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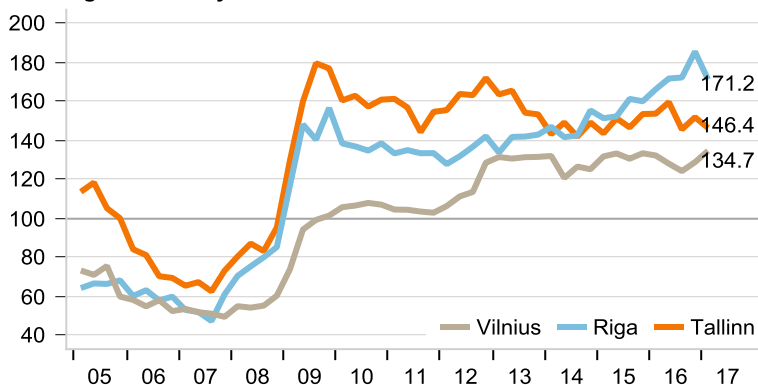
## Baltic Housing Affordability Index

**The housing affordability index (HAI) increased to 171.2 in Riga and 134.7 in Vilnius, but decreased to 146.4 in Tallinn**

- In Tallinn, affordability decreased by 7.3 points in the first quarter of this year compared with the same period in 2016, as price growth was more than double that of wage growth.
- In Riga, the HAI increased by 5 points as a price pickup was compensated for by a continued decrease in interest rates.
- In Vilnius, the HAI rose by 2.4 points because wage growth in capital surpassed 10% and apartment price growth moderated somewhat.
- The time needed to save for a down payment increased by 1 month and 3 weeks in Tallinn and by 1 month and a week in Riga, to 30.2 and 24.7 months, respectively; it decreased by 3 weeks, to 35.1 months, in Vilnius.

*The housing affordability index (HAI) is calculated for a family whose income is equal to 1.5 of average net wages with an average-sized apartment of 55 square meters. The HAI is 100 when households use 30% of their net wages for mortgage costs. When the HAI is at least 100, households can afford their housing, according to the established norm. The higher the number, the greater the affordability.*

**Housing affordability index**



Source: Swedbank Research & Macrobond



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## Components of HAI: apartment prices, interest rates, and wages

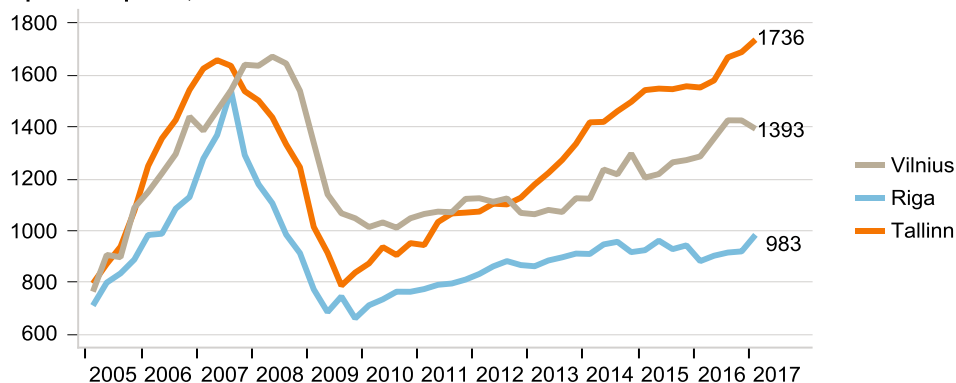
### Apartment prices

Apartment price growth in Tallinn accelerated further in the first quarter but was not broad based; it was concentrated in the city centre due to base effect and the completion of two expensive construction projects. Therefore, the acceleration of price growth is temporary, and preliminary data show 5% and 6% growth in April and May, accordingly. In Vilnius, apartment price growth moderated and, for the first time, was weaker than wage growth during the last year. The opposite trend was seen in Riga, where prices picked up from low levels and their growth outpaced that of the wages for the first time in four years. Price growth accelerated across all segments, especially in new projects in the suburbs segment. This can be explained by the fact that very few cheaper apartments are still available in the new projects segment. That is, apartments in cheaper projects, which kept the price growth subdued last year, have largely been sold.

