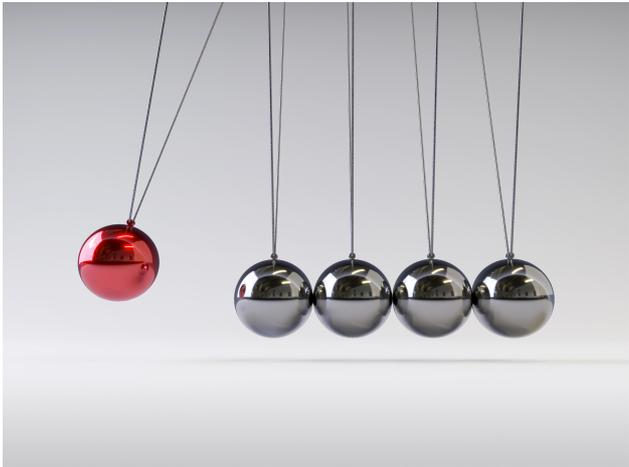


UBS Swiss Real Estate Bubble Index

UBS Swiss real estate bubble index

Authors: Matthias Holzhey, Economist, UBS Switzerland AG; Maciej Skoczek, CFA, CAIA, Economist, UBS Switzerland AG; Katharina Hofer, Economist, UBS Switzerland AG; Claudio Saputelli, Economist, UBS Switzerland AG

- The *UBS Swiss Real Estate Bubble Index* rose from 1.38 to 1.47 in the first quarter of 2022. The market for owner-occupied homes is thus overvalued compared to its own history.
- A continued divergence of home prices from both rents and household incomes drove the index increase. Another contributing factor was the increased share of loan applications for buy-to-let properties.
- The figure for the previous quarter was revised downward based on updated data on household incomes. Income growth currently exceeds the growth in household mortgages, which moderated the index increase.

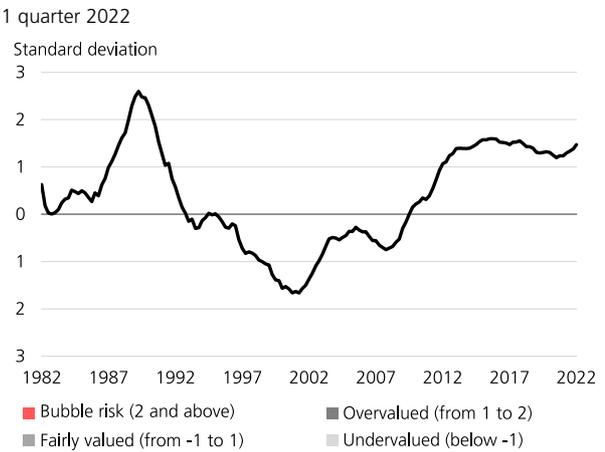


Source: Shutterstock

Development of market drivers: Home prices rose by 1.5 percent in the first quarter of 2022. The number of loan applications for buy-to-let properties also increased significantly compared to the previous quarter. In addition, the volume of outstanding mortgages held by private households rose by 3.2 percent, a relatively sharp increase compared to the previous year. By contrast, however, income per household increased by more than 2 percent year on year, and asking rents posted a quarterly rise again for the first time since 2017.

Statement of risk: The *UBS Swiss Real Estate Bubble Index* remains significantly lower than during the real estate bubble at the beginning of the 1990s: Above-average household income growth has tempered the rise in the real estate bubble index over the past few quarters. Nevertheless, the current index level indicates an overvaluation of the local housing market and implies increased correction potential in the event of a prolonged economic crisis or a rise in interest rates for an extended period of time.

UBS Swiss Real Estate Bubble Index



Source: UBS

However, a price correction is unlikely in the next twelve months. Higher long-term interest rates are nevertheless making buy-to-let investments less attractive and have inverted the cost advantage that owner-occupied homes previously had over rental apartments.

