

Chart 10

Structure of Austrian households' financial wealth in 2017

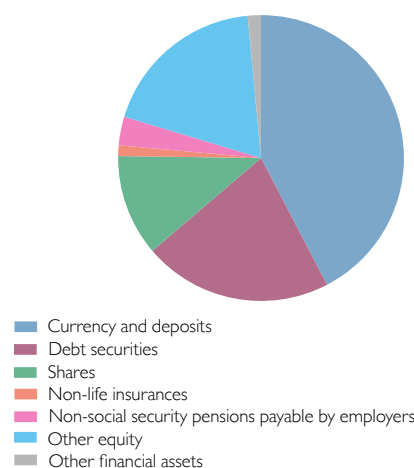
Direct investment

Share in total investment in %



Indirect investment according to look-through approach

Share in total investment in %



Source: OeNB.

in foreign funds and deposits with foreign banks in the amount of EUR 50 billion (8% of households' total financial wealth), held directly by households went up to EUR 188 billion (29%). Around two-thirds of this rise can be attributed to foreign bonds worth EUR 87 billion in total.

These results confirm the picture derived from the calculations based on marginal totals from the financial accounts matrix as described in section 1.2. Based on the broad consistency of our results, the calculations, also for previous years, as described in section 1.2 can be considered valid.

4 Summary

Households have a number of reasons to make so-called indirect financial investments (mutual funds, life insurance plans, funded severance and pension entitlements): their desire to diversify their asset portfolio on a basis broader than is possible through direct investments or deposits, e.g. by investing in securities; their intention to make long-term investments; tax reasons; the need to ensure financial security for the time of retirement; or the need for a repayment vehicle for bullet loans.

This paper uses a variety of security-by-security data, data on mutual fund shares by fund categories and other information on investments by institutional investors (e.g. mutual funds, insurance companies, pension funds and severance funds) to analyze the investment behavior underlying indirect financial investment.

As on December 31, 2017, the outstanding volume of Austrian households' indirect investment came to around EUR 198 billion, corresponding to around 30% of their total financial wealth; this component has determined household investment substantially over the last 20 years.

Our analysis shows that, not least owing to the size of the Austrian economy and the idea of diversification, the bulk of investments is made abroad (as was to be expected). As for the breakdown by securities invested in the capital market, the

ratio of bonds to shares was 7:3 – a situation that, to a certain degree, reflects financial security considerations. At the same time, the share of capital market instruments in household's total financial wealth went up from 9% to 33%, while currency and deposits accounted for 42%.

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Annex

Table A1

Structure of Austrian households' financial wealth

As on December 31, 2017

	Direct investment (financial accounts)		Distribution of indirect financial investment		Total financial investment according to look-through approach	
	EUR billion	Share in %	EUR billion	EUR billion	Share in %	
Currency and deposits	265.6	41	9.5	275.1	42	
Debt securities, domestic counterparties	25.6	4	20.0	45.6	7	
Debt securities, rest-of-the-world counterparties	5.9	1	87.4	93.3	14	
Shares, domestic counterparties	12.1	2	4.8	16.8	3	
Shares, rest-of-the-world counterparties	15.8	2	41.8	57.6	9	
Mutual fund shares, domestic counterparties	42.5	6				
Mutual fund shares, rest-of-the-world counterparties	17.1	3				
Life insurance entitlements, domestic counterparties	75.5	12				
Life insurance entitlements, rest-of-the-world counterparties	4.4	1		4.4	1	
Nonlife insurance plans	3.4	1		3.4	1	
Funded pension entitlements vis-à-vis insurance corporations/pension funds	23.1	4				
Severance fund entitlements	10.6	2				
Funded pension entitlements with employers	21.1	3		21.1	3	
Other equity (equity interests)	122.3	19		122.3	19	
Other financial assets	9.5	1	0.2	9.7	1	
Total financial wealth	654.5		163.7	649.5	99	
of which:						
invested in Austria	603.1	92	34.6	461.3	70	
invested abroad	51.4	8	129.2	188.2	29	
Real estate and other nonfinancial assets			5.0	5.0	1	
Total wealth	654.5		168.7	654.5		

Source: OeNB.

Table A2

Structure of Austrian households' financial wealth held via indirect investment

As on December 31, 2017

Distribution of indirect financial investment						
Total	Directly held mutual fund shares		Life insurance entitlements	Pension fund entitlements and occupational group insurance	Severance entitlements	
	EUR billion	Share in %	EUR billion	EUR billion	EUR billion	EUR billion
Deposits	9.5	6	1.8	1.7	3.7	2.2
Debt securities	107.4	64	28.9	60.6	10.6	7.3
Domestic	20.0	12	3.1	15.4	0.7	0.9
Financial sector	10.2	6	1.5	8.2	0.5	0.0
General government	7.6	4	1.4	5.2	0.1	0.8
Nonfinancial corporations	2.3	1	0.3	1.9	0.0	0.0
Rest-of-the-world	87.4	52	25.8	45.2	9.9	6.4
Financial sector	29.2	17	5.7	19.2	4.3	0.1
General government	30.4	18	7.1	16.2	1.1	6.0
Nonfinancial corporations	8.4	5	2.6	5.8	0.0	0.0
Other	19.3	11	10.3	4.0	4.6	0.4
Shares	46.6	28	24.9	11.3	8.6	1.8
Domestic	4.8	3	0.8	3.8	0.1	0.0
Financial sector	1.3	1	0.2	1.0	0.1	0.0
Nonfinancial corporations	3.7	2	0.6	2.9	0.1	0.0
Rest-of-the-world	41.8	25	24.1	7.5	8.5	1.8
Financial sector	2.5	1	1.3	0.5	0.6	0.0
Nonfinancial corporations	11.4	7	5.8	2.0	2.3	1.3
Other	27.9	17	16.9	4.9	5.6	0.5
Other financial assets	0.2	0	0.2	0.0	0.0	0.0
Real estate	5.0	3	2.9	1.9	0.1	0.1
Total	168.7		58.7	75.5	23.1	11.4
<i>in %</i>						
Contribution by individual financial intermediaries			35	45	14	7

Source: OeNB.