

## Stable Financial Position of the Real Economy Sectors

### Corporate Risk Position Remains Favorable

#### Economic Upturn Continues

Austria's economy stayed very dynamic throughout the first half of 2007. Lively investment activity continued to be a major pillar of economic growth. Investment in construction as well as plant and equipment picked up. On the demand side, the brisk development of exports contributed significantly to investment dynamics. Moreover, companies' capacity utilization rose.

After surging in the two preceding years, Austrian corporate profits remained on the rise, as did those in the euro area. In this favorable economic environment, sales fared well, while unit labor costs continued to develop moderately.

In the wake of the economic uptrend, the number of corporate insolvencies – usually a lagging economic

indicator – decreased, sinking by 4.6% in the 12 months up to the end of the first quarter of 2007 against the same period of the previous year. Both the number of proceedings opened and the number of no asset cases declined. Although estimated default liabilities rose by 4.8% in nominal terms, their ratio to the total liabilities of the corporate sector (according to the financial accounts) remained unchanged at 0.7%.

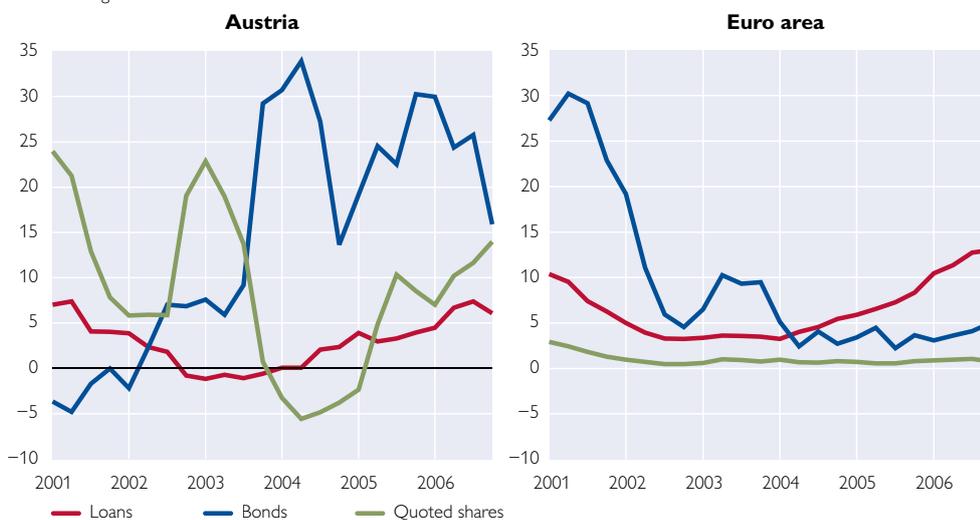
#### External Financing Structure Marked by Capital Market

In spite of stepped-up investment activities, the volume of external financing dropped by 32% to EUR 5.7 billion in the second half of 2006 against the corresponding period of the previous year. This decline essentially resulted from a one-time transaction in the billions through which a company group reduced considerable

Chart 4

### Development of Important Financial Instruments

Annual change in %



Source: OeNB, EZB.

asset and liability positions.<sup>1</sup> Moreover, the good profit situation allowed companies to finance their activities largely from their own income.

In the second half of 2006, around one-fifth of corporate external financing was based on bank lending, which accelerated in tandem with the rise in investment in the course of the year. In the fourth quarter of 2006, bank lending increased by 6% against the same quarter of 2005, but growth in this segment has trailed that observed in the euro area until recently.<sup>2</sup> All new loans (net) were denominated in euro and, on balance, companies reduced their outstanding foreign currency loans.

According to the Austrian results of the Eurosystem bank lending survey, in the second half of 2006 and in the first quarter of 2007, enterprises took out loans mainly to fund mergers and acquisitions or to finance corporate restructuring. Moreover, a key motive for borrowing was to fund fixed investment.

In the second half of 2006, the capital market made by far the biggest contribution to corporate financing. Capital market instruments (bonds and quoted shares) accounted for almost two-thirds of external finance in that period.

The expansion of bond-based financing remained highly dynamic in the second half of 2006 even though the volume of new issues was almost two-thirds lower than in the same period of the previous year. Accord-

ing to the OeNB's securities issues statistics, the outstanding volume of corporate bonds went up by 12% against the previous year, far more than the euro area equivalent.<sup>3</sup> The biggest issues of the past year were launched by infrastructure companies. Overall, more than 40 companies issued bonds in 2006. More than three-quarters of the 2006 issuing volume were fixed-rate bonds, while floating-rate notes accounted for the rest.

New issues on the Vienna stock exchange (Wiener Börse AG) came to around EUR 2.3 billion in the second half of 2006, of which new listings represented roughly EUR 1.4 billion. Moreover, the stock exchange handled numerous capital increases. Real estate companies continued to strongly use the stock exchange as a source of funding. Additionally, several industrial and service companies issued shares on the Vienna bourse. Nevertheless, the number of companies issuing shares is still relatively small. In the second half of 2006, a total of 15 nonfinancial corporations raised funds on the Vienna stock exchange.

