

Real Estate Focus

2019



Editorial

Dear reader,

Almost every second owner overestimates the value of their house, most of them by 20% to 40%, according to a recent broker survey. But what is the value of a house or a good in general? Economists have been grappling with this question for centuries. Over the course of time, different concepts have emerged with regard to value.

For the classical economists of the 18th and 19th centuries, the value of a product coincided with the human *working time* usually required to manufacture it. This definition culminated in Karl Marx's theory, which, however, left an essential question unanswered: Why is a residential property with an unobstructed view of the Alps more valuable than an identical property with a view of an industrial plant?

The reduction to the amount of working time spent was therefore inadequate. Some 50 years later, the so-called Marginal Utility School placed the concept of *utility* at the center of value definition, thereby reviving the discussion about the classic value paradox: Why is a diamond more valuable than a vital commodity like water? The solution to the problem at that time was to distinguish between objective and subjective utility. This explains how an otherwise superfluous diamond can have a very high subjective utility as a piece of jewelry and thus an exorbitant price.

But this was all too complicated for neoclassical economists in the second half of the 19th century. They theorized that the market and thus the *price* determine the value of a good. At the height of Dutch tulip mania in 1637, according to this way of thinking, Semper Augustus bulbs, the most expensive tulip variety, had the same value as the most expensive houses on an Amsterdam canal.

These considerations show that a distinction must be made between the concepts of value and price. Especially in the real estate market, the price paid deviates greatly from its estimated value depending on the market situation. In this year's edition of *UBS Real Estate Focus*, we hope to provide you with some *valuable* insight into the subject of real estate valuation.

We wish you a stimulating read.



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Content

UBS Real Estate Focus 2019

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Publisher

UBS Switzerland AG
Chief Investment Office GWM
P.O. Box, CH-8098 Zurich

Editor in Chief

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Editorial deadline

10 January 2019

Translation

24translate GmbH, St. Gallen

Desktop publishing

Margrit Oppliger
Werner Kuonen

Cover photo

"Origen"-Theater on the Julierpass,
Keystone/Peter Klaunzer

Printer

Galledia Print AG, Flawil, Switzerland

Languages

English, German, French, and Italian

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Electronic subscription is also available via Investment Views on the UBS e-banking platform.

SAP-Nr. 83518E-1901

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What's the market value of a property?

Matthias Holzhey and Claudio Saputelli

Every piece of real estate is unique. Valuing a property therefore requires experience and expertise. Today, the practice is dominated by three valuation methods whose origins date back to the Middle Ages.

The window tax, introduced in England in 1696, allowed a rudimentary estimate of a property's value for tax purposes. The more windows a building had, the higher the owner's tax bill. One advantage: unlike the older hearth tax, windows could be counted without entering the house.

Origin of current valuation methods

One of the predecessors of modern-day valuation methods was described in 1662 by Sir William Petty, an English economist. Petty suggested determining real estate values by taking the rental or land income generated by a property and multiplying it by 21. According to his estimates, this was the average number of years that a landowner had to look after his descendants (children and grandchildren) and so needed land income. And so the concept of

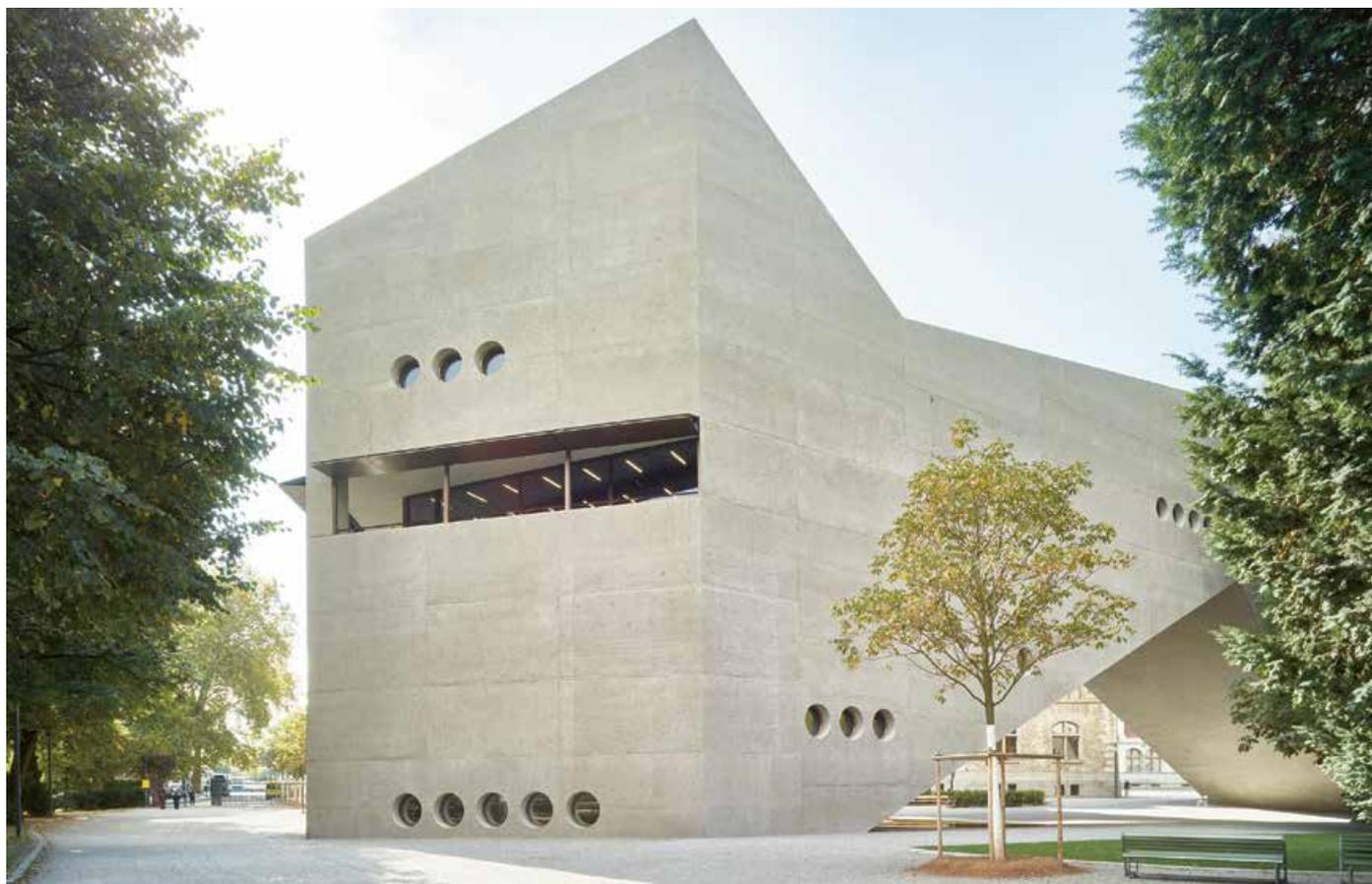
capitalization was born: the calculation of the present value of a constant cash flow (bond, rent, etc.). Petty's approach produced a capitalization rate of 4.75% – still a common order of magnitude.

Despite the innovativeness of Petty's ideas, authorities initially preferred the window tax. It was simple, straightforward – and enduring: it was levied on rented real estate in France until 1926. Portugal even introduced a variant of the window tax as recently as 2016 when it imposed higher taxes on buildings with good views in sunny locations than on those located near cemeteries. Property taxes and the advent of mortgages demanded far more exact and fiscally fair valuations, opening the door for the income approach (the capitalization of cash flows) to firmly establish itself by the 19th century.

Cost, price and value

Three questions often come up when buying a product: How much does it cost? What's its price? What's its value? They're very similar questions. Indeed, dictionaries frequently describe price, cost and value as synonymous or list definitions that are at least partially interchangeable. However, these three terms have different meanings in (real estate) economics. "Cost" refers to the consumption of the goods and services required to manufacture a product, expressed in monetary units. The cost of production plus a profit margin constitutes the price. "Price" describes the exchange value of a good,

expressed in monetary units, and is equal to the amount that the buyer has to pay a willing seller to acquire the good. "Value" can be divided into market value (objective value) and use value (subjective value). The market value of a good is ideally the expected or estimated sales price at which it can be sold in a functioning market. The use value, in contrast, is the good's subjective usefulness to an individual with regard to his or her goals. Use value is not normally expressed in monetary units and varies from person to person.



Swiss National Museum, Zurich | Keystone/Christian Beutler

“The market price is often determined from a combination of location, view, accessibility, architecture and age of the property.”

Modern real estate valuations

Modern-day real estate valuations aim to estimate a property's market value. This value is based on the current market price in competitive conditions (a large number of suppliers and potential buyers) with informed market participants. Depending on how it is defined, the market price is either the highest attainable price or the price most likely to be attained within a reasonable period of time. This may sound simple, but a question still remains: How exactly do you determine the market price? After all, no two properties are alike, and there is no central exchange where properties can be bought and sold in a way that provides information on current transaction prices. Instead, market price generally has to be calculated from a combination of factors such as location, view,

accessibility, architecture and building age. Different valuation methods have been developed for determining the market price depending on the property's type of use.

There are essentially *three approaches* to valuing properties: the *comparison approach*, which assumes that a buyer's willingness to pay can be inferred from the actual purchase prices of comparable properties; the *income approach*, which focuses on the real estate's use value to the buyer; and the *cost approach*, which assumes that the price should not exceed the value of the building and land put together or the cost to build (replace) the property. Investment properties are generally valued using the income approach while home appraisers tend to rely on the comparison or cost approach.

What's being paid in the market?

Matthias Holzhey and Claudio Saputelli

Real estate valuations are often a mystery to non-professionals. The wide range of approaches doesn't make the subject any more accessible, either. However, all these approaches ultimately rely on the same basic concept.

People have real estate appraised for different reasons. The most common motivation is no doubt to prepare for a sale. But other situations also demand valuations: these include divorce proceedings, inheritance disputes, foreclosure, assessment of insurable value, financial reporting and taxation. There are three standard approaches for valuing real estate.

Comparison approach

The comparison approach estimates a property's value by comparing it to recent transactions involving similar properties. For this approach to work, you need a large number of data points. The expected transaction price can be obtained right away as long as there are enough local transactions of comparable properties. If the comparison set is too small, though, statistical methods must be used to calculate prices for individual aspects of the properties. This is known as "hedonic pricing." Once property appraisers have determined the market's implicit willingness to pay for location, view and appointments, they can calculate the expected market price for any property with reasonable certainty.

Cost approach

Another option is to estimate a property's cost, i.e. the cost of land plus the cost of construction. Building costs can be estimated with a fair amount of precision, although depreciation does leave some room to maneuver in certain cases. The real problem lies with the land cost. Ideally, property appraisers can consult sales records for comparable plots of land to directly determine the cost of the land. However, since most regions suffer from a dearth of land transactions, the cost has to be derived from transactions involving developed properties. In these cases, the cost approach is essentially a less exact version of the

comparison approach. It is therefore used primarily when there is very little market information or when valuing buildings such as schools or hospitals that don't have market prices.

Income approach

The income approach extrapolates a property's value from the rental income that it can generate. All future expected income is discounted back to the valuation date. Real estate values determined using this approach depend heavily on the discount rate, which is based on market yields for bonds. Uncertainty surrounding changes in rent income and risks specific to the property are accounted for by risk premiums. However, if crude rules of thumb are to be avoided, the premiums themselves have to be calculated using comparisons with similar transactions – much like the comparison and cost approach.

Few obstacles in the standard segment

The property valuation process has become much easier in recent years, as digitalization has greatly increased the volume of information available in the real estate market and thus improved transparency. Automated comparison models achieve valuation errors of less than 10% in over half of all cases in the owner-occupied home market. Property prices can normally be calculated relatively precisely, especially in the standard segment. But valuation accuracy suffers enormously if a particular region or property segment has only a few data points or if characteristics specific to the location or property cannot be accurately captured. In these circumstances, around 20% of the valuations generated by automated models can be off by over 20%.

Psychology and chance dominate

In illiquid markets, transaction prices are affected by subjective factors as well as an element of chance. For example, if a luxury property attracts few prospective buyers, the sales price will hinge on specific circumstances of the sale such as urgency, the (non-representative) willingness to pay of interested parties and the specific direction that the negotiations take. This opens up a wide range of possible valuations for one and the same property.

Valuations in illiquid markets tend to be “sticky”; that is, they are heavily dependent on the first available price indication. It might be the asking price, the owner’s estimated price or an individual appraiser’s findings. This initial number serves as an “anchor” that subconsciously informs the final valuation.

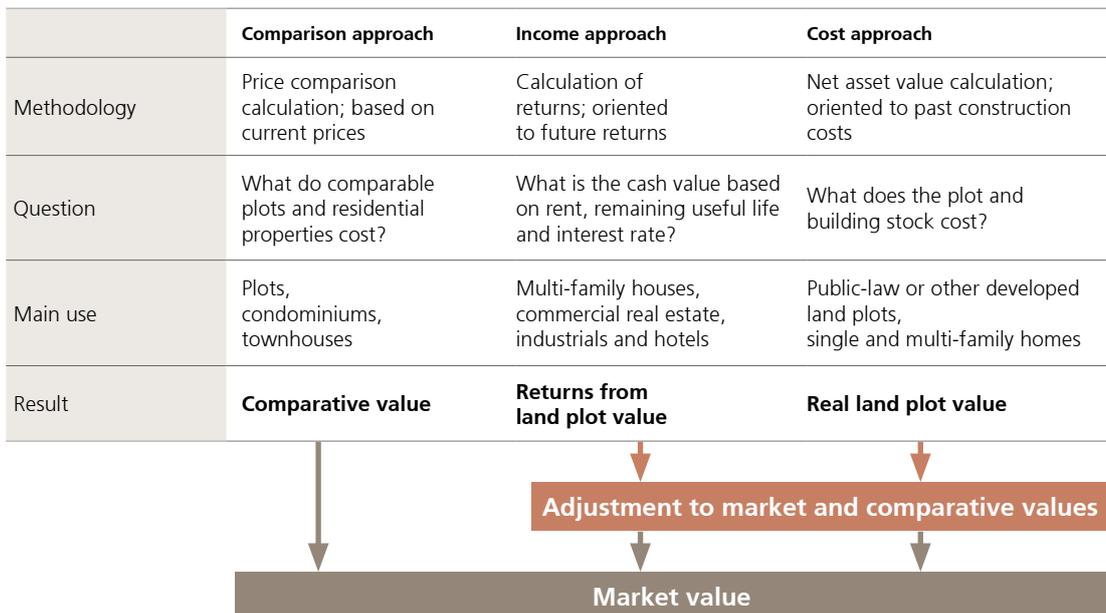
What is far more problematic, however, is the risk of property appraisers using their margin of

discretion to accommodate their clients. After all, there’s always a reason for clients to want to influence the outcome of a valuation. Portfolio managers have a vested interest in property values staying high or rising. Sellers are no different: high valuations serve as anchors in price negotiations and can thus indirectly affect the sales price. When taxation is the motivation, however, owners prefer low valuations.

