How can prices in advertisements create an understanding of the real estate market?

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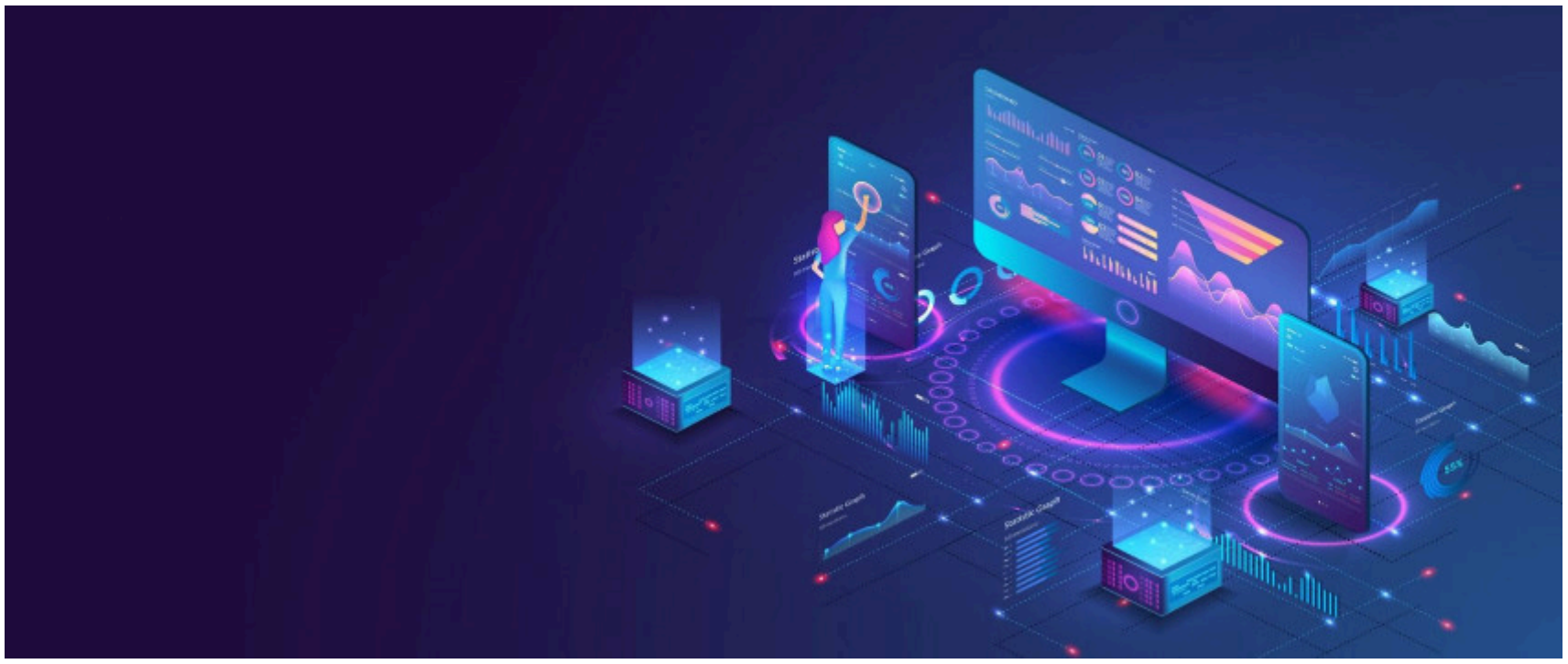


Photo: Shutterstock

in short

Price adjustments in the real estate segment have a major impact on the financial vulnerability of households.

Today, real estate sales are almost entirely (97%) done on the Internet.

The Bank of Latvia has developed "webscraping" *tools* to collect real estate advertisement data.

It has been investigated that the advertised prices reflect realistic market prices, they do not differ significantly from the actual prices.