Thanks to the high issuing volumes and sustained price increases, the market capitalization of the nonfinancial corporations listed on the Vienna stock exchange advanced by more than EUR 11 billion to more than EUR 82 billion in the second half of 2006, an amount corresponding to some 32% of GDP.<sup>4</sup>

<sup>1</sup> This transaction was also responsible for a decline in financial investment according to the financial accounts in the second half of 2006.

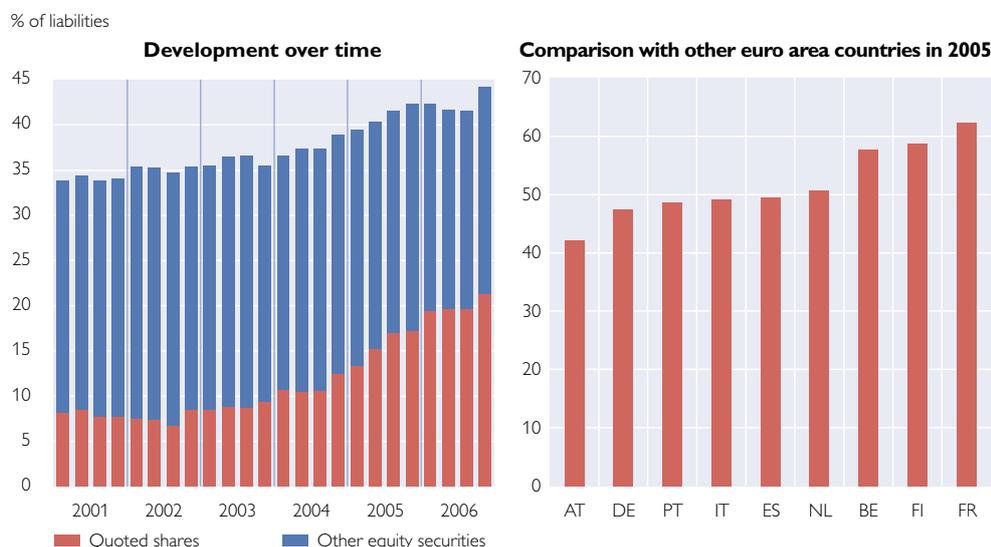
<sup>2</sup> According to the MFI balance sheet statistics. By analogy to the ECB method, the outstanding volume of bank lending is calculated as the percentage change against the previous year on the basis of changes in transactions, i.e. adjusted for reclassifications, revaluations, exchange rate and other nontransaction changes.

<sup>3</sup> The outstanding volume of bonds is also calculated using the ECB method.

<sup>4</sup> The market capitalization of all stocks listed on Wiener Börse AG (including financial corporations) came to 57% of GDP at the end of 2006.

Chart 5

### Shares and Other Equity of the Corporate Sector



Source: OeNB, BIS, Eurostat.

Including OTC equities, more than one-third of the external financing volume of nonfinancial corporations was in the form of equity in the second half of 2006. As a result, the share of equity in total liabilities rose to 44.2% at end-2006.<sup>5</sup> The development of stock prices on the Vienna stock exchange also made a significant contribution to this increase because equity raised on the stock exchange is valued at current market prices in line with international conventions. Thus, the capital ratio of Austrian enterprises again moved closer to the euro area average, although Austria is still at the bottom of the list of euro area countries for which data are available (see chart 5, right panel).

#### Financing Conditions Deteriorate Slightly

While financing conditions for Austrian companies remained relatively favorable in the first quarter of 2007, they were not quite as good as in 2006, both for borrowing funds and for issuing equity capital.

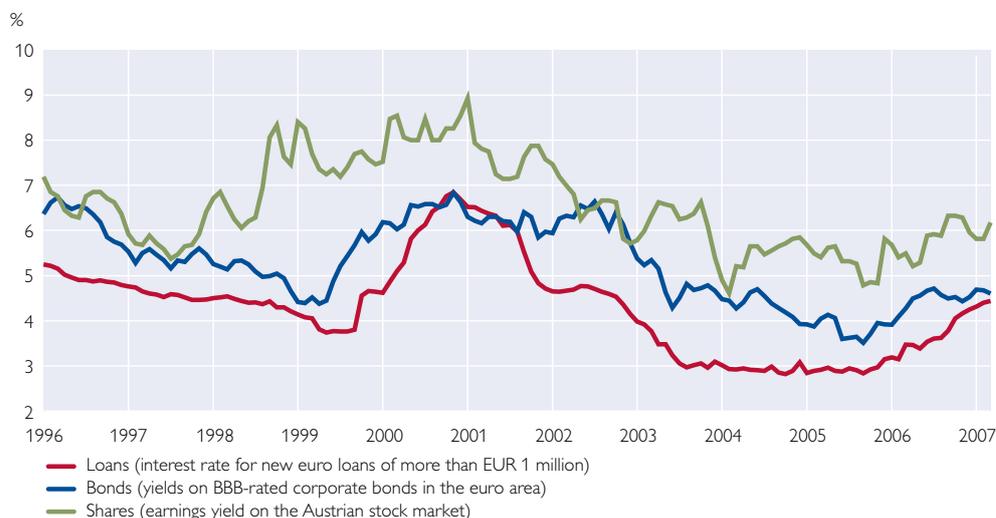
Following a 21.7% rise in share prices in 2006, the Austrian Traded Index (ATX) further increased by 6.0% in the first quarter of 2007. In spite of this sustained upward trend, share prices at the Vienna stock exchange were not able to keep pace with the development of the profits of listed companies. As a result, the earnings yield<sup>6</sup> rose throughout most of 2006, which implies that the cost of raising capital slightly deteriorated in the stock market.

