

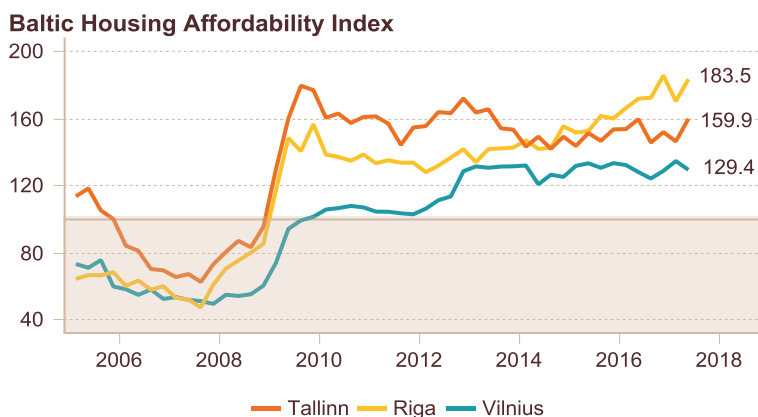
14 September, 2017

Baltic Housing Affordability Index

The housing affordability index (HAI) increased to 159.9 in Tallinn, 183.5 in Riga, and 129.4 in Vilnius

- In Tallinn, affordability increased by 0.2 point in the second quarter of 2017 compared with the same period in 2016, as wage growth gained strength while apartment price growth moderated.
- In Riga, the HAI rose by 11.7 points, supported by robust wage growth and an ongoing decrease in interest rates.
- In Vilnius, the HAI improved by 1.4 points due to very rapid wage growth, which exceeded apartment price growth.
- The time needed to save for a down payment decreased in all three capitals – by almost one week in Tallinn to 27.4 months, a couple of days in Riga to 23.4 months, and over three weeks in Vilnius to 36.2 months.

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.



Source: Swedbank Research & Macrobond



Nerijus Mačiulis
+370 52 582 237
Nerijus.Maciulis@swedbank.lt

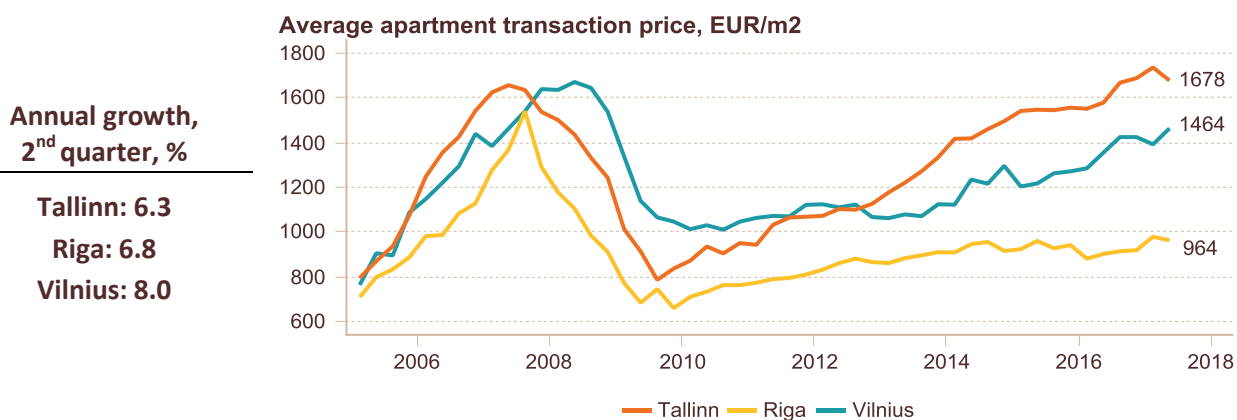
Linda Vildava
+371 67 444 213;
Linda.Vildava@swedbank.lv

Siim Isküll
+372 8 887 925;
Siim.Iskull@swedbank.ee

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

Apartment prices

Annual apartment price growth in the second quarter of 2017 moderated in Tallinn and Riga while remaining largely unchanged in Vilnius. Across the Baltic capitals, prices in Vilnius grew at the fastest pace.



