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Boom or Bubble in the US Real Estate Market?

This paper attempts to provide an answer to the question whether the recent surge in US real estate prices is fundamentally driven, or whether the current situation reflects bubble symptoms. This is a question of paramount importance since in the case of a bubble in real estate prices the question emerges if and how the Fed should react to it. Implicitly, monetary policy in the euro area is addressed as well, with France and Spain experiencing exorbitant price increases of real estate during at least the last four years and the ECB trying to play down the dangers of this development for price stability.

More than four years after the peak of the stock market boom, the US economy has regained its former status as the engine of economic growth in the world. Following GDP growth of just 0.5% in 2001, economic activity in the USA has returned to rather strong, i.e. above long-term potential, growth rates, accompanied by fairly buoyant private consumer and corporate investment spending, both exerting a positive impact on employment. Moreover, stock markets have left their troughs, indicating market agents' improved economic expectations.

In particular rising real estate prices, though, are said to have contributed considerably to ongoing domestic demand and a high level of consumer confidence. However, house price increases have been exorbitant for the last eight years when put into historical perspective.[1] The increase in house prices has outpaced consumer price inflation by more than 45 per cent, which appears, historically speaking, highly atypical. Therefore, the question was raised by various quarters, from journalists to economists to central bank officials, of whether the boom in the US real estate market has become a bubble and whether house prices have already reached unsustainable levels. This is a question of paramount importance since in the case of a bubble in real estate prices the question emerges if and how the Fed should react to it. Implicitly, monetary policy in the euro area where France and Spain have experienced exorbitant price increases of real estate during the last four years is addressed as well. The question of bubbles in real estate prices is an increasingly hot topic on both sides of the Atlantic because markets for assets like real estate, stocks and bonds significantly gain importance in times of increasing wealth of the population far beyond the area of private old-age insurance and pension schemes. Moreover, private wealth plays an increasingly large role in determining the spending decisions of households. Finally, the liberalisation of capital flows fosters price volatility on asset markets. Central banks can and should not ignore these developments. A correct analysis of real estate price developments (as ventured in this paper) and the drawing of conclusions for monetary policy decisions are nowadays among the most important challenges for monetary policy.

By now, experts unanimously acknowledge boom-and-bust cycles on asset markets. Speculation drives prices "excessively" upward until the bubble bursts and prices plummet. There is also agreement on the fact that the bursting of the bubble can be extremely damaging for the economy. The most popular example is Japan. At the beginning of the nineties the dramatic plunge in real estate prices contributed to the emergence of a deep crisis from which Japan has not yet recovered. As expressed by the European Central Bank only recently, similar fears are relevant for the euro area, and especially so in the cases of Spain and France. In Spain, real estate prices have risen by more than 75 per cent within the past four years, in France by more than 50 per cent.

The last two decades of the 20th century marked the end of a long inflationary phase in the world economy. In this sense, policy-makers successfully fought monetary instability. However, as price stability was assured, financial instability has increased and may well become the next major policy concern on the agenda. Financial instability has often been accompanied by swings in asset prices. However, asset prices

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[1] All house price measures in this paper are from the Office of Federal Housing Enterprise Oversight's (OFHEO) weighted repeat-sales price index unless otherwise noted. The House Price Index (HPI) of the OFHEO shows the price change for the same home, meaning a rise in prices does not reflect better quality homes but homes of the same quality becoming more expensive.

and monetary policy are closely connected with each other. Certainly a hot topic on the international agenda, it has been discussed at several conferences and many papers by leading economists have contributed to the discussion. However, up to now a consensus has not been reached as to how central banks should react in response to an asset price bubble.

The attempt to provide an answer to the question whether the recent surge in US real estate prices is fundamentally driven, or whether the current situation reflects bubble symptoms, is the main focus of this paper. In fact, the objective is to divide the valuation of the US housing market into a "bubble component" and into a fundamentally justified component. Given the theoretical and empirical difficulties in tackling such a question it does not come as a surprise that so far a final conclusion has not yet emerged in the literature. In light of this, the discussion in this contribution is organised as follows. First, the US real estate market and its peculiarities are described. Second, an overview is given of the areas in which economic views, as expressed in the literature, diverge. Third, unambiguous bubble indications will be presented and other more fundamental reasons which speak against nominal declines in housing prices will be outlined. The analysis concludes by again asking whether asset prices and asset price bubbles are and should be a matter of attention to central bank authorities in the process of monetary policy-making.