Comparisons are key

Since some methods capture the features specific to the property in great detail, the calculations can be complex. Though this impulse is understandable given the size of a real estate investment, it should not obscure the fact that every valuation revolves around comparisons. All property valuations, regardless of the approach or market segment, thus come back to one question: “What is everyone else paying?”

Valuation approaches



Source: UBS

Valuations reflect the past

Matthias Holzhey and Claudio Saputelli

Valuation

Residential

Commercial

Listed

Global

Real estate valuations are essential for efficient pricing in a stable market. But all bets are off if property prices become decoupled from fundamentals. Valuations should also be questioned if price signals have become distorted by monetary policy.

The real estate value of US residential and office investment properties plummeted 30% to 40% between 2008 and 2010. Property values in Ireland imploded as well over the same period, posting a decline of over 60%. Clearly, the valuations carried out prior to the financial crisis were far too optimistic.

Requirement for efficient pricing

In stable property markets, valuations simplify interactions between supply and demand and support an efficient pricing process. The property market is balanced when prices are established through a combination of fundamentals, the most important being household income, mortgage lending terms, bond yields and property construction costs.

When property markets become imbalanced, however, valuations lose their guidance function. Prices actually paid then differ from calculated market values. In extreme cases, market players may even ignore the valuations entirely. These types of financial market turbulences appear in property markets time and again.

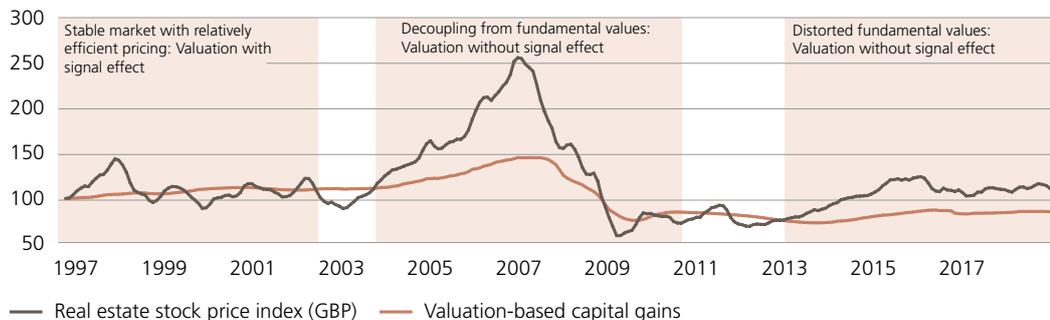
When valuations fail

Economic shocks

Income and interest rates can spike or plummet during booms or crises. Real estate prices will adapt to the new circumstances quickly, but valuations tend to lag behind. In addition, economic turmoil is fertile ground for overreactions where economic trends are indiscriminately projected into the distant future. After all, expecta-

Ratings without signal effect

Price indexes for real estate shares and direct investments (valuation-based) for the UK, inflation-adjusted, index 1997 = 100



Source: Bloomberg, MSCI, UBS

tions drive prices for long-term investments like real estate. Sudden changes in the regulatory environment or credit restrictions can throw markets into upheaval. If they rewrite the rules of the game, all prior valuations will suddenly become obsolete.

Irrational exuberance

Home prices in Hong Kong climbed nearly 20% in 2017 though little had fundamentally changed. The biggest market driver? The desire not to miss out on possible capital gains. When euphoric investors expect home prices to rise continuously, they treat information on comparable properties as a side note, not a valuable pricing reference. Conversely, markets can panic amid a crisis and become so pessimistic that prices decline far more than warranted by the fundamentals. In the US, real estate values of residential investment properties plunged nearly 40% during the financial crisis only to bounce back 25% in the next two years.

Valuations rely on emotions. In the euphoric phase of a real estate bubble, property appraisers tend to be optimistic if they do not want to lose orders. Unfortunately, this means the valuations unintentionally exacerbate the bubble. For example, shortly before the market crash in 2007, portfolio-based real estate values of US office properties that used the income approach increased 13% even though the real estate market had already tilted downward.

Drying up of market liquidity

No transactions means no way to determine market prices. At the end of 2007, the number of commercial real estate transactions in the US collapsed. Property appraisers faced similar difficulties as prices tumbled in an adverse sales environment where foreclosures were commonplace. The (few) observable transaction prices were not robust indicators of a fair market price and so were worthless for valuation purposes.

Distorted fundamentals

Irrational exuberance and major economic turmoil are at best bit players in Switzerland's real estate market today. But distorted fundamentals do represent a major challenge for property appraisers. All the big central banks worldwide have aggressively expanded their balance sheets since 2008; they now hold around 20% of sovereign debt. This stance has inflated the prices of safe investments and pushed market interest rates down to historic lows.

This trend has not passed Swiss interest rates by, either. Making matters even worse is the sharp decline in the supply of Swiss government bonds over the past decade. As a result, yields on long-duration government bonds are far too low given Switzerland's economic strength.

This is poison for valuation approaches that value rent income based on long-term bond yields. In these approaches, the market price of investment real estate relies heavily on the difference between long-term bond yields and real estate returns. This difference, known as the risk premium, is currently high relative to historical trends, which implies that initial real estate returns are attractive compared to government bond yields. But the very idea of a risk premium and the appraiser's underlying experience become worthless whenever the risk-free rate (in this case, the yields of 10-year Swiss government bonds) is massively distorted.

In short, current valuations should be taken with a grain of salt, in Switzerland, too. Their accuracy won't be revealed until the prices of risk-free investments have returned to normal.

Risks are shifting

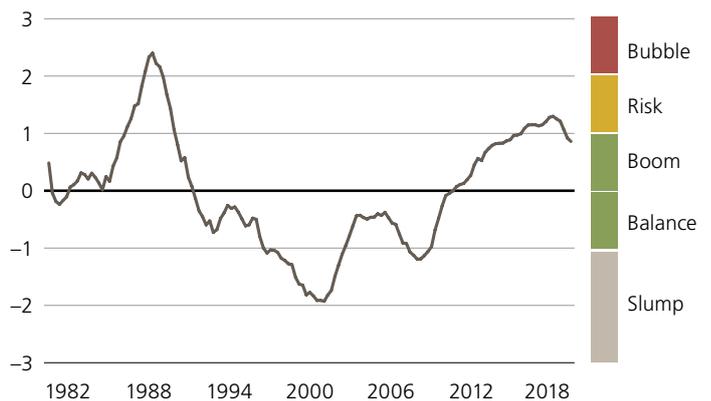
Matthias Holzhey and Maciej Skoczek

Home prices are stagnant, while mortgage volume growth is moderate at best. The risk of a real estate bubble fell precipitously last year due to the strong economy. However, the low-price segment shows new signs of overheating in response to mandatory lending criteria.

The situation in the housing market has relaxed somewhat, due largely to two factors. First, Swiss home prices have risen only slightly since 2015 while economic growth has steadily picked up, coming in well above 2% last year. This has dramatically reduced the price/income ratio over the last six quarters. Second, the volume of outstanding household mortgages has grown more slowly than at any other time since 1998. Income growing faster than mortgage debt is a clear sign of lower market risk. Easy access to credit tends to fuel real estate bubbles. Both of these trends have helped pushed down the *UBS Swiss Real Estate Bubble Index*, which declined at the end of last year for the fifth time in a row, leaving the risk zone for the first time since mid-2012.

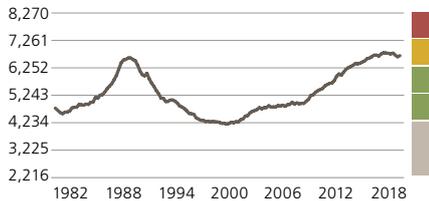
Cooling mortgage market lowers index

UBS Swiss Real Estate Bubble Index

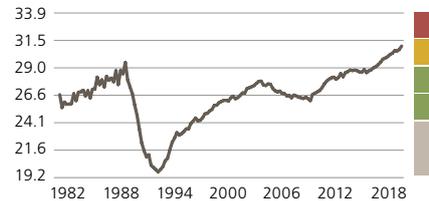


Sub-indicators

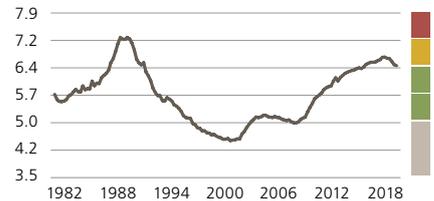
Home prices to consumer prices (CHF/m²)



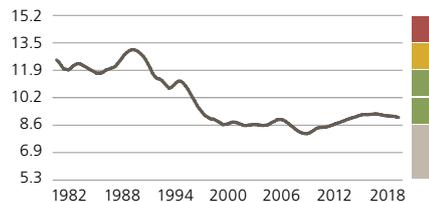
Home prices to annual rents



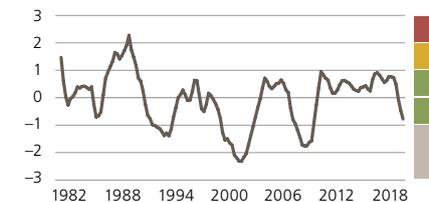
Home prices to household income



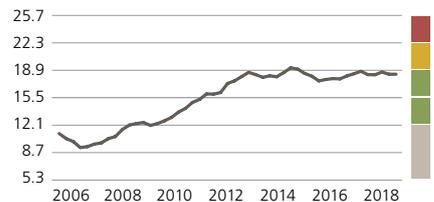
Construction activity in relation to GDP (in percent)



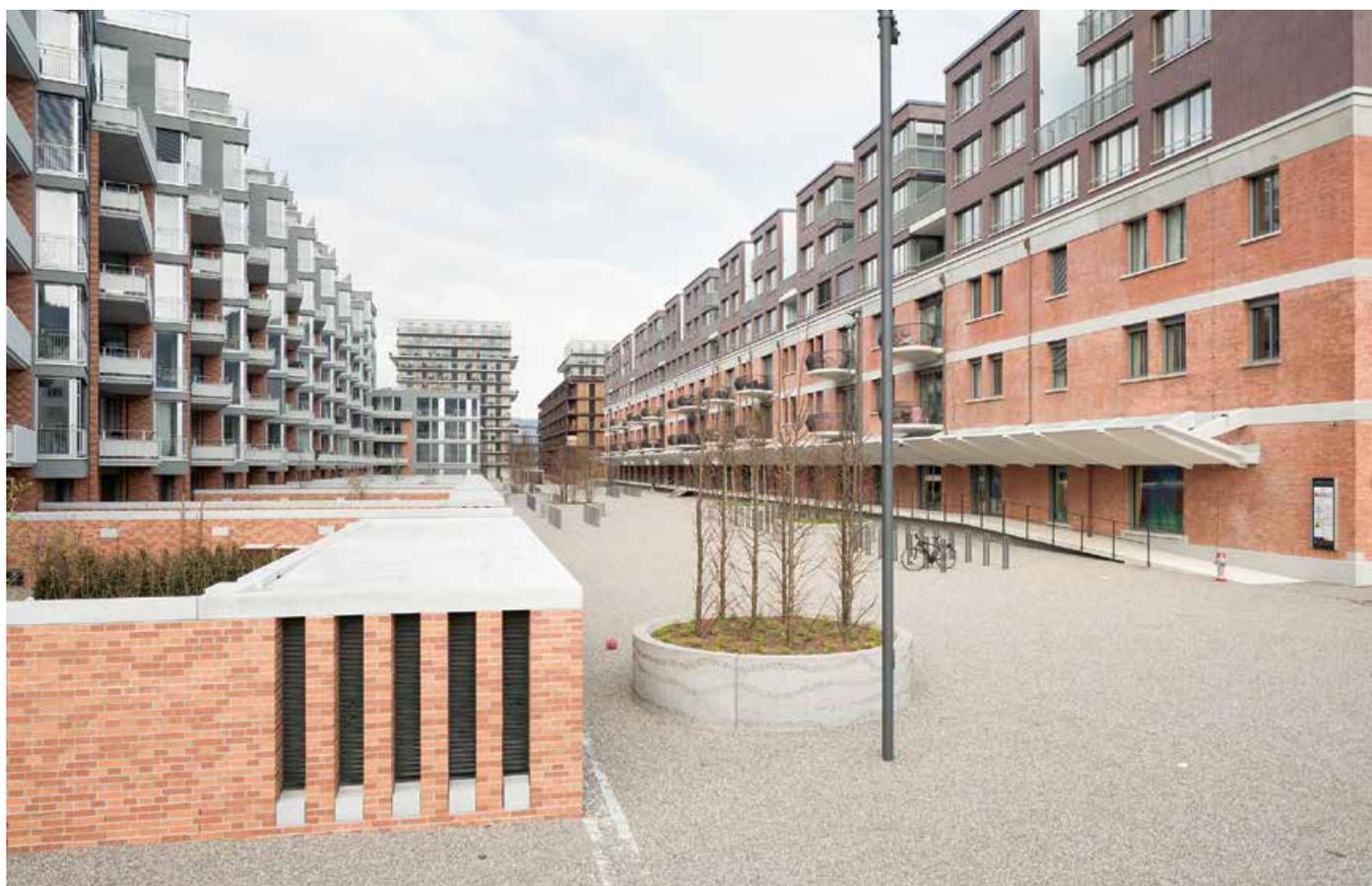
Mortgage volume to income (growth adjusted for trends)



Credit applications for residential real estate not intended for self-occupancy (in percent of total)



Source: SNB, FSO, SECO, UBS



Freilager housing development, Zurich | Keystone/Gaetan Bally

“Condominiums continue to be acquired on a large scale for investment purposes.”

Low interest rates keep imbalances high

The Bubble Index’s price-driven sub-indicators still point to imbalances and affordability risks. Real home prices, the price/rent ratio and the price/income ratio are near or even above the levels of the last real estate bubble in the late 1980s. Steep rises in these sub-indicators since 2008 have been propelled by plummeting interest rates. And the only place where high absolute home prices and the disconnect between rents and purchase prices can survive is a low-interest-rate environment. That points to a continued high interest rate risk.

In addition, condominiums continue to be purchased en masse for investment purposes. The proportion of loan applications relating to properties intended for renting has fluctuated between 18% to 20% since the end of 2012. An economic crisis or a rapid rise in interest rates would probably hit this segment particularly hard since the low net returns of 2% to 3%

leave very little cushion for absorbing interest rate hikes, vacancies or declining rents. Insufficiently diversified investors are highly likely to suffer substantial wealth outflows in a crisis. And if they are in dire financial straits, investors will sell a buy-to-rent property faster than their own home. The result: an increase in market supply and greater downward pressure on prices during a correction.

Does the Bubble Index underestimate risk?

Data-specific uncertainties

The volume of outstanding mortgages has probably grown more in recent years than the data suggests. Why? Mortgage loans issued by insurers and pension funds are not included in the statistics at all or at least not immediately. These lenders may make up only some 5% of the total market, but insurers have expanded their mortgage positions twice as fast as banks in the past three years. Pension funds’ mortgage volumes also picked up significantly in 2016 after several

years of declines. However, even if mortgage loans originated by insurers and pension funds had been included, the total volume is too small to have reversed the index's decline.

