II
FINANCIAL BEHAVIOUR OF COMPANIES AND HOUSEHOLDS AND THEIR RISKS

Companies

Financial Position and Saving

The net position of corporate financial assets and liabilities mediated by domestic banks and leasing companies has become even more negative due to strong credit growth (see Figure 2.1). At the end of September 2004 corporate financial liabilities to the domestic financial sector outpaced financial assets by more than 23 billion kroons. At the end of 2003 the gap was 17 billion kroons.

Figure 2.1. Corporate financial assets and liabilities to domestic banks and leasing companies (EEK bn)

The slowdown in **deposit** growth that had started in the first half of 2003 took a turn in the second half of 2004 – growth rate had accelerated to 21% by the end of September. While growth dynamics partly reflects differences with the base level of the previous period, in the longer view also improved corporate results are reflected in the increase in deposits. During the nine months of 2004 domestic corporate deposits increased by 1.4 billion kroons, which marked the fastest growth rate compared to the respective periods in the past three years.

Continually unattractive **deposit interest rates** and fallen **interest fund yields** have reduced the share of time deposits[1] as well as investments into money market and interest funds. Companies prefer to invest into equity funds or keep their funds liquid as demand deposits (see Figure 2.2).

[1] Over 75% of corporate funds held in banks are demand deposits.

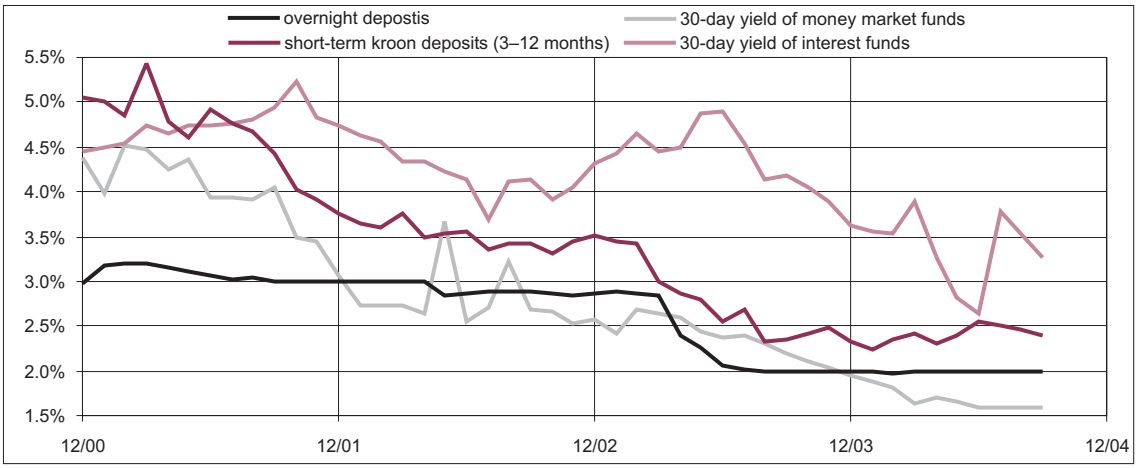

Figure 2.2. Interests on corporate short-term kroon deposits and average yields of money market and interest funds

Corporate Debt

The **growth** in corporate **debt**, which had remained at 20% from the second half of 2001 until the middle of 2003, has shown a downward trend since then, declining to 16% by the end of the first half of 2004 (see Figure 2.3). Financing through domestic bank loans and leasing facilities has grown considerably faster this year compared to the year before. The share of foreign borrowing was still consistently high at the end of June, accounting for 52% of corporate debt. Nearly half (more precisely 46%) of foreign borrowing accounted for intra-group loans.

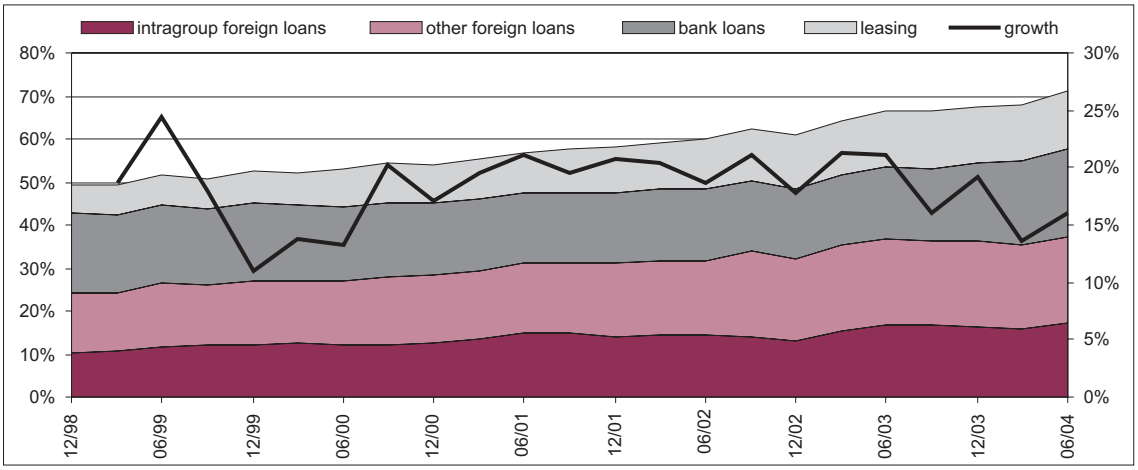

Figure 2.3. Corporate debt (% of GDP; left scale) and growth rate (right scale)

Besides rapidly increasing debt, also **foreign equity investments** have shown a robust growth (see Figure 2.4). Compared to domestic and foreign debt, the growth in the stock of foreign equity remained more modest while still being faster than that of the stock of foreign debt instruments.

By fields of activities, trading companies were the most active in attracting debt capital in the first half of 2004. However, **during that period foreign direct investments were attracted mostly into real estate and construction** (2.4 billion kroons) – this was one of the most robust increases in recent years. In the core activities the role of foreign direct investments in financing remains significant; for example, in manufacturing intra-group loans accounted for almost 50% of the growth in debt in the first half of the year.

However, the structure of corporate debt has not significantly changed as a result of these developments. Real estate sector financing is still predominantly based on domestic loan and leasing facilities (64% of the debt) while in other main industries foreign borrowing dominates (see Figure 2.5).

Figure 2.4. Foreign share in Estonian enterprises (% of GDP)

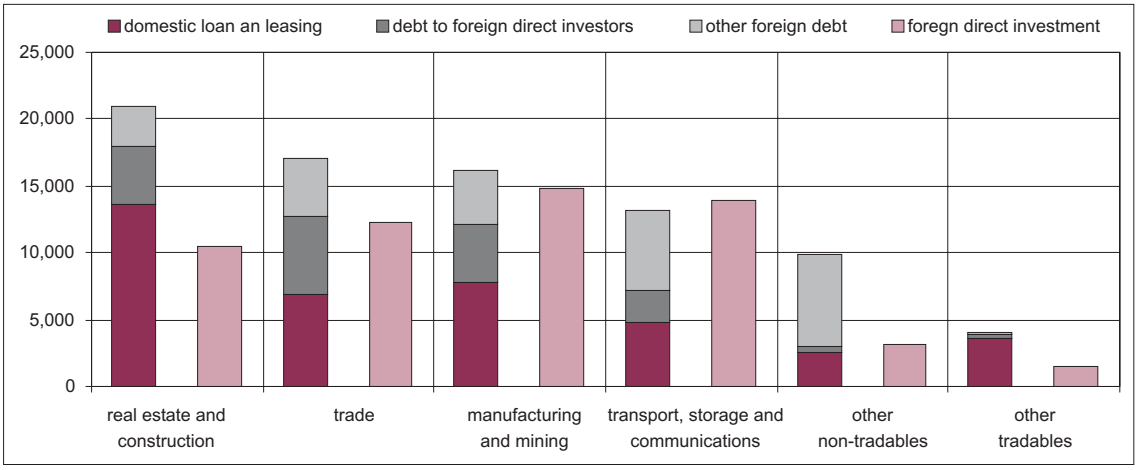

Figure 2.5. Structure of corporate financing as at 30 June 2004 (EEK m)