Source: National land boards and services, Swedbank

Annual growth,
2nd quarter, %

Tallinn: 6.3

Riga: 6.8

Vilnius: 8.0

In **Tallinn**, the real estate market remains active. The slowdown of price growth in the second quarter was expected, as temporary price-increasing effects ceased. In the first quarter of 2017, price growth rose to 12% due to the base effect and the structure of deals. In the beginning of this year, price growth in the city centre reached 22% as two expensive real estate developments were finished; at the same time the year before, prices were in a 10% dive. By the end of the second quarter, price growth had returned to 6.3% in Tallinn and 5% in the city centre. The supply of new apartments in the first half of this year remained ample. More than 600 new apartments were added to the market in the first and second quarters. Despite the relatively large supply of new apartments, interest in new real estate development projects is increasing. In 2016, construction permits were issued for a total of 2,200 apartments, whereas, in the first half of 2017, more than 2,000 permits had already been issued. The growth in the stock of housing loans is also slowly accelerating and reached 6.4% in July. In the context of high GDP growth and low interest rates, the increase in housing loan stock remains modest. The ECB will most likely start raising its base rate in 2019, which will keep interest rates for housing loans low for the near future. This year, we expect a slowdown in net real wage growth due to higher price growth, but the change in the tax system next year will increase net real wage growth in 2018. Although, we expect that the major positive impact from this real wage increase goes to consumption, this can have some impact on the demand and interest in real estate, as well. However, the supply should be sufficient to keep the price growth near the current level.

The residential real estate market in **Riga** was stable in the second quarter of 2017. The average transaction price grew by 6.4% while activity decreased by 7.8% on an annual basis. The price growth reflects growing demand, especially for Soviet-era apartments, as well as rising construction costs. The decline in activity mainly stems from fewer transactions with apartments in new projects. In the second quarter, fewer projects in the new project economic segment were finished and released in the market, which partially explains the sluggish activity and suggests that the decline is temporary. However, recently transactions with land for private construction have been increasing. This signals that some people who would otherwise consider buying an apartment are opting for private houses as new apartment prices rise. However, the outlook is balanced – the many projects in the pipeline will keep the apartment supply sufficient and slightly limit price growth.

Demand is improving but lacks vigour, despite positive signals. In the first half of the year, economic growth accelerated, the unemployment rate steadily declined, and nominal gross wage growth gained pace, reaching close to 8%. Increasing consumer confidence and the slowing growth of household deposits somewhat reflected the improving outlook. However, consumer intentions to buy or build a house over the next 12 months remained subdued despite increasing readiness for other major purchases, such as cars. Resident bank-lending statistics reflected just that – households kept deleveraging in the second quarter and new lending growth decelerated. Yet, this seems only a temporary setback. The ECB's bank lending survey reports that some Latvian banks intend to relax mortgage-lending standards and expect higher demand for mortgage loans in the third quarter. Overall, strong wage growth will persist and interest rates will remain low in the near future, stimulating demand.

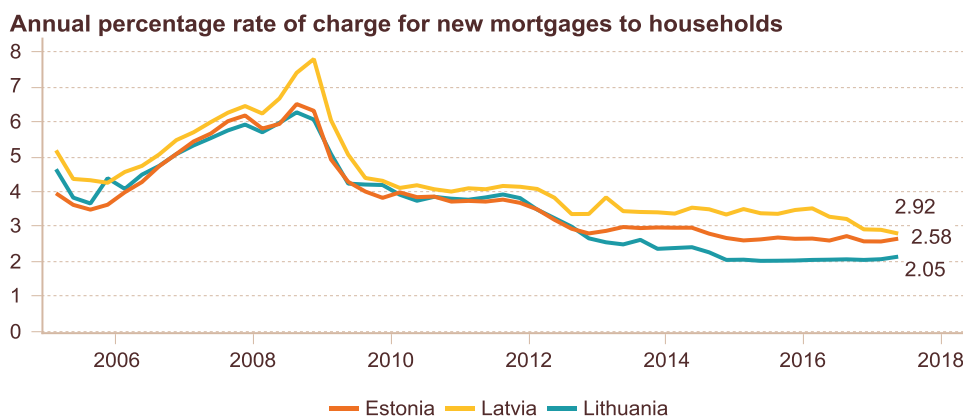
The number of apartments sold in **Vilnius** started declining in the second quarter this year. However, beginning in June, the new apartment segment became more active again, even though the number of old apartments continued to decline on an annual basis. Price growth subsided only marginally in the second quarter and accelerated again in July—a surge that was also driven by the more expensive average price of newly built apartments. Price growth will be supported by rising construction costs, especially, labour costs. Wages in the construction sector this year are more than one-tenth higher than a year ago. Affordability remains close to a record-high level, and strong economic growth and a tight labour market will also contribute to strong demand. However, activity most likely has peaked already, and rent yields not only are not rising anymore but might even fall somewhat. Therefore, we expect moderate price growth, not to exceed wage growth.