<sup>5</sup> Please note that the financial accounts statistics do not cover the claims of equity investors on nonfinancial assets and thus underestimate the absolute level of equity.

<sup>6</sup> The earnings yield is the inverse of the price-to-earnings ratio.

Chart 6

## Corporate Financing Conditions



Source: OeNB, Thomson Financial, Wiener Börse AG.

The yields of corporate bonds have been relatively constant in the euro bond market since mid-2006.<sup>7</sup> The yield curve flattened further, and the risk premiums on corporate bonds relative to government bonds of similar maturity remained low. As a result, the gap between bond yields and interest rates on loans has narrowed considerably since mid-2006.

Borrowing conditions worsened marginally in the course of 2006. The development of interest rates on corporate loans has reflected the ECB's key interest rate increases since December 2005. With the exception of the transmission of monetary policy impulses to loans, the pricing of bank loans has hardly changed in recent quarters. A comparison of banks' retail interest rates and interest rates

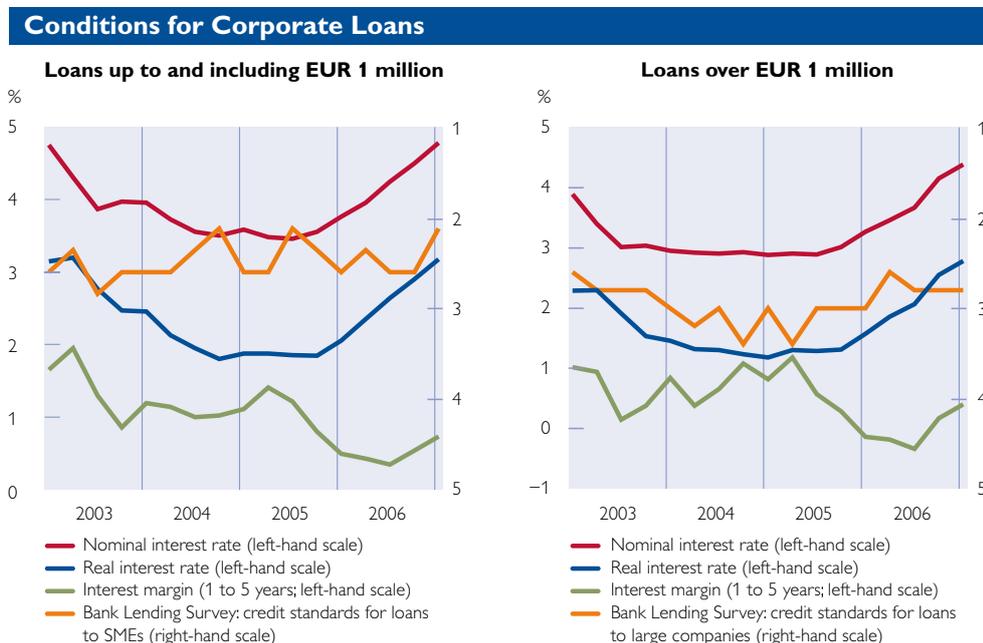
for largely risk-free financial assets can provide an indicator of the average risk premium contained in banks' interest rates.<sup>8</sup> A look at the difference between interest rates for corporate loans and the swap rate of comparable maturities shows that the risk premium has only increased moderately since mid-2006 – both for loans up to EUR 1 million and for larger-volume loans.

This finding largely coincides with the Austrian results of the Eurosystem bank lending survey, according to which lending conditions remained unchanged for big enterprises and were slightly tightened for small and medium-sized enterprises (SMEs). At the same time, banks reduced the interest margins for lending to borrowers with average credit ratings. They

<sup>7</sup> The indicator used is the development of BBB-rated bonds in the euro area, first, because the bond market of the euro area is already highly integrated, and second, because no data series are available for Austria, as its market remains relatively narrow despite the rise in issuing volumes in recent years.

<sup>8</sup> In addition to the risk of the borrowers, the interest margin also results from the specific competitive situation on the Austrian loan market, which does not influence the risk adaptation as such, but its height.

Chart 7



Source: OeNB, ECB.

Note: Right-hand scale ranging from 1 (tightened considerably) to 5 (eased considerably).

Real interest rate: nominal interest rate less the OeNB's HICP forecast for the year following the forecast date.

Interest margin: interest charged for loans with a maturity from 1 to 5 years less three-year swap rate.

Bank Lending Survey credit standards: changes in the credit standards for loans to enterprises over the last three months.

also slightly lowered them for riskier loans in the first quarter of 2007.