Asset Prices and Asset Price Bubbles: an Overview

Asset prices are still not well understood. Most of the literature includes stocks, bonds, commercial and residential real estate and the exchange rate among the most important assets.[2] Assets are often bought to generate earnings.[3] They are all essential macroeconomic variables. However, their impact on the real economy differs. In addition, they are indicators of the issues with which monetary policy is concerned, largely general price stability and economic growth.[4] While both equities and real estate at least potentially have an impact on macroeconomic performance, we focus on the real estate market since effects of a housing bubble burst on the economy are stronger than those of rapid stock market declines. More specifically, movements in residential property prices have stronger effects on individual consumption behaviour, credit cycles and output than stock price fluctuations.[5] While boom phases of a bubble have short-term benefits for the economy, the risks are in long-term misallocation effects and the potential deflation of the bubble. Financial cycles that are driven by asset price movements are capable of creating real economic disturbances.[6] As a result of the wealth effect, asset price swings also affect the real economy through the consumption channel.[7] In addition, investment behaviour, through a change in external financing costs due to changing collateral and net asset values, is also impacted by the movements of asset prices.[8] Aside from these real transmission channels, the positive impact on consumer sentiment also influences spending decisions.[9]

But what in the end is a bubble? Different definitions of bubbles are distinguished in the literature. According to Kroszner,[10] asset price bubbles "represent a mispricing of asset values by the market." This is in line with the definition put forward by Kindleberger[11] who states that one element of a bubble is that prices increase faster than can be explained by market fun-

[2] M. Mussa: Asset Prices and Monetary Policy, in: W. C. Hunter, G. G. Kaufman, M. Pomerleano (eds.): Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies, Cambridge 2003, MIT Press, pp. 41-50. In contrast to asset prices, consumer prices include goods and services that are consumed for everyday living, such as food, petrol and cars.

[3] A. Bollard: Asset prices and monetary policy, in: http://www.bis.org/review/r040206f.pdf [21.06.2004].

[4] In contrast to small open economies, for a large and rather closed economy like the USA, the exchange rate does not play as significant a role as other asset prices, i.e. mainly equities and real estate. For this reason, it is excluded from this discussion.

[5] See T. Helbling, M. Terrones: Real and Financial Effects of Bursting Asset Price Bubbles, in: IMF World Economic Outlook, April 2003, pp. 61-94; BIS: Cycles and the financial system, in: 71st Annual Report of the Bank for International Settlements, 2001, pp. 123-141; J. M. Barata, L. M. Pacheco: Asset Prices and Monetary Policy: Wealth Effects on Consumption, Paper prepared for the 20th Symposium on Banking and Monetary Economics, Birmingham 2003, University of Birmingham, p. 11; K. E. Case, J. M. Quigley, R. J. Shiller: Comparing Wealth Effects: The Stock Market versus the Housing Market, NBER Working Paper, No. 8606, 2001, p. 14; C. Detken, F. Smets: Asset price booms and monetary policy, ECB Working Paper Series, No. 364, 2004, p. 13; and J. Caruana: Banking Provisions and Asset Price Bubbles, in: W. C. Hunter, G. G. Kaufman, M. Pomerleano (eds.), op. cit., pp. 537-546.

[6] BIS, op. cit., p. 123; F. Allen, D. Gale: Bubbles and Crisis, in: The Economic Journal, Vol. 110, 2000, pp. 236-255.

[7] T. Just: Bubble Trouble am Wohnungsmarkt?, Deutsche Bank Research Aktuelle Themen, No. 257, 2003, p. 4.

[8] IMF: Asset Prices and the Business Cycle, in: IMF World Economic Outlook, May 2000, pp. 77-112; C. Detken, K. Masuch, F. Smets: Issues Raised at the ECB Workshop on "Asset Prices and Monetary Policy", in: http://www.ecb.int/events/pdf/conferences/detken-masuch-smets.pdf [04.08.2004], p. 2.

[9] C. Kent, P. Lowe: Asset-Price Bubbles and Monetary policy, Reserve Bank of Australia Research Discussion Paper, No. 9709, 1997, p. 5.