The Real Estate Bubble Index is calculated using asking price indexes that reflect sellers' changed price expectations. These expectations typically respond at a delay to changes in market prices. In the euphoric phase of a real estate bubble, expectations frequently overshoot actual price trends. Between 1985 and 1990, for example, asking prices rose around 15 percentage points faster than transaction prices. The tables have since turned: transaction prices are now growing faster, making it less likely that overheated speculation is behind recent price increases. The real estate bubble index may currently be based on excessively weak price growth, but it does not underestimate the risk of a real estate bubble.

Consequences of the method

The sub-indexes have to be made comparable before calculating the overall index. To do this, every sub-indicator is standardized using its long-term mean. However, sub-indicators' long-term means and standard deviations change over time. For example, more rapid price increases during a boom will expand the gap between current prices and the long-term mean, driving the Real Estate Bubble Index. If prices stay high over an extended period, this will become the new normal, prompting the Real Estate Bubble Index to fall. In 2011, today's price/rent ratio and/or price/income ratio would have indicated an acute real estate bubble. Generally speaking, the slower imbalances develop, the weaker the warning signal. This methodology, in other words, probably underestimates current imbalances in the Swiss home market.

What the bubble index cannot cover

Regulatory distortions

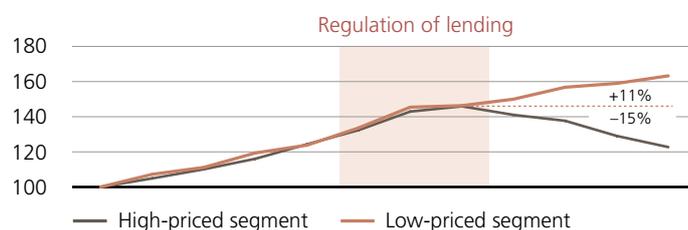
According to current lending standards, home buyers have to pay at least 10% of the purchase price with "hard" assets, i.e. assets not withdrawn from a pension plan. They also have to be able to afford the mortgage even if interest rates go up significantly. People shopping for a home in urban centers often fail to meet at least

one of these standards. To nonetheless fulfill their dream of home ownership, they end up making concessions in the location or size of their home. This trend started to push up demand in 2015 and has driven up prices significantly in the low-end segment.

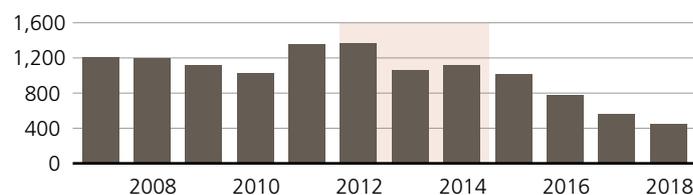
Average square meter prices for condominiums in large cities have risen 10% since 2012, according to SRED, a transaction database. Prices changed three times faster in suburbs and exurbs located more than 30 minutes' driving distance from the city center. The premium for central locations has clearly plunged. In 2012, square meter prices in central locations were double what they were in the periphery; today, this difference has shrunk by roughly one-third. Premiums for good microlocations have steadily fallen in recent years as well. Back in 2012, square meter prices for good and very good microlocations were around 20% higher than those for poor and average locations. This difference has since dropped by over half. Buyers are

Greater price increases in cheaper segments and at inferior locations

Smoothed development of transaction prices for condominiums in the low- and high-priced segment, index 2007 = 100



Difference between prices for good and very good, as well as poor and average locations, in CHF/m², 2018 = UBS estimate



Source: FPPE, SRED, UBS

also willing to pay more for smaller dwelling units: the average square meter price for condominiums sized 90 square meters or fewer has gone up nearly 18% since 2012, while square meter prices for large apartments with more than 130 square meters have risen only 12%.

The shift in demand toward cheaper properties has distorted relative prices in the housing market. According to Fahländer Partner (FPRE), condominium transaction prices have fallen nearly 15% in the high-priced segment since 2015 but have risen by 11% at the lower end of the market. If regulatory restrictions loosen or demand for homes slackens, property values will probably decline disproportionately in the low-priced segment of the market.

Distorted fundamentals

Central banks' unprecedented quantitative easing programs have depressed market interest rates, making the dream of home ownership far more realistic. Low interest rates have made it cheaper to own a home than rent a comparable apartment in Switzerland. This has massively broadened the cross-section of society interested in acquiring residential property in recent years. As a result, price/rent ratios have soared to an all-time high. Also, mortgage interest barely makes a dent in household budgets, even when the purchase price is a multiple of household income. High price/income ratios no longer bust household budgets, in other words. Distorted interest rates have warped these sub-indicators of the Real Estate Bubble Index. Once central banks allow the market to set interest rates again, the home market will face a large correction risk that cannot be captured by the current Real Estate Bubble Index.

Stable outlook

The risk of a sharp price correction is, however, very low in today's macroeconomic environment. What seems likelier is either an ongoing gradual devaluation – home prices barely budge amid economic growth and inflation – or a resumption of price increases. The latter scenario appears less likely given the high absolute prices. The supply of apartments with square meter prices in excess of CHF 10,000 has quadrupled since 2008 and now makes up nearly 20% of all advertised apartments. According to the affordability guidelines, only one-tenth of all Swiss households can afford a 120 square meter apartment in this price segment. Lending will thus continue to act as a brake. Regulators will probably also not tolerate a return to market overheating. Over the medium term, the glut in the rental apartment market may have spill-over effects on the home segment and push down prices. However, there are currently few indications that this is happening. Regions with high rental apartment vacancy rates have not seen significantly slower increases in home prices than have other regions.

This year, we expect home prices to increase slightly. While prices of single-family homes will probably rise 1%, we expect condominium prices to fall slightly. Since inflation and economic growth should continue, if more slowly, the Swiss home market will probably take another small step toward gradual devaluation in 2019.

Reductions in value loom

Matthias Holzhey and Maciej Skoczek

The vacancy rate will increase further in the course of the year. Rents for modern apartments are under more pressure than those for older ones. Value corrections are likely in expensive central locations and in the periphery, albeit for different reasons.

Purchase prices for multi-family dwellings are up around 80% since 2005 but have stagnated for the past three years. The reason: the fear of simultaneous rises in interest rates and vacancy rates for multi-family dwellings. This explains the concern expressed in last summer's statements by the Swiss National Bank about the magnitude of the likely adjustments in value and the possible consequences for the banking sector.

Multi-family dwellings are valued based largely on their expected rent income and the discount factor, which is tightly linked to market interest rates. To properly determine a property's market value, the trajectories of these two components have to be projected for the several years. Forecasts of interest rates are always very general. Long-term interest rates have been drifting upward since mid-2018, only to slip back down in response to stock market turmoil and uncertainty about the global economy. Higher interest rates are still likely over the medium term, though. Rents and vacancies, for their part, are much easier to forecast both regionally and nationally.

Vacancies poised to peak

Around 75,000 dwelling units, or roughly 1.7% of Switzerland's housing stock, were estimated to be empty as of the end of the year. Rental apartments had a much higher vacancy rate of 2.7%. Construction activity was strong last year; 50,000 dwelling units were estimated to have been built. Net immigration picked up again to reach around 55,000 people over the same period, prompting vacancies to increase somewhat more slowly than before. We expect

supply once again to significantly exceed demand this year given the large number of construction permits issued.

The trend nonetheless seems likely to reverse given the recent decline in the number of construction permits requested. Last year, the figure was only 54,000 permits – the figure was around 10% lower than the average of the past five years. That means the punishing competition in the rental apartment market will probably peak at the end of this year at an estimated 80,000 vacant dwelling units.

Building homes in all the wrong places

Three regional observations can be made:

First, the number of vacant apartments climbed in almost all regions of Switzerland over the past three years. However, the vacancy rate remains well below 1% in large cities and densely populated metropolitan areas, which contain nearly half of all rental apartments.

Second, vacancy rates rose as distance from major city centers increased. While the number of vacant apartments near city centers has gone up by roughly three per thousand since 2015, the increase was nearly double that number in the periphery.

Third, construction projects have been planned without regard for the presence of empty apartments. Indeed, current vacancies have been a good indicator of additional vacancies. The propensity to build at the "wrong" locations does not appear likely to change any time soon: the

number of construction permits requested showed the largest percentage drops in city centers and metropolitan areas. Vacancies and the associated risk of reductions in value are – and will remain for the years to come – largely a challenge for the periphery.

Asking rents slump further

Fiercer competition depresses rents. Asking rents (rents for lease renewals, initial leases or new properties) declined 2% last year and now stand 5% below their 2015 high. Rents for new properties have corrected by a whopping 11% over the same period. Asking rents for older buildings also gave up more ground for the first time last year.

Pressure higher for modern apartments than older ones

New buildings no longer generate all that much more in rental income than modern but not brand-new apartments. This puts the most competitive pressure on modern properties because apartments from both construction periods appeal to similar target groups. Fierce competition then forces owners of these modern apartments to slash rents since their properties are rarely run down enough to warrant major renovations. The pressure is bound to be particularly high in portions of Ticino, the cantons of Schwyz, Aargau and Solothurn and in the region between Murten and La Chaux-de-Fonds. For every apartment constructed here in the 1990s, there is another apartment that has been built in the past five years. These new structures are not competing with low-priced, dilapidated apartment blocks built in the 1960s and 1970s, either; their target group is in an entirely different income class.

Rents stable in city centers

This year, we expect asking rents to decline another 2.5% on average for the nation as a whole. Rents will likely drop the most in certain regions of Eastern Switzerland, parts of the Central Plateau region and the cantons of Vaud, Fribourg, Valais and Ticino – all areas where

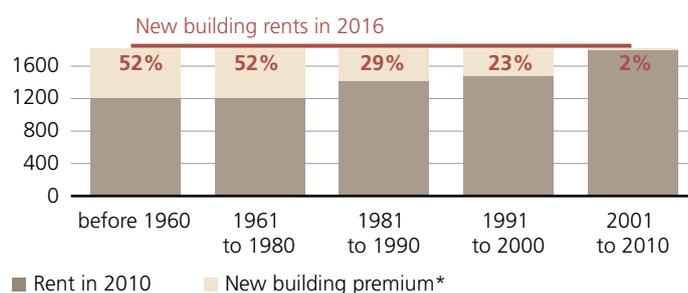
vacancies are above-average and have recently shot up. Landlords have attempted to avoid rent reductions by offering a basket of incentives such as rent-free periods, shopping vouchers or free moving. However, as vacancies continue to rise in the periphery, we expect rents to fall as much as 5% in these regions this year. In urban centers and their metropolitan areas, by contrast, surplus demand will prevent widespread rent reductions.

Average total returns in decline

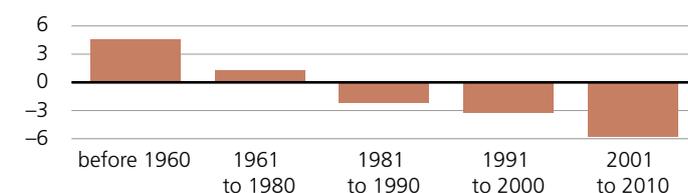
Total returns (income return plus capital value return) for a multi-family dwelling averaged around 6% a year across Switzerland in the past 15 years, or a bit over 30% over a five-year period. Returns this large are highly unlikely over the next five years. The median five-year total return is only expected to be 5%, according to

New buildings put pressure on rents for modern apartments

Average rents for three- to four-room apartments in CHF/month and new building premium* in percent, according to construction period



How existing rents fared between 2011 and 2016 according to construction period, in %



*Difference between new building rents (years of construction 2011 to 2016) and rents from earlier construction periods in 2010, in %

Source: FSO, UBS

our model estimates. Value corrections are highly probable. However, declines greater than 20% will only occur in 10% of cases, which makes the risk manageable for lenders and property developers. Declines this large will just barely exceed cumulative earnings, turning any such multi-family dwelling investment into a money-losing endeavor.

Centers and periphery: Value reductions likely

Expensive center locations (see map)

Median total returns in urban centers are close to zero. In these regions, where initial net returns can be as low as 2.5 %, property values are particularly dependent on interest rates. Investors' eagerness to pay for reliable streams of rental income ebbs and flows with interest rates. Rising interest rates increase the threat of price corrections, while falling rates hold out the prospect of capital gains. That explains why there is such a large range of forecast capital returns in city centers. Value corrections of 20% are twice as likely in these regions as in Switzerland as a whole.

Competitive markets (see map)

Interest rate risk is lower in the periphery¹, but the elevated vacancy rate will likely step up pressure on rents. Here, median total returns are only marginally higher than in central locations. Capital returns are very likely to be negative in these punishingly competitive markets; corrections as high as 20% are well within the realm of possibility. Falling rents have made value adjustments inevitable despite the low interest rates.

The golden mean

Investors should therefore exercise caution when looking at regions. Investments in expensive central locations and ultra-competitive markets offer unattractive risk/reward ratios. In the periphery, the location risk premiums are often too low to absorb the rising vacancy risk. Investments in central locations only pay off if interest rates don't rise. The most attractive option in potential markets (see map) is a combination of moderately higher income returns and manageable rent loss risks. The median total return in these scenarios is nearly 10%. The income return is also high enough to deliver a positive total return

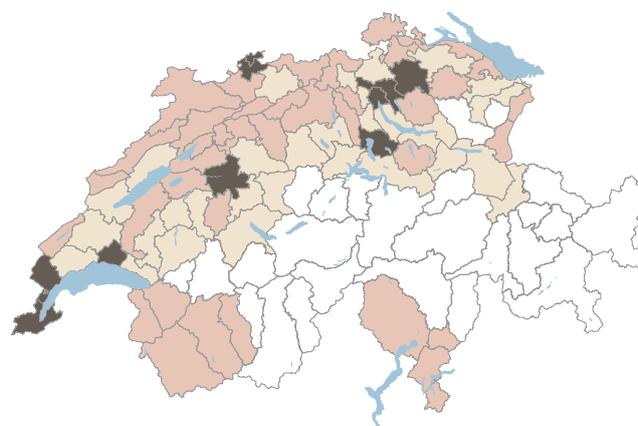
even if rents decrease and interest rates increase fairly rapidly.

Moderate portfolio risk

The above analysis lays out the initial returns on a single multi-family property; it does not necessarily apply to changes in the value of established real estate portfolios. It is, however, reasonable to assume that the value of real estate portfolios will likely slump gradually if interest rates rise. The range of possible changes in value is much narrower, though. Why? First, appraisers try to even out market fluctuations over the years. Second, ongoing rental income in diversified portfolios is relatively stable; declines in market rents will take some time to trickle down to the income statement. Third, landlords can often hike rents when new tenants move in; asking rents remain 10% to 15% higher, on a national average, than current rents.

