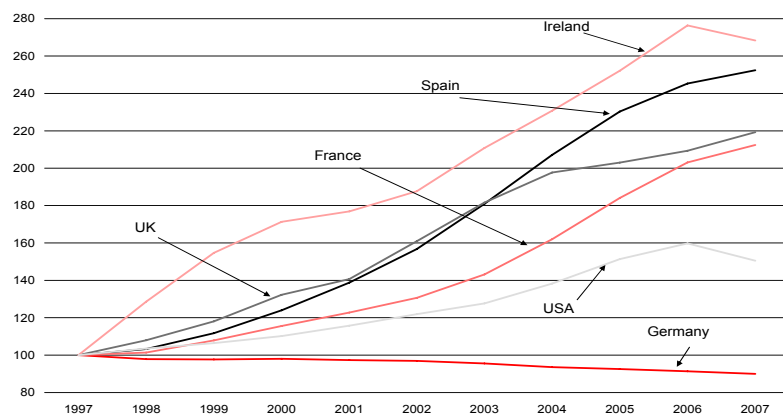


## Is Europe prone to a housing recession?

- Housing experienced an unprecedented boom around the globe during the last decade. The vibrant dynamic won't, however, last forever. The US is already in the midst of a deep housing recession with strongly falling house prices.
- Recent data also show a deceleration in house price growth in many European countries. A strong rise in house prices per se does, however, not necessarily result in a hefty correction. Nor are the elevated Price-Income ratios, which suggest a high degree of overvaluation in many European countries, a reliable indication of housing market risks.
- Taking into account additional important fundamentals shows a very different picture. Our housing affordability index still signals sound levels in many European countries, based mainly on hefty income growth and improved financing conditions after the inception of the EMU. Only the United Kingdom and also Spain exhibit a markedly insufficient level of affordability.
- The results of our index can still be biased by structural differences in the individual countries. The effective lending rates are influenced by housing policies and the share of adjustable mortgage loans. Moreover, demographics strongly determine new housing needs, which can help to prevent an abrupt slowdown in demand.
- But in addition to affordability, another factor plays a very important role at the moment: The willingness-to-buy a home. The strong divergence between house price and rent dynamics has led to a deterioration of the attractiveness to buy a home in the absence of rising house prices in many countries, above all in Ireland. This should have considerable effects on demand and thus house price dynamics in Europe.

### HOUSE PRICE BOOM

Real house prices, Index (1997 = 100)



Source: Thomson Datastream, OECD, UniCredit Global Research

**Author**  
 Alexander Koch (HVB)  
 +49 89 378-13013  
 alexander.koch1@unicreditgroup.de

**Bloomberg**  
 UCGR, UCFR

**Internet**  
 www.globalresearch.unicreditmib.eu

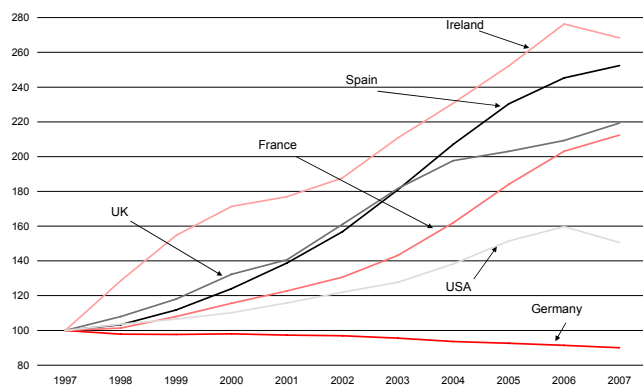
## The end of the global housing boom !?