[10] R. S. Kroszner: Asset Price Bubbles, Information, and Public Policy, in: W. C. Hunter, G. G. Kaufman, M. Pomerleano (eds.), op. cit., pp. 3-13.

[11] C. P. Kindleberger: Bubbles, in: J. Eatwell, M. Milgate, P. Newman (eds.): The New Palgrave: A Dictionary of Economics, Vol. 1, A to D, London 1987, Maruzen, pp. 281-282.

damentals. The most difficult task is to identify whether asset price increases reflect economic fundamentals, or whether the rise is related to the "irrational" behaviour of economic agents. A convincing indication of a bubble is given if people purchase an asset solely because they believe that the asset will be priced higher tomorrow.[12] This is consistent with Kindleberger's description of a bubble as "a sharp rise in the price of an asset or a range of assets in a continuous process, with the initial rise generating expectations of further rises and attracting new buyers – generally speculators interested in profits from trading in the asset rather than its use or earning capacity".[13] Such a situation is characterised by public expectations of exorbitant future prices which force current prices to rise even further.[14] In such kind of situations, markets do not manage to get prices right. Such mispricing is sometimes aggravated by herding behaviour and "irrational exuberance". Another element of a bubble is the eventual collapse that follows a reversal of expectations. When people buy solely with an eye on future price increases, and this motive diminishes in time, prices may fall drastically. This type of market correction is frequently accompanied by a disruption in financial and real activity, such as output reduction, deflationary pressures and sometimes banking crises.[15] Additionally, corrections may overshoot fundamental levels and create an inverse bubble.

Characteristics of the US Real Estate Market

Real estate markets around the world are still characterised by a lack of adequate information and insufficient market infrastructure.[16] Good quality and timely data is scarce. Transaction costs are high and prices are often determined on the basis of bilateral negotiations.[17] Low transparency and the absence of a central trading market complicate the purchase of homes. The traded objects are characterised by ample heterogeneity. The supply side in real estate markets is very rigid. New land must be made available for new construction which can be a very time-consuming task. Additionally, new buildings must be built to expand the supply. As a result of long construction lags, the supply side of the real estate market cannot respond quickly to increasing demand. Hence, housing price booms may emerge due to a lack of supply in the beginning and may reverse due to excess supply once demand drops.

Another unique characteristic of real estate markets in comparison to financial markets is the fact that short-trading is impossible.[18] The investors' inability to employ "negative feedback trading" strategies via short sales leads to a higher responsiveness of prices to optimism than to pessimism. In other markets sustained deviations from the fundamental value are thought to be reversed by sophisticated investors. If real estate prices are too low, sophisticated investors can enter the market on the buying side and earn profits. If prices are too high, no analogous action can be enacted, and hence, "[o]ptimists, those with reservation prices above the fundamental value, will determine the price in this kind of market with no short sales and fixed supply".[19] As long as the market performance continues to rise and financing is available, optimistic investors will make profits independent of fundamental justifications and will remain the market movers.

Evidence for a Bubble in the US Real Estate Market – Stylised Facts

Over the last four years, the amount of real estate sold and its value have reached record levels in the USA. This pattern has evolved notwithstanding difficult economic conditions, entailing phases of rising unemployment and insignificant or negative growth rates. Increased spending on housing and related items has prevented the economy from a "double dip" recession or a more ruthless downturn. Housing wealth and record-high cash-out refinances have enabled consumers to continue reckless spending. The cash-outs between 2001 and 2003 add up to $333 billion, compared to $114 billion in the next highest period, 1998-2000.[20] The ongoing high levels of private consumption are extremely important for the economy of the USA, because consumer spending accounts for more than two thirds of total demand. Over recent

[12] A. H. Meltzer: Rational and Nonrational Bubbles, in: W. C. Hunter, G. G. Kaufman, M. Pomerleano (eds.), op. cit., pp. 23-33; K. E. Case, R. J. Shiller: Is There a Bubble in the Housing Market? An Analysis, Paper prepared for the Brookings Panel on Economic Activity, 2003, p. 16.

[13] C. P. Kindleberger, op. cit., p. 281.

[14] K. E. Case, R. J. Shiller, op. cit., p. 2.

[15] M. D. Bordo, O. Jeanne: Boom-Busts in Asset Prices, Economic Instability, and Monetary Policy, NBER Working Paper, No. 8966, 2002, p. 4.