Debt Mediated by Domestic Financial Sector

By the end of the third quarter of 2004 **annual growth in domestic debt** mediated by the domestic banking and leasing sector reached the highest level in recent years (27%; see Figure 2.6). Even though most of it accounted for the financing of the transport sector, which has since the end of 2003 relied more on the domestic banking sector[2] and where annual growth reached 83% at the end of September, accelerated growth rate has been evident in all main industries in 2004.

In the debt instruments' structure a trend persists where the share of leasing is declining and that of bank loans is increasing. At the end of September over 60% of the domestic corporate debt had been financed with bank loans. The main underlying reason for the diminishing role of leasing is the change in the nature of loan products. It is more common to use leasing for investments into machinery and equipment, which is why the share of leasing in agriculture and manufacturing, for example, has remained unchanged (at 66% and 35%, respectively). The domestic securities market is still playing a modest role in attracting funds (see Chapter 4).

[2] At the end of 2003 a significant part of transport sector loans were refinanced with domestic bank loans.

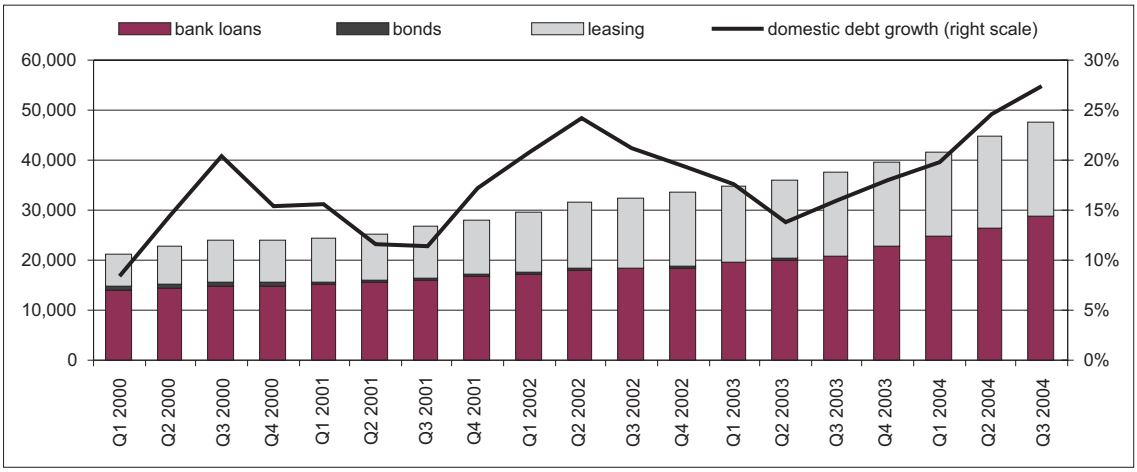

Figure 2.6. Domestic credit to corporate sector (EEK m; left scale) and debt growth (right scale)

The low level of interest rates has promoted large growth in corporate loans. Throughout 2004 the average interest rate on long-term corporate loans has remained at 5%, which marks a drop of almost one percentage point, year-on-year (see Figure 2.7). The favourable interest rate environment affects almost all industries. As a 9-month average, interest rates were higher than average in agricultural and fisheries companies; meanwhile, companies operating in transport, communications, real estate and other business activities borrowed money at lower interest rates. Given that in the EU context Estonian companies are predominantly small and medium-size to whom generally higher interest margins are applied, the established interest rate level in Estonia can partly be regarded too low.

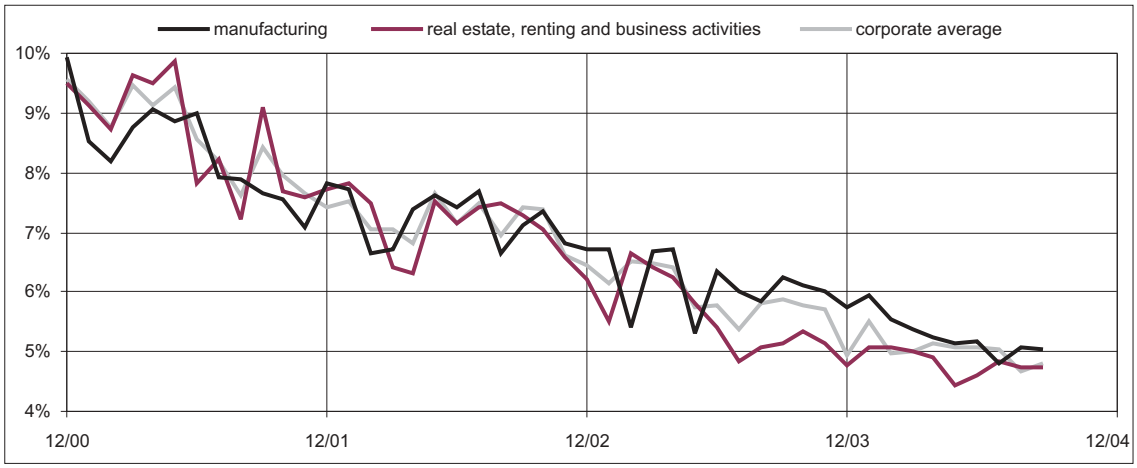

Figure 2.7. Long-term corporate interest rates

Households

Financial Position and Saving

The net position of households' financial assets and liabilities has continued to deteriorate in 2004 at an accelerating rate. Households' financial liabilities outweighed financial assets by more than 6 billion kroons at the end of September 2004 (see Figure 2.8). Since real estate purchases are the main factor behind the growth in financial liabilities, the wealth of households has obviously increased. However, weakening financial position adversely affects macro level external balance, and on the micro level the buffers safeguarding against possible setbacks are decreasing, which may threaten the loan servicing ability.