### Unprecedented global housing boom

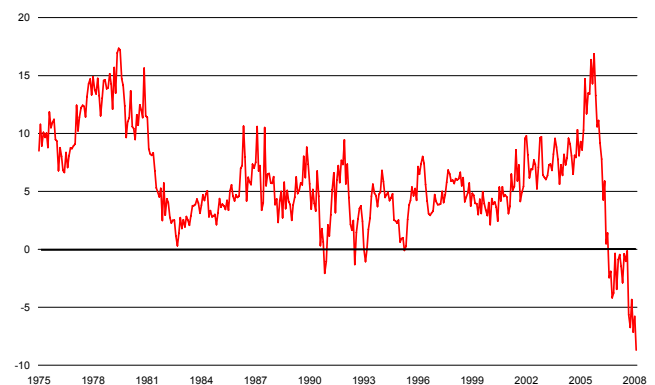
Residential real estate experienced an unprecedented boom phase around the globe during previous years, by far exceeding the magnitude and length of past upturns. Many countries have already experienced strongly rising house prices for more than 10 years, independent of the business cycle (cf. chart). It should, however, be clear that this trend won't last forever. A return to softer house price inflation or even a hefty correction in overvalued markets will occur sooner or later. This has already been confirmed by the current housing recession in the US. After eleven consecutive years of real house price increases, the average value of housing is down almost 13% from the peak in mid-2006, with no signs of a trend reversal yet (cf. chart).

### GLOBAL HOUSING BOOM – THE PARTY IS OVER IN THE US

Real house prices, Index (1997 = 100)



S&P/CaseShiller House price Index, in % y-o-y



Source: Thomson Datastream, OECD, UniCredit Global Research

### Housing recession in the US – will Europe follow?

The US housing downturn has been exacerbated by overly loose lending conditions in the subprime segment. This should be a rather isolated case, with more adequate lending standards in other housing markets. Nevertheless, the US will definitely not remain the only country experiencing the end of the housing boom. Recent housing market data show that in all major European countries except Germany, which didn't participate in the housing boom at all, the dynamic rise in house prices is in the course of slowing down. Ireland already reported falling house prices in 2007. And the latest ECB Bank Lending Survey exhibited a substantial acceleration in the assessment of housing market risks in the membership countries (cf. chart next page). Does this mean that we are facing a housing market "bust" also in Europe?

### Sustainability of house price increases depends on fundamentals

## Fundamentals determine long-term trend

History shows that downswings in housing cycles are not necessarily accompanied by declines in house prices. And very strong house price corrections have been rare overall. The sustainability of prolonged hefty house price increases depends on the simultaneous development of fundamentals in the single housing markets. A strong increase in house prices per se is apparently not an appropriate indicator for the extent of overvaluation and the risk of a setback in the housing sector. Unfortunately, the available housing data in most European countries are still lacking in terms of quality and comparability. Nevertheless, in the following we gathered some important harmonized fundamental indicators for the major European countries to get an indication if the rise in house prices has been justified by

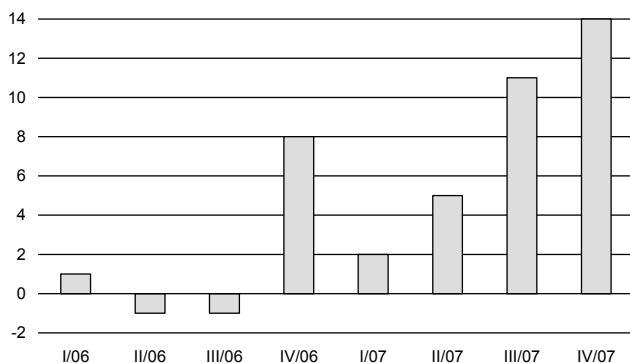
fundamentals and where the highest risks of an extended correction phase exist.

**Price-Income ratio only a rough indicator**

A simple and probably the most prominent indicator used to compare the valuation of housing markets is the so-called Price-Income ratio. It compares the relative dynamic of house prices and private household incomes over time. The rationality of this indicator is as follows: the higher house prices increase versus household incomes during the same time period, the higher the overvaluation in the housing market. Looking at the deviation of the latest individual ratios from their long-term averages, almost all major European housing markets appear to be strongly overvalued, led by Ireland. The degree of overvaluation in many European countries strongly exceeds the respective level in the US. Only Germany exhibits a substantial degree of undervaluation (cf. chart).

**INCREASED HOUSING MARKET RISKS**

ECB Bank Lending Survey, Housing market risks, net percentage



Price-Income ratio, Deviation from 10-year-average



Source: OECD, ECB, UniCredit Global Research

**Affordability index incorporates other important factors**

However, the Price-Income ratio is only a rough valuation indicator, which doesn't deliver a reliable long-term equilibrium level. Moreover, the equilibrium level can be subject to marked changes over time and is also heavily influenced by other factors. Taking into account additional fundamental aspects can lead to a completely different picture in terms of valuation. Hence, in order to be better able to assess the risk of a housing market correction in the different European countries, we have calculated a housing affordability index. It is based on annual data since 1997. The index tries to capture whether or not a typical family can qualify for a mortgage loan on a typical home (cf. also box). In addition to the relative dynamic in house prices and household incomes, the affordability index incorporates the absolute level of house prices and also financing conditions for home buyers or builders.