Almost one-third of all rental apartments are in competitive markets

Breakdown of the economic regions according to the vacancy rate for rental apartments, excluding regions driven by tourism



Market breakdown

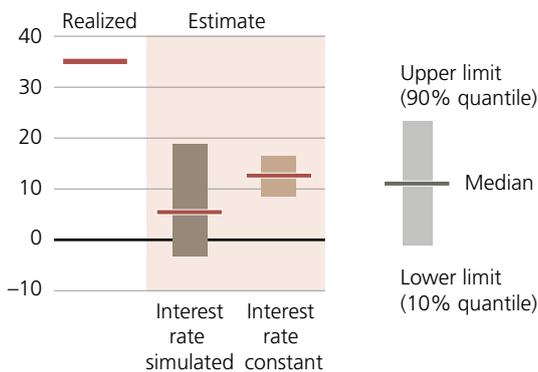
- Expensive center locations (vacancy rate < 1.5%)
- Competitive markets (vacancy rate > 4% and vacancy rate > 3% with above-average vacancy dynamics)
- Potential markets (other markets)

Source: UBS

¹ Excluding mountainous regions

High returns are a thing of the past

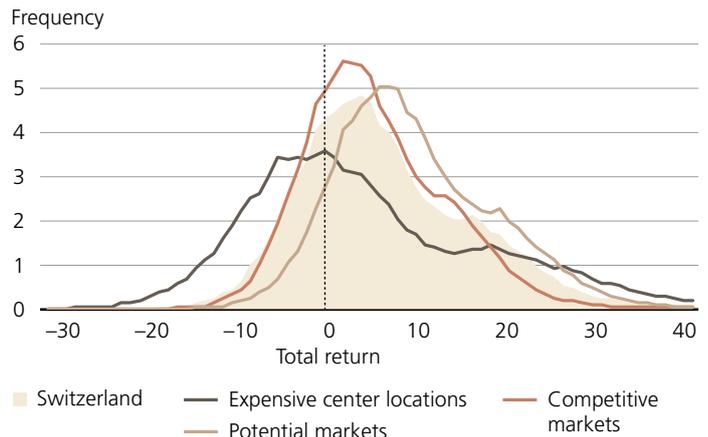
Total return of an apartment building investment between 2013 and 2018 and range of estimated total returns, with simulated interest rate development and unchanged interest rate environment between 2018 and 2023, in %



Source: MSCI, UBS

Best prospects in the potential markets

Frequency of the estimated total returns of an apartment building investment* according to region, in %



*Purchase at the end of 2018, sale at the end of 2023, property-specific risks not included

Source: UBS

Modeling performance

To estimate any change in the value of apartment houses, it is necessary to forecast how interest and rents will fare. The longer the forecast horizon, the larger the margin of error for the estimate, which is simulated on the basis of historical data. Accordingly, the expected total return as well as the performance can only be expressed in terms of probabilities.

Our analysis refers to the acquisition of an apartment house rented at market rents at the end of 2018. The total return and value adjustments are calculated after five years. Property-specific risks, transaction costs and taxes are disregarded here.

Five-year market rent forecast: If the real estate cycle runs its course, construction activity

is expected to decline after this year. We assume that vacancies will also gradually decrease. Market rents are therefore likely to be close to their current level again in five years' time. Depending on population growth and vacancy rates, the rental price estimates can vary in a range between minus 8% and plus 12% (based on different population scenarios published by the Federal Statistical Office).

Five-year interest rate forecast: According to UBS forecasts, the yield on 10-year federal bonds will approach 0.9% in five years. However, taking historical volatility into consideration, the effective interest rate is likely to be between minus 0.5% and plus 2.5% – we regard the likelihood of this to be 80%.

Slump is over for now

Katharina Hofer

Valuation

Residential

Commercial

Listed

Global

After a significant correction, the market for luxury real estate on Lake Geneva, Lake Zurich and the mountain regions is slowly picking up. Regulation and the economic situation abroad play an important role as the high-end segment depends strongly on foreign demand.

Switzerland's luxury locations,¹ which mainly serve as primary residences, include upscale urban quarters in Geneva and Zurich, towns around the Rhone and Limmat cities and parts of central Switzerland. Proximity to the two largest Swiss cities and a prime lakeside location are decisive factors here. Single-family homes account for over 80% of the luxury properties offered in the smaller communities. On the other hand, condominium ownership dominates in the urban communities of Geneva, Zurich and Zug.

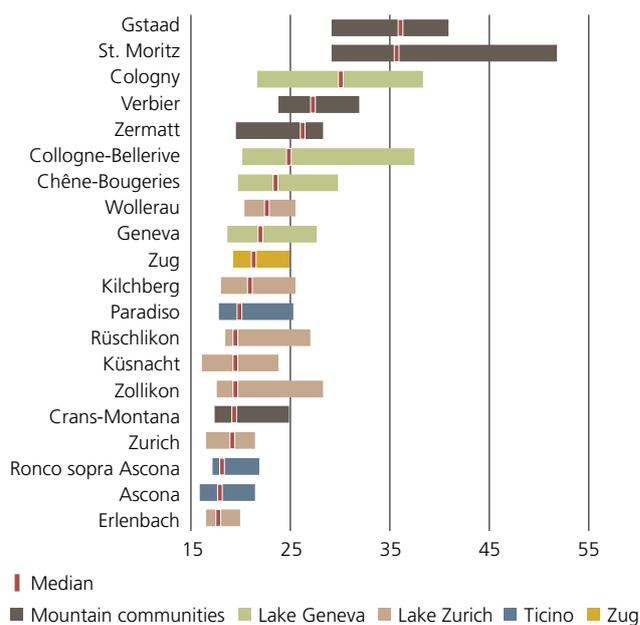
With more than 12,000 residential units, the high-end market on Lake Zurich is around twice as large as that on Lake Geneva. In terms of prices, however, Lake Geneva tops the chart. Not only do these luxury properties achieve very high prices per square meter (median CHF 22,000 to 30,000), they are also the most expensive in Switzerland in terms of the average asking price (CHF 9–19m). The luxury segment in Central Switzerland and Lake Zurich is cheaper (median prices CHF 18,000 to 23,000 per square meter; asking prices CHF 4–7.5m).

Second-home market is the most expensive
However, the highest real estate prices of all can be found on the second-home market in the mountain regions of the cantons Bern, Graubünden and Valais. The luxury properties in Gstaad and St. Moritz are the most expensive in the country (around CHF 35,000 per square meter). Verbier and Zermatt are also among the

top five most expensive luxury locations. These top markets have a long tradition of tourism. Crans-Montana also belongs to this group, despite its significantly lower prices.

Luxury properties more expensive in mountain communities

Median offer prices of luxury properties in selected communities* and range (quantile 25% to 75%), in thousand CHF/m²



¹ We concentrate on 20 communities in the Swiss luxury real estate market and examine the top 5% of the most expensive properties there.

* For 5 percent of the most expensive ads in the last five years
Source: Fahrländer Partner, UBS

While a large part of the Swiss high-end market is concentrated in these few regions, luxury properties are also scattered across other communities. One urban district can be particularly luxurious without this being a predicate for the entire city. Properties with a value of more than CHF 5 million are frequently found in Binningen and Riehen near Basel or Lugano and Collina d'Oro in Ticino.

What drives the prices of luxury real estate – and what doesn't

The main drivers of real estate prices are lot size and net living space. With an average of around 440 and 250 square meters respectively, luxury houses and apartments are almost three times larger than the Swiss median properties. The plots of land for luxury houses in the analyzed communities are on average around 2,100 square meters, more than three times the size of the average single-family home lot. In addition, luxury properties, at 43%, are more than twice as likely to be in a top micro location as average homes. However, the share of luxury properties

traded with their own lakeside location is only in the low single-digit percentage range, which pushes up their price by a good quarter.

The difference is also striking when it comes to the fit-out standard: there is virtually no property in the luxury segment that does not have at least a good standard; 80% have very good fittings, which is two-and-half times more than the average. However, the existence of an outdoor pool does not increase the price of a luxury property; the future operating and maintenance costs are already priced in. In addition, historic buildings from the 19th century or older are two-and-half times more likely to be found in the luxury segment than the average. And they come at a price: for historic buildings, one should expect a price premium of around 9% compared with real estate built in the 20th century.

The municipalities of Wollerau and Zug have the lowest municipal and cantonal taxes in Switzerland for individuals with a very high income

In another league

Characteristics of luxury properties compared to average properties

Luxury property



350 m²

CHF 6 million

80%

43%

Average home



120 m²

CHF 1 million

31%

18%

Living space almost three times as large

Six times more expensive

Most with very good fit-out standard

Twice as common in very good micro-locations

The evaluation is based on 20 selected municipalities in the luxury segment for the years 2007 to 2018. No claim is made to completeness.
Source: UBS, Wüest Partner, SRED

(around 10% tax burden on gross annual income). They act as a magnet for people with high incomes and have stimulated the demand for luxury real estate. At around 20%, the income tax burden on the lower part of Lake Zurich is twice as high. The tax burden is even 25% around Geneva. However, the absolute level of the tax burden is often not decisive for the choice of residence. More important is the relative tax burden compared to other municipalities in the same canton: in the municipalities with many luxury properties, it is around 10% lower than the average for the respective cantons. The exceptions here are the cities of Zurich and Geneva, where long-established luxury quarters dominate the market.

Significant price correction: Causes in Switzerland ...

Transaction prices for luxury real estate reached dizzying heights by 2011. This was followed by a significant price correction until 2015, averaging one-quarter. As a result of it, sales were postponed and the number of transactions decreased by an estimated 33% between 2013 and 2015.

This price slump in the luxury segment was the result of real estate developers focusing too much on the construction of new luxury condominiums, which led to an oversupply, in addition to economic and political developments at home and abroad. The more restrictive capital adequacy requirements for mortgage lending since 2012 have reduced the number of potential buyers. The "lower" price segment is particularly affected by this, as the maximum loan-to-value ratio in this segment tends to be maxed out. In contrast, buyers of real estate at the top end of the price scale are likely to be less affected by regulations as they usually possess sufficient equity.

... and abroad

A significant proportion of Swiss luxury real estate buyers are foreign citizens, which is why economic and political matters abroad influence the local high-end market. On the one hand, the Swiss franc serves as a safe haven in times of crisis, which makes Swiss real estate investments more attractive. On the other, since the Swiss National Bank abandoned the euro–franc mini-

mum exchange rate in 2015, the strength of the franc has significantly increased the purchase price of real estate for buyers paying in foreign currency. Other factors include the British government's introduction of a stamp duty on second homes, which is reducing demand for Swiss real estate among UK buyers. With an above-average proportion of foreign real estate owners, the luxury real estate markets in the Geneva area and in the mountain communities are more exposed to events abroad than the main-residence communities in the Zurich area. They contributed markedly to the price slump observed in them.

Slow recovery with some question marks

The low point was reached in 2015 and the number of transactions and median prices recovered by last year. In particular, the prices of the most expensive properties rose faster than those of luxury properties at the lower end of the price spectrum. But price expectations are still excessively high in many places. Thus sellers have had to lower their expectations further: according to Luxury Places, the prices of properties sold in the Geneva area in the last two years have been 30% below those advertised.

This year, we expect the recovery in the Swiss luxury real estate market to continue, albeit at a moderate pace. Since 2012, the highest Swiss incomes have risen faster than the median income. In addition, the number of millionaires and their assets have increased since the financial crisis, and with them the demand for exclusive housing. These trends should continue in view of economic growth and support the demand for luxury real estate. Assuming that the Swiss franc depreciates slightly against the euro this year, foreign demand on the second home market should also remain stable.

Landlords under pressure

Sandra Wiedmer and Maciej Skoczek

Vacancies have been a feature of the retail space market for some time now. It's up to property owners to attract retailers with new marketing strategies. Demand for space in prestigious shopping districts remains comparatively high.

Falling returns have been worrying retail space investors for a few years. While the total return in 2011 was still over 8%, it was the lowest of all types of use in the real estate sector in 2017, at around 4.5%. Income returns have softened in recent years as rent income has dwindled; the Swiss average for supply rents for retail space has fallen by 8% since 2012. The corrections were much starker in major cities, at 20% in Bern and Geneva and 15% in Zurich. Also this year we see asking rents declining at the national average. A fall in discount rates and thus capital gains appear unlikely given the higher rental risks and slight uptick in interest rates. All told, we expect total returns to hold steady at around 4.0%.

Taking new approaches to boost the appeal of properties

The current challenging environment in the retail space market is attributable to excessive expansion and the increasing shift in retail sales toward online trading. As vacancies reduce the attractiveness of locations in the eyes of current and potential tenants as well as their customers, it is crucial to address them. Lower rents can eliminate vacancies, but they come with two drawbacks for landlords: with a reduction in rental income, the value of the property also falls. Hence other strategies are needed.

More flexibility in space design and contract terms

To stay competitive, landlords have to modernize their retail properties on an ongoing basis. They also have to offer as much flexibility as possible. This is because tenants are increasingly demanding areas that can be dynamically designed and partitioned and that can be adapted to changes in business conditions. Landlords can attract

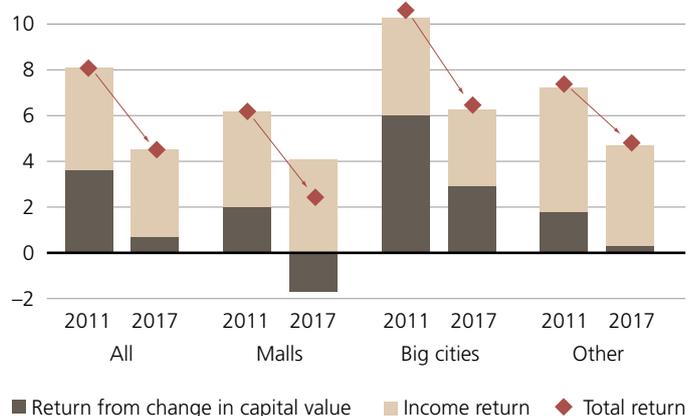
more business by offering flexible lease terms, including shorter contract terms, rent-free periods, contributions to tenant improvement costs and incremental rent increases as tenants become more established. But all these strategies entail costs for the landlord and thus reduce profitability at least in the short term.

Showrooms: A valuable addition

Renting out retail space for showrooms can be a successful strategy in response to mushrooming e-commerce. Showrooms bring the online and offline worlds together. Former pure-play e-tailers can present their products in an offline setting and raise their brand profile by maintaining a physical presence in downtown areas. Unlike online shops, showrooms offer one-on-one sales assistance with the option of direct-to-home

Falling returns on the retail space market

By region and type, in %



Source: MSCI, UBS

delivery. This approach has been particularly popular in the IT and home furnishing sectors. The luxury goods industry will likely follow suit by supplementing their current retail space with showrooms. Tourists are another growing market thanks to the ability to directly ship goods abroad.

Look before you lease

Owners of retail space should consider the sustainability of their tenants' business models. Are customers being won through online channels and then lured into the store? Are customers given personal, professional service that can't be replicated online? Landlords should look into whether prospective tenants can handle the challenges of bricks-and-mortar retailing.

Attractive site design

The most important pillar of a long-term site program is the creation of an attractive consumer experience. A varied, diverse mix of businesses, augmented by distinctive popup stores, restaurants and recreational areas, holds lasting appeal for customers. It helps if tenants and landlords can collaborate on strategies for revitalizing shopping streets. St. Gallen and Lucerne have even brought in external city managers to coordinate and align site development with a standard set of principles and actively address vacancies via joint events, leisure spaces and longer, standardized opening hours.