Real estate, especially housing, market price corrections have historically been a key component in several financial crises. In addition, real estate is often the most significant financial asset owned by households, as well as the associated mortgage loan, the largest financial liability. Therefore, **significant price corrections in the real estate segment have a great impact on the financial vulnerability of households. Therefore, the analysis of real estate market data is an important part of financial stability monitoring.**

Today, real estate sales have almost completely moved to the Internet (97% is mentioned), where buyers and sellers (including intermediaries) find each other most often through advertisements. Therefore, knowing this market information, it is possible to observe market price offers and price fluctuations in real time and directly, as seen by the market participants themselves. It should be noted that the rental market is probably less represented on the Internet, as agreements are more often made on the basis of personal contacts or recommendations.

With the aim of collecting and analyzing this real estate market information from sales and rent advertisements, *the Bank of Latvia has developed webscraping* tools **to** collect **and** process real estate advertisement data from the largest advertisement platforms. Web scraping is the automated collection of information on the web for further use. Collection tools are based on Python-based codes that are automatically run daily.

The largest advertisement platforms in Latvia cover most advertisements on the market, but do not include information from social networks that are also actively used in real estate trading (for example, Facebook Marketplace). According to 2022 According to the Competition Council's report on the market of online platforms, 87% of users of real estate advertisements used ss.com, 32% city24.lv and 24% Facebook Marketplace. There are also several visited portals created by real estate brokers, but the proportion of their users is quite insignificant, and the range of advertisements represented there is limited. Currently, automatic tools collect advertisements from ss.com, city24.lv, and inch.lv platforms.

For ethical collection and reliability

Although public, human-visible information is collected, the principles of good web scraping practices are followed, ensuring that the tools used do not hinder the operation of the Platforms and that their actions on the Platforms are similar to human actions (as the pages are designed with human actions in mind). In addition, the good tone is to inform the owners of the website about such actions, as well as familiarize yourself with the terms of use of these pages.

Intuitively, the question may arise, **do the advertised prices reflect realistic market prices** , and **is there not a significant difference from the actual prices?** On this topic in 2019 The European Commission's study shows a comparison of a range of national price levels against data obtained from advertisements, household surveys, as well as results from the national accounts of official statistical authorities. It has been observed that the differences are not significant, therefore **the data of the advertisements may be representative of the actual real estate price level.**