### Interest Expenses Rise

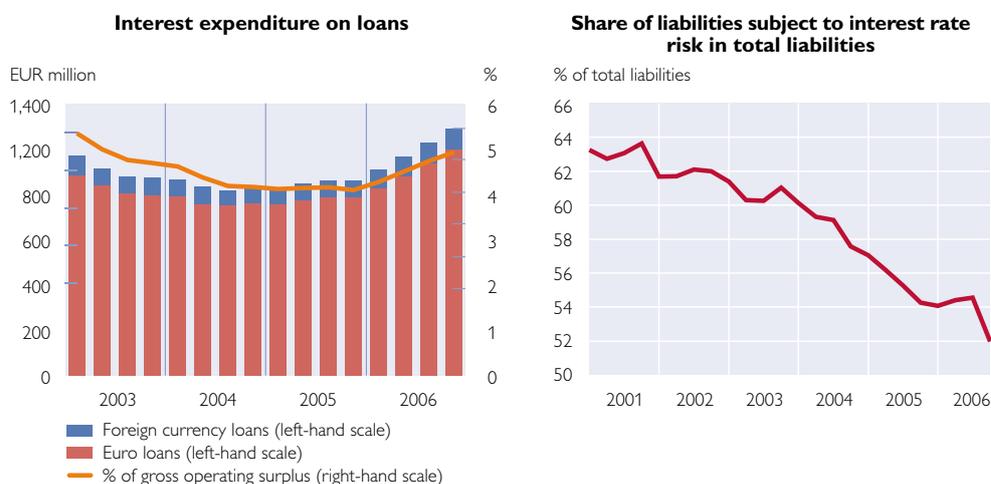
In 2006, the corporate sector's relative exposure to interest rate risk declined further because of the increase in equity financing. The share of loans and bonds in total corporate sector liabilities fell to around 52% in 2006 (see chart 8, right panel).

In spite of this decrease of the relative share of loans and bonds in corporate financing, their volume rose in absolute terms in 2006. This fact alone results in additional interest expenditure. Moreover, interest rates followed an upward trend in 2006. How rapidly regular interest payments reflect interest rate changes depends not just on the amount of liabilities on which interest is paid, but also on the fixation periods of the amounts outstanding. Given that the

large majority of bonds have fixed interest rates, the rising importance of bond-based financing is likely to have gone hand in hand with longer-term interest rate fixations. In contrast, most bank loans are at variable interest rates in Austria, even those with longer maturities, although the structure of loans shifted slightly in favor of longer fixation periods in the second half of 2006. The share of loans at floating rates or up to 1 year initial rate fixation periods in new business dipped in recent months, but at about 90% remained very high in a euro area comparison.

Therefore, the corporate sector's interest expenditure is likely to have increased perceptibly in 2006. We multiplied the volume of loans outstanding by the relevant interest rates recorded in the interest rates statistics to obtain an estimate of the cost burden of interest payments on enter-

### Interest Rate Risk in the Corporate Sector



Source: OeNB, Thomson Financial.

Note: Interest expenditure on euro loans: euro loans to nonfinancial corporations according to MFI balance sheet statistics multiplied by the corresponding interest rates on outstanding amounts according to the ECB interest rate statistics. Interest expenditure on foreign currency loans: foreign currency loans to nonfinancial corporations according to MFI balance sheet statistics multiplied by the corresponding interest rates on U.S. dollar, Japanese yen and Swiss franc loans to households and nonfinancial corporations according to the ECB interest rate statistics. Liabilities subject to interest rate risk: loans and bonds.

prises.<sup>9</sup> This method only takes account of interest payments, but does not consider noninterest rate charges (such charges are especially relevant in the case of foreign currency loans) so that the results obtained do not correspond to the total expenditure on loan repayment.

As chart 8 (left panel) illustrates, interest expenditure rose not only in nominal terms, but also in relation to the gross operating surplus in 2006. In the case of bonds, which usually have fixed rates, interest rate changes are likely to have had less impact to date. Considering that the calculation is an approximation, these figures are surrounded with considerable uncertainty. Nevertheless, they do indicate that higher interest expenditure is be-

ginning to affect the risk-bearing capacity of the corporate sector.

#### Reduction of Foreign Currency Loan Exposure Continues

Companies further reduced their exchange rate risk in financial liabilities in the second half of 2006. The share of foreign currency loans in the corporate portfolio came to just 10.8% at end-2006, down 4 percentage points from two years earlier.

The share of loans denominated in Japanese yen has sunk considerably below the share of U.S. dollar-denominated financing. This implies that companies now primarily use foreign currency loans for business purposes, i.e. the exchange rate risk incurred corresponds to a real trans-

<sup>9</sup> The interest rates for new business (both corporate and household) were used to calculate interest on foreign currency loans, because the interest rate statistics do not contain any data on outstanding amounts of foreign currency loans. As the lion's share of foreign currency loans is at variable rates, which are adjusted periodically, the inaccuracy of this method is not likely to be very large.

action. This decline in foreign currency lending was probably influenced measurably by the narrowing differential of interest rates on foreign currency and on euro loans in recent years. Overall, companies also recorded slight unrealized valuation gains last year. These factors perceptibly reduced the exchange rate risk burden on the Austrian corporate sector.