Interest rates on mortgages

Mortgage interest rates increased slightly over the year in Estonia and Lithuania. In Latvia, due to competitive pressures, interest rates continued to decline, falling 48 basis points in a year. The six-month euro interbank offered rate (EURIBOR), which is most commonly used for mortgage interest rates, fell from -0.15% in the second quarter of 2016 to -0.25% in the second quarter of this year.

Annual growth, 2nd quarter, basis points

- Estonia: +5
- Latvia: -48
- Lithuania: +9



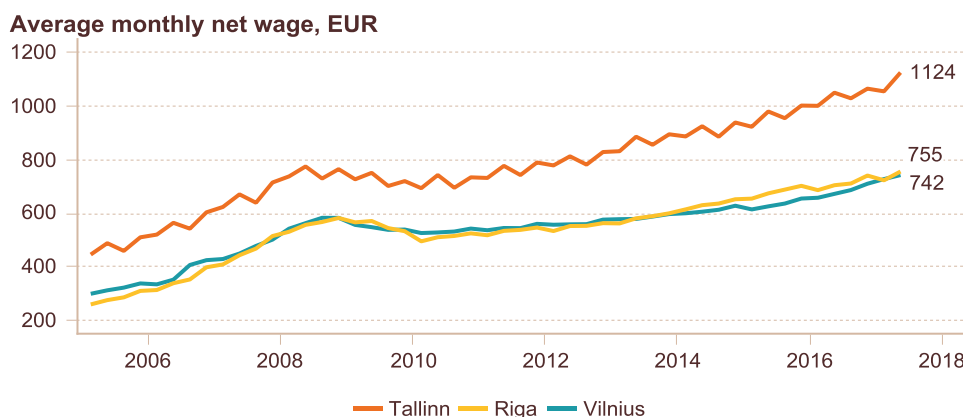
Source: Swedbank Research & Macrobond

Average net wages

Annual net wage growth accelerated further in Tallinn and Riga, while in Vilnius the rapid pace that had been established was maintained.

Annual growth, 2nd quarter, %

- Tallinn: 7.1
- Riga: 7.2
- Vilnius: 10.4



Source: Swedbank Research & Macrobond

The HAI value of 159.9 in Tallinn means that the net wage of a household in this city is 59.9% higher than required to afford an apartment, according to our norm (mortgage costs account for 30% of the net wage of a household that earns 1.5 of the average net wage). Meanwhile, in Riga, the household net wage is 83.5% higher — and, in Vilnius, 29.4% higher — than required to fulfil the norm.

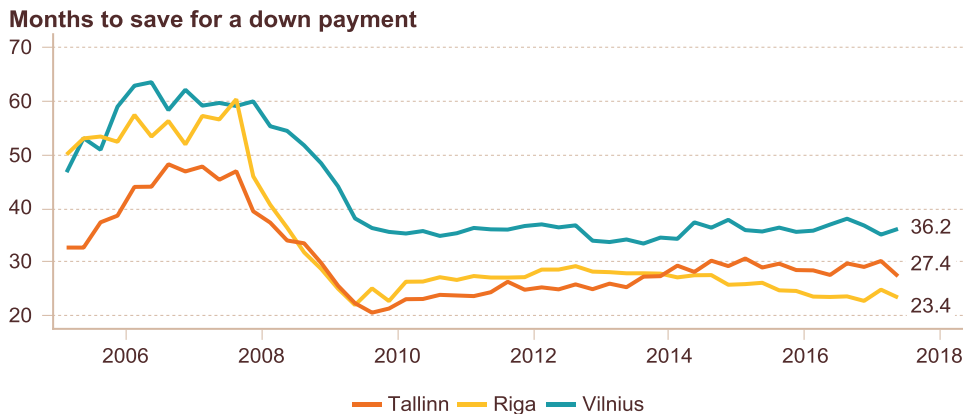
Months to save for the down payment

Over the past year, the number of months needed to save for a down payment, which equals 15% of an apartment price, decreased in all three Baltic capitals because rapid wage growth surpassed apartment price growth.