Sub-indexes

Home prices relative to annual rents

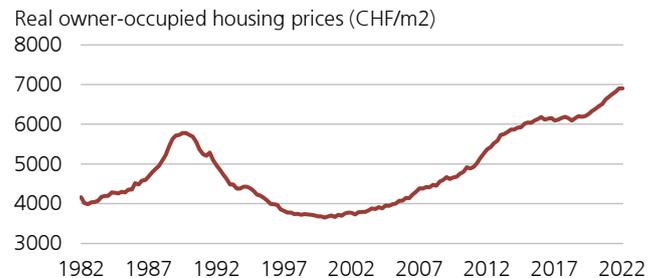
An above-average buy-to-rent ratio indicates a high dependency on sustained low interest rates or implies expectations of future price increases.



Sources: Wüest Partner, IAZI, FPRE, FSO, UBS

Home prices relative to consumer prices

If owner-occupied home prices rise faster than construction costs and general inflation for a long time, this can be a warning of a possible correction.



Sources: Wüest Partner, IAZI, FPRE, FSO, UBS

Home prices relative to household incomes

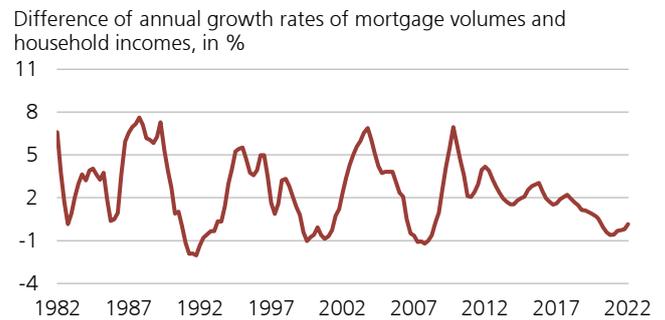
If the price development in the market for owner-occupied homes is not supported by a change in household incomes, this can be interpreted as a signal for interest rate risks.



Sources: Wüest Partner, IAZI, FPRE, FSO, UBS

Mortgage volumes relative to household incomes

An acceleration in household debt that is not accompanied by income growth is a signal of an overheating of the real estate market.



Sources: SNB, FSO, UBS

Construction relative to gross domestic product (GDP)

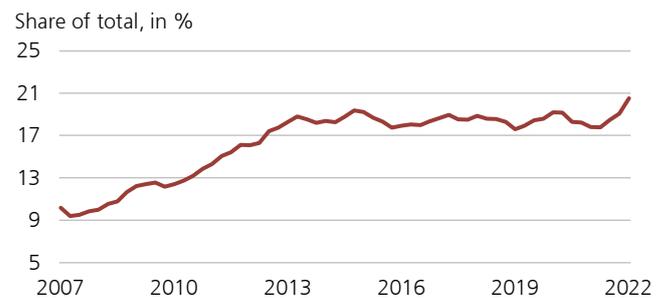
If the construction sector gains weight within the national economy, this can imply an overheating of the real estate market.



Sources: SECO, FSO, UBS

Credit applications for buy-to-let properties

High demand for residential property for the purpose of leasing (buy-to-let) indicates greater speculative demand.