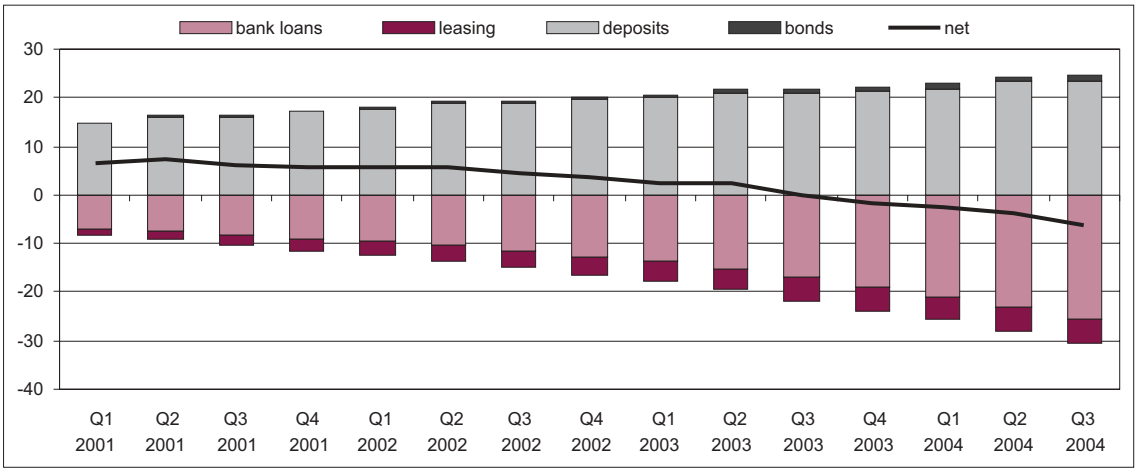

Figure 2.8. Financial assets and liabilities of households to domestic banks and leasing companies (EEK bn)

The downward trend in the **annual growth in deposits** emerged already in the middle of 2001 and reached its lowest level at the end of 2003 and the beginning of 2004. Although the deposit growth rate finally took a definite turn towards growth in the second half of 2004 (the annual growth rate reached 11.4% at the end of September), it has still remained modest (see Figure 2.9). Compared to other indicators of financial deepening, the ratio of household deposits to GDP has not significantly grown, remaining between 16–18% ever since mid-2001[3].

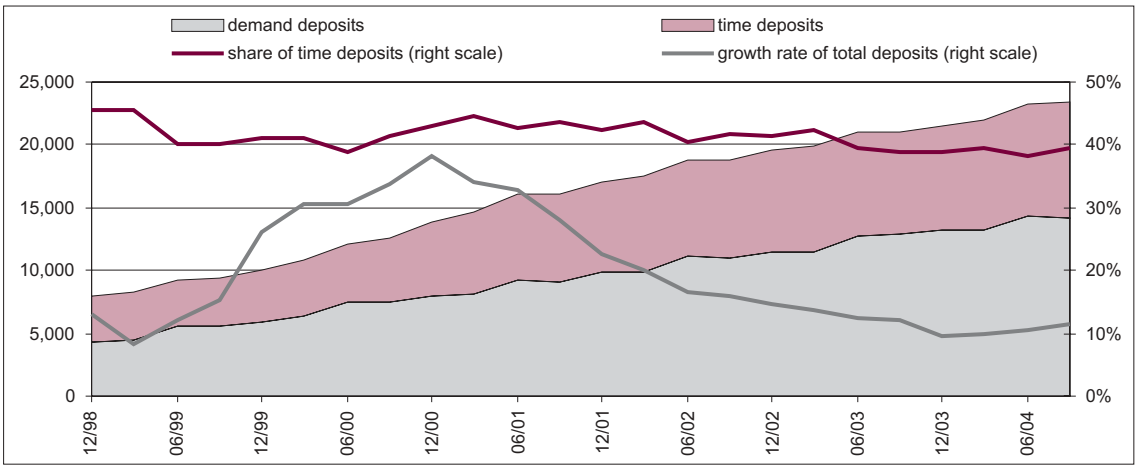

Figure 2.9. Household deposits in domestic banks (EEK m) and deposit growth

In the first nine months of 2004 the stock of deposits grew by 1.9 billion kroons (at the same time in 2003 the rise in stock was 1.3 billion kroons), meanwhile, it is noteworthy that demand and time deposits have increased almost equally. Most probably the conclusion made in the Financial Stability Review of May 2004 about scarce investment opportunities still holds true since deposit rates have remained unchanged on a low level since mid-2003. However, a study carried out by TNS Emor in the autumn of 2004 showed a sharp decline in preferences regarding time deposits, while the relative importance of "piggy bankers" has grown.

[3] For comparison: at the end of 2003 household deposits accounted for 15% of GDP in Latvia and 35% in Finland (sources: Eurostat and central banks).

According to the same study, direct **investments into securities** are of interest to only a small part of the population – just 4% of all households hold listed or unlisted securities or investment fund units, and this indicator has remained almost unchanged in the past three years. Probably the main reason for such lack of interest is the residents' conviction that investments into real estate provide comparatively superior and more risk-free returns (see also background information *Return on Real Estate Used for Housing and Financial Assets*).

Arising from the successful launch of the pension reform, the **structure of households' financial assets** is changing in long-term perspective. Besides mandatory pension savings also voluntary pension savings have grown significantly in the past year – 11.5% of the working population had joined the III pillar of the pension system by the end of September 2003 (see Chapter 5.2) and the total volume of pension savings rose to 2.9 billion kroons. The growth in pension savings has outpaced that of households' time deposits in the first nine months of 2004, still falling behind the absolute rise in total deposits. At the end of September 2004 pension savings accounted for nearly 11% of households' financial savings (excl. bonds and shares). Should such saving trends continue, the share would reach 17–18% by the end of 2005.

In the context of increasing loan burden more attention should be paid to consistency of deposit growth and liquidity of household savings. Considering fast growing consumption and loan commitments there is no reason to assume that deposit growth would accelerate. While modest growth in household deposits does not have a critical impact from the viewpoint of the banks' liquidity management (except for more indirect impact through current account deficit and macroeconomic instability), then at an individual household level this forms a necessary buffer against problems that might occur in debt servicing.

Household Debt and Loan-Servicing Ability

Level and Growth of Debt

In 2004 households' loan demand has been stronger than ever. Underpinned by favourable loan conditions, the **volume of new loans** per month has been consistently growing. In the first nine months of 2003, the average volume of new loans granted to households was 800 million kroons per month; during the same period in 2004 loans worth an average of 1.2 billion kroons were granted each month. The loan and leasing stock of households exceeded 30 billion kroons at the end of September (see Figure 2.10).

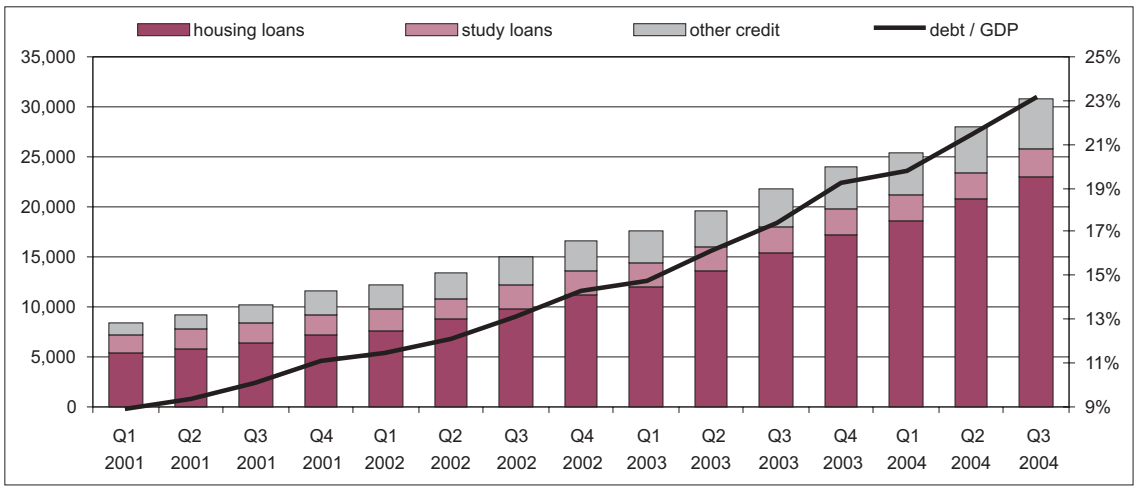

Figure 2.10. Domestic credit to the household sector (EEK m) and debt-to-GDP ratio (right scale)

In line with the estimate made in the Financial Stability Review in May 2004, the **rate of loan growth** started to slow down in the middle of 2004, stabilising by the end of September at a level last seen three years ago

(41.5%; see Figure 2.11). Since the base levels have risen, it is easy to forecast a slowdown in the loan growth rate also for the coming months. Assuming that nominal credit growth would remain comparable to that of 2004, households' loan growth would stay around 30% at the end of 2005, should current development trends continue.