**HOUSING AFFORDABILITY INDEX METHODOLOGY**

Our index is based on the methodology used by the National Association of Realtors in the US. It measures whether or not a typical family could qualify for a mortgage loan on a typical home. For our index, a typical home is defined as the national average-priced, existing single-family home. The income is defined as one earning the harmonized per capita disposable household income reported by Eurostat. The prevailing mortgage interest rate is the effective rate on new mortgage loans published by the ECB. These components are used to determine if the average income can qualify for a mortgage on a typical home.

The calculation assumes a qualifying ratio of 50 percent. That means that the monthly principal and interest payment cannot exceed 50 percent of the average per capita monthly income.

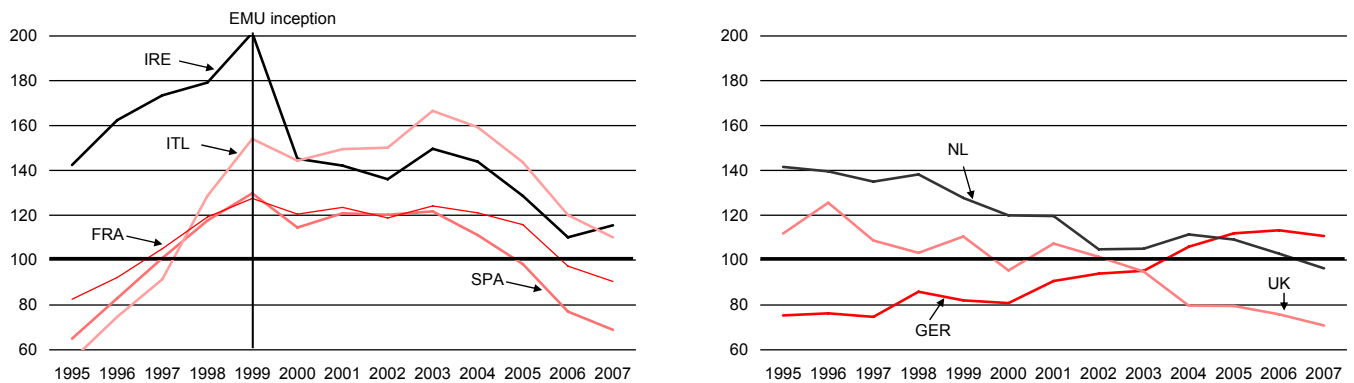
To interpret the indices, a value of 100 means that a family with average income has exactly enough income to qualify for a mortgage on an average-priced home. An index above 100 signifies that households earning the average income have more than enough income to qualify for a mortgage loan, assuming a 30 percent down payment. For example, a composite housing affordability index of 110.0 means a family earning the average income has 110% of the income necessary to qualify for a conventional loan covering 70 percent of an average-priced existing single-family home. An increase in the housing affordability index then shows that this family is more able to afford the average-priced home.

**Lowest affordability in the UK and Spain**

Current available data for 2007 show that housing affordability is lowest in the United Kingdom and Spain (cf. chart). France and the Netherlands also have values below the threshold level of 100, but still significantly higher than in the previously mentioned countries. The other observed markets, including also Ireland, have levels above 100.