#### Annual growth, 1<sup>st</sup> quarter, %

**Tallinn: 11.9**  
**Riga: 11.5**  
**Vilnius: 8.3**

#### Apartment prices, EUR/m<sup>2</sup>



Source: Estonian Land Board, Latvian State Lands Service, Lithuanian Centre of Registers

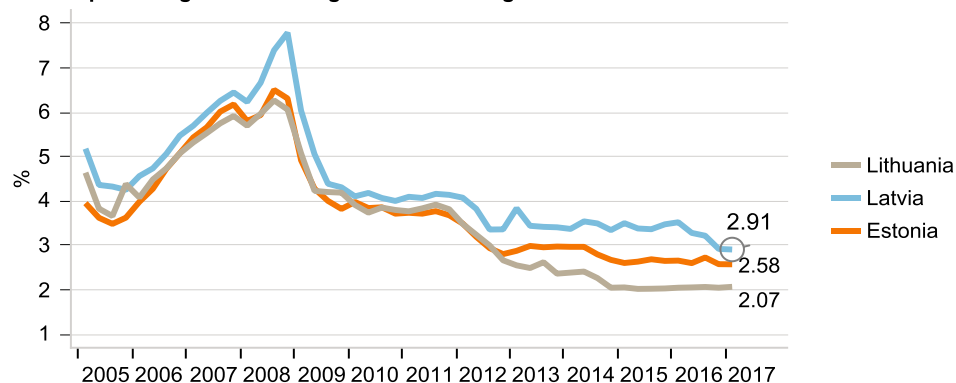
### Interest rates on mortgages

Mortgage interest rates almost did not change in a year in Lithuania and Estonia, but they did decrease by 61 basis points in Latvia due to competitive pressures among lenders. The six-month euro interbank offered rate (Euribor), which is most commonly used for mortgage interest rates, fell from -0.21% in the first quarter of 2016 to -0.10% in the first quarter of this year.

#### Annual growth, 1<sup>st</sup> quarter, basis points

**Estonia: -8**  
**Latvia: -61**  
**Lithuania: +2**

#### Annual percentage rate of charge for new mortgages to households



Source: European Central Bank

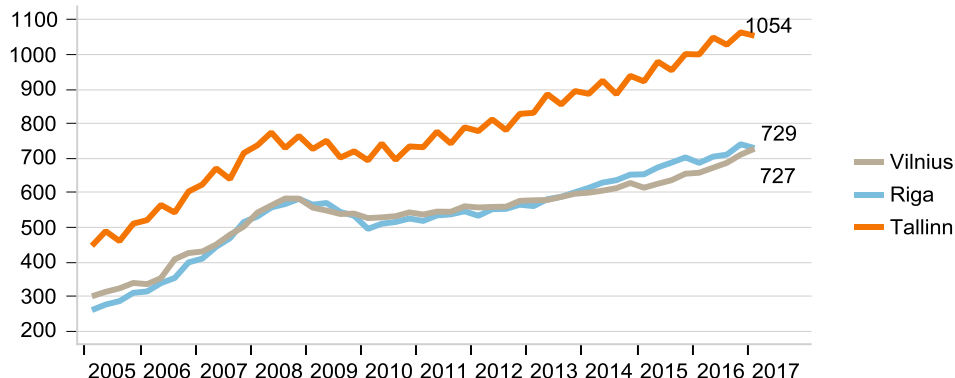
### Average net wages

Annual net wage growth continued to accelerate in Riga and Vilnius, but further decelerated in Tallinn.

#### Annual growth, 1<sup>st</sup> quarter, %

Tallinn: 5.4  
Riga: 6.3  
Vilnius: 10.6

#### Average net wage, EUR



Sources: National statistical departments

The HAI value of 146.4 in Tallinn means that household net wages in this city are 46.4% higher than required to afford an apartment, according to our norm (mortgage costs account for 30% of net wages of a household that earns 1.5 of the average net wage). In Riga, meanwhile, household net wages are 71.2% higher – and, in Vilnius, 34.7% higher - than required to fulfil this norm.