Shopping centers

Falling space productivity

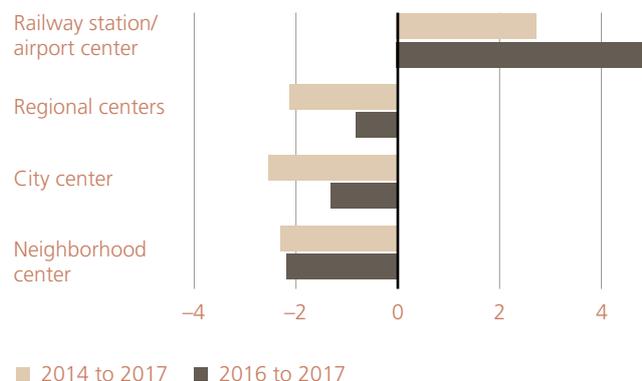
Shopping centers account for nearly 20% of total retail sales in Switzerland. While shopping center sales in 2017 were the highest they had been since the euro/franc exchange rate floor was abandoned in January 2015, they were still down 1.1% from that peak. Space productivity (sales per square meter) also declined another 0.8%, putting it 2.2% below 2015 levels. Only one-third of shopping centers reported stagnant or positive space productivity, which was highest for shopping centers at train stations and at Zurich Airport. They benefit from central locations, large volumes of foot traffic and long opening hours.

Sluggish investment

On average, Switzerland has built four shopping centers totalling over 5,000 square meters each year since 1970. But no new shopping centers were built in 2016 or 2018. The only projects slated to open in 2019 and 2020 are The Circle at Zurich Airport and Mattenhof in Lucerne. The slump in new construction is likely giving the market a much-needed break.

Commuter flows contribute to higher surface area productivity

Change in sales in CHF/m², annualized in %



Source: GfK, UBS



Shopping center Rosenberg, Winterthur | Keystone/Gaetan Bally

“The demand for prestigious addresses remains high as they offer considerable customer potential for brick-and-mortar stores.”

Changing tenants on the high street

Prime rents fell around 10% in Zurich and a good 15% in Geneva between 2015 and 2017. Despite the cuts, many longstanding tenants still had to vacate their shops for business reasons. Demand for prestigious locations remains strong nonetheless due to their huge potential for attracting customers. According to PwC, the shopping districts of Zurich, Bern, Basel and

Geneva each receive over 50,000 pedestrians per day. In addition, a rising tide of tourists will likely boost retailers' revenues and increase their willingness to pay top dollar for prime locations. This trend is already playing out. Asking rents for space at prime locations in Zurich and Geneva have recovered somewhat since mid-2017 and recorded an increase of around 4%.

Better outlook

Matthias Holzhey

Demand for office space should strengthen considerably this year and ease the glut, pushing up market rents in isolated cases. The recovery will be the most obvious in the office markets in large cities. The Geneva market still lags behind.

Real estate portfolio figures don't lie. Office space has returned just under 5% on average over the past five years, as capital value gains have only been 0.8% per year. In view of the further significant drop in interest rates since 2013, this is very little, as residential real estate recorded gains of 3.3% in the same period. Luckily, the market has troughed. After scraping bottom in 2016, total returns of office portfolios have recovered significantly and will likely carry this momentum into the current year.

The number of employees in the office sectors rose by around 2% last year, and with it the demand for office space. The finance, information and communications technology, business services and administration fields created a total of around 26,000 jobs within a year. This is 50% more than the average of the past five years. At the same time, total office space offered in the market remained stable year-on-year (availability rate of 6.8%). The actual number of advertised units even dropped in most large cities. Availability rates did rise in medium-sized cities such as Lucerne, Winterthur and Lugano, however.

Construction boom loses steam

Comparing employment trends with annual construction permits granted for office space enables estimates to be made about the future ratio between supply and demand. The number of building permits requested and granted in 2018 was below the average from the preceding three years. New construction of office space will likely soften to around 1% of total office stock. The actual increase in supply will likely be somewhat higher, as previously approved projects exit the development pipeline and enter the market. Nonetheless, additional demand for office space

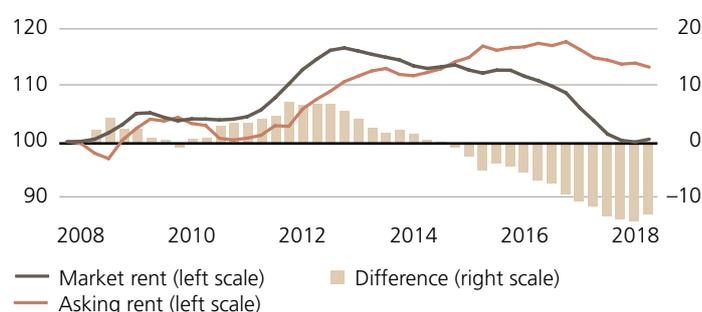
will probably outstrip the supply increases. So we expect vacancies to decline this year.

Market rents pick up

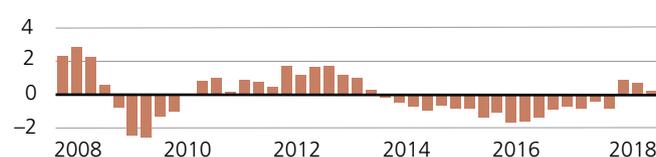
Office space asking rents may have fallen by between 1% and 2% last year, but they are still 10% higher than they were five years ago. They are lagging behind market trends, however, as they do not (yet) contain large discounts on advertised rents in the form of rent-free periods or contributions to tenant improvement costs.

Significant decline in market rents

Asking rents and market rents, index 2008 = 100; difference in index points



Employment growth for office workers, deviation from 10-year average (1.7%), in percentage points



Source: Wüest Partner, FPPE, FSO, UBS

That means asking rents will likely fall even more this year.

Market rents for new buildings have been decoupling from asking rents since 2015 and declined nearly 15% in 2017. Last year, however, they posted a slight recovery that appears likely to continue. Prime rents for office space in Zurich and Geneva also trended upward slightly. But renewals of expiring leases have led to declining rents in some cases.

Subprime locations will likely benefit

The outlook for office space investments improved significantly last year, but prime returns are still declining and likely have no short-term upside despite individual increases in market rents. They average 2.5% in Zurich and Geneva. There is room for office real estate prices to increase in the metro periphery though. Office properties in subprime locations were sold at substantial discounts to speed up the marketing process, which can sometimes be rather protracted. These prices will likely pick up with a sustained employment boom, though.

From a portfolio perspective, office space is expected to generate the highest total return of all real estate segments this year. Not only do its valuations have more upside due to rising demand for office space, but retail and residential space will likely underperform compared to previous years.

Regional analysis:

Market recovery in the cities

Employment in the office sectors in the cantons of Central Switzerland, Geneva, Vaud and Basel has probably risen by 4% – 5% since 2016. Employment growth in the canton of Zurich lags at around 3%.

Geneva is the only market where office space planning has outstripped effective demand since 2015. Supply and demand were balanced in the cantons of Basel and Ticino while demand increased stronger in Lausanne, Zurich and Central Switzerland, helping to reduce the

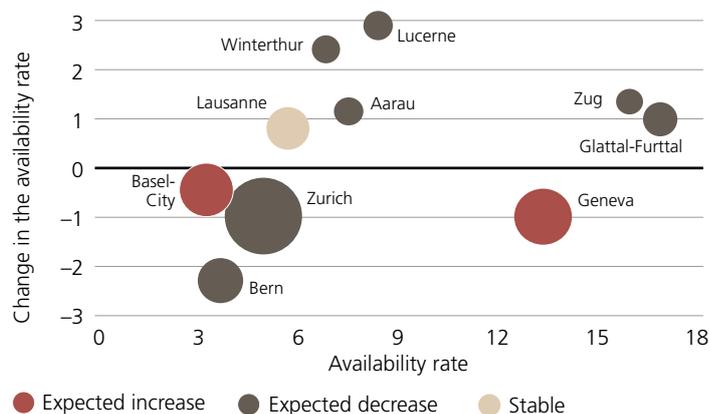
excess supply that had built up over the years. This trend has largely benefited prime central locations; vacancies in the metro periphery have not fallen (yet). The supply surplus was particularly large in the Zurich airport region.

The official vacancy counts of the municipal statistical offices also show a robust office market in the centers. The vacancy rates in Basel, Bern and Zurich fell slightly year-on-year to a good 2%. Vacant space declined for the fourth consecutive year in Zurich to reach the historic low set in 2012.

The main outlier is Geneva, where vacant space increased 40%, or nearly 70,000 square meters within a year and the vacancy rate is pushing 5%. The supply expansion stems from the ongoing construction of large projects, meaning that the situation is not likely to improve any time soon. The Pont Rouge and Quartier de L'Étang projects alone will bring around 250,000 square meters of more office space onto the market by 2023.

Split market

Availability rates (3Q 2018), percentage change from previous year and expected change (2019); circle size represents market size (gross floor area)



Source: Wüest Partner, UBS

Space efficiency: The measure of all things

The origins of the “office” stretch back to medieval Christian monasteries, where scribes were a permanent fixture of monastery life. Books were written in special rooms called “scriptoria.” In English, the term stems from the Latin “officium,” referring to a formal position or a staff of administrators. In languages such as German and French, however, the words “Büro” and “bureau” hark back to the “burra,” a piece of protective felt placed under valuable books in the scriptorium. Work in the “bureau,” often the only heated room in the monastery, was undoubtedly much sought after, especially in winter.

For a long time, offices were not separate rooms but were merely desks – known as “bureaus” – located in the workshop. It wasn’t until the industrial revolution that office properties per se began to be built as more clerical work was needed to cope with growing commercial links and increasingly complex production processes. The term has referred to the actual work room ever since. Improvements in construction and the introduction of electric lighting at the end of the 19th century allowed office floorplans to be customized and encouraged the construction of open-plan offices.

Simple office tasks increasingly came to resemble assembly line work in factories and were performed under strict supervision. Office workers had to make do with around three to four square meters per person, while managers had offices to themselves. The quality of work done in open-plan offices improved steadily in subsequent decades. One of the highlights of this era

was the “office landscape,” an early form of the open-plan office developed by Eberhard and Wolfgang Schnelle. This open space was designed to foster team spirit and interaction among employees. In the US, Robert Propst’s Action Office supported knowledge workers with height-adjustable desks and greater privacy provided by partition walls. However, the concept didn’t gain traction until a stripped-down version, Action Office 2, arrived at the start of the 1980s with inexpensive standardized furniture and cubicle partitions. As time went on, though, the disadvantages of relentlessly focusing on cost and space efficiency became ever harder to ignore. Noise and lack of privacy made office workers more distracted and unproductive. Some may have even wished for the return of the medieval scriptorium.

The tides have shifted in the past 10 years. The battle for specialists, the retention of talents in the company and ergonomic aspects have gained in importance. Today, office designers recommend natural light, minimal background noise, sufficient privacy and an appealing design concept as the keys to a good work environment. Major co-working firms try to win business with good design. However, their sophisticated marketing hides a stark reality: nothing has really changed. If you ignore the couch seating groups and casual coffee bars, they still give employees only six square meters of space each – far less than the office average of 10 to 15 square meters per person. Clearly, space efficiency remains the measure of all things in office space design.

Attractive alternative

Katharina Hofer and Thomas Veraguth

Industries that demand industrial space have increased productivity since the turn of the millennium as payrolls declined. Solid growth prospects currently support demand for industrial space. But growth potential depends on the regional mix of industries.

Industrial properties¹ are fairly illiquid and so are less likely to be viewed as investments than other types of real estate. Due to the illiquidity premium, the income return for these types of properties was an annualized 5.5% between 2006 and 2017 – higher than the 4.2% average for all Swiss real estate segments. But declines in market value reduced the total return by 0.1% a year, while the capital value return across all market segments stood at around 2% a year. In the end, the total return was thus lower for industrial properties than for the other segments, largely due to the sectoral shift from a manufacturing to a service-based economy. However, more and more investors are now looking at profitable industrial properties as capitalization rates for residential, retail and office space plummet. We expect a relatively high total return of 5% to 6% this year.

From owning to renting

Swiss industrial properties are estimated to be worth around CHF 480bn² as a whole. Very few are bought and sold on the open market, though. Manufacturers traditionally own their production sites and build factories specifically tailored to their needs and production processes. The larger the company, the more likely it is to own its real estate. That sets industrial properties apart from segments such as retail or office space, which have far less specific space requirements. This manufacturer-owner model works and so will be with us for some time to come. But separation of ownership and occupancy is attracting adherents in the industrial property market. Rental space accounted for 17% of newly built industrial space last year,

according to Wüest Partner, and its share is steadily growing. Administration, research and development are being attached to production sites with growing frequency, so prospective tenants of industrial space are increasingly demanding mixed-use properties with offices.

Renting out industrial space can be challenging. The space has to meet the tenant's needs as much as possible without being too tailored to a particular occupant. High ceilings can broaden the universe of prospective tenants and counteract vacancies. Flexible floor plans with movable walls can help, too, by allowing space to be customized. Good transportation links are also essential, especially for logistics sites. Finally, the properties have to be able to bear tremendous weight, which rules out many sites.

¹ Industries are considered relevant for industrial properties if they operate in the secondary sector and belong to the industries "wholesale and retail trade, repair of motor vehicles and motorcycles," "wholesale" and "transportation and storage," as these terms are defined by the Federal Statistical Office.

² Based on a capitalization rate of 6.5%.

Rent income relatively low

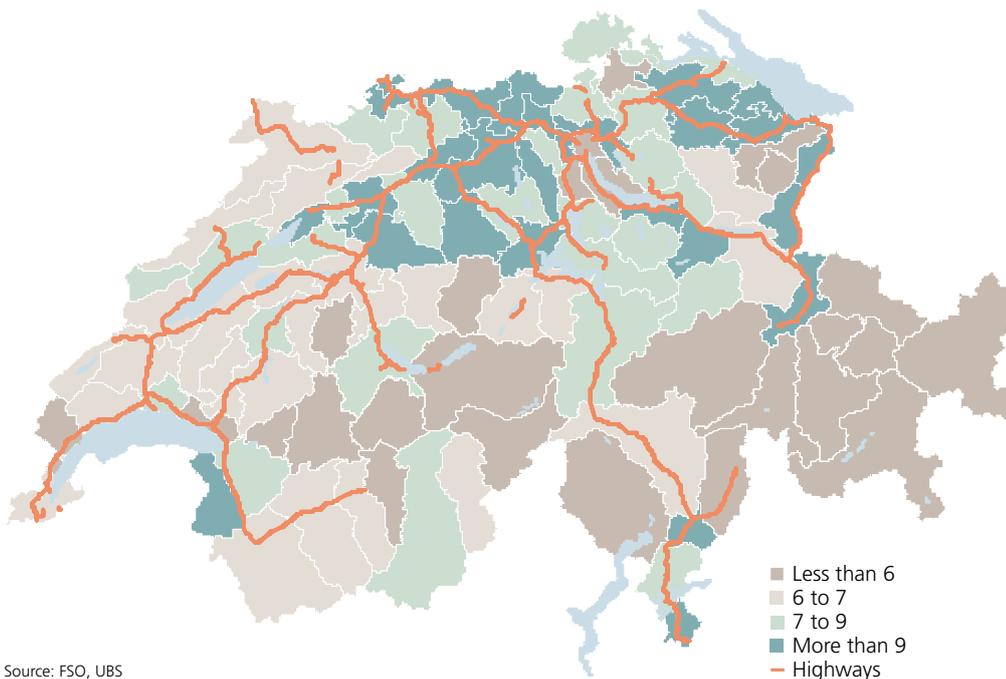
Swiss industrial properties are estimated to make up around 240 million square meters of space, or around seven times the amount of retail space available in the country. A high percentage of Aargau and parts of Eastern Switzerland consists of industrial space. Last year, the record for the most expensive industrial space was handily won by the canton of Geneva, where properties at average micro-locations went for around CHF 285 per square meter, according to Fahrländer Partner. Rents were high in Vaud, Basel-City and Zurich as well. The cheapest industrial sites in 2018 were clustered in Jura and the mountainous cantons, where rents were less than CHF 140 per square meter. Since the Swiss average square meter price is around CHF 164, income from industrial space is relatively low compared to retail space (CHF 210), rental apartments (CHF 191) and offices (CHF 195), according to Wüest Partner.