### **Conclusion: Corporate Risk Perspective Remains Favorable**

The risk position of the Austrian corporate sector continued to be positive at end-2006. Profits have risen until recently, enhancing not only the sector's internal financing potential but, together with higher external equity financing, also its capital position. While the growth of loans to the corporate sector has picked up again recently, its increased equity ratio and intensified bond issuing have reduced its relative dependence on interest rate developments. However, these augmented loan liabilities are paralleled by higher real investment on the assets side that should support the corporate sector's debt servicing ability through additional revenues. Moreover, companies have cut their foreign currency risk exposure substantially. This overall favorable risk perspective has also been mirrored by the decline in insolvencies until the first quarter of 2007.

In the second half of 2006, however, first signs pointed to a slight deterioration of the risk position of companies. In particular, the interest burden on enterprises considerably

rose last year. While this development does not appear to be grave in the total aggregate and financing conditions have still been relatively favorable until recently, highly indebted companies will probably be hit hardest by the higher interest rates.

### **Climbing Financing Costs for the Household Sector**

#### **Strong Employment Growth and Reduction of Unemployment**

The favorable economic environment has had a positive impact on the labor market. Strong employment growth reduced unemployment in spite of a parallel rise in labor supply. However, the increase of real incomes remained modest.

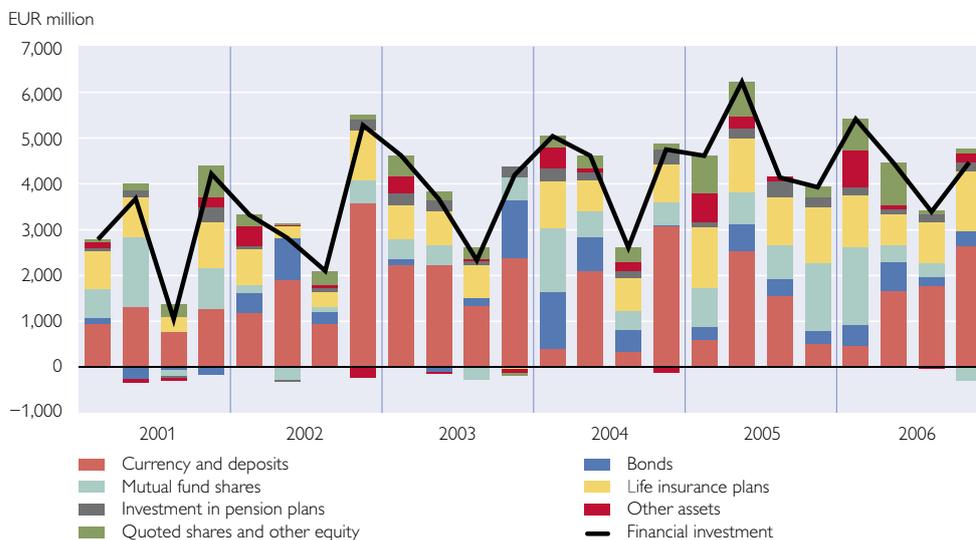
#### **Low New Investment in Mutual Funds**

Compared with the first half of 2006, financial investment decreased by one-fifth in the second half of the year.<sup>10</sup> In 2006, the share of mutual funds in financial investment was 8 percentage points lower than in 2005, with investments in bond funds declining particularly because of rising interest rates. Although the share of bonds in financial investment was low in the second half of the year, it was still higher in 2006 than in 2005. Legally speaking, structured products also form part of the bond segment, although as an investment instrument, households consider them more similar to mutual funds than to bonds. The diverging development of bonds and bond-based funds can be seen as a sign of the rising importance of structured products.

<sup>10</sup> For 2006, the financial accounts also include information on the financial investments and financial assets of private foundations, so that the data are only comparable to a limited extent.

Chart 9

### Households' Financial Investment



#### Marketable Instruments Account for Far More than One-Quarter of All Financial Investment

Instruments directly subject to market valuation (quoted shares, bonds and mutual funds) accounted for around 29% of financial investment at end-2006. Mutual funds accounted for 43%, bonds for 30% and quoted shares for 27% of these instruments. Together with indirect investment through mutual funds, bonds represent some 16% of households' financial investments and quoted shares around 12%.<sup>11</sup>

#### Low Diversification of Direct Investment...

While investments in quoted shares are exposed to valuation risks caused by price fluctuations, bonds involve valuation risks on account of interest rate changes. Additionally, securities not denominated in euro are subject

to exchange rate risks. Diversification is an important tool for reducing the risks inherent in security investments.

Shareholdings concentrate on a relatively low number of different companies. Thus, five companies account for 28% of the financial investment of Austrian households in quoted shares, and almost half of all the shares held were issued by 15 companies. The most popular stocks are of real estate companies and major industrial and banking enterprises. Given this high concentration, the performance of direct share investments made by Austrian households depends on the development of a few shares, resulting in fairly considerable issuer risk.

According to the financial accounts, Austrian issuers accounted for slightly more than 70% of quoted shares directly held by Austrian households

<sup>11</sup> The calculation is based on the assets of retail funds as shown in the mutual fund statistics and on the assumption that the breakdown of the funds' assets corresponds to the distribution of the mutual funds held by Austrian households.