**HOUSING AFFORDABILITY**

UniCredit MIB Housing affordability index



Source: Thomson Datastream, ECB, Eurostat, Feri, UniCredit Global Research

**German market not heavily undervalued**

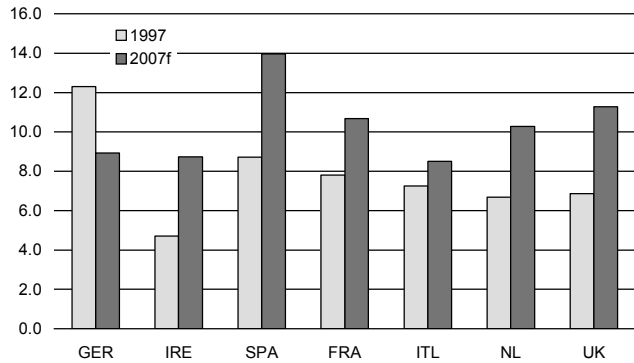
The German housing market, which has been a class of its own not participating in the global house price boom, currently has an affordability ratio not very different from many neighboring countries, where house prices rose strongly over previous years. One important factor besides the oversupply of housing in the years after the reunification is the level of absolute house prices in Germany. In the mid-90s, the cost of an average house was still around 80% above the average in other eurozone countries. Meanwhile, Germany offers the cheapest housing in relation to per capita income along with Italy and also Ireland (cf. chart next page). The weak price dynamic during the last decade has restored affordability in Germany.

**Inception of the EMU improved affordability in many countries**

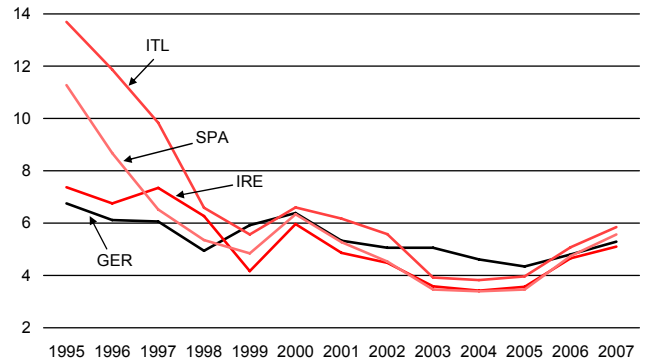
Comparing the single country indices, a strong improvement in affordability in several EMU countries at the end of the last decade catches the eye (cf. chart above). The reason behind this is straight forward: The inception of the monetary union, which brought a harmonization in monetary policy and also in the level of mortgage interest rates (cf. chart next page). Strongly declining interest rates in several EMU countries allowed more households to finance the purchase of a home on a still sound basis. Hence, despite strong house price gains during previous years and the tightening cycle of the ECB, which raised its main refinancing rate from 2.0% to 4.0% since December 2005, affordability rates in the affected countries still look relatively healthy.

**LOWER INTEREST RATES SPUR HOUSE PRICE GROWTH**

Absolute house price times per capita income



Mortgage rates in %



Source: LBS Research, Bank of Spain, ECB, UniCredit Global Research

**Brisk income growth in Ireland**

Most strikingly, the country which experienced the by far most pronounced increase in housing values still reports an affordability index value clearly above 100, namely Ireland. During the last decade, house prices jumped 180% compared to an EMU average of an already high 80% in real terms. The house price boom on the island was backed by extremely strong fundamentals. Besides lower interest rates after the inception of the EMU, both the share of the population at household formation age and per capita income have been rising much more strongly than in other countries, thus maintaining the affordability of housing. In the meantime, Ireland is behind Luxembourg as the country with the highest level of per capita income in the European Union, while it was still at the lower end of the list at the beginning of the 90s. According to empirical studies, income growth is the most important driver of house prices. Improving income conditions and higher private household wealth in general generate better affordability of owner-occupied housing and thus also higher demand for housing overall.

**Housing policies and ...**

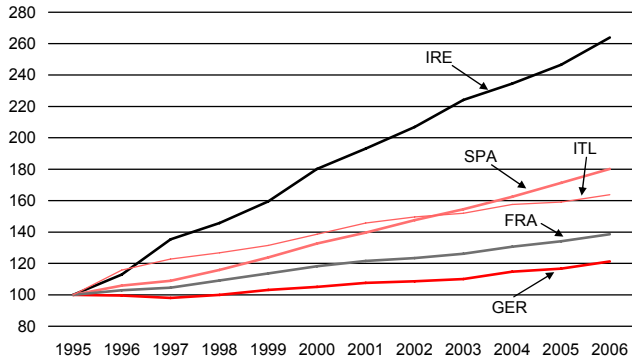
The mortgage rates used to calculate our housing affordability index are harmonized average lending conditions for new housing loans. The effective cost of housing loans is, however, in several countries reduced as a result of housing policies favoring home ownership (tax relief or subsidized loans), in many cases especially for low-income households. The major exceptions here are Germany, where the homeownership allowance was abolished in 2006 and the United Kingdom, which doesn't favor homeownership since 2000. Hence, private home buyers in these two countries do not benefit from lower effective housing financing costs as their peers often do.