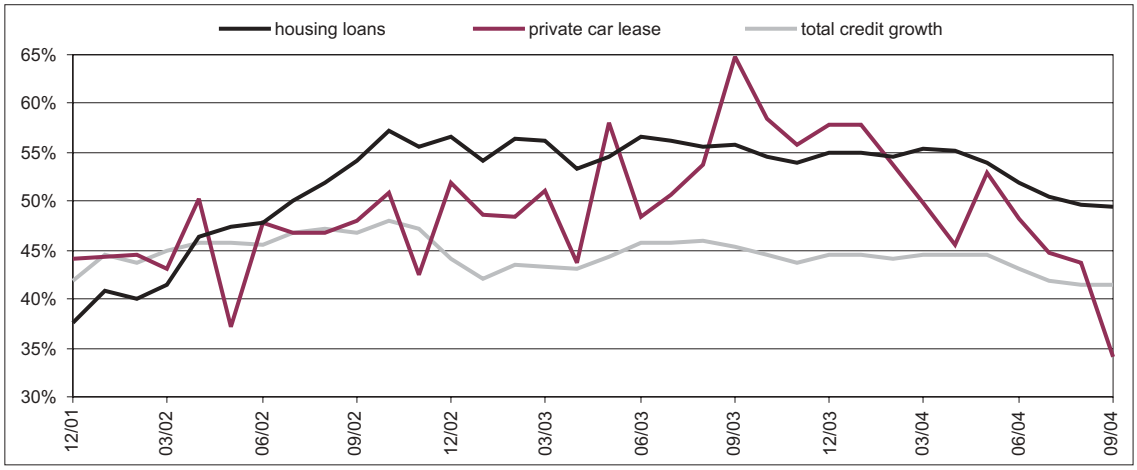

Figure 2.11. Annual growth of domestic credit to the household sector

Six months after completing last spring's Financial Stability Review it can be said that the role of the EU accession was probably overestimated when substantiating the strong demand for (housing) loans (this, however, does not apply to the rise in housing prices). Quick decisions regarding loan-financed housing purchases have above all been induced by favourable loan conditions and sustained income growth. Price rise fears/expectations associated with the EU accession are of secondary importance since no significant adjustments neither in housing demand nor supply have occurred after the accession.

Compared to the other Baltic states, Estonia's rate of loan growth remains more modest (see Figure 2.12). However, the ratio of household debt to GDP in Estonia, which reached 21.4% at the end of June, significantly exceeds the respective Latvian and Lithuanian indicators (see Figure 2.13). Still, compared to Finland and Sweden, Estonia's debt level is significantly smaller (two and three times, respectively).

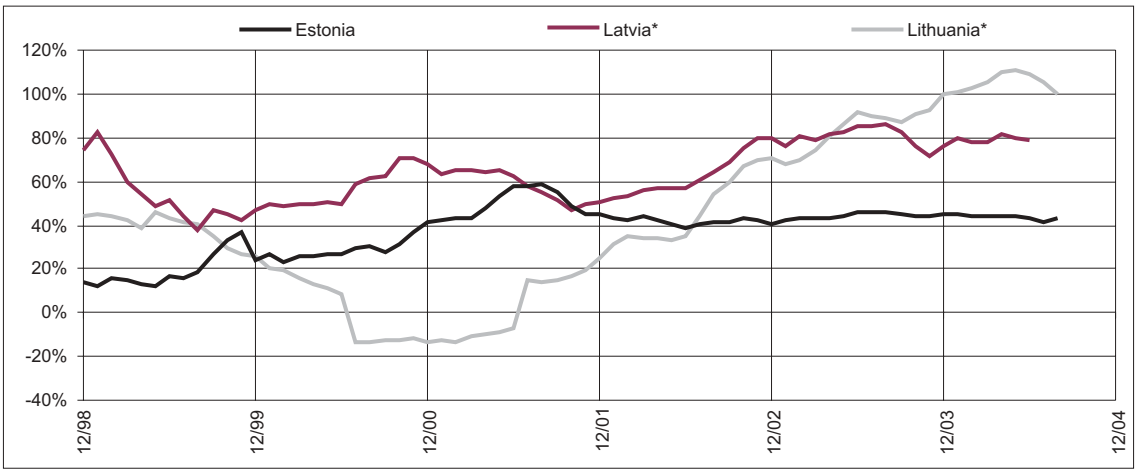

Figure 2.12. Annual growth of domestic credit to the household sector in the Baltic countries

Source: national central banks
* excl. leasing

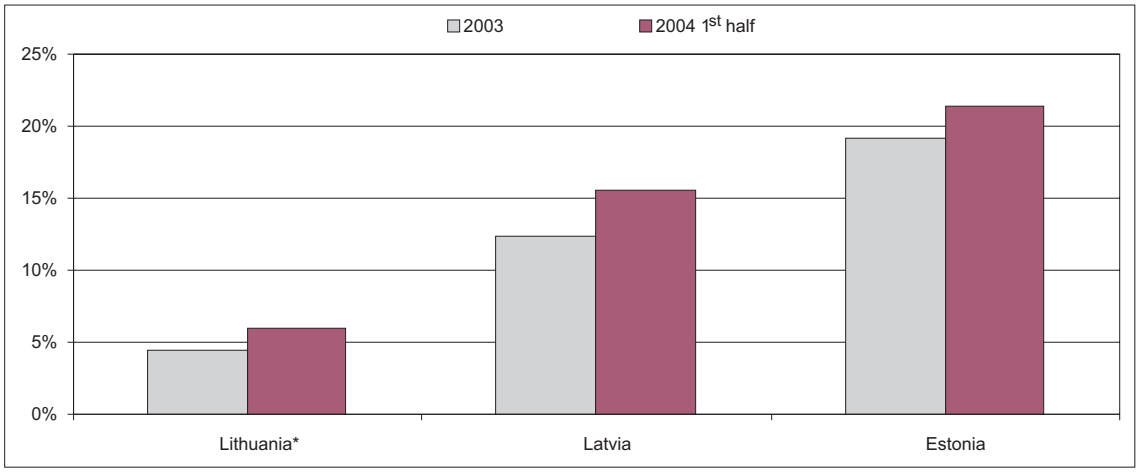

Figure 2.13. Household debt in the Baltic countries (% of GDP)

Source: national central banks
* excl. leasing

Housing Loans

The **debt structure** of Estonian households is quite similar to that of the Nordic countries. Loans taken for purchasing/renovating housing account for almost 75% of the loan stock of households. This is also the largest market share in the loan and leasing portfolio (housing loans accounted for 29.5% of the non-financial sector loan and leasing portfolio at the end of September 2004 and 26% a year before).