### Households Increasingly Invest in Structured Products

The popularity of structured products has recently soared among private households. Structured products are composed of other financial instruments (quoted shares, bonds, derivatives). Their market value and coupons depend on the development of the underlying assets. These may be individual securities or a basket of securities, indices, raw materials and other assets.

Zertifikate-Forum Austria, which has been joined by five issuers of structured products on the Austrian market, started to provide data on mutual fund shares in 2006. According to that source, households had invested around EUR 4.2 billion in structured products issued by the members of Zertifikate-Forum Austria at end-2006, which corresponded to an annual growth rate of more than 20%.<sup>1</sup> Although this represents only 1.2% of financial investment, it still accounts for more than 10% of households' assets invested in mutual fund shares and almost 15% of the bonds held by them, to which structured products belong in legal terms.

Structured products come in a great variety of types, each of which involves a different level of risk. So-called investment products primarily serve as an alternative to mutual funds. Many of these investment products are provided with a (nominal) capital guarantee that, however, usually applies only at maturity and not in the case of earlier sale. In contrast, leverage products are of a rather speculative nature, as their rapid turnover already indicates: according to data provided by Zertifikate-Forums Austria, leverage products accounted only for 2.6% of the outstanding amounts, but for almost one-quarter of turnover at end-2006.

As structured products permit investment in a broader range of asset classes, they enhance the possibilities for portfolio diversification. On the one hand, this has a potentially positive effect on the risk position of households. On the other hand, households may incur risks through structured products that are hardly open to them otherwise, e.g. commodity risks.

This is especially relevant in combination with the fact that structured products are frequently highly complex. Although it is basically possible to determine their future development as a function of the development of the underlyings, this requires advanced knowledge of financial mathematics in the case of structured products with embedded options. The complexity of some products may make it difficult for investors to assess their future development correctly for different market developments of the underlyings or to identify whether a specific mutual fund share is in line with the investors' revenue and risk attitudes as well as their financial position.

<sup>1</sup> As not all issuers active in the Austrian market have joined Zertifikate-Forum Austria or report data, the total volume is actually higher.

and for almost 85% of bonds at end-2006.

Security-by-security information<sup>12</sup> shows that more than 80% of investments in quoted shares and some 95% of investments in bonds go to issuers from the euro area. Both for shares and bonds, Germany ranks second

among issuer countries. With 6% of capital invested in shares, the U.S.A. is the most important issuer country outside the euro area.

Euro-denominated securities accounted for 87% of shares and 96% of bonds held by households. Because of this focus on Austria and the euro

<sup>12</sup> See also: Andreasch, M. and A. Schubert. 2007. *Portfolio Shifts in Securities Held by Households in Austria: Analysis Based on Security-by-security Information*. In: Irving Fisher Committee on Central Bank Statistics (ed.). IFC Bulletin No. 25.

area, direct investments involve only minor exchange rate risks, but a strong dependence on the development of the capital markets in a few countries.

### ... But Indirect Investments Improve Diversification

The portfolio of mutual funds usually covers more companies than direct investments by households. Almost 95% of shares and 78% of bonds held through mutual funds are foreign securities according to the mutual fund statistics. Issuers from outside the euro area clearly play a greater role in indirect investment in shares than in direct investment in shares. Thus, while direct investments are highly concentrated, indirect investments are widely diversified. As a result, investments through mutual funds tend to reduce the risk taken when investing in securities.

### Interest Rate Burden Rises

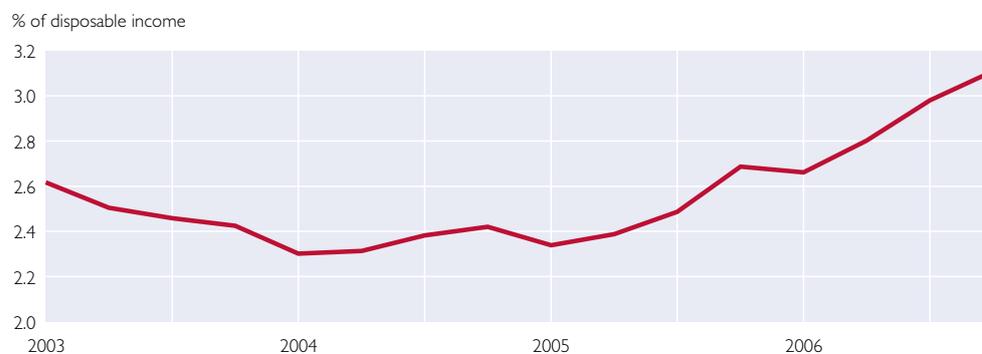
At the end of the first quarter of 2007, the nominal interest rates for both new consumer loans and new housing loans were around 1 percent-

age point higher than in the year before. As variable rate loans represent a large share of household credits, higher interest rates translate relatively quickly into higher interest expenditure by households. The share of new euro-denominated housing loans at variable rates stood at roughly 58%; the share of new consumer and other loans to households at variable rates came to over 85%. Foreign currency loans are strictly at variable rates. According to the bank lending survey, credit standards remained almost unchanged both for housing loans and consumer loans in the second half of 2006.