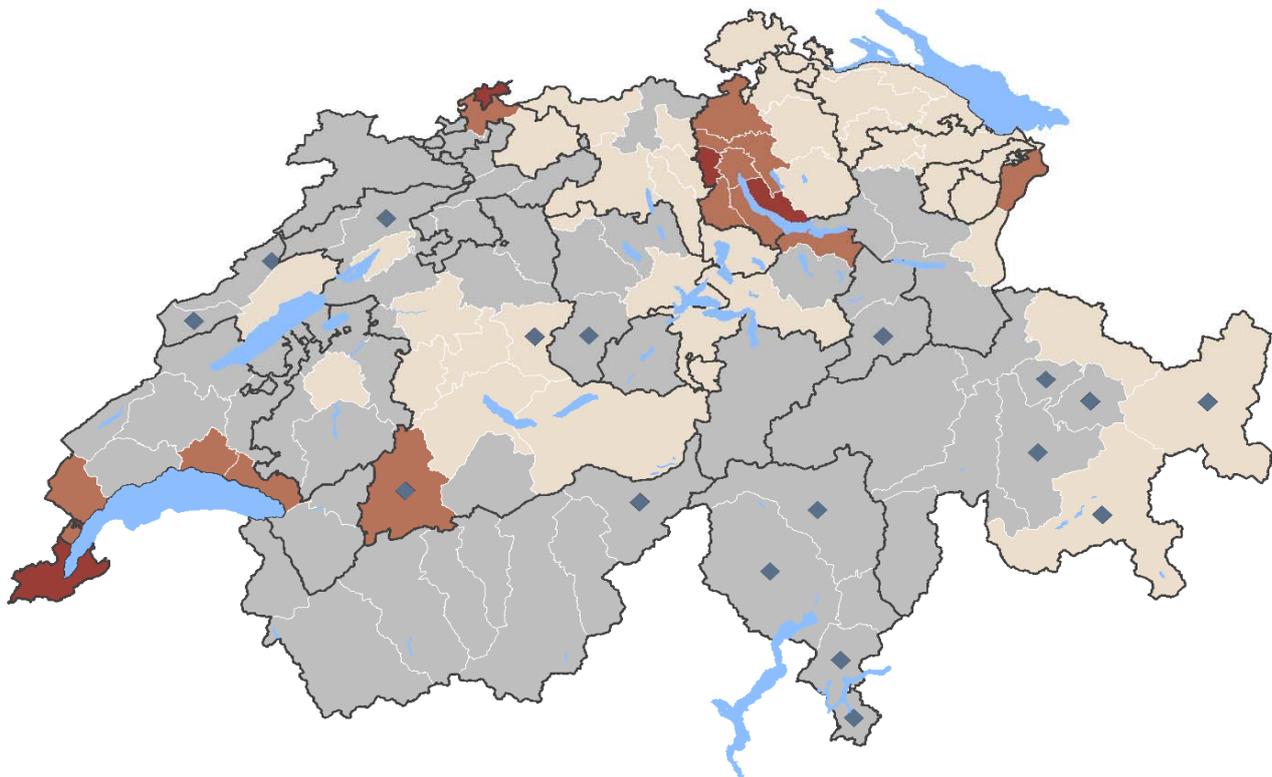
Sources: SNB, UBS

Regional risk map

The regional analysis is based on how the local price-to-rent ratio has changed over the past five years. Regions where this ratio experienced a disproportionately sharp rise have an increased correction risk. In addition, regions with falling population numbers (last three years) are highlighted.

Principles: The trend in rents shows the effective situation on the housing market. The price-to-rent ratio reflects the interest rate level and expectations about future increases in rental prices. If this ratio experiences a disproportionately sharp rise compared with the other regions, this may suggest that overheated speculation is driving prices in the local owner-occupied housing market. Independent of this, falling population numbers constitute an additional risk for real estate demand.

Regional risk map for 1 quarter 2022



Relative risk assessment: low Regions with falling population numbers
 slightly elevated
 elevated
 high

Sources: Wüest Partner, FSO, UBS.

Appendix

Index calculation

The UBS Swiss Real Estate Bubble Index represents the weighted average of six standardized sub-indexes using principal component analysis. The index shows the discrepancy, measured in standard deviations, from the mean normalized to zero. The index uses the following classification: Undervalued (below -1), fairly valued (from -1 to below 1), overvalued (from 1 to below 2) and bubble risk (2 and above).

Comment on the adjustment of the index history

Due to adjustments in its methodology and data, the history of the UBS Swiss Real Estate Bubble Index is no longer directly comparable with the numbers in publications prior to the fourth quarter of 2021.

First, the Swiss Federal Statistical Office published data on the development of household incomes during the pandemic, which are employed in calculating the index. As a result, pandemic-related fluctuations in economic output no longer affect the model-based estimate of real estate bubble risk for the Swiss market for owner-occupied homes. Moreover, household incomes increased much more than had been expected due to the slump in economic value added.

Second, the numbers are now only standardized (recursively) using the data available up to the relevant point in time. For example, the index value in the first quarter of 2015 is calculated using data from 1980 up to the first quarter of 2015. All index values up to and including 2010 are standardized (non-recursively) with data from 1980 to 2010 to ensure there are sufficient data points. That means that the published index values now reflect the imbalances from the perspective of the relevant quarter.

Deviations from the previously published index values can be explained by data revisions—in particular, household incomes according to the FSO—and the switch in price indexes from supply prices to the broader UBS Composite Index (average of all available price indexes) at the beginning of 2020.