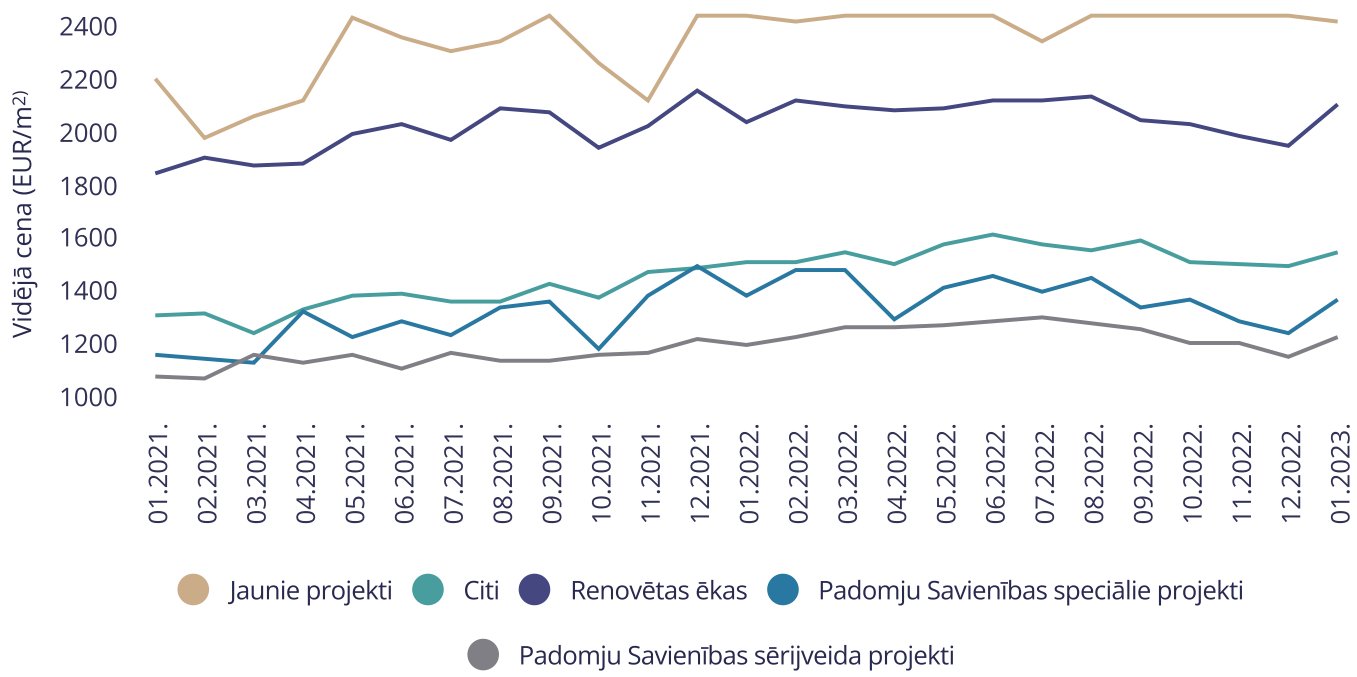
Data processing and application

Once the data is collected, the next step is to process it, turning the raw data into a well-structured dataset that can be easily used for analysis. To do this, data with heterogeneous forms must be transformed (for example, designations of real estate areas, designations of building types, addresses) into uniform and machine-readable forms. In addition to this step, in the case of using several data sources, it is necessary to identify advertisements and objects that can be repeated in different sources and find unique ones to avoid their double counting. Fortunately, real estate objects have enough different characteristics and it is possible to do this quite efficiently.