[16] B. Renaud: Comments on Theory and History of Asset Price Bubbles, in: W. C. Hunter, G. G. Kaufman, M. Pomerleano (eds.), op. cit., pp. 239-243.

[17] P. Hilbers, Q. Lei, L. Zacho: Real Estate Market Developments and Financial Sector Soundness, IMF Working Paper, No. 01/129, 2001, p. 28.

[18] R. Herring, S. Wachter: Bubbles in Real Estate Markets, Zell/Lurie Real Estate Center Working Paper, No. 402, 2002, p. 4.

[19] Ibid.

[20] Joint Center for Housing Studies of Harvard University (JCHS): The State of the Nation's Housing: 2004, in: http://www.jchs.harvard.edu/publications/markets/son2004.pdf [14.07.2004], p. 7.

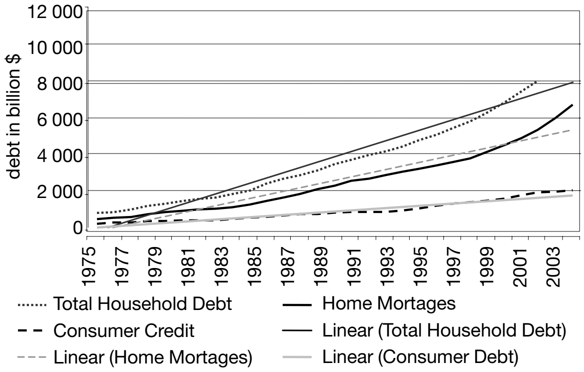
years, the average rise in real house prices across the country has been the fastest in US history.[21] However, averages tend to hide exaggerations in regional markets where increases were even more dramatic.

Does Recent Bank Lending Behaviour Indicate a Bubble?

The reallocation of resources, usually defined as the transfer of capital from lenders with a lack of investment ideas to borrowers who require money to implement their ideas, is generally acknowledged as an indispensable ingredient for economic growth.[22] However, the positive effects of debt financing turn into negative ones in situations where a bubble exists. A boom in asset prices can have a particularly damaging impact on the economy when it is combined with a rapid increase in credit. Credit and asset price cycles correlate and seem to feed one another.[23] Increasing asset prices stimulate the economy and reduce the cost of borrowing through higher collateral values.[24] This leads to rapid credit expansion in the financial system, which is often a strong indicator of future distress. The in-tandem behaviour between credit and assets is even stronger once asset price values decline and the economic situation worsens. In periods of declining house prices, borrowers' down-payments diminish. As a result, homeowners might be confronted with debt surmounting their home equity. The rapid expansion of credit is a major source of developing imbalances. In their paper, Borio and Lowe[25] conclude that a strong and fast increase in both asset prices and credit is a significant warning sign of potential financial problems in the future.[26] Obtaining a stable price level alone may not be enough to prevent these excesses.[27] Thus, such a simultaneous increase should caution policy-makers and fuel discussion about tighter monetary policy.

Hence, it seems fair to refer to credit growth as a major determinant of a bubble. Thus, whether or not credit growth has displayed abnormal behaviour in recent years which could provide proof of a bubble scenario in the real estate market must be evaluated empirically. The recent stock market bubble can be traced back to an excessive lending spree, previously unseen in financial history.[28] Private household debt surged to formerly unknown levels.[29] The central bankers of the Federal Reserve do not explicitly look at credit expansion as long as inflation is under control.[30] Hence, US monetary policy, focused among other things on short-term inflation, intensifies the risk of stronger credit expansion and more severe build-ups in credit.[31] This increases the risk of asset price bubbles occurring.

Figure 1
Credit Growth in the USA, Annual Data from 1975 to 2003



Sources: Federal Reserve: Households and Non-Profit Organizations (1), in: Flow of Funds Accounts of the United States 1975-1984, June 10, 2004; Federal Reserve: Households and Non-Profit Organizations (2), in: Flow of Funds Accounts of the United States 1985-1994, June 10, 2004; Federal Reserve: Households and Non-Profit Organizations (3), in: Flow of Funds Accounts of the United States 1995 to 2003, June 10, 2004; own calculations.