**... adjustable rates affect effective lending conditions**

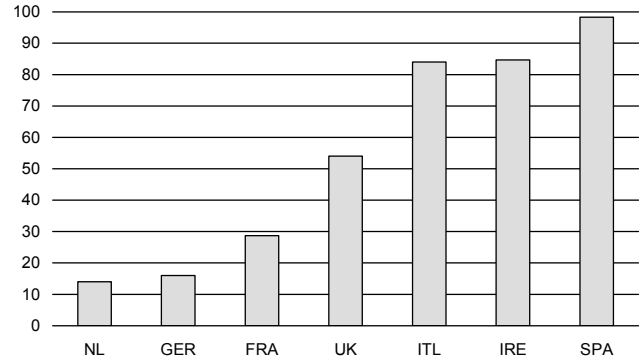
Moreover, whereas recent home purchases were subject to rising interest rates, the situation for existing loans can be quite different, depending on the share of fixed-rate mortgage contracts. A high level of adjustable mortgage loans also adversely affects the affordability of existing housing loans in the environment of rising interest rates. In the United Kingdom, more than half of all outstanding housing loans are subject to adjustments. And the share is especially high in Italy, Ireland and above all in Spain, where almost all mortgage loans are adjustable (cf. chart next page). In contrast, Germany and the Netherlands, where the bulk of mortgage contracts are fixed, benefited in relative terms of affordability for existing contracts during the recent tightening cycle of the ECB compared to the other countries.

**INCOME MAJOR DRIVER OF HOUSING AFFORDABILITY**

Harmonized nominal per capita income, Index (1995 = 100)



Adjustable rate mortgages in % of total outstanding housing loans



Source: OECD, Thomson Datastream, Feri, UniCredit Global Research

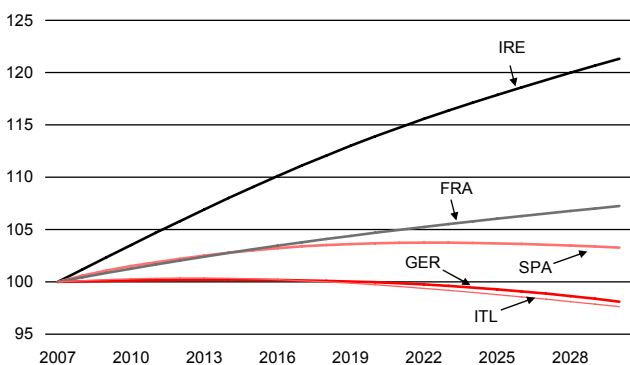
**Demographics determine potential housing demand**

The demographic situation in the individual countries can also have a substantial impact on the development of house prices. Besides the current demand for housing, which is driven by the share of the population in household formation age, also the demographic outlook can play an important role. For example in Germany, where the number of households is expected to shrink markedly in coming decades, the significance of homeownership as a secure investment for old age has apparently come under scrutiny. In contrast, countries with higher current and future need for additional housing, i.e. countries with expanding working-age populations, should, in general, be better able to avoid an abrupt slowdown in demand.

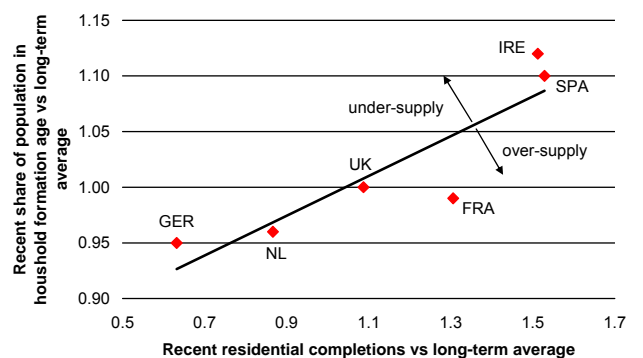
The recent growth in the share of the population in household formation age compared to the change in residential construction completions shows a broadly consistent pattern for most major European countries. Only in France does the recent dynamic in housing supply appear to be well above potential demand growth. The brightest outlook for additional housing demand remains in Ireland and also Spain, where the share of the population in household formation age is still growing markedly. In Germany and in the Netherlands, the share is already pointing south (cf. chart).