After data transformation, it is further used for analysis. Here, the greatest added value is the possibility to separately analyze different subsets of data from available data categories - by geographical location (including a detailed breakdown of Riga's micro-districts, taking into account that Riga has a very high concentration of housing transactions), by type of real estate and even building type.

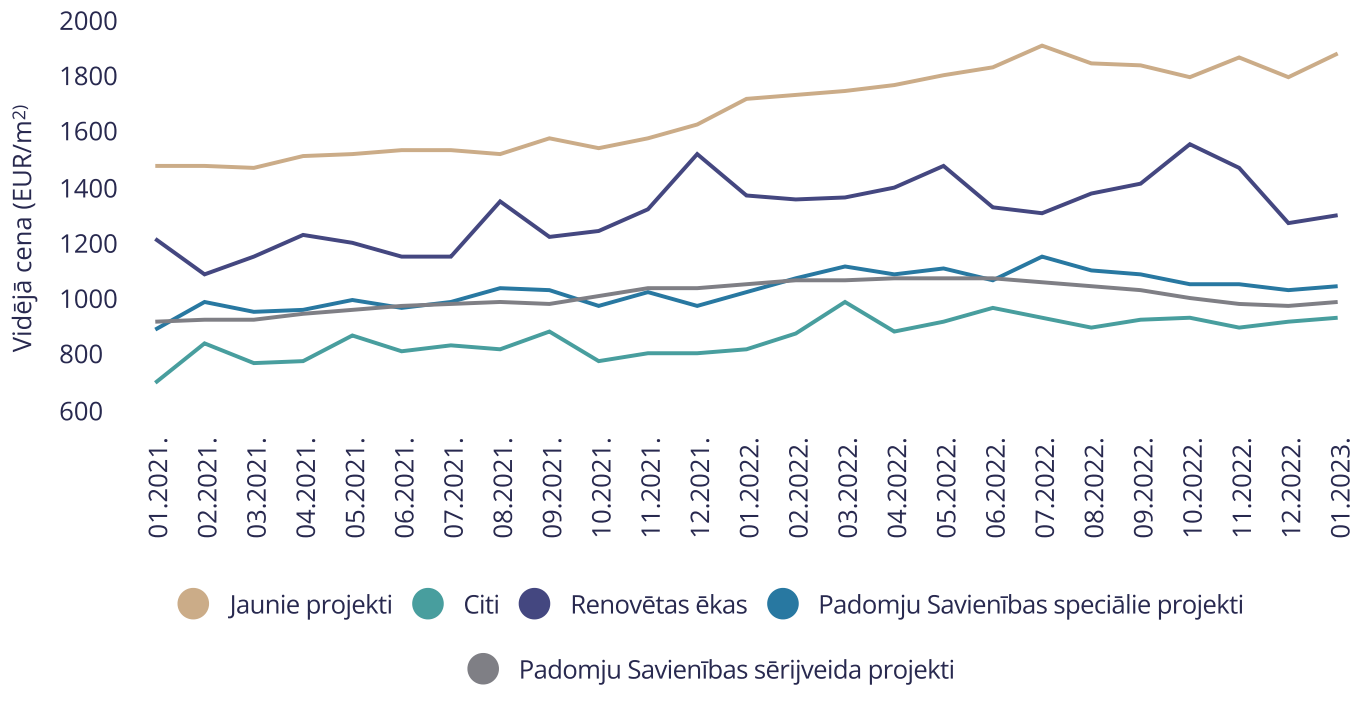
Here, two graphs show the average prices of apartment ads in the center of Riga (Figure 1) and in nearby micro-districts (Figure 2), depending on the type of building. The dynamics of prices is visible - after a gradual rise in 2021, prices have reached their highest point in 2022. in the second half and currently starting to decrease, the dependence of this dynamic on the type of building is also visible.