UBS Swiss Real Estate Bubble Index

Data series since 2016

| Period | Index | Trend* |
|--------|-------|--------|
| 2016-1 | 1.59 | → |
| 2016-2 | 1.53 | ↘ |
| 2016-3 | 1.52 | ↘ |
| 2016-4 | 1.50 | ↘ |
| 2017-1 | 1.47 | ↘ |
| 2017-2 | 1.53 | ↗ |
| 2017-3 | 1.52 | ↘ |
| 2017-4 | 1.55 | ↗ |
| 2018-1 | 1.50 | ↘ |
| 2018-2 | 1.43 | ↘ |
| 2018-3 | 1.43 | → |
| 2018-4 | 1.40 | ↘ |
| 2019-1 | 1.31 | ↘ |
| 2019-2 | 1.30 | ↘ |
| 2019-3 | 1.31 | ↗ |
| 2019-4 | 1.32 | ↗ |
| 2020-1 | 1.31 | ↘ |
| 2020-2 | 1.25 | ↘ |
| 2020-3 | 1.19 | ↘ |
| 2020-4 | 1.24 | ↗ |
| 2021-1 | 1.23 | ↘ |
| 2021-2 | 1.29 | ↗ |
| 2021-3 | 1.33 | ↗ |
| 2021-4 | 1.38 | ↗ |
| 2022-1 | 1.47 | ↗ |

Source: UBS. *Compared to the previous quarter

Appendix

UBS Chief Investment Office's ("CIO") investment views are prepared and published by the Global Wealth Management business of UBS Switzerland AG (regulated by FINMA in Switzerland) or its affiliates ("UBS").

The investment views have been prepared in accordance with legal requirements designed to promote the **independence of investment research**.

Generic investment research – Risk information:

This publication is **for your information only** and is not intended as an offer, or a solicitation of an offer, to buy or sell any investment or other specific product. The analysis contained herein does not constitute a personal recommendation or take into account the particular investment objectives, investment strategies, financial situation and needs of any specific recipient. It is based on numerous assumptions. Different assumptions could result in materially different results. Certain services and products are subject to legal restrictions and cannot be offered worldwide on an unrestricted basis and/or may not be eligible for sale to all investors. All information and opinions expressed in this document were obtained from sources believed to be reliable and in good faith, but no representation or warranty, express or implied, is made as to its accuracy or completeness (other than disclosures relating to UBS). All information and opinions as well as any forecasts, estimates and market prices indicated are current as of the date of this report, and are subject to change without notice. Opinions expressed herein may differ or be contrary to those expressed by other business areas or divisions of UBS as a result of using different assumptions and/or criteria.

In no circumstances may this document or any of the information (including any forecast, value, index or other calculated amount ("Values")) be used for any of the following purposes (i) valuation or accounting purposes; (ii) to determine the amounts due or payable, the price or the value of any financial instrument or financial contract; or (iii) to measure the performance of any financial instrument including, without limitation, for the purpose of tracking the return or performance of any Value or of defining the asset allocation of portfolio or of computing performance fees. By receiving this document and the information you will be deemed to represent and warrant to UBS that you will not use this document or otherwise rely on any of the information for any of the above purposes. UBS and any of its directors or employees may be entitled at any time to hold long or short positions in investment instruments referred to herein, carry out transactions involving relevant investment instruments in the capacity of principal or agent, or provide any other services or have officers, who serve as directors, either to/for the issuer, the investment instrument itself or to/for any company commercially or financially affiliated to such issuers. At any time, investment decisions (including whether to buy, sell or hold securities) made by UBS and its employees may differ from or be contrary to the opinions expressed in UBS research publications. Some investments may not be readily realizable since the market in the securities is illiquid and therefore valuing the investment and identifying the risk to which you are exposed may be difficult to quantify. UBS relies on information barriers to control the flow of information contained in one or more areas within UBS, into other areas, units, divisions or affiliates of UBS. Futures and options trading is not suitable for every investor as there is a substantial risk of loss, and losses in excess of an initial investment may occur. Past performance of an investment is no guarantee for its future performance. Additional information will be made available upon request. Some investments may be subject to sudden and large falls in value and on realization you may receive back less than you invested or may be required to pay more. Changes in foreign exchange rates may have an adverse effect on the price, value or income of an investment. The analyst(s) responsible for the preparation of this report may interact with trading desk personnel, sales personnel and other constituencies for the purpose of gathering, synthesizing and interpreting market information.