**DEMOGRAPHICS DETERMINE POTENTIAL HOUSING DEMAND**

Total population projections, Index (2007 = 100)



Housing completions vs. Household formation



Source: Thomson Datastream, Eurostat, UniCredit Global Research

## Plunging willingness-to-buy depresses demand

Based on the latest available housing data, our analysis suggests that based on the affordability measure the housing market in the United Kingdom appears to be the most prone for a pronounced correction. It not only exhibits the lowest affordability value, but also the lack of public support for private housing financing and a broadly unchanged share of the population in household formation age. The second most "exposed" housing market is in Spain, which also has a low affordability value and additionally a very high share of adjustable mortgage loans. But on the other hand, the share of the population in household formation age is still expanding and house purchases by foreigners also remain strong.

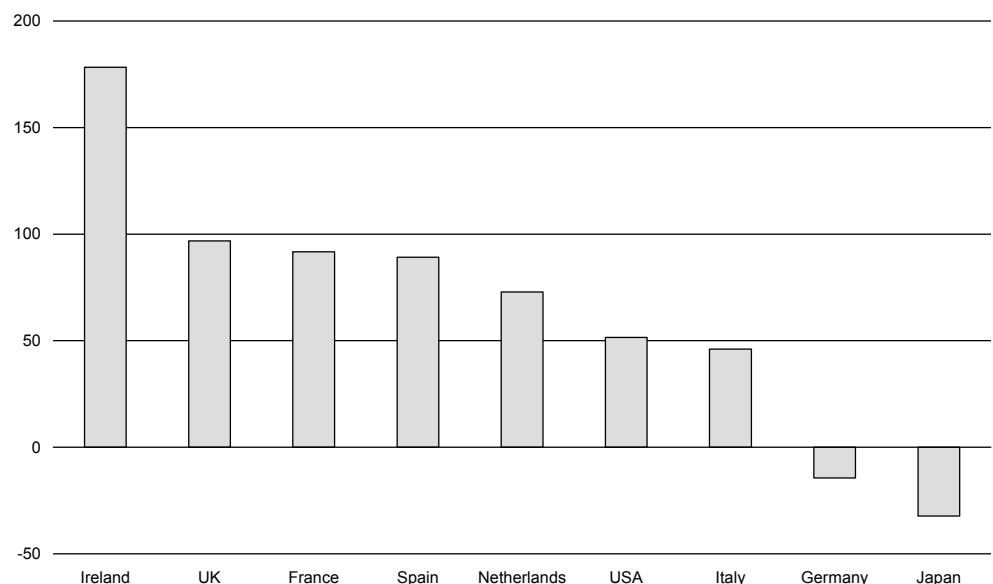
In regard to the other countries, France still has a significant below 100 affordability value and strong supply of new housing. For the rest of the important European housing markets, the affordability levels are more or less in line with fundamentals. Also in Germany, the decline in real house prices was obviously due to weak fundamentals, showing no signs of a very high degree of undervaluation.

**Attractiveness of buying a home in Ireland has deteriorated strongly.**

But although affordability is a key determinant of house price developments, another factor plays a similarly important role at the moment. Solely on affordability considerations the observable marked correction in the Irish housing market cannot be explained. But if one looks at the relative development of house prices and rents in the different countries (cf. chart), one can observe a heavy divergence in some European housing markets, above all in Ireland.

### STRONG DIVERGENCE BETWEEN HOUSE PRICE AND RENT DEVELOPMENT

Price-Rent ratio, Deviation from 10-year-average



Source: OECD, UniCredit Global Research

This can have substantial consequences - not for the ability of households to buy a new home - but for the willingness to buy a new home. The reason for this is straight forward. As long as house prices are on the rise and potential buyers expect further price increases, the yield on

**Not affordability levels, but lower willingness to buy homes is major threat**

the housing investment, i.e. rents, and also the increased attractiveness of renting a home compared to buying a home are moved to the background. Speculation is the name of the game. However, when the direction in house prices or even only the expectation of future house prices finally turns around, the before-mentioned considerations move into focus again. In the case of Ireland, the heavy divergence has led to a strong deterioration of the attractiveness of buying a home compared to renting a home in an environment of stable or falling house prices, thus denting demand and putting downward pressure on prices - despite still healthy affordability levels. This is to a lesser but still substantial extent also the case in other European markets, which should have a considerable impact on house price dynamics and also wealth effects in Europe in the foreseeable future.