1. grafiks. **Vidējā cena atkarībā no ēkas veida Rīgas centrā** (EUR/m²)



Avots: sludinājumu cenu portāli (ss.com, city24.lv), Latvijas Bankas aprēķini.

2. grafiks. **Vidējā cena atkarībā no ēkas veida Rīgas tuvajos mikrorajonos** (EUR/m²)

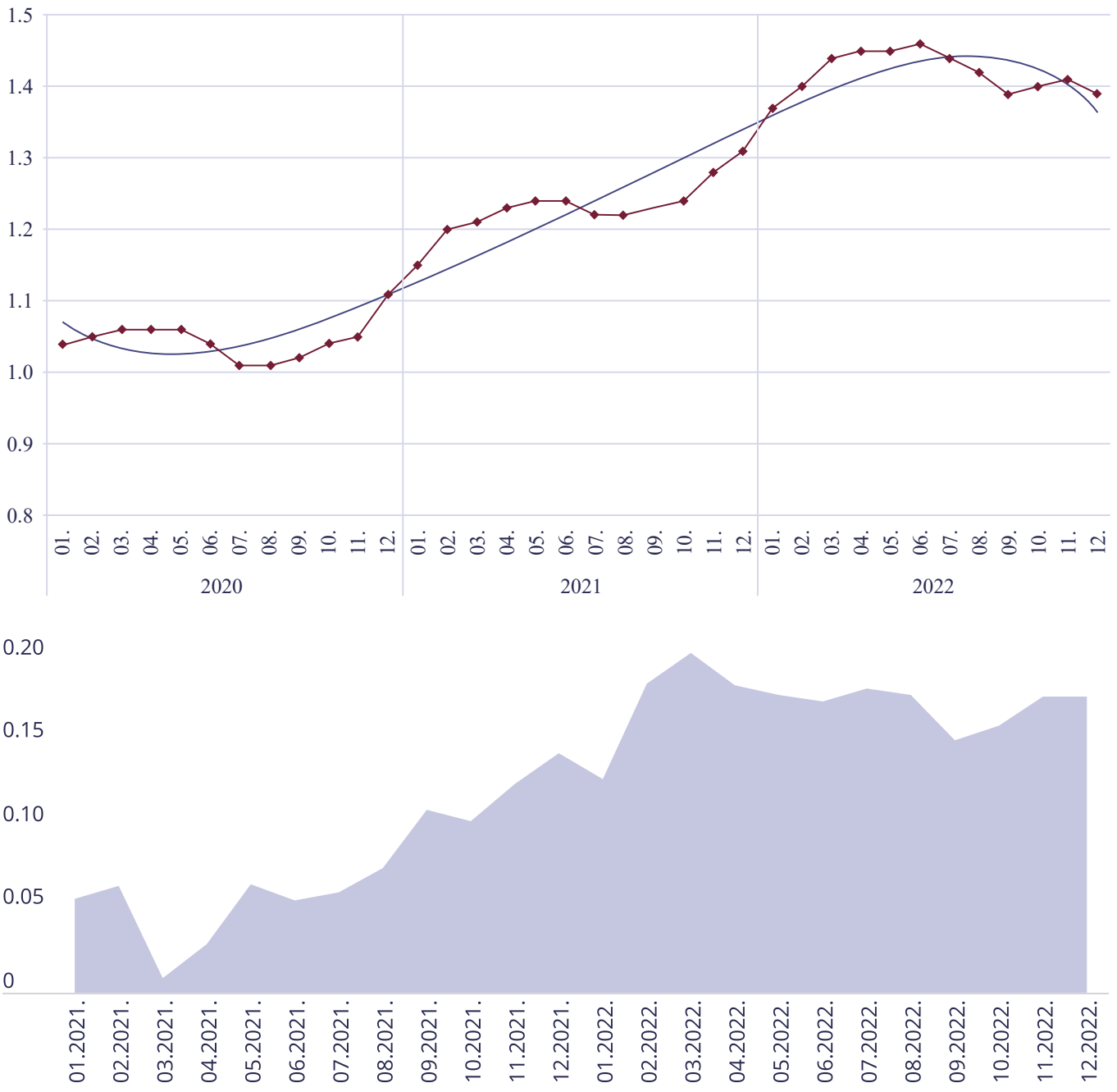


Avots: sludinājumu cenu portāli (ss.com, city24.lv), Latvijas Bankas aprēķini.

Comparison with existing sources

This price index can also be compared with existing, publicly available market price and activity indices. Figure 3 compares these advertisement price schedules for all real estate with data from the State Land Service (VZD) on transactions, also for all properties - although the methodologies are different (as well as the reference points), the overall dynamics show similarities with a certain time lag – In the VZD schedule, a slowdown in dynamics is visible in 2021. in July-September, but the highest point was reached in 2022. in June. On the other hand, the decrease in the advertisement data is in 2021. in March-April, but the highest point was reached in 2022. in March, showing a time lag of several months between the price in the advertisements and the actual conclusion of the transaction.

3. grafiks. **VZD cenu indekss (pret 2019.g. 1. pusgadu) pirmajā attēlā un sludinājumu cenu indeksa izmaiņas (pret 2020.g. decembri) otrajā attēlā**