Tax treatment depends on the individual circumstances and may be subject to change in the future. UBS does not provide legal or tax advice and makes no representations as to the tax treatment of assets or the investment returns thereon both in general or with reference to specific client's circumstances and needs. We are of necessity unable to take into account the particular investment objectives, financial situation and needs of our individual clients and we would recommend that you take financial and/or tax advice as to the implications (including tax) of investing in any of the products mentioned herein.

This material may not be reproduced or copies circulated without prior authority of UBS. Unless otherwise agreed in writing UBS expressly prohibits the distribution and transfer of this material to third parties for any reason. UBS accepts no liability whatsoever for any claims or lawsuits from any third parties arising from the use or distribution of this material. This report is for distribution only under such circumstances as may be permitted by applicable law. For information on the ways in which CIO manages conflicts and maintains independence of its investment views and publication offering, and research and rating methodologies, please visit www.ubs.com/research. Additional information on the relevant authors of this publication and other CIO publication(s) referenced in this report; and copies of any past reports on this topic; are available upon request from your client advisor.

Options and futures are not suitable for all investors, and trading in these instruments is considered risky and may be appropriate only for sophisticated investors. Prior to buying or selling an option, and for the complete risks relating to options, you must receive a copy of "Characteristics and Risks of Standardized Options". You may read the document at <https://www.theocc.com/about/publications/character-risks.jsp> or ask your financial advisor for a copy.

Investing in structured investments involves significant risks. For a detailed discussion of the risks involved in investing in any particular structured investment, you must read the relevant offering materials for that investment. Structured investments are unsecured obligations of a particular issuer with returns linked to the performance of an underlying asset. Depending on the terms of the investment, investors could lose all or a substantial portion of their investment based on the performance of the underlying asset. Investors could also lose their entire investment if the issuer becomes insolvent. UBS Financial Services Inc. does not guarantee in any way the obligations or the financial condition of any issuer or the accuracy of any financial information provided by any issuer. Structured investments are not traditional investments and investing in a structured investment is not equivalent to investing directly in the underlying asset. Structured investments may have limited or no liquidity, and investors should be prepared to hold their investment to maturity. The return of structured investments may be limited by a maximum gain, participation rate or other feature. Structured investments may include call features and, if a structured investment is called early, investors would not earn any further return and may not be able to reinvest in similar investments with similar terms. Structured investments include costs and fees which are generally embedded in the price of the investment. The tax treatment of a structured investment may be complex and may differ from a direct investment in the underlying asset. UBS Financial Services Inc. and its employees do not provide tax advice. Investors should consult their own tax advisor about their own tax situation before investing in any securities.

Important Information About Sustainable Investing Strategies: Sustainable investing strategies aim to consider and incorporate environmental, social and governance (ESG) factors into investment process and portfolio construction. Strategies across geographies and styles

approach ESG analysis and incorporate the findings in a variety of ways. Incorporating ESG factors or Sustainable Investing considerations may inhibit the portfolio manager's ability to participate in certain investment opportunities that otherwise would be consistent with its investment objective and other principal investment strategies. The returns on a portfolio consisting primarily of sustainable investments may be lower or higher than portfolios where ESG factors, exclusions, or other sustainability issues are not considered by the portfolio manager, and the investment opportunities available to such portfolios may differ. Companies may not necessarily meet high performance standards on all aspects of ESG or sustainable investing issues; there is also no guarantee that any company will meet expectations in connection with corporate responsibility, sustainability, and/or impact performance.

External Asset Managers / External Financial Consultants: In case this research or publication is provided to an External Asset Manager or an External Financial Consultant, UBS expressly prohibits that it is redistributed by the External Asset Manager or the External Financial Consultant and is made available to their clients and/or third parties.

USA: This document is not intended for distribution into the US and / or to US persons.

For country information, please visit ubs.com/cio-country-disclaimer-gr or ask your client advisor for the full disclaimer.

Version B/2022. CIO82652744

© UBS 2022. The key symbol and UBS are among the registered and unregistered trademarks of UBS. All rights reserved.