Because of the further rise of interest rates on loans in connection with higher debt volumes, the increase of interest expenditure<sup>13</sup> on household loans observed since early 2004 continued in the second half of 2006. The share of household disposable income (according to national accounts) spent to pay interest on loans averaged 3.2% at end-2006. This value rose by 0.4 percentage point from the end of 2005. In this context, however, interest expendi-

Chart 10

### Interest Expenditure on Household Loans



Source: OeNB.

<sup>13</sup> Interest expenditure for household loans is calculated as the product of the volume of loans by maturity and purpose, and of the respective interest rate. Disposable income also covers the income of nonprofit institutions serving households. The calculations are based on OeNB forecast values.

ture is related to the income of the entire population. A financial wealth survey of the OeNB<sup>14</sup> shows that roughly 40% of households have taken out a loan and that these have an above-average income. It is reasonable to assume that households with debts spend slightly less than 7% of their disposable income on interest payments.

Interest rate rises were responsible for the bulk of the increased interest burden on foreign currency loans as well as on consumer and other loans in 2006, whereas higher interest expenditure on housing loans was attributable almost equally to higher interest rates and higher household debt.

However, when interpreting interest expenditure figures, it must be noted that the result is only an estimate of the cost burden of loans on households and that cost factors are disregarded, e.g. non-interest-related charges and subsidies, with the latter playing an important role especially for housing loans. Additionally, only interest payments, not payments of principal, are considered.

Based on the values at end-2006, a rise of interest rates on loans by 200 base points would raise the share of disposable income spent on interest expenditure by 1.37 percentage points. If the currencies in which foreign currency loans are denominated appreciated by 10%, the interest burden would augment by 0.06 percent-

age point. Both factors combined would lead to an increase by 1.48 percentage points.<sup>15</sup> When interpreting the relatively low impact of exchange rate changes, one must bear in mind that this indicator only takes account of interest payments and neglects the rise in liabilities resulting from the higher euro equivalent.

### Higher Debts of Affluent Households

According to financial accounts data, the debt ratio (debt as a percentage of GDP) of Austrian households has increased by roughly 8 percentage points during the past five years and stood at around 54% at end-2006. Thus, Austria's debt ratio is below the euro area average of slightly more than 60%. Given that 40% of households carry debt, the incidence of loans is low by international standards.<sup>16</sup>

To assess the risks of household debts to financial stability, it is important to know the debt concentration within the household sector and the ratio of debt to income and assets at household level. Data on these aspects are available for 2004 from the OeNB's financial wealth survey.<sup>17</sup>

Borrowing and loan volumes differ significantly depending on income and financial wealth. These differences also show in the distribution of outstanding loan amounts to the income and gross financial wealth quartiles. For example, households in the

<sup>14</sup> Compare Beer, C. and M. Schürz. 2007. *Charakteristika der Verschuldung der privaten österreichischen Haushalte in Österreich. Ist die Verschuldung ein Risiko für die Finanzmarktstabilität?* In: *Geldpolitik & Wirtschaft Q2/07*. OeNB (forthcoming also in *Monetary Policy & the Economy Q2/07*. OeNB.)

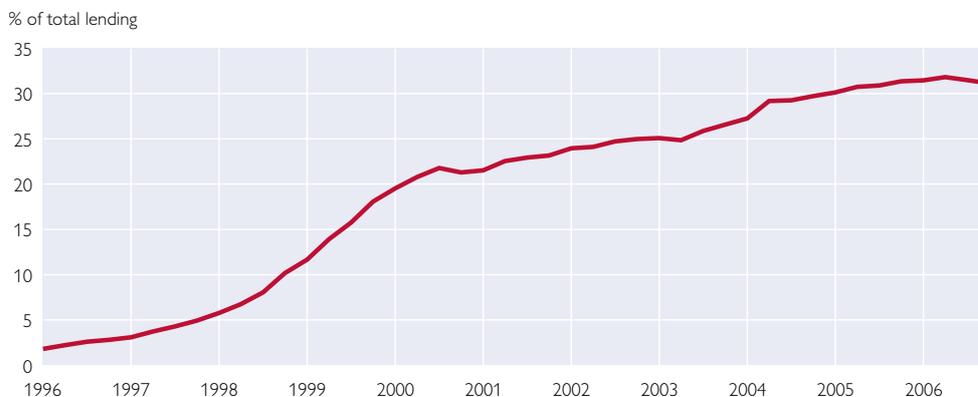
<sup>15</sup> For this calculation, the loan volume recorded at the end of 2006 is maintained constant and multiplied by the respective interest rates. Fixation periods and potential changes in borrowing behavior are not considered.

<sup>16</sup> See Sierminska, E., A. Brandolini and T. M. Smeeding. 2006. *Comparing Wealth Distribution across Rich Countries: First Results from the Luxembourg Wealth Study*. LWS Working Paper Series No. 1.

<sup>17</sup> Compare Beer, C. and M. Schürz. 2007.

Chart 11

### Foreign Currency Loans to Households



Source: OeNB.

top income quartile account for 45% of the loan volume and households in the top gross financial wealth quartile for 30%. The share of these groups in the outstanding amount of consumer loans is even higher. From the perspective of financial stability, this means that a nonnegligible share of loans was taken out by households that can rely on reserves in the case of adverse events, such as a rise in interest rates for variable rate loans, an unfavorable development of exchange rates for foreign currency loans or an income reduction.