### Months to save for the down payment

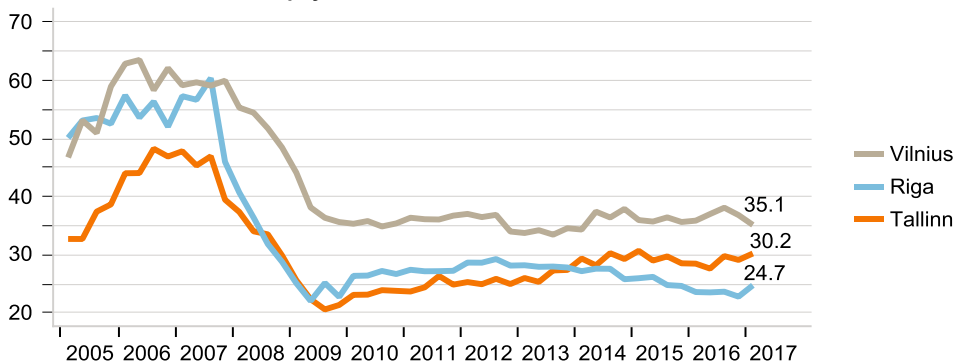
Over the past year, the number of months needed to save for a down payment, which equals 15% of an apartment price, increased in Tallinn and Riga due to rapid apartment price growth; this number decreased in Vilnius as prices rose slightly less than wages.

It is assumed that a household saves 30% of its net wages every month for a down payment.

#### Annual growth, 1<sup>st</sup> quarter, months

Tallinn: 1.7  
Riga: 1.2  
Vilnius: -0.7

#### Months to save for a down payment



Sources: National statistical departments, Lithuanian Centre of Registers, Latvian State Land Service and National Real Estate Cadastre, Estonian Land Board and Swedbank

**Housing affordability index: method**

**Purpose** Measure changes in household buying power, primarily as this relates to apartment purchases, but also act as an indicator for existing housing.

**Norm** Household mortgage costs, according to our definition, should not exceed 30% of net wages of a household.

**Definition of housing affordability index** Actual income in relation to income required to meet the "norm," where mortgage costs account for 30% of net wages of a household. If the index = 100, households are using 30% of their net wages. If the index > 100, household buying power exceeds the norm. And if the index < 100, household buying power is below the norm. The index is calculated according to the following formula:

$$HAI = \frac{AverageINC}{NINC} * 100$$

where

$$NINC = \frac{PMT}{30\%}$$

*HAI* – housing affordability index  
*AverageINC* – 1.5 of average monthly net wages  
*NINC* – net wages that would satisfy the "norm"  
*PMT* – monthly mortgage payment

**Variables**

- Three-month average prices of apartments of average size (55 sq. m.) in capital cities.
- Average net wages of a household, equal to 1.5 of average monthly net wages in capital cities.
- Three-month average interest rates and other related charges (or annual percentage rate of charge - a rate that comprises an interest component and a component of other charges) for new housing loans to households issued in euros -- produce the monthly mortgage cost, assuming a 15% down payment and 30-year term.

**Limits** The housing affordability index includes mortgage costs but excludes taxes and subsidies, including property tax and interest deductions. The index provides an indication of the situation for households composed of one or two working people who, combined, earn one-and-a-half times the average monthly wage; however, it does not reflect conditions for individual households. The index does not provide any direct guidance for business decisions, including lending and interest rate decisions. It reflects household buying power, based on apartment purchases that have been made, but says nothing about opportunities for apartment sales.

The housing affordability index is of an informative nature and reflects macroeconomic developments, rather than banks' decisions and lending policies or possible decisions made by individual households.

**Periodicity** Quarterly

**Geography** Vilnius, Riga, Tallinn

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