In the first nine months of 2004 the **volume of housing loans** grew by 6.7 billion kroons, amounting to 23 billion kroons at the end of September. The share of leasing financing upon purchasing housing has been steadily declining – at the end of September housing leasing accounted for 11% of total financing used for purchasing housing.

Based on the survey of financial behaviour carried out by TNS Emor in autumn 2004 and the information received from market participants, the number of **housing loan clients** has increased by approximately 10,000 families in a year. The share of families that have taken a housing loan/leasing in the total number of households remains below 13%. Therefore, increasing loan stock, which has risen by 7.6 billion kroons from September 2003, cannot just be explained by new clients. Assuming that the average value of new housing loans was 450,000 kroons in the past 12 months, nearly 40% of the growth in loan stock came from the existing clients who either replaced their loans with larger ones or increased loan amounts.

Assuming that the decisions to change housing are not made frequently in a short period[4], it is safe to conclude that this is a one-off and temporary process, and therefore, in long-term perspective, the volume of housing loans can grow mainly at the expense of market newcomers. However, one cannot predict a steep rise in the loan volumes on the basis of a presumed income growth of the lower-income group families. Thus, there are a few arguments in the market structure to support restraining loan demand.

Consumer Loans

Consumer loans account for less than 17% of household debt (25% together with student loans), while 40% of the consumer loans comprise car leasing. It is the declining demand for car leasing that can be considered as the main factor contributing to the slowdown in the growth rate of consumer loans.

[4] Similar situations from the aspect of loan supply are those where a higher real estate price enables to use sufficient self-financing for purchasing real estate in a higher price segment or increasing the amount of the valid loan contract. A simplified assumption does not consider the second option, which also involves renovation of the housing purchased.

Nevertheless, judging by the results of households' financial behaviour surveys (TNS Emor), purchasing consumer goods with additional financing appears to be regaining popularity. On the one hand, demand for such loan products is spurred by the need/interest to make improvements at home through purchasing household appliances; on the other hand the zero-interest hire purchase opportunities aggressively offered by shops promote consumption. However, in such cases the loan amounts are either non-existent (hire purchase with 0% interest) or very small and do not significantly affect the volume of the consumer loans/ leasing portfolio. In the short run, the activeness of using deferred debit cards (e.g. EGO) issued by banks above all depends on the more favourable alternatives provided by shops.

Loan Conditions

The average interest rate on new housing loans that had remained comparatively steady for almost a year fell sharply in June and stabilised at 4.2% in September (see Figure 2.14). While real interest rates remained stable in 2001–2003 owing to a consistent decline in the inflation rate, the temporary price rise associated with the EU accession led to a sudden decrease in ex post real interest rates.

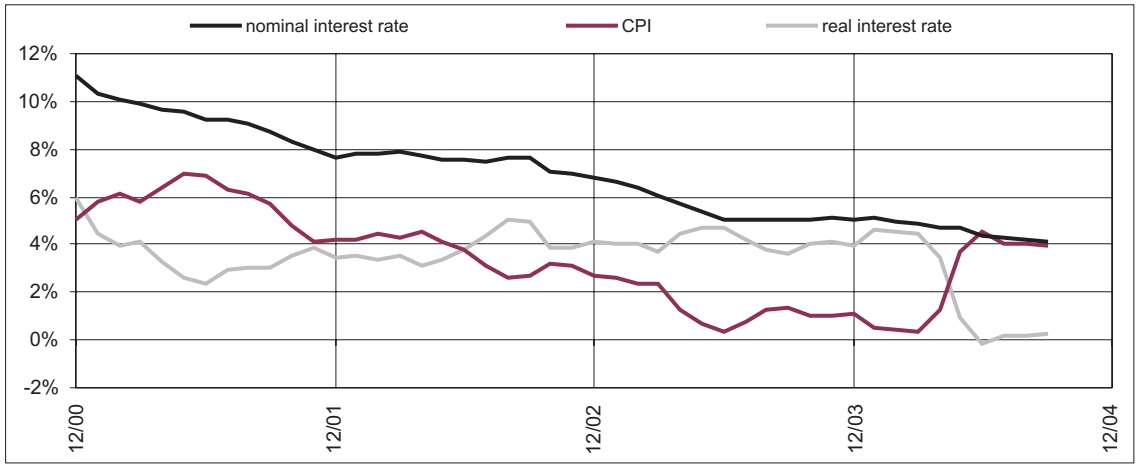

Figure 2.14. Nominal and real interest rates on housing loans and consumer price index

Interest rates on new loans are slightly more than 60–70 basis points higher in Estonia compared to the euro area average, whereas the difference in interest rates has, in effect, fallen twice in the past year (see Figure 2.15). However, compared to Finland, the housing loans granted in Estonia still carry an interest rate that is more than one percentage point higher.

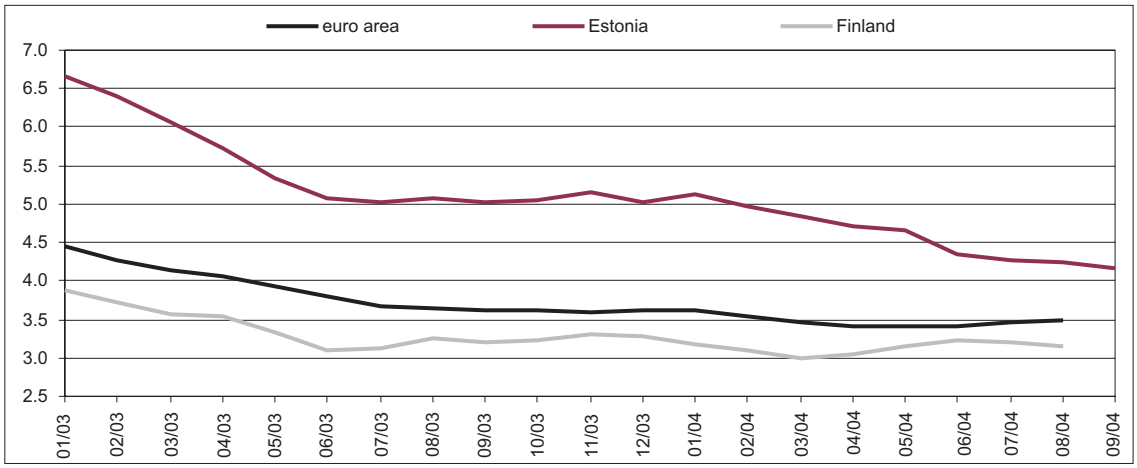

Figure 2.15. Interest rates on new housing loans in Estonia and the euro area (incl. Finland; %)

The pressure to broaden the customer base arising from stronger competition has contributed to improved availability of loan resources. In that aspect, besides the above-mentioned interest rate decline, longer housing loan **terms** could be mentioned as well. The **self-financing rate** of housing loans remained at previous levels until September. The LTV (loan-to-value) ratio was 70% (85% in case of more highly valued real estate). The impact on the portfolio's LTV of replacement products launched onto the market by the banks after KredEx's guarantee limit ran out greatly depends on how much the target group would expand compared to the respective terms set by KredEx. Along with the rise in housing prices **the minimum income requirement** has become a less important limitation. Whether a loan is accepted or not rather depends on whether the cash flow of the potential client is sufficient for covering loan-servicing costs.