As can be seen in Figure 1, household debt increased continuously over the last three decades. The consumer financial position significantly worsened. The alarming part of the general picture is the increase in credit growth rates that began around 1998. Debt levels took off, spurred largely by mortgage debt. To conclude, the growth spurt in credit increases the likelihood of a bubble in housing prices and has the potential to lead to future imbalances. Let us now

[21] Betting the house, in: The Economist, Vol. 366, No. 8314, 2003, pp. 72-73.

[22] A. Bollard, op. cit., p. 4.

[23] A. J. Schwartz: Comments: Shifting the Risk after Shifting the Focus, in: W. C. Hunter, G. G. Kaufman, M. Pomerleano (eds.), op. cit., pp. 383-387; J. Caruana, op. cit., p. 537.

[24] C. Bean: Asset prices, financial imbalances and monetary policy: are inflation targets enough?, BIS Working Papers, No. 140, 2003, p. 13.

[25] C. Borio, P. Lowe: Asset prices, financial and monetary stability: exploring the nexus, BIS Working Papers, No. 114, 2002, p. 11.

[26] See also F. Allen, D. Gale: Bubbles, Crisis, and Policy, in: Oxford Review of Economic Policy, Vol. 15, No. 3, 1999, pp. 9-18.

[27] BIS, op. cit., p. 139.

[28] Bubble and squeak, in: The Economist, Vol. 364, No. 8292, 2002, pp. 22-24.

[29] S. Barnes, G. Young: The rise in US household debt: assessing its causes and sustainability, Bank of England Working Paper, No. 206, 2003, p. 11; see also Figure 1.

[30] This is a main difference to the policy-making process of the European Central Bank (ECB), where special attention is paid to monetary growth (pillar two, measured via M3). By looking at the money supply and thus at credit, the ECB has the potential to fight bubbles at an earlier point in time.

[31] C. Borio, P. Lowe, op. cit., p. 1.

search for traces of bubble triggers in the conduct of US monetary policy.

Monetary Policy of the Federal Reserve System

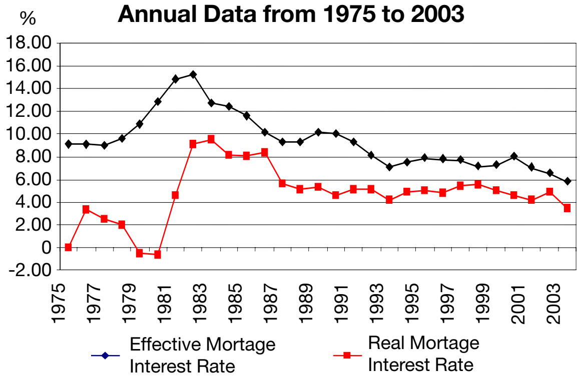
The monetary policy of the Federal Reserve in recent years has frequently been described as very expansionary by most financial market analysts, at least when it is compared to the more recent ECB policy. The Federal Reserve started its monetary easing cycle at the beginning of 2001, after the burst of the tech stock bubble and the general downturn in equities. Since then it has extraordinarily lowered interest rates from 6.5% to a 45-year low of one per cent. By this, the markets were provided with ample liquidity to avoid a more severe downturn and panic in the financial system. So far, the Federal Reserve has been successful in achieving its goals. The economy has recovered faster than expected and is still growing at a healthy pace, with inflation stable. In addition, employment figures have started to catch up. The question that remains is whether or not the Federal Reserve has increased the chances of a housing bubble by injecting too much liquidity into the financial system and by keeping nominal and real interest rates too low for too long.

Profits from buying homes for investment purposes are increasing, because real interest rates take values below zero. Additionally, reduced interest rates lower the discount rate on future cash flows and asset investments are becoming more profitable.[32] Demand rises with profit increases. Rising liquidity in turn enhances the demand for assets.[33] Excess liquidity increases the likelihood of a bubble. The growth in liquidity has led to portfolio shifts from equities to real estate. Thus, it seems likely that the policy of the Federal Reserve has furthered and fed the upward pressure on house prices. It can be concluded that the behaviour of the Federal Reserve boosted rather than averted the potential for the formation of a real estate bubble. Let us now turn to the market for mortgages.