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

**Annual growth,
2nd quarter, months**

Tallinn: -0.2
Riga: -0.1
Vilnius: -0.8



Source: Swedbank Research & Macrobond

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 Tallinn, Riga, Vilnius

Swedbank Research's disclaimer

What our research is based on

Swedbank Macro Research, a unit within Large Corporates & Institutions, bases the research on a variety of aspects and analysis. For example: A fundamental assessment of the cyclical and structural economic, current or expected market sentiment, expected or actual changes in credit rating, and internal or external circumstances affecting the pricing of selected FX and fixed income instruments. Based on the type of investment recommendation, the time horizon can range from short-term up to 12 months.

Recommendation structure

Recommendations in FX and fixed income instruments are done both in the cash market and in derivatives. Recommendations can be expressed in absolute terms, for example attractive price, yield or volatility levels. They can also be expressed in relative terms, for example long positions versus short positions. Regarding the cash market, our recommendations include an entry level and our recommendation updates include profit and often, but not necessarily, exit levels. Regarding recommendations in derivative instruments, our recommendation include suggested entry cost, strike level and maturity. In FX, we will only use options as directional bets and volatility bets with the restriction that we will not sell options on a net basis, i.e. we will only recommend positions that have a fixed maximum loss.

Analyst's certification

The analyst(s) responsible for the content of this report hereby confirm that notwithstanding the existence of any such potential conflicts of interest referred to herein, the views expressed in this report accurately reflect their personal views about the securities covered. The analyst(s) further confirm not to have been, nor are or will be, receiving direct or indirect compensation in exchange for expressing any of the views or the specific recommendation contained in the report.

Issuer, distribution & recipients

This report by Macro Research, a unit within Swedbank Research that belongs to Large Corporates & Institutions, is issued by the Swedbank Large Corporates & Institutions business area within Swedbank AB (publ) ("Swedbank"). Swedbank is under the supervision of the Swedish Financial Supervisory Authority (Finansinspektionen). In no instance is this report altered by the distributor before distribution.

In Finland this report is distributed by Swedbank's branch in Helsinki, which is under the supervision of the Finnish Financial Supervisory Authority (Finanssivalvonta).

In Norway this report is distributed by Swedbank's branch in Oslo, which is under the supervision of the Financial Supervisory Authority of Norway (Finanstilsynet).

In Estonia this report is distributed by Swedbank AS, which is under the supervision of the Estonian Financial Supervisory Authority (Finantsinspektsioon).

In Lithuania this report is distributed by "Swedbank" AB, which is under the supervision of the Central Bank of the Republic of Lithuania (Lietuvos bankas).

In Latvia this report is distributed by Swedbank AS, which is under the supervision of The Financial and Capital Market Commission (Finanšu un kapitāla tirgus komisija).

This document is being distributed in the United States by Swedbank AB (publ) and in certain instances by Swedbank Securities U.S. LLC ("Swedbank LLC"), a U.S. registered broker dealer, only to major U.S. institutional investors, as defined under Rule 15a-6 promulgated under the US Securities Exchange Act of 1934, as amended, and as interpreted by the staff of the US Securities and Exchange Commission. This investment research is not intended for use by any person or entity that is not a major U.S. institutional investor. If you have received a copy of this research and are not a major U.S. institutional investor, you are instructed not to read, rely on or reproduce the contents hereof, and to destroy this research or return it to Swedbank AB (publ) or to Swedbank LLC. Analyst(s) preparing this report are employees of Swedbank AB (publ) who are resident outside the United States and are not associated persons or employees of any US registered broker-dealer. Therefore the analyst(s) are not subject to Rule 2711 of the Financial Industry Regulatory Authority (FINRA) or to Regulation AC adopted by the U.S. Securities and Exchange Commission (SEC) which among other things, restrict communications with a subject company, public appearances and personal trading in securities by a research analyst.