State policy and support systems. In the context of rapid housing loans growth KredEx's active work at issuing guarantees is also worth mentioning. However, the growth rate of loans backed by KredEx's guarantee was slower than the overall growth in the Estonian housing loans market, which is why KredEx's share in the turnover of all new loans fell to 18.5% at the end of 2003[5]. Since the beginning of its operations until the end of 2003 KredEx had guaranteed housing loans worth 3.5 billion kroons. While guarantees have been paid only a few times during KredEx's existence, housing loan guarantees have increased in KredEx's income structure (in 2003, 33% of the income came from guaranteeing housing loans; in 2002 the respective indicator was 26%).

In a situation where the market itself is ready to provide lower self-financing under the same conditions, the role of KredEx in the Estonian housing market appears to begin decreasing. The government's proposal to increase the limit of issuing guarantees stipulated by the law only in a "substantiated" amount and the decision to apply more conservative underlying principles upon developing KredEx's guarantee products[6] indicates similar developments as well.

New loan clients led to an increase in the income tax refunded from the state budget to 161 million kroons in 2003. Owing to declining loan interest rates, the average interest refund dropped to 3,500 kroons per housing loan. The share of income tax refunds in the total interest paid to banks and leasing companies by households (incl. consumption loans) amounted to 10% in 2003, while a year before it stood at 9%.

Households' Loan-Servicing Ability

Rapid growth in households' loan stock in 2004 has also led to a significant increase in **interest payments** – for the first time ever the loan and leasing interests paid by households passed the threshold of 500 million kroons on a quarterly basis. However, in the context of stable income growth, households' **interest burden** has not significantly increased, having risen by just 0.13 percentage points to 2.5% by September from the end of last year. Compared to the respective average in the Nordic countries (except Finland) and in the euro area, Estonian households on average spend twice as little of their income on loan interest payments (see Figure 2.16). At the same time, the ratio of debt to disposable income in the Scandinavian countries is as much as three to five times bigger than in Estonia, which indicates that the loan-servicing cost in Estonia might be comparatively high already now.

An analysis of the developments at the individual household level is more informative and pertinent to the content than the aggregate indicators of the households sector. A survey carried out in the autumn of 2004 by TNS Emor showed that the **loan-servicing cost** in most of the families that had taken loans "remains within reasonable limits" – on average approximately 18% of a family's monthly income goes for loan and interest payments. In 23% of the families with financial liabilities loan-servicing costs rise above 29% of the family's net income. In the context of such loan servicing to net income ratio low-income families, where a significantly larger part of the family's budget goes for loan repayment, appear to be more problematic.

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[5] KredEx's 2003 annual report. Since these calculations do not include leasing statistics, the share might have been even smaller.

[6] At the end of September 2004, the 700 million kroon limit stipulated by the law for issuing guarantees expired. In the middle of October the government approved the draft amendment to the Support of Enterprise and State Loan Guarantees Act, which will, after Riigikogu passes it, increase KredEx's guarantee limit to 950 million kroons (the supply of housing loans extended with lower self-financing with KredEx's support could thus increase to 4.75 billion kroons).

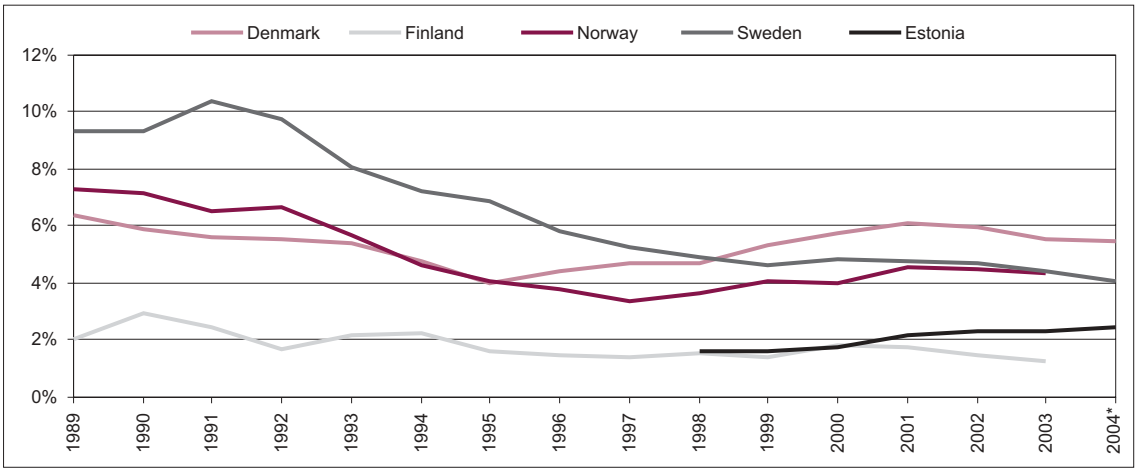

Figure 2.16. Households' interest ratio (interest expenditure divided by disposable income) in the Nordic countries and Estonia

Source: national central banks
* latest available data

The European Central Bank reckons in its estimates of the credit risks of European households that the most critical trends of the past year involve the large share of loans with floating interest rate, declining margins and the rise in the LTV ratio of new housing loans. The currently well-capitalised banks might face more serious problems should unemployment increase, housing prices fall and interest rates rise all at the same time.

BACKGROUND INFORMATION

RETURN ON REAL ESTATE USED FOR HOUSING AND FINANCIAL ASSETS

The high activity in the housing market, the decline in the net position of households' financial assets and liabilities, and record issuance of housing loans indicate that households are replacing financial savings with investments into housing (see Figure 2.17) and actively attract loan resources for that.

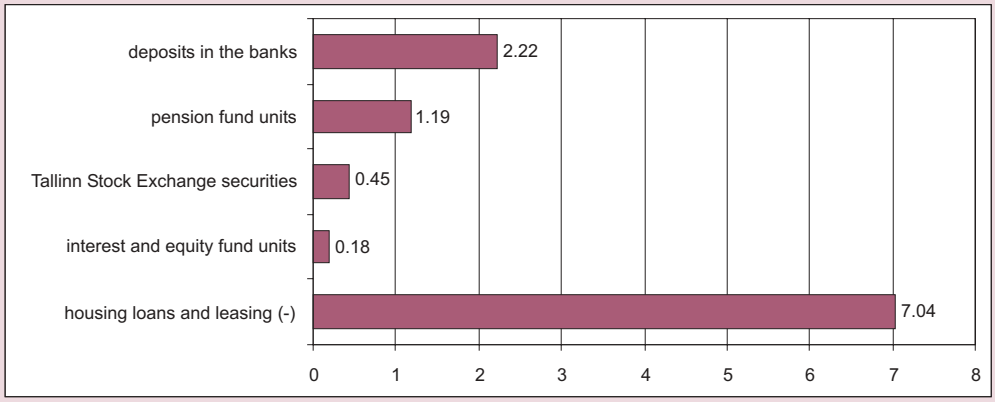

Figure 2.17. Changes in households' financial assets, housing loans and leasing portfolio from 2Q/2003 to 2Q/2004 (EEK bn)

Sources: Statistical Office of Estonia, Eesti Pank

Since the real estate used for housing purposes has provided comparatively **high return** in the past five years[7] (see Figure 2.18) and credit availability has improved, households' behaviour can be considered completely reasonable. However, upon making investment decisions, besides the return also the risks involved are considered, i.e. **return volatility**, and, depending on the willingness to risk, an investment with the appropriate return to risk ratio is chosen. Therefore, the current brief analysis aims to compare the risk-adjusted realised return on the real estate used for housing purposes and financial assets in the period of 1999–2004[8].