Mortgage Rates

Low interest rates in general, and together with them also low mortgage interest rates, are seen as a major determinant of increasing real estate prices. Currently nominal mortgage rates show historically low levels. However, according to Baker[34] it is the real mortgage interest rates and not the nominal ones that determine

Figure 2
Nominal and Real Mortgage Rates, Annual Data from 1975 to 2003



Sources: Federal Housing Finance Board: Monthly Interest Rate Survey, at: http://www.fhfb.gov/MIRS/mirs_t1.xls [14.07.2004], p. 1; own calculations.

housing prices, because lower real mortgage interest rates decrease the cost of buying a home. As can be seen in Figure 2, real mortgage interest rates stayed more or less stable over the last 15 years. Even if the inflation rate is expected to be higher in the future, this should not greatly influence real mortgage interest rates in the long run. Therefore, the data indicate that real mortgage interest rates have not put upward pressure on housing prices.

However, homebuyers may tend to focus on nominal mortgage rates, because they are not as aware of inflation as economic analysts. Case and Shiller[35] find in their survey that interest rates are a dominant factor in the decision-making process preceding the purchase of a home. It is reasonable to assume that private individuals will tend to disregard real mortgage interest rates in their decisions, especially now that inflation has been constant and low for two decades. Low nominal mortgage interest rates have enabled millions of homeowners in the USA to refinance their mortgages over recent years and to fix them at low interest rate levels for the future (see Figure 3). This enables homeowners to move into bigger and more expensive homes while holding their monthly mortgage expenses constant. Thus, demand for homes has increased and low interest rates may be one explanation for the recent rise in housing prices. Even though low interest rates are a fundamental reason for the rise in national housing prices, they cannot explain variations between different states.[36]

Record levels of mortgage debt also bear risks. The number of borrowers with weak credit histories that

[32] IMF, op. cit., p. 90.

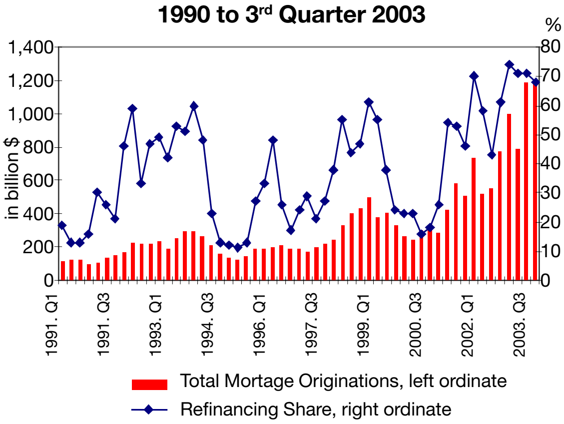
[33] IMF, op. cit., p. 89.

[34] D. Baker: The Run-Up in Home Prices: Is It Real or Is It Another Bubble?, in: http://www.cepr.net/Housing_Bubble.htm, 2002 [07.06.2004], p. 9.

[35] K. E. Case, R. J. Shiller, op. cit., p. 21.

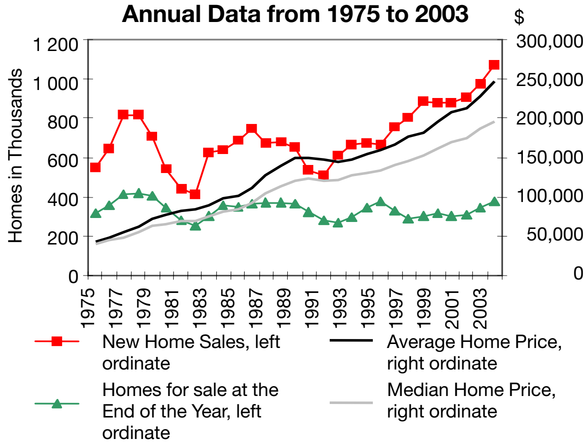
[36] K. E. Case, R. J. Shiller, op. cit., p. 3, see above.

Figure 3
Total Mortage Originations and Share of Refinancing Originations, Quarterly Data from 1st Quarter 1990 to 3rd Quarter 2003



Sources: Mortgage Bankers Association: Mortgage Originations: Total, Purchase, and Refinance at: http://www.mortgagebankers.org/marketdata/index.cfm?STRING=http://www.mortgagebankers.org/marketdata/rates.html [21.07.2004], p. 1; figure created by authors.