High productivity provides certainty for landlords

Landlords of industrial properties depend on their tenants' ability to generate value – and thus on the mix of industries in their region. A full-time employee in wood product manufacturing, for example, generates around CHF 90,000 in gross value annually. The same worker would generate double that amount in the automotive industry and eight times as much in pharmaceutical production. The most productive industrial sites in Switzerland, as measured by gross value added per unit area, lie in the regions with the most productive industries: the urban centers of Basel-City, Zurich, Zug and Geneva. Industrial space is more productive than average along Lake Geneva, in Neuchâtel, in the environs of Zurich, Schaffhausen and the Lugano region.

Industrial areas frequently along main traffic routes

Industrial land as a percentage of settlement area per economic region



Source: FSO, UBS

Potential of brownfield sites uncertain

Between 1985 and 2009, industrial space grew roughly one-third to make up around 8% of total settlement area. New properties were built on grassland or farmland. This trend was fueled by growing goods and traffic flows along major traffic arteries. Industrial estates located elsewhere began to disappear, though. Structural changes and rising land prices in cities eventually pushed space-intensive industries out of urban areas. They either learned to live with less space or relocated to the periphery.

At the same time, the most productive space has the highest “employment density,” i.e. it has the lowest area per full-time equivalent (FTE). This is no surprise. Space is scarce in urban centers and so needs to be used efficiently. Also, high rents and land prices provide strong incentives to make the most out of tight quarters. As a result, only the most productive industries with the lowest space needs remain in urban regions. Tenants who need more space per employee are better served by peripheral regions with less productive space, such as Central Switzerland or parts of the mountainous cantons.

Greatest growth potential in border regions

Demand for industrial space is driven by sector growth prospects. Of all the sectors that require industrial space, growth prospects are best for chemical and pharmaceutical manufacturing, electronics, watchmaking and machinery construction. Employees in these industries are most concentrated (on an FTE basis) in the Jura Arc, the two Basel cantons, Schaffhausen and portions of Eastern Switzerland. The outlook is less rosy for most of the mountainous cantons.

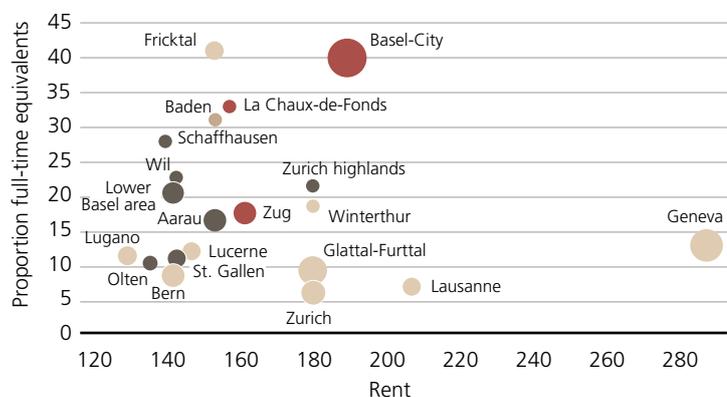
However, the regional industries are diversified enough to prevent demand for industrial space from being completely reliant on only a few

Nearly one-quarter of all former industrial properties were converted to residential use between 1985 and 2009 as strong population growth increased demand for housing. Around one-third of the industrial properties shuttered during this period remain unused. But these brownfield sites, which generally suffer from unfavorable locations, do not necessarily compete with new industrial properties. After all, brownfield development often faces clean-up requirements and stricter environmental regulations, resulting in unknown costs and unpredictable risks.

industries. Several regions of Western Switzerland, for example, are disproportionately specialized in watchmaking. Also, poor accessibility in remote areas limits the potential of certain sites to attract fast-growing industries looking for industrial space.

Northern and Eastern Switzerland with high growth potential

Share of employees in growth industries in total of all employees in industrial segment in full-time equivalents, in %, per economic region as well as average rents for industrial space, per canton, in CHF/m²; size of circle corresponds to gross added value per economic region in 2016



Diversification industrial sectors: ● high ● medium ● low

Source: FSO, Fahrländer Partner, UBS

Shelter from the storm

Maciej Skoczek

Last year's negative performance of real estate funds was not fundamentally justified. Rising vacancy rates are having a greater impact on the overall market than on real estate funds. Solid portfolios mean distribution yields should be stable this year as well.

Swiss real estate funds did not fare well last year. The total return was above the equity market but below the bond market. While their distribution yield declined slightly, the price return of minus 8% was chiefly responsible for their negative performance.

There were several reasons why the price return fell below zero for the first time since 2013. Listed real estate funds issued new shares and conducted capital increases for approximately a billion francs, which can dilute distribution yields when new purchases are expensive. In addition, investors are worried about a slowdown in Swiss

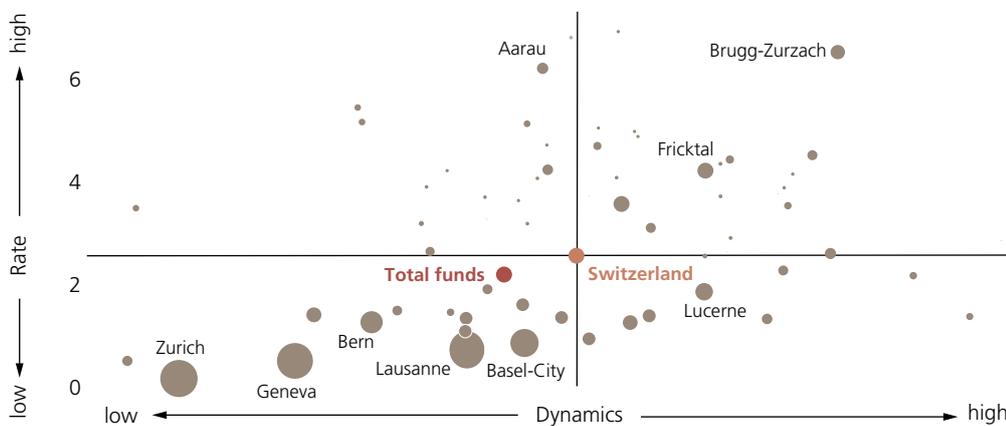
economic growth, whether triggered by European economic slump, a global trade war or political differences between Switzerland and the EU. Expectations of rising interest rates also hurt real estate funds. As a result, investors' willingness to pay for them declined and agios fell to a low of 16%.

Not a reflection of the overall market

The drop in price was a sign of diminished investor confidence in real estate funds. Purchase and sales decisions were guided, at least in part, by downbeat economic headlines that focused on the overall real estate market. Real estate funds

Funds keep their apartments in good and very good locations

Share of all apartments in fund ownership divided according to the 2018 vacancy rate for rented apartments and expected vacancy dynamics*; circle size corresponds to number of apartments



*The vacancy dynamic is made up of the change in the vacancy rate and the supply rate over the last three years as well as the expected absorption of new apartments.

Sources: Annual reports of various funds, FSO, Documedia, UBS; not exhaustive.



"The Circle" construction site at Zurich Airport | Keystone/Alexandra Wey

are obviously not immune to trends in it. But conditions as a whole don't necessarily apply to fund-owned real estate.

Not overpriced despite lower distribution yields

The average distribution yield of real estate funds, still around 3.5% 10 years ago, had fallen to roughly 2.6% by last year. It is currently less than the Swiss Market Index dividend of nearly 3.4% but still double the coupon yield on Swiss bonds.

Fund-owned real estate increased significantly in value over the same period, unavoidably lowering distribution yields. The fall in yields nevertheless remained relatively modest, as the real estate funds managed to effect outsize increases in both rent income and total distributions. We expect distributions and returns to remain stable this year.

Less affected by apartment vacancies

Nearly two-thirds of all the apartments owned by the funds were in regions with vacancy rates below the overall housing market average. Apartments owned by funds also tend to be located in regions where vacancies are likely to increase less this year than in the country as a whole. Moreover, only one-fifth of fund-owned apartments are in areas where vacancies are above average and expected to rise markedly

further. Percentage collection losses should therefore be much lower for the funds than the broader market.

Decline in rent income not inevitable

The vacancy rate in the rental apartment market was 2.7% at the end of the year. Since population growth has slackened in recent quarters while construction activity has remained high, the rate will probably climb. But there are signs of a gradual trend reversal. Net immigration has risen slightly again since the middle of last year. In addition, the number of construction permit applications submitted last year was 10% lower than the annual average since 2011. These developments should slow the increase in vacancies for now.

Rising vacancies are putting pressure on asking rents (rents for lease renewals, new leases and new properties). But changes in vacancy rates hardly affect existing rents (rents for ongoing leases), which constitute the bulk of real estate funds' rental income. In addition, existing rents are still 10% to 15% below market rents, especially in large cities and metro areas. Changes in tenants, in other words, are good opportunities to align rents with the market and thus boost rent revenue.

Business space benefits from economic growth
Vacancies and collection losses are higher in the business space market than the housing segment. But the vibrant economy fueled strong employment growth last year. We expect economic growth to be solid this year as well, enabling another increase in headcounts and powering demand for office space. Real estate funds that specialize in business space will likely take in more rental income from commercial properties overall.

Stable property values for the current year

This year, we expect price returns on real estate funds to improve slightly for three reasons. First,

the underlying discount rates will not go up right away despite the expected slight increase in interest rates. This will keep valuations from declining. Second, investors will likely take account of the improved situation in the office space market and the gradual stabilization of the housing market, which should stabilize risk premiums. Share premiums will probably increase slightly, enhancing price performance. Third, after several quarters of capital increases, there should be fewer new issues that lower yields in the current year. This ought to shore up prices of real estate fund shares.

Key figures of the largest listed Swiss real estate funds

Funds with a market capitalization of at least CHF 1 billion as of 31 December 2018; unless otherwise stated, all figures are in %

Typ/Name	Market shares ¹	Sector	Region	Estimated premium	Distribution yield	Rent loss rate ²	Discount rate (nominal) ²	Debt financing ratio ²	Total return ¹	
									1 year	5 years ³
UBS Sima	20.5	Mixed	German CH	19.7	3.0	5.1	3.3	22.0	-4.7	2.6
CS Siat	7.6	Mixed	German CH	21.6	3.0	4.2	3.7	13.0	-11.7	3.1
CS Livingplus	6.8	Residential	German CH	20.2	2.6	5.4	3.8	19.7	-9.6	0.9
CS Green Property	6.4	Commercial	German CH	13.8	2.8	4.9	3.6	16.7	-5.9	3.2
UBS Anfos	5.9	Residential	German CH	16.8	2.8	5.4	3.5	15.5	-2.6	1.7
UBS Swissreal	4.3	Commercial	German CH	9.7	3.9	3.7	4.2	22.9	-5.3	1.4
CS Interswiss	4.2	Commercial	Diversified	-2.7	4.6	6.6	4.0	26.3	-10.6	-0.6
Swisscanto IFCA	3.7	Residential	Diversified	17.5	2.6	5.3	4.0	19.7	-9.4	2.5
Immofonds	3.6	Residential	German CH	27.4	3.3	5.0	4.1	22.3	-7.6	2.5
Schroder Immoplus	3.6	Commercial	German CH	11.5	3.0	2.8	4.4	18.4	-10.8	3.9
La Fonciere	3.5	Residential	French CH	33.3	1.9	1.0	4.6	19.7	-5.8	4.7
UBS Foncipars	3.3	Residential	French CH	19.4	2.7	5.5	3.7	20.1	-8.0	4.0
Fonds Immobilier Romand	3.1	Residential	French CH	26.3	2.2	2.2	4.0	8.6	-3.5	4.8

¹ on 31 December 2018 ² last available value ³ annualized

This table is a reference list and does not constitute a recommended list.

Source: Annual and semi-annual reports of various Swiss listed real estate funds, Bloomberg, UBS as of 31 December 2018

Higher costs, less growth

Stefan R. Meyer

More companies are clawing back management of every stage of the value chain in a bid to boost net asset values and dividends. The shift has strengthened value preservation and driven moderate growth. Maintaining dividend sustainability remains key.

Swiss real estate equities fell slightly last year, with an interim low in February, an annual high in May and a low in October. Respectable distribution yields salvaged the overall flat total return. The best performer was PSP Swiss Property. The patchy year does not change the long-term trend: real estate equities have handily outperformed the overall equity market since the real estate segment of the Swiss stock market was established shortly after the turn of the millennium.

Valuation gains lower, but more important

Since construction activity remains high and net immigration has lost momentum, vacancies have risen in the overall property market, particularly in certain real estate segments and peripheral locations. This has put a lid on price increases, meaning that real estate companies have been booking fewer capital gains. Only the project business still has any real potential, and most big companies are actively leveraging it. Good locations and high pre-leasing rates are growing in importance; without them, capital gains are quickly replaced by high vacancy rates, collection losses and downward price pressure in the neighborhood.

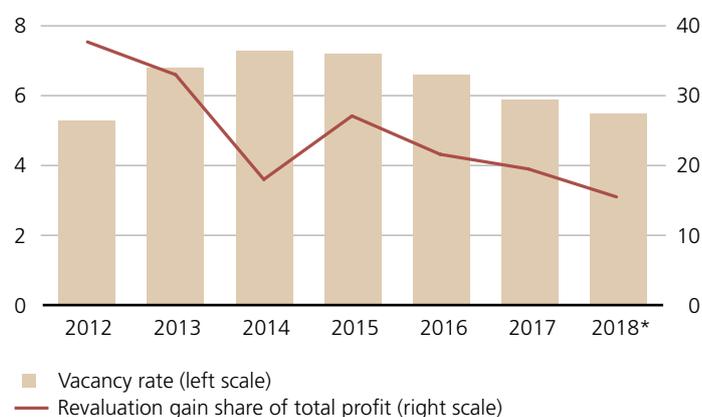
Capital gains, which still made up 38% of cumulative corporate earnings in 2012, had halved to a mere 19% by 2017. According to our estimates, the figure was still 15% last year, with a downward trend in the current year. Capital gains will not disappear entirely, though, since the large real estate corporations have a high-quality pipeline of development projects. Swiss Prime Site and PSP Swiss Property each have nearly CHF 2bn in investment planned for

the years ahead. Zurich Airport is continuing to work on “The Circle,” its billion-franc project due to open next year. Allreal, Mobimo and Zug Estates have significant development plans in the works as well.