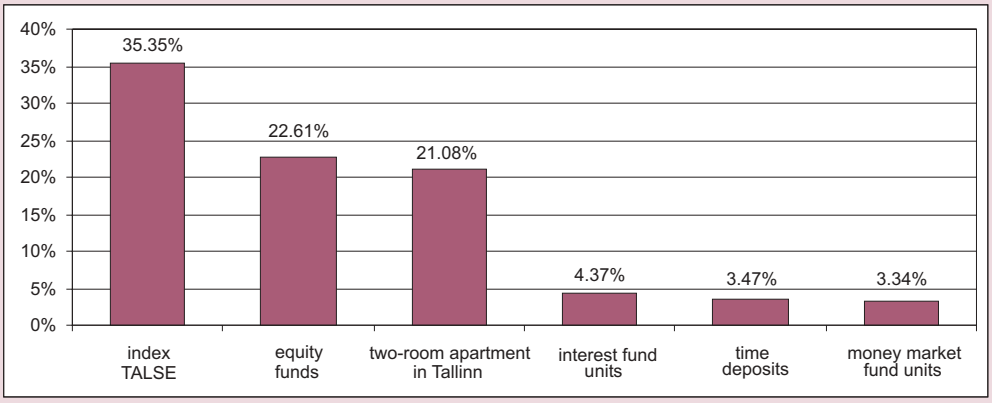

Figure 2.18. Average nominal yields of residential real estate and financial assets during 1999–2004

Sources: Statistical Office of Estonia, Eesti Pank

One of the options to compare investments is to use the **Sharpe ratio.** This is calculated by dividing the difference between the average returns on the studied asset and a risk-free investment, i.e. the part exceeding risk-free investment, by return volatility, i.e. standard deviation. Thus, the Sharpe ratio shows gain from risk-taking per one risk unit.

The Sharpe ratios calculated on the returns on a two-room apartment in Tallinn in a satisfactory condition and financial assets (see Table 2.1)[9] show that units in interest funds, whose yields are low but stable, compared to shares and housing investments, have carried the highest risk premium on average in the past five years. The securities listed on the Tallinn Stock Exchange have the second best return-to-risk ratio, while a two-room apartment in Tallinn and equity fund shares do not fall far behind.

Table 2.1. Indicators for risk and yield of residential real estate and financial assets during 1999–2004

	Average yield	Standard deviation	Sharpe ratio
Two-room apartment in Tallinn	21.08%	0.175	1.004
Tallinn Stock Exchange index TALSE	35.35%	0.292	1.092
Equity fund units	22.61%	0.192	0.999
Interest fund units	4.37%	0.007	1.271
Money market fund units	3.34%	0.011	-0.115

[7] The return on the real estate used for housing purposes has been calculated on the basis of transaction prices, which only include capital gain and do not consider possible rental income or implicit rent saved by an owner-occupier.
[8] In order to get substantial results the period under observation should cover at least one full economic cycle, which cannot be assumed about the given time period.
[9] In the absence of kroon-denominated government bonds, term deposits are considered risk-free investments.

When interpreting the Sharpe ratios one has to bear in mind that already realised returns are used, which is why it is not advisable to use the results when making future-oriented investment decisions. For example, the growth in housing prices has partly been a price-adjustment process characteristic to a transition economy. Taking into consideration the fact that the prices of apartments in new apartment blocks exceed the prices of apartments in good condition in older houses in Tallinn by barely a third, one can conclude that the depreciation-adjusted replacement value of the latter has been achieved with today's price level, which is why the prices might not continue to grow at the same rate.

Besides, one also has to consider that there are other significant differences between real estate and financial investments, apart from return and risk. Unlike with financial assets, with real estate one has to take into account depreciation, which gradually reduces the market value of the investment. Secondly, real estate transactions are characterised by low liquidity, which arises from the fact that each object is unique and it is not a market of uniform merchandise, which is why the selling process is considerably more complicated and longer than with securities. This means that it might not always be possible to sell an asset when the need emerges. In addition, with real estate one has to take into account higher transaction and administrative costs. All these factors add risk to real estate investments, which the analysis above did not consider.

Effective or actual return on investments is also affected by different taxation treatment. Provided that property purchases are financed with loans and acquired for personal use or for the closest relatives, Estonia's tax laws provide for deduction of loan or leasing interest from taxable income, which increases the effective return on real estate investments financed through loan or leasing and motivates households to acquire real estate with loan or leasing financing. No income tax is applied to income on transferring real estate, if the taxpayers used the property as their permanent or main residence prior to selling it. However, income tax is applied to income on selling securities. The factors above raise the effective return on the real estate used as housing.

All in all, one can say that upon comparing the return-to-risk ratio of the real estate used for housing purposes and that of different financial assets based on the Sharpe ratio in 1999–2004, a securities portfolio including the securities listed on the Tallinn Stock Exchange and a two-room apartment in Tallinn in a satisfactory condition can be considered equivalent investments. Thus, purchasing a house or an apartment as an investment was not necessarily the best alternative judging by the average risk premium of that period. A major factor behind the growth in housing prices has been the one-off structural adjustment of prices, which has presumably ended by now. Therefore, households' future-oriented investment decisions based on realised real estate returns may turn out to be too optimistic.

PRICE LEVEL OF REAL ESTATE AND ECONOMIC GROWTH

The active work that the banks have been doing upon financing transactions in the housing market has raised a question as to whether the growth in real estate prices or the established price level might pose a threat to the banks' loan portfolio. The fact that apartment prices in Tallinn's "dormitory districts" have risen by 10–15% in the past year does not provide an answer to the question as to whether the rise has been extensive or whether it is a real estate bubble. In order to find the answer, one has to relate the established price level to residents' income and compare the growth rates of both indicators. Regrettably, structural changes inherent to a transition economy make evaluation difficult – the price structure has been significantly different from that of developed countries and the rate at which the prices

of products and services have risen after the monetary reform has been very different. The situation is similar regarding the prices of different types of real estate; faster growth in some segments may rather be a structural adjustment and thus make it difficult to differentiate it from market deviation.

When evaluating long-term price rise, an important background factor is the convergence of the Estonian economy towards the average EU level. However, it is very difficult to define the average EU real estate price level and, therefore, for the sake of simplicity, one might opt for the Finnish price and income level along with the price structure (incl. real estate prices) as the long-term growth target. The comparison of the key Estonian and Finnish nominal indicators showed that the difference in income in 2003 was about fivefold and the difference in consumer prices was more than twofold. Meanwhile, in the real estate sector the price difference of a square meter was 4.2 times between the capital cities and 2.8 times outside the capital cities[10] (see Table 2.2). Thus, an Estonian resident spends a larger part of his/her income/salary for buying one square meter of real estate than his/her northern neighbour. At the same time, real estate is sooner a non-tradable sector commodity and, compared to car or food prices, it is more affected by nominal income level.