Figure 4
New Home Sales, Average and Median Prices, Annual Data from 1975 to 2003



Sources: Mortgage Bankers Association: Annual Sale of New Homes 1963 - 2002, at: http://www.mortgagebankers.org/marketdata/ [21.07.2004], p. 1; U.S. Census Bureau: Houses Sold by Region, at: http://www.census.gov/const/soldann.pdf [21.07.2004], p. 1; figure created by authors.

are approved for mortgages is growing.[37] The risk associated with this increase is that foreclosures could force homeowners to sell, thereby initiating lower prices. Furthermore, in 2002 mortgage debt accounted for 43 per cent of residential value, an increase of more than 11 per cent over the previous two decades.[38]

Another frequently stated argument is that low interest rates enable consumers to borrow more, thereby increasing their disposition to spend more on housing.[39] Compared to historical standards, the affordability index (mortgage interest payments on an average-priced home divided by average income) is still high.[40] This enables low-income first-time buyers, who were unable to buy a home before, to bid for relatively cheap houses and to become homeowners. This increase in demand, together with the shift in the type of house demanded by the different income groups, can potentially push up house prices to a new equilibrium level.[41] However, low-income households also have the highest debt-to-income levels.[42] This increases the risks connected with falling house prices.

Other Demand Factors

According to the US Census Bureau statistics, new home sales have increased constantly since the early 1990s (see Figure 4). This is quite atypical as empirical data suggest that housing sales behave very procyclically, with new home sales usually falling during recessions.[43] This could reflect a constant change in demand which would rationalise rising home prices. However, it might also be a sign of speculation. If houses are bought for speculative reasons, natural demand only plays a subordinate role. As a result, demand should not decrease during recessions. Hence, it is difficult to draw a conclusion on the existence of a real estate bubble merely based on the continuous increase in new home sales in isolation.

Over the last decades, the US government has launched several programmes to increase the number of home owners. Two organisations, Fannie Mae and Freddie Mac, have been established for this purpose and favourable tax deductions on mortgages have been put in place.[44] The private market has also sup-

[37] JCHS: The State of the Nation's Housing: 2003, in: http://www.jchs.harvard.edu/publications/markets/son2003.pdf [15.06.2004], p. 2.

[38] Ibid., p. 17. Moreover, between 2001 and 2003 homeowners converted more than $300 billion of their home equity into cash (Freddie Mac: Cash-Out Refi Report, in: http://www.freddiemac.com/news/finance/docs/cashout_volume.xls [15.07.2004], p. 1).

[39] Betting the house, in: The Economist, Vol. 366, op. cit., p. 72.

[40] U.S. Department of Housing and Urban Development: U.S. Housing Market Conditions, in: http://www.huduser.org/periodicals/ushmc/SPRING2004/USHMC-04Q1.pdf [21.07.2004], p. 65.

[41] Castles in hot air, in: The Economist, Vol. 367, No. 8326, 2003, pp. 8-10.

[42] S. Barnes, G. Young, op. cit., p. 11.

[43] H. Croke: The Run-Up in Housing Prices is Not a Bubble, in: http://www.cepr.net/columns/housing_bubble/no_housing_bubble.htm [29.06.2004], p. 1; T. Helbling, M. Terrones, op. cit., p. 68.

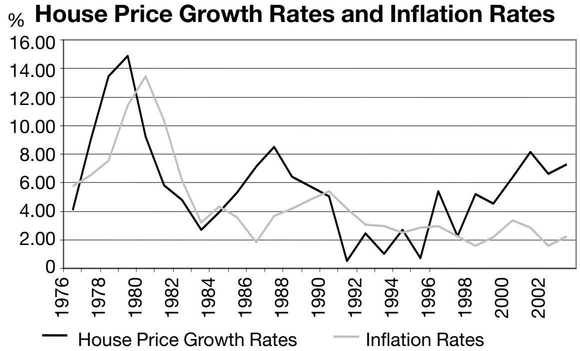
[44] H. Croke, op. cit., p. 2. In 2003, the government passed the American Dream Down Payment Act through which the Federal Housing Authority provides $200 million annually to assist families in fulfilling their down payment obligations (ibid).

Table 1
Income and House Price Changes and Annual Growth Rates over Different Periods of Time

	Percentage Change			Annual Growth Rates		
	1975-Q1-2004-Q1	1996-Q1-2004-Q1	2001-Q1-2004-Q1	29 years	8 years	3 years
Income Growth	644	49	10	7.2	5.2	3.2
House Price Growth	400	59	23	5.7	6.0	7.2

Sources: Office of Federal Housing Enterprise Oversight (OFHEO): House Price Index 2004; Bureau of Economic Analysis: SQ1 Personal Income, 2004, at: http://www.bea.gov/bea/regional/sqpi/ [22.07.2004]; own calculations.