Any major U.S. Institutional investor receiving the report, who wishes to obtain further information or wishing to effect transactions in any securities referred to herein, should do so by contacting a representative of Swedbank LLC. Swedbank LLC is a U.S. broker-dealer registered with the Securities and Exchange Commission and a member of Financial Industry Regulatory Authority and the Securities Investor Protection Corporation.

Its address is One Penn Plaza, 15th Fl., New York, NY 10119 and its telephone number is 212-906-0820. For important U.S. disclaimer, please see reference: <http://www.swedbanksecuritiesus.com/disclaimer/index.htm>

In the United Kingdom this communication is for distribution only to and directed only at "relevant persons". This communication must not be acted on - or relied on - by persons who are not "relevant persons". Any investment or investment activity to which this document relates is available only to "relevant persons" and will be engaged in only with "relevant persons". By "relevant persons" we mean persons who:

- Have professional experience in matters relating to investments falling within Article 19(5) of the Financial Promotions Order.
- Are persons falling within Article 49(2)(a) to (d) of the Financial Promotion Order ("high net worth companies, unincorporated associations etc").
- Are persons to whom an invitation or inducement to engage in investment activity (within the meaning of section 21 of the Financial Services and Markets Act 2000) - in connection with the issue or sale of any securities - may otherwise lawfully be communicated or caused to be communicated.

Limitation of liability

All information, including statements of fact, contained in this research report has been obtained and compiled in good faith from sources believed to be reliable. However, no representation or warranty, express or implied, is made by Swedbank with respect to the completeness or accuracy of its contents, and it is not to be relied upon as authoritative and should not be taken in substitution for the exercise of reasoned, independent judgment by you.

Be aware that investments in capital markets - such as those described in this document - carry economic risks and that statements regarding future assessments comprise an element of uncertainty. You are responsible for such risks alone and we recommend that you supplement your Decision-making with that material which is assessed to be necessary, including (but not limited to) knowledge of the financial instruments in question and the prevailing requirements as regards trading in financial instruments.

Opinions contained in the report represent the analyst's present opinion only and may be subject to change. In the event that the analyst's opinion should change or a new analyst with a different opinion becomes responsible for our coverage of the company, we shall endeavor (but do not undertake) to disseminate any such change, within the constraints of any regulations, applicable laws, internal procedures within Swedbank, or other circumstances.

If you are in doubt as to the meaning of the recommendation structure used by Swedbank in its research, please refer to "Recommendation structure".

Swedbank is not advising nor soliciting any action based upon this report. If you are not a client of ours, you are not entitled to this research report. This report is not, and should not be construed as, an offer to sell or as a solicitation of an offer to buy any securities.

To the extent permitted by applicable law, no liability whatsoever is accepted by Swedbank for any direct or consequential loss arising from the use of this report.

Conflicts of interest

In Swedbank Research, a unit within LC&I, internal guidelines are implemented in order to ensure the integrity and independence of the research analysts. For example:

- Research reports are independent and based solely on publicly available information.
- The analysts are not permitted, in general, to have any holdings or any positions (long or short, direct or via derivatives) in such Financial Instruments that they recommend in their investment analysis.
- The remuneration of staff within the Swedbank Research department may include discretionary awards based on the firm's total earnings, including investment banking income. However, no such staff shall receive remuneration based upon specific investment banking transactions.

Planned updates

An investment recommendation is normally updated twice a month. This material may not be reproduced without permission from Swedbank Research, a unit within Large Corporates & Institutions. This report is not intended for physical or legal persons who are citizens of, or have domicile in, a country in which dissemination is not permitted according to applicable legislation or other Decisions.

Produced by Swedbank Research, a unit within Large Corporates & Institutions, Stockholm.

Address

Swedbank LC&I, Swedbank AB (publ), SE-105 34 Stockholm.
Visiting address: Malmkillnadsgatan 23, 111 57 Stockholm.