#### Moderate Decline in Foreign Currency Loans

The share of foreign currency lending in the total volume of loans outstanding slightly decreased in the second half of 2006, somewhat reducing the exchange rate risk in financing, which, however, remains high at 31%. This decline was probably caused by the lower interest rate differential to loans denominated in Swiss francs. Swiss franc-denominated loans ac-

count for 97% of households' foreign currency loans. Because of the appreciation of the euro against the Swiss franc, households achieved high valuation gains that on principle, however, are only unrealized gains.

#### Conclusion: The Risk Situation of Households Is Stable

As capital market instruments account for a growing share of households' financial investment, investment income and price fluctuations in financial markets are likely to have an increasing impact on the financial situation of households. A prime method to reduce risks inherent in capital market investments is broad portfolio diversification. While direct investments made by Austrian households are highly concentrated, indirect investments ensure a broader diversification. The risk inherent in capital market investments is also reduced by the fact that investment products subject to price risk are primarily held by households in the top income and wealth deciles.<sup>18</sup> These

<sup>18</sup> Compare Beer, C., P. Mooslechner, M. Schürz and K. Wagner. 2006. Austrian Households' Financial Wealth: An Analysis Based on Microeconomic Data. In: *Monetary Policy & the Economy Q2/06*. OeNB.

households should be in a position to absorb potential price losses so that price fluctuations should only have a limited impact on financial stability.

However, as saving for retirement by investing in capital markets gains importance, developments in capital markets will play a greater role in the risk position of the household sector.

Although the share of foreign currency loans in outstanding amounts slightly decreased in the second half of 2006, financial liabilities continue to attract sizeable exchange rate risks. Given the high share of variable rate loans, the interest rate risk is quite

significant, which was evidenced by the further increase in the interest expenditure of households in the second half of 2006. In spite of the rising costs of finance, household debts currently do not point to any financial stability risk. Both in terms of volume and frequency, household debts are low by international standards, and the loan amounts outstanding are highly concentrated among affluent and high-income households. Moreover, favorable conditions in the labor market have a positive effect on the households' ability to meet their loan liabilities.

#### Indicators for Measuring the Financial Risks of the Corporate and Household Sector

*The assessment of risks arising for the corporate and the household sectors from their activities in financial markets is a major aspect of the OeNB's macroeconomic financial stability analysis. The analysis covers the risks for the financial position of companies and households entailed by price fluctuations of financial parameters (interest rates, exchange rates, share prices, etc.). Three risk types are differentiated: interest rate risk, which relates to a change in the general interest level (change of the absolute value of an interest rate or shape of the yield curve), exchange rate risk, which results from fluctuations of the exchange rate between the settlement currency and the reference currency of the borrower or investor, and price risk, which is the risk of changes in the prices of assets.*

*The analysis measures the exposure of a sector to these risks on the one hand and, on the other hand, the change (in the book value) of assets or liabilities resulting from the price fluctuations of financial parameters is quantified (ex post effects). Statistics collected by the OeNB primarily for monetary analyses serve as the data basis. While they do not permit microlevel assessments, they allow for an analysis of risk development for companies and households at a sectoral level.*

*The extent of exposure to the three risk types is expressed by the share of those assets or liabilities subject to the risk concerned in total financial assets and total liabilities according to the financial accounts. Hence, the indicators specify the level of exposure across the entire maturity range of the instrument in question at the relevant cutoff date and, as a result, measure the upper limit of risk exposure. A breakdown by fixation periods shows lower exposure for shorter time horizons. However, this method only covers the risks directly resulting from the respective positions, but not indirect risks, such as the effect of an interest rate change on share prices.*

*For the analysis of exposure to interest rate risk, deposits, short-term securities and money market funds are included on the assets side; loans outstanding are considered on the liabilities side. The exposure to exchange rate risk is assessed on the basis of the share of deposits and loans denominated in foreign currencies. Price risks affect quoted shares and bonds because of interest rate changes. The relevant indicator covers both direct holdings and indirect investments through mutual funds. As changes in the valuation of assets traded in less liquid markets (e.g. nonquoted shares) are very difficult to identify and measure, the analysis only considers financial assets traded in a standardized form on stock exchanges (bonds, quoted shares).*

*Ex post effects can be quantified by multiplying the volumes outstanding with the corresponding changes in interest rates, exchange rates and share prices. Indicators were calculated for the interest burden of loans taken out,<sup>1</sup> the impact of exchange rate fluctuations for foreign currency loans and the effect of price changes for quoted shares, bonds and mutual fund shares. Exchange rate and price effects are essentially changes in the book value of assets, while the interest burden relates to changes of expenditure.*

*The analysis is enhanced and deepened continuously. In a next step, the data basis is to be expanded in order to improve the assignment of financial instruments to risk types and to refine the breakdown by intermediation level. A more detailed presentation is planned for a future issue of the Financial Stability Report.*

<sup>1</sup> *The data currently available do not allow for consideration of fixation periods.*