Capital gains will continue to decline for the industry as a whole but, paradoxically, have become even more crucial to continued rises in net asset value than in previous years. Why? Because rent and property value increases no longer fall into investors’ laps but now demand hard work. Today, the only way to boost rental

Vacancy rate and revaluation gains decline

Average values of the surveyed companies, in %



* Consensus estimate

Source: Company reports of SPS, Zurich Airport, PSP, Allreal, Mobimo, Zug Estates, Intershop, HIAG, Investis; UBS, as of 14 November 2018

income from existing properties is generally through investment. This can range from building modernizations to site improvements or even entirely new projects. At Allreal, this also includes general contracting, which equally manages its own and third-party projects in the medium term and generates margins as a further link in the development value chain of a property.

Vacancies continue to decline

Leasing activities are gaining importance, too. Profits increasingly depend on customer intimacy, solution flexibility and innovativeness, environmental responsibility and process efficiency. It's no surprise, then, that companies are taking back control of these issues and providing these services to more and more third parties. Allreal, for example, has taken over technical facility maintenance again, while Investis has made acquisitions to strengthen its services arm, particularly for custodial services. Swiss Prime Site, for its part, remains the market leader in property management.

Focusing more on active management and customer service is paying off. Despite the generally challenging market environment, real estate companies have seen further declines in vacancies for their properties. The decreases were probably particularly strong last year for PSP Swiss Property, Investis, Swiss Prime Site and Allreal (in that order). The average vacancy rate at the nine companies we cover likely fell to 5.5% last year after hitting 5.9% in 2017 and 7.3% in 2014.

Lower interest costs outweigh long durations

Interest rates have not fallen any further, but real estate companies' average interest costs declined nonetheless, albeit by only a small amount. In 2017, the nine real estate companies that we analyze paid an average of 1.4% on their debt, versus 2.0% in 2014. Their borrowing costs likely fell a little farther last year to slightly under 1.4%. Swiss Prime Site, PSP Swiss Property, HIAG Immobilien, Zug Estates and Investis probably benefited the most from cheaper lending terms. The other four likely saw little to no change in their interest rates.

Potential in Zurich and Western Switzerland

Location is essential, especially in a challenging property market environment. Central locations that can evolve into new centers are particularly sought after and can maintain or even increase in value. Real estate companies are focusing the most attention on the Zurich region. Geneva, for its part, is undergoing a kind of transition. This change has opened up new opportunities that Swiss Prime Site and PSP Swiss Property have been particularly diligent about pursuing. The canton of Geneva is Investis' home market and contains nearly two-thirds of its buildings. Mobimo's main region is in and around Lausanne, with attractive central site projects in Biel and Lucerne.

What's even more interesting is the fact that, as of mid-2018, Allreal was the only company to extend the average term of its financial liabilities. It was 4.1 years at the end of 2017 and 4.4 years six months later. Mobimo, for its part, has locked in interest rates for the longest period of time: 6.0 years on average. The average time to maturity for the nine companies was 4.5 years in mid-2018, as opposed to 5.1 years at the end of 2015. While market rates have since begun to trend moderately upward, the industry doesn't expect any major shifts in interest rates and so sees no need to secure low rates for longer periods of time. Remaining lease terms average four to seven years, which is longer than the average time to debt maturity. This is a scenario that calls for slightly longer-term liabilities. However, we don't view this maturity mismatch as a big risk since Swiss interest rates appear unlikely to rise quickly. Nonetheless, we expect the companies to moderately increase average times to maturity again when they refinance maturing debt.

Prefer the most attractive dividend payers

The Swiss economy is still growing but more slowly. Interest rates are rising modestly; net immigration remains moderate. In this environment, we expect a continuation of the trends we have described. The upside for real estate equity prices is modest. Distribution yields, on the other hand, remain attractive and sustainable.

We recommend looking for real estate equities with reasonable valuations, i.e. shares with excessive premiums to net asset value should be avoided. We also prefer companies with attractive dividend yields that can maintain and slightly improve their net asset value per share – and thus their dividends – by engaging in carefully planned development projects.

Key financials for the largest listed Swiss real estate equities

Unless otherwise stated, all figures are in %

	SPS	Flughafen Zürich	PSP	Allreal	Mobimo	Zug Estates	Inter-shop	HIAG	Investis
Market capitalization¹	6258	5308	4532	2508	1509	1084	975	946	760
Vacancy rate									
2016	6.7	1.5	8.5	7.5	4.7	5.4	11.5	16.0	3.3
2017	6.1	2.0	9.3	5.1	4.8	1.8	11.3	15.3	3.7
2018 ²	<5	1.4 ³	~5	2 ³	5.1 ³	1.9 ³	~11	<16 ³	2.5 ³
Dividend growth									
2012–2017	1.1	27.9	1.2	2.6	2.1	11.2	1.9	–	–
2017–2020 ⁴	0.0	–1.0	1.4	2.3	2.1	8.4	0.0	2.1	2.1
Pay-out ratio									
Dividend policy ²	≥ CHF 3.80	35–45 ⁶	>70	~100 ⁷	≥ CHF 10	≤ 40	≥ CHF 22	4 ⁸ ≥ CHF 2.35	
2017	110	64	87	88	68	33	73	95	78
2018 ⁴	95	74	88	87	90	47	78	92	77
Average 2012–17	97	56	89	82	86	40	74	105 ⁵	–
Dividend yield									
2019 ⁴	4.6	3.9	3.5	4.1	4.4	1.7	4.5	3.3	4.0
2020 ⁴	4.6	4.0	3.5	4.2	4.5	1.8	4.5	3.4	4.2
Equity ratio³	41	55	53	49	44	55	44	52	41

¹ In million CHF as of 14 November 2018 ² According to company sources ³ As of the 1H18 ⁴ Consensus forecasts as of 14 November 2018
⁵ 2014–2017 ⁶ plus current special dividend ⁷ of the profit excluding general contractor ⁸ as a percentage of net asset value

This table is a reference list and does not constitute a recommended list.

Source: companies, UBS; as of 14 November 2018

Warning signals on the rise

Matthias Holzhey and Maciej Skoczek

Hong Kong won the crown as the most overvalued housing market last year. The Swiss cities of Zurich and Geneva were moderately overvalued. In many of the world's cities, declining economic viability is cutting into their attractiveness and growth potential.

Real home prices in the cities surveyed increased 3.5% on average last year. Price growth rates slowed considerably from previous years but still remained above their 10-year average. Home valuations continued to soar in the Eurozone's large business centers and in Hong Kong and Vancouver. But cracks are starting to appear in the foundations: last year, prices fell in half the cities that had been in the bubble risk zone in the 2017 *UBS Global Real Estate Bubble Index*.

This significantly broadened the range of valuations found in housing markets. The risk of a real estate bubble shot up in Munich, Amsterdam and Hong Kong; valuations climbed further in Vancouver, San Francisco and Frankfurt as well. In contrast, imbalances shrank compared to 2017 levels in around one-third of the housing markets surveyed, including London, New York and Toronto.

Real estate boom as far as the eye can see

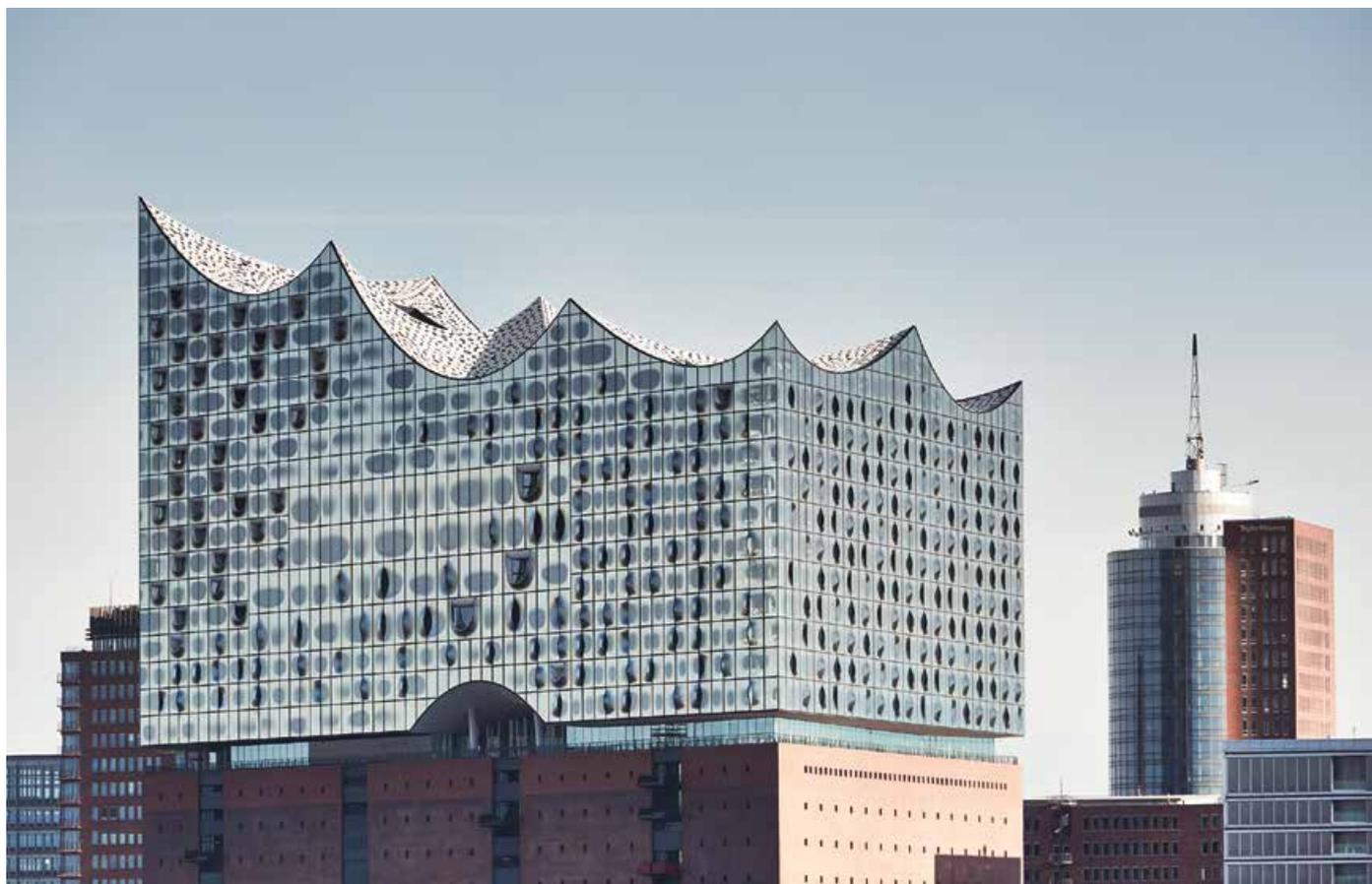
Home prices have risen 35% in the world's most important financial centers over the past five years. This is an average value, though; prices in San Francisco, Vancouver and Munich rose at more than double that pace. While the housing boom has not been extraordinarily strong, historically speaking, it has been very broad-based. At the start of 2017, prices rose in virtually all the cities under review – a trend not seen in recent decades outside of the late 1980s or the run-up to the 2008 financial crisis. So what's behind the expansiveness of this boom? There are three main reasons. First, housing markets worldwide are awash in cheap finance. Second, large cities have benefited

Residential property prices rose in almost all cities

Growth rates of inflation-adjusted prices, annualized in %



Source: UBS



Elbphilharmonie, Hamburg | Keystone/Thomas Ebert

“Few households can still afford apartments in the centers.”

from the growing importance of the digital economy and ongoing urbanization trends. And third, the hunt for yield has channeled a swelling river of investment capital from wealthy households into urban apartments.

Despite the sheer breadth of the boom, the price growth rates of individual cities don't seem to be accelerating or decelerating together in any meaningful pattern. In the past, home prices only moved in sync during crises. The reason is clear: virtually all the price corrections of the past 40 years were triggered by worldwide rises in interest rates. Price increases, in contrast, have gained momentum thanks to factors specific to each city, including local economic viability, tax policies or land-use planning – all important elements for the medium term.

Economic viability crisis hurts long-term prospects

Imbalances in urban housing markets have increased largely because home prices have

become decoupled from local incomes and average prices in each country. Few households can still afford apartments in city centers; even renting swallows up a large share of household income. A lack of economic viability has made cities less attractive and thus hurt long-term growth prospects.

This is giving rise to an increasing number of political reactions. Possible measures range from tax hikes on vacant apartments, to stamp duties on transactions to restrictions on mortgage lending. Others include rent controls and subsidies for first-time home buyers. However, market interventions represent one of the largest sources of risk, particularly in speculative, overheated markets, since they can trigger (excessively) sharp price corrections at the peak of a real estate cycle.

Limited risk for the overall economy

Unlike the boom phases of the late 1980s and the lead-in to the 2008 financial crisis, there are few indications of irrationally exuberant mort-

gage lending and excessive new housing construction. Mortgage volumes are rising at barely half the rate they did in the years prior to the financial crisis. The negative impact of a home price correction on the overall economy should thus remain fairly modest. As an additional mitigating factor, the most overvalued housing markets are not likely to see further real estate gains, at least for the medium to long term.

UBS Global Real Estate Bubble Index

The largest bubble risk in the housing market is in Hong Kong, followed by Munich, Toronto, Vancouver, Amsterdam and London. Considerable price imbalances can be seen in Stockholm, Paris, San Francisco, Frankfurt and Sydney. Zurich, Geneva, Los Angeles, Tokyo and New York have high valuations. The housing markets in Boston, Singapore and Milan, in contrast, are fairly valued while Chicago's market is undervalued.

Price bubbles are a regular occurrence in property markets. The term "bubble" describes significant and persistent asset mispricing. Bubbles can only be identified after they have burst. However, property market excesses show repeating patterns in historical data. Typical signs include a decoupling of prices from local incomes and home rents, as well as distortions of the real economy, such as excessive lending and construction activity. The *UBS Global Real Estate Bubble Index* uses the presence of such patterns to measure the risk of a real estate bubble.

Index scores for the housing markets of select cities



Source: UBS

Beware of value traps

Sandra Wiedmer and Thomas Veraguth

The global real estate cycle is well advanced, with high property prices and correspondingly low initial returns. Stock prices of listed real estate companies have stagnated for four years. They are now relatively cheap, but the return outlook is modest.

Last year turned out to be the most turbulent one for real estate stocks since the global financial crisis. The 250 most liquid real estate stocks returned –3% in local currency last year – well below their 10-year average of around 12%. But they did manage to end their nearly two-year streak of underperforming the broader global stock market as real estate equities grew more attractive than cyclical stocks. Real estate shares have not gone up in value on a net basis since 2015. Instead, their total returns are driven solely by distributions from free cash flow. The reasons for the poor performance include volatility at the long end of the yield curve and various macroeconomic factors such as interest rate hikes by the US central bank, a softer European economy and less financial liquidity in developing nations.