**Alexander Koch (HVB)**

+49 89 378-13013

alexander.koch1@unicreditgroup.de

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**UniCredit Global Research\***

Thorsten Weinelt, CFA  
Global Head of Research & Chief Strategist  
+49 89 378-15110  
thorsten.weinelt@hvb.de

Dr. Ingo Heimig  
Head of Research Operations  
+49 89 378-13952  
ingo.heimig@hvb.de

**Global Economics & FI/FX Research**

Marco Annunziata, Ph.D., Global Chief Economist  
+44 20 7826-1770  
marco.annunziata@hvbeurope.com

**Global Economics & Commodity Research**

**European Economics**

Marco Kramer, Co-Head  
+49 89 378-12566  
marco.kramer@hvb.de

Aurelio Maccario, Co-Head  
+39 02 8862-0728  
aurelio.maccario@hvb.de

Andreas Rees, Chief German Economist  
+49 89 378-12576  
andreas.rees@hvb.de

Marco Valli, Chief Italian Economist  
+39 02 8862-8688  
marco.valli@hvb.de

Tullia Bucco  
+39 02 8862-2079  
tullia.bucco@hvb.de

Chiara Corsa  
+39 02 8862-2209  
chiara.corsa@hvb.de

Alexander Koch  
+49 89 378-13013  
alexander.koch01@hvb.de

Dr. Isabelle Kronawitter  
+49 89 378-12563  
isabelle.kronawitter@hvb.de

Chiara Silvestre  
chiara.silvestre@hvb.de

Dr. Davide Stroppa  
+39 02 8862-2890  
davide.stroppa@hvb.de

**US Economics**

Roger M. Kubarych, Chief US Economist  
+1 212 672-5668  
roger\_kubarych@america.hypovereinsbank.com

Dr. Harm Bandholz  
+1 212 672 5957  
harm\_bandholz@america.hypovereinsbank.com

**Commodity Research**

Jochen Hitzfeld  
+49 89 378-18709  
jochen.hitzfeld@hvb.de

Nikolaus Keis  
+49 89 378-12560  
nikolaus.keis@hvb.de

**EEMEA Economics & FI/FX Strategy**

Martin Blum, Head  
+43 50505-82363  
martin.blum@ca-ib.com

Vladimir Osakovsky, Ph.D.  
+7 495 777 8877 3139  
osakovsky@aton.ru

Dr. Simon Quijano-Evans  
+43 50505-82364  
simon.quijano@ca-ib.com

Goran Saravanja  
+385 1 6006 678  
goran.saravanja@zaba.hr

Pavel Sobisek  
+420 2 211 12504  
pavel.sobisek@cz.hvb-cee.com

Gyula Toth  
+43 50505-82362  
gyula.toth@ca-ib.com

**Global FI/FX Research**

Michael Rottmann, Head  
+49 89 378-15121  
michael.rottmann01@hvb.de

Dr. Luca Cazzulani, FI Strategy  
+39 02 8862-3728  
luca.cazzulani@hvb.de

Giuseppe Maraffino, FI Strategy  
+39 02 8862-2027  
giuseppe.maraffino@hvb.de

Armin Mekelburg, FX Strategy  
+49 89 378-14307  
armin.mekelburg@hvb.de

Roberto Mialich, FX Strategy  
+39 02 8862-2765  
roberto.mialich@hvb.de

Kornelius Purps, FI Strategy  
+49 89 378-12753  
kornelius.purps@hvb.de

Herbert Sellier, Technical Analysis  
+49 89 378-18024  
herbert.sellier@hvb.de

Herbert Stocker, Technical Analysis  
+49 89 378-14305  
herbert.stocker@hvb.de

Lorenzo Bertolini, FX Quantitative Strategy  
+44 20 7826-6768  
lorenzo.bertolini@hvbeurope.com

**Publication Address**

**UniCredit Markets & Investment Banking**

Bayerische Hypo- und Vereinsbank AG  
Global Research  
Arabellastrasse 12, D-81925 Munich  
Tel. +49 89 378-12559  
Fax +49 89 378-13024

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www.globalresearch.unicreditmb.eu

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