Table 2.2. Difference between Estonian and Finnish nominal indicators

	1997	2000	2003	2006	2010	2020
Nominal GDP per capita	7.7	6.3	4.9	4.3	3.6	2.3
Average wages	8.8	7.2	5.8	5.0	4.2	2.6
Price level by consumer basket	2.8	2.5	2.4	2.3	2.1	1.8
Real estate price in capital	5.1	6.7	4.2	3.6	3.0	2.0
Real estate price outside the capital	4.8	6.1	2.8	2.5	2.3	2.0

In the past eight years the price of real estate in Tallinn used for housing purposes has risen by more than 2.5 times and the average wages in Estonia has grown nearly three times. The difference in these rates is rather a structural adjustment than a deviation: the indicators with the biggest relative difference with Finland should also advance faster. Based on the CPI growth of 3.9% corresponding to an economic growth rate (real GDP growth) of 5% calculated according to long-term unification in the price level and assuming that the share of wages in the GDP does not change, Estonia's nominal GDP per capita and wages should increase more than four times by 2020 and consumer prices should rise nearly twice. Assuming that Finland's inflation rate is 2% and economic growth 2.5%, the difference in income will shrink to 2.3 times and in price level to 1.8 times.

With real estate prices it is more difficult to work out forward-looking price growth and several assumptions have to be made in the evaluation process. In the past five years the ratio of the price of a square meter of a housing in Helsinki to the average wages in Finland has been 0.85 on average. The respective indicator for Tallinn was 1.24 in 2003 (see Figure 2.19). Assuming that by 2020 the respective Estonian indicator should also be 0.85, the real estate prices in Tallinn would in the meantime grow three times, i.e. by slightly more than 6% a year.[11] Although the indicator outpaces consumer price growth, it falls behind the average wage growth as well as nominal economic growth and also the increase in corporate profits, should the GDP structure remain the same.

[10] Apartments in the city district of Õismäe have been chosen for the price level in Tallinn (they characterise best the average of the centre and the outskirts) while Tartu serves as the price level outside the capital.
[11] Since the average number of square meters in a Finnish home is 40% bigger than that in Estonia, then unification in the size of housing is a prerequisite for such price growth.

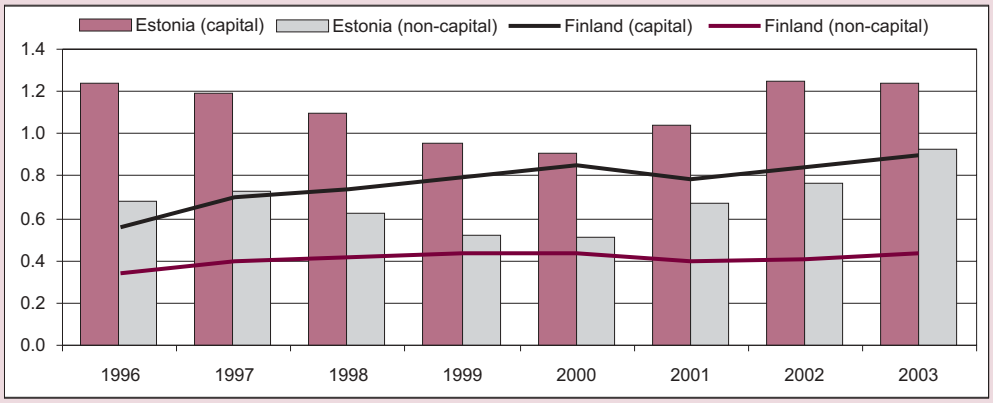

Figure 2.19. Ratio of average price of m² and average wages

However, given the fact that the quality of housing in Tallinn is inferior to that in Helsinki, or in other words, if we add renovation costs to the current price level in Tallinn (an estimated 3,000 kroons per square meter), the annual price growth in the period under observation is about 4.5% (i.e. slightly higher than the consumer price rise). Besides, the number of residents in Tallinn is smaller and owing to lower concentration the real estate prices should be lower in Tallinn than in Helsinki at the same income level. Thus, the real estate price increase is difficult to estimate, but it will probably remain between consumer price and income growth. Price growth greatly depends on structural changes: the smaller the structural changes, the closer the increase should remain to the income growth level.

As indicated before, after the post-monetary reform period the average wages in Estonia has not been sufficient for buying one square meter of housing at Õismäe, for example.[12] The historically rather high price level has partly been caused by the transition economy phenomenon in which the aggregate cost of building a new house or an apartment has been higher than the price for purchasing and renovating an old housing (i.e. the depreciation-adjusted replacement cost). Since 2002 such price structure phenomenon does not apply to Tallinn any more and the addition of new housings has a restraining effect on real estate price rise. Meanwhile, it still applies to real estate outside Tallinn and therefore these price levels are not easily comparable.

Real estate price change analysis makes use of the comparison between the cost of average housing and average wages, i.e. the affordability ratio (average housing price / average annual wages). The respective ratios in Tallinn and Helsinki have in both cases been in the range of 4.5–5[13] (see Figure 2.20) since 2002. Although the fact that loan terms have lengthened has raised the affordability ratio, such a level is considered to be comparatively high in international comparison – the normal level should be below 4. Therefore, in medium-term perspective the increase in real estate prices (both in Tallinn and Helsinki) should rather be slower than income growth. In case of an opposite development the achieved price level should be regarded as overpriced or even a real estate bubble.

To conclude with, the price level of real estate in Tallinn used for housing was among the historical highs at the end of 2003. Should developments similar to earlier years, when real estate price rise outpaced that of income, continue in the current and following years, the price

[12] A "rule of thumb" real estate agents apply is that monthly wages should buy one square meter of housing.
[13] The average size of housing in Estonia is 54 m² and in Finland 77 m². The average wages in Tallinn exceeds the average indicator in Estonia by 20% and a similar ratio has also been applied to Finland.

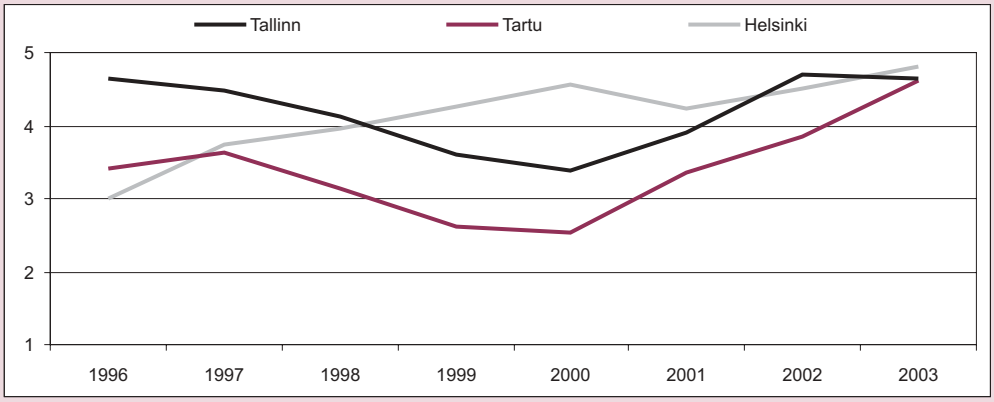

Figure 2.20. Ratio of average housing price and average annual wages

level of the real estate used for housing purposes might rise unreasonably high, which will have an adverse effect on economic growth (e.g. labour mobility is reduced, higher loan-servicing costs suppress consumption and through that economic growth, etc.) as well as on the development of the real estate market (market liquidity decreases, a price drop cannot be excluded).