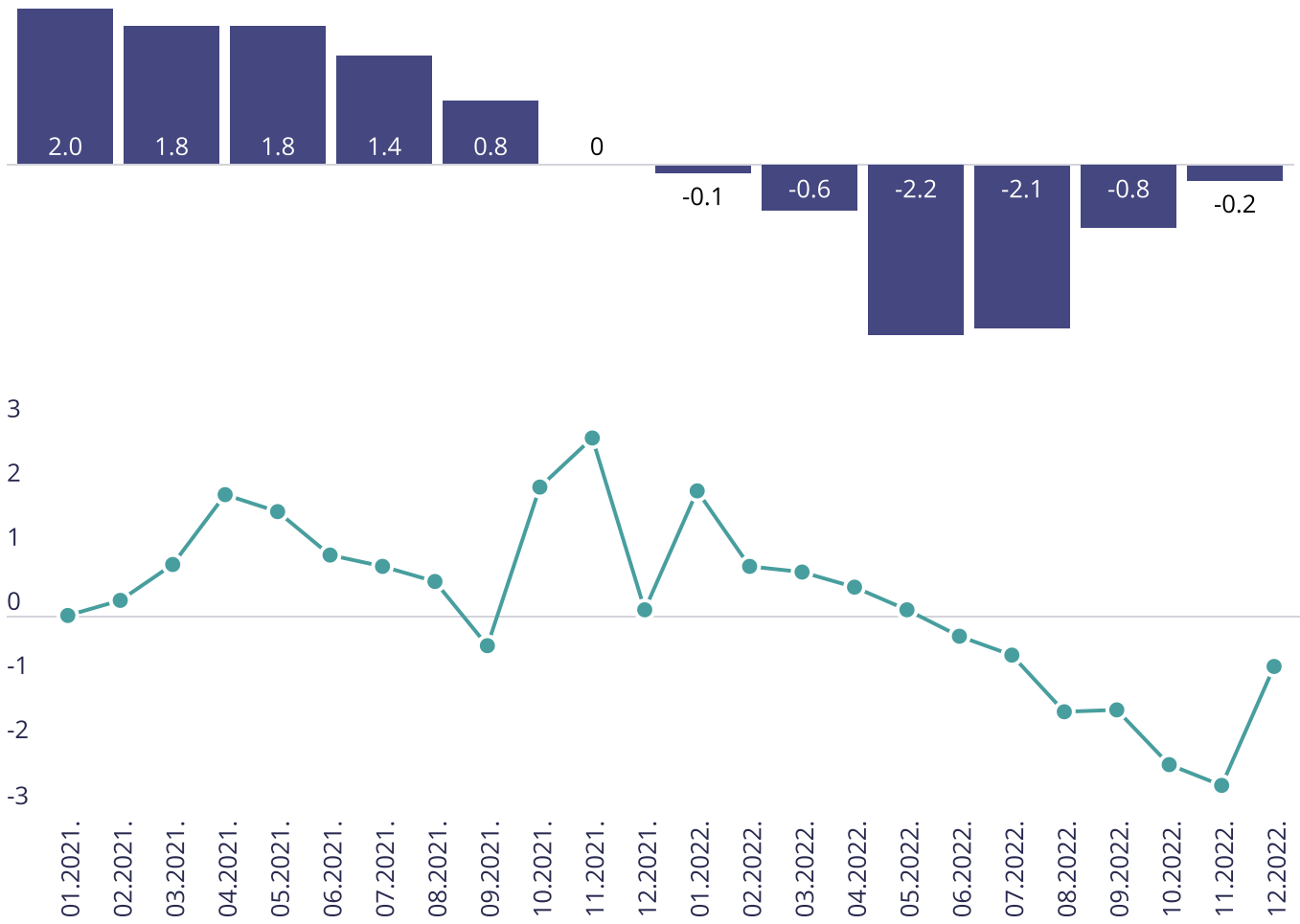


Avoti: VZD (www.vzd.gov.lv/lv/cenu-indekss-valsti), Latvijas Bankas aprēķini

By narrowing the section and comparing a narrower market segment - serial apartment prices in Riga, Figure 4 shows the dynamics of ARCO REAL ESTATE's serial apartment report together with the dynamics of advertised prices. Differences in methodologies should be emphasized again, however, in 2022 the fall in the second half of the year can be observed in both sources, as well as the recovery at the end of the year.

4. grafiks. **Rīgas sērijveida dzīvokļu ikmēneša cenu pārmaiņas no ARCO REAL ESTATE pārskata pirmajā attēlā un no sludinājumu cenu indeksa otrajā attēlā.**

Sērijveida dzīvokļu cenu izmaiņas kopš 2022. gada sākuma (%)



Avoti: ARCO REAL ESTATE, Latvijas Bankas aprēķini.

In conclusion

Over time, the possibilities of using this data increase by accumulating longer data time series, which provide more opportunities to assess market characteristics, analyze price formation factors, as well as for in-depth analysis to assess the market's response to economic shocks and gain a better understanding of the properties of the real estate market.