Real estate equities trading at steep discounts

Real estate shares currently have fairly low valuations. At the end of 2018, global real estate shares had a discount to net asset value¹ of 16%, versus a long-term average of 7%. The stagnant share prices express investors' lack of confidence in the companies' ability to generate sustainable enterprise value. At the same time, the companies have reduced their debt ratios, and thus their leverage. It doesn't help that stock investors believe portfolio properties are overvalued, causing real estate shares to trade at steep discounts.

So why are real estate portfolios so expensive? Supply and demand are imbalanced: investors have surplus cash to invest, but fewer properties are available for sale as the real estate market reaches the end of its cycle. The problem is exacerbated by low interest rates, which keep bond prices high and yields low. As large volumes of capital flow around the world in search of yield, they quickly exhaust opportunities in the conventional investment universe and increasingly turn to real estate. Worldwide property prices then skyrocket and squash returns to historic lows. The resulting valuation differences between real estate stock prices and physical property values is a major driver behind many privatizations of listed real estate companies and share buybacks.

Stock prices could slump even more

That raises a question: Should investors continue to put their money in real estate equities? Low-valued real estate stocks would seem to be prime candidates for "value investments," i.e. stocks priced below their actual value, as estimated from the fundamentals.

¹ A company's net asset value is equal to the fair market value of its real estate portfolio, minus liabilities. Net asset value is traded at a premium or discount on the stock market.

But if a stock carries a low valuation for an extended period of time, investors run the risk of falling into a “value trap” in which the stock price continues to fall instead of recovering as originally expected. Value traps can be triggered by declines in profits or asset values for reasons specific to the company or sector, such as a lack of innovation, rising costs, growing competition or poor management decisions. These apparent bargains may then prove to be overpriced after all.

Net asset values expected to fall

There are signs that value traps are lurking among global real estate equities. The worldwide real estate market is in an advanced phase of the market cycle, and properties in corporate portfolios have high valuations. We expect transaction volumes and financial liquidity to sink in response to the upcoming tightening of monetary policy and uptick in interest rates. As financing and opportunity costs increase, particularly in the form of rising bond yields, investors will demand higher returns on property investments. This could shift capital from real estate to higher-yielding investments. Net asset values would then potentially shrink when the next remeasurement of real estate holdings takes place, reducing the discount to net asset value from its currently high level. This would take the shine off the allegedly attractive valuations of real estate equities. Neutralizing these value trap risks would require accelerated rental growth based on fundamentals. Analysts estimate that rents would have to increase 4% to 5% to offset a decline in book values prompted by a 25 basis point increase in the capitalization rate.

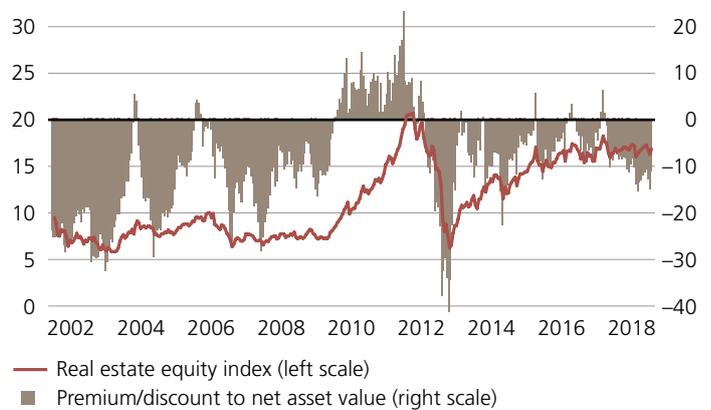
Be selective about value investments

We do not expect rental growth to pick up in the years to come. The supply of space is likely to expand further as vacancies trend upward amid stable demand. Global economic growth will not drive up property values, either; the real estate market largely decoupled from growth several quarters ago.

Tactical opportunities will emerge since real estate shares are trading at a discount to net asset value, but we still expect returns to be low. Caution should be exercised with value investments at the end of this cycle. We prefer companies with sustainable net cash flows and low leverage.

No price return since beginning of 2015

Global real estate share price index*, in USD; premium/discount to net asset value, in %



* 250 most liquid real estate companies

Source: Bloomberg, Global Property Research, UBS IB, UBS

Global investment universe

Thomas Veraguth and Nena Winkler

Investment properties constitute an asset class in their own right. Within this group, they vary in their marketability, leverage and national market conditions. Investors will have to consider a panoply of factors if they want to build a diversified portfolio that's representative of the market.

Accurate measures of a market's size are hard to come by when over three-quarters of its assets are not bought or sold publicly. Current estimates put the global market's value for retail, office, industrial and residential investment properties at around USD 60trn. By comparison, global stock markets are worth around USD 80trn, while global bond markets are valued at USD 100trn. Also, estimates for market investment volumes vary depending on who makes them due to differences in selection criteria (market capitalization or only certain countries).¹

Nearly USD 11trn, or roughly 20%, of investment properties are believed to be managed by institutional investors. Close to USD 5trn of this total consists of core and core plus real estate: fully leased properties in prime locations occupied by high-quality tenants, exposed to low default risks and owned by listed real estate companies.

Leverage of real estate investments

Gearing varies from one investor class to the next. Publicly traded companies, for example, obtain one-third of their funding from debt; private investors rely on bank loans for half of their investments; institutional investors, for their part, have anywhere from next to no leverage (pension funds) to 70% leverage (opportunistic funds). All told, the market has attracted around USD 26trn in indirect investments from lenders, mainly banks and bond holders.

Income as the main return driver

Between 2007 and 2017, direct real estate generated an annualized total return of 5.4% in US dollars, consisting of a capital value return of 0.2% and an income return of 5.2%, according to MSCI. Listed real estate companies, in contrast, had an annualized total return of 4.4% in dollars over the same period, with a return on capital gains of 0.1% and a dividend yield of 4.3%. Total returns on listed and direct real estate investments start to converge after a holding period of 15 to 20 months and pull neck-and-neck after around five years, after adjusting for differences in leverage ratios.

Investment property generated nearly USD 3trn in net rent income worldwide in 2017, achieving an estimated global income return of 4.5%. According to LaSalle Investment Management, nearly 30% of investment properties, as measured by value, are located in Europe, around 36% in the Asia-Pacific region and close to 35% in the Americas. If we look at listed real estate, 44% is traded in the Asia-Pacific region (with China accounting for nearly half that amount), 40% in North and South America (with the US making up the bulk) and 14% in Europe.

¹ Investment volume is tracked by multiple institutions such as INREV, the European Association for Investors in Non-Listed Real Estate (ANREV for Asia); EBRA, the European Public Real Estate Association; and NCREIF, the National Council of Real Estate Investment Fiduciaries in the US.

Decision criteria for portfolio construction

Institutional investors allocate the lion's share of their funds to global metropolises. All told, 40% of their investments are clustered in the world's 30 largest cities. The most important markets are Tokyo, Hong Kong, London, New York, Paris and Los Angeles, which account for some 20% of total investment. Being highly liquid and transparent, these metropolitan markets provide an efficient way for institutional investors to diversify their portfolios while staying focused on a relatively small number of cities.

However, not all markets are equally open to investors, which limits the investment universe. China, for example, is the world's second-largest investment property market but is significantly underweighted in global portfolios due to its illiquidity and concerns about legal certainty. When investors assemble a portfolio, they consider not only factors such as liquidity, return, volatility, cost and knowledge, but also additional criteria like transparency, tax regimes and availability of market information.

Portfolio diversification with real estate

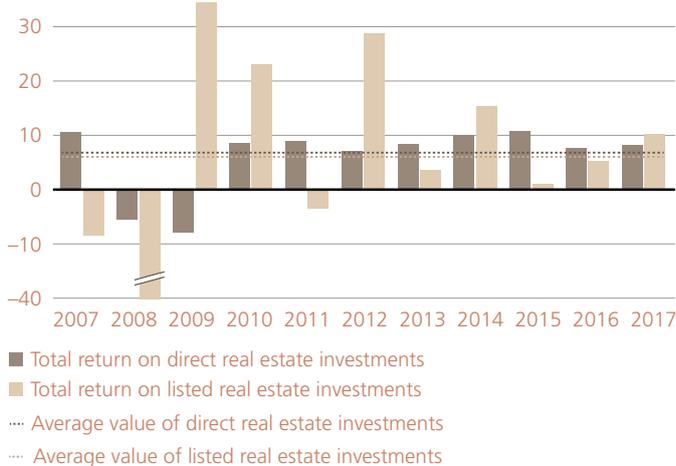
You can further diversify a mixed investment portfolio by including investment properties. This will increase the risk-adjusted return since direct real estate markets are driven by fundamental factors uncorrelated with the broader stock market: local supply and demand, financing terms and legal framework conditions, among others.

Exchange-traded real estate companies are more liquid – but also more volatile – than direct real estate investments. Their short-term correlation with stock markets (0.6 correlation) and bond markets (0.4 correlation) is significant, according to UBS Asset Management. Direct real estate investments, in contrast, are less correlated with the stock markets (0.4 correlation) and are completely uncorrelated with the bond markets. That translates to greater diversification. Real estate equities can be used to place and withdraw large volumes relatively quickly. Real estate funds allow investors to become direct part-owners of real estate while outsourcing management of the properties. Direct real estate portfolios, in contrast, require more time and resources to acquire and sell. It generally takes three to six months to complete due diligence,

negotiate contracts and execute the sale or purchase. Transaction costs, fees and possible taxes should be considered, too.

Returns on direct real estate investments less volatile

Annualized returns in USD, in %



Source: Bloomberg, MSCI, UBS

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As of 4 January 2019



Overview and forecasts

Unless otherwise indicated, all figures refer to percentage change over the previous year

	2012	2013	2014	2015	2016	2017	2018 ¹	2019 ²	10 years ³	
Drivers	Business cycle and income									
	Real gross domestic product	1.0	1.9	2.5	1.3	1.6	1.7	2.6	1.5	1.5
	Real gross domestic product per capita	-0.1	0.6	1.3	0.2	0.5	0.9	1.8	0.7	0.4
	Real wages	1.5	0.9	0.9	1.5	1.1	-0.1	-0.3	0.0	0.9
	Inflation and interest rates									
	Average annual inflation	-0.7	-0.2	-0.1	-1.1	-0.4	0.5	0.9	1.0	-0.1
	3-month Libor CHF ⁴	0.0	0.0	-0.1	-0.8	-0.7	-0.7	-0.7	-0.5	-0.3
	Yield on 10-yr Swiss federal bonds ⁴	0.6	1.3	0.4	0.0	-0.1	-0.1	-0.1	0.4	0.6
	Population and employment									
	Population	1.1	1.3	1.2	1.1	1.1	0.8	0.8	0.8	1.1
Unemployment rate	2.9	3.2	3.0	3.2	3.3	3.2	2.6	2.5	3.1	
Employment, in FTE	1.9	1.3	0.9	0.8	0.1	0.6	1.9	1.0	0.9	
Residential	Owner-occupied homes									
	Asking prices for condominiums	5.1	3.4	2.2	1.5	1.0	0.2	-1.5	-0.5	2.8
	Asking prices for single-family homes	3.7	4.7	1.3	2.3	1.3	2.4	1.5	1.0	3.1
	Growth in mortgage lending to individuals	5.1	5.1	3.5	3.4	2.8	2.6	2.6	2.5	3.8
	Rental apartments									
	Asking rents	3.1	2.9	2.2	1.0	-1.3	-1.0	-2.0	-2.5	1.3
	Asking rents for new builds	1.2	1.3	5.8	-1.5	-3.4	-3.3	-2.0	-1.5	-0.9
	Price index for passing rents	0.6	0.4	1.2	0.9	0.2	1.2	0.7	0.5	1.0
	Mortgage reference interest rate ⁴	2.3	2.0	2.0	1.8	1.8	1.5	1.5	1.5	2.1
	Net cash flow yield ⁵	4.3	4.1	4.2	4.0	3.9	3.5	3.5	3.5	4.1
Appreciation return ⁵	3.0	2.8	1.9	4.3	4.3	3.1	2.0	1.0	2.7	
Total performance ⁵	7.4	7.1	6.2	8.4	8.3	6.7	5.5	4.5	6.9	
Vacancies and construction										
Residential vacancy rate	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.1	
Building permits, on housing stock	1.3	1.4	1.4	1.3	1.2	1.2	1.1	1.0	1.2	
Commercial	Office space									
	Asking rents	4.9	5.4	0.2	3.0	1.2	-1.0	-2.0	-2.0	1.5
	Properties available for sale	6.5	6.3	6.6	6.9	6.6	6.7	6.8	6.5	6.7
	Net cash flow yield ⁵	4.4	4.3	4.4	4.2	3.9	4.0	4.0	4.0	4.4
	Appreciation return ⁵	1.9	0.8	0.0	0.8	1.0	2.0	1.5	1.5	1.3
	Total performance ⁵	6.4	5.1	4.4	5.0	4.9	6.0	5.5	5.5	5.7
	Retail space									
	Asking rents	6.3	1.5	-3.3	-1.1	-3.2	0.3	-0.5	-2.0	0.7
	Net cash flow yield ⁵	4.3	4.2	4.2	4.1	3.6	3.8	4.0	4.0	4.2
	Appreciation return ⁵	2.7	2.3	1.1	1.2	1.1	0.7	0.5	0.0	1.7
Total performance ⁵	7.1	6.5	5.3	5.3	4.8	4.5	4.5	4.0	5.9	
Listed	Real estate equities									
	Performance	12.3	-6.9	13.6	9.6	11.7	10.1	-2.1	—	9.6
	Average daily trading volumes (CHF m)	24.4	21.9	20.5	30.1	27.2	29.0	32.2	—	24.3
	Estimated premiums ⁷	17.2	8.2	5.6	12.5	17.7	25.3	22.7	—	12.5
	Volatility	8.9	10.1	8.0	12.9	11.8	8.7	8.7	—	10.5
	Real estate funds									
	Performance	6.3	-2.8	15.0	4.2	6.8	6.6	-5.3	—	6.3
	Average daily trading volumes (CHF m)	19.9	20.8	19.3	25.4	22.6	27.9	25.5	—	21.3
	Estimated agios ⁶	25.5	17.5	19.2	28.9	27.2	27.5	22.0	—	22.8
	Volatility	6.6	8.4	7.6	12.1	9.2	8.8	8.9	—	8.2
Benchmark										
Perform. of real estate investm. foundations	6.5	5.7	5.1	5.8	5.8	5.4	4.0	—	5.5	
Performance of Swiss Performance Index	17.7	24.6	13.0	2.7	-1.4	19.9	-8.6	—	8.6	
Volatility of Swiss Performance Index	11.5	12.8	10.6	18.4	15.5	8.8	12.7	—	14.2	
Performance of Swiss Bond Index ("AAA")	2.2	-3.3	8.5	2.4	1.6	-0.1	0.3	—	2.7	

¹ UBS forecast

² UBS projections or forecasts (as of January 8, 2019)

³ Average: 2009 to 2018

⁴ End of year

⁵ Direct investment in existing properties

⁶ Premiums on net asset values of real estate equities (premiums) and real estate funds (agios)

Source: SECO, BFS, SNB, Wüest Partner, BWO, MSCI, Docu Media, Bloomberg, UBS