Figure 5
House Price Growth Rates and Inflation Rates



Sources: OFHEO: House Price Index for the Census Divisions and U.S., at: http://www.ofheo.gov/media/pdf/1q04_hpi_reg.xls [20.06. 2004]; Bureau of Labor Statistics: Consumer Price Index - All Urban Consumers, U.S. All items, 1982-84=100, at: http://data.bls.gov/cgi-bin/surveymost?cu [15.07.2004], p. 1; own calculations.

plemented public measures. The procurement of mortgages has grown and deepening competition has improved mortgage lending conditions.[45] The success of these measures is evidenced by rising home-ownership rates in general and by increased low-income home-ownership in particular.[46]

In the past, income growth rates surpassed house price growth rates. However, the picture has reversed in recent years. Table 1 analyses growth rates during different time periods over the last three decades. While income growth rates declined from long-term levels, house price increases accelerated over the last three and eight years respectively. This shows that at a national level the escalation of house prices cannot be attributed to rising incomes.

Two methods that are useful for determining the fair and sustainable value of house prices are the price-earnings ratio and the house price to income ratio.[47] The ratio of average house price to average disposable income provides an indication of the affordability of housing. According to The Economist,[48] this ratio is currently five per cent above the average historic level. However, if one uses median income instead of average income,[49] the ratio is at a record 14 per cent above average. This supports the view that the drastic increase in house prices represents a bubble.

Further Evidence in Favour of the Bubble Case?

History shows a relatively stable correlation between US house price increases and inflation. Both variables tend to move in parallel. In times of rising or high inflation, real estate is bought as a hedge against the real devaluation of money. Since 1995, however, home purchase prices have outpaced the inflation rate by more than 40 per cent.[50]

The last time house prices grew remarkably faster than overall prices was at the end of the 1980s. Figure 5 shows that, after the positive exaggeration, growth rates levelled out for several years. Growth rates sank below inflation levels, and thus inflation was able to catch up again to bring the relationship between house prices and general inflation into balance again. This time, however, the positive deviations are higher and more sustained and inflation rates show low and stable levels. Inflation declined worldwide over the last two decades. If inflation remains around two per cent, house price growth rates will have to fall significantly or even enter the negative ("undershooting") to finally restore the equilibrium relationship between general inflation and housing price inflation. Negative growth rates on a national level would mean sharply declining prices in the most severe bubble areas. In sum, the gap between house price and general inflation appears to be an additional clear sign of fundamental

[45] Asset-backed security markets have become increasingly popular, with a large share being mortgage-backed security (MBS) transactions. New ways of structuring MBS deals have also improved the lending possibilities of the big state mortgage agencies, such as Freddie Mac. Additionally, real estate investment trusts are growing in volume and number (National Association of Real Estate Investment Trusts: Annual Market Capitalization, in: http://www.nareit.com/researchandstatistics/marketcap.cfm [30.07.2004], p. 1). Thus, real estate as a financial investment now plays a stronger role in fundamental demand than it has before.

[46] Please note that these statistics were arrived at by dividing the "owner households" by the "total occupied households". No information is given about the number of people who occupy the individual households.

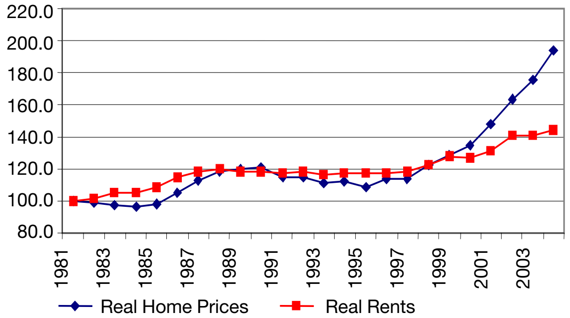
[47] Castles in hot air, in: The Economist, Vol. 367, op. cit., p. 8.

[48] Ibid., p. 9.

[49] This is supposedly a better reflection of the personal income of the average home buyer, because it excludes the few very rich people.

[50] D. Baker: The Housing Bubble in New England, in: http://www.cepr.net/New_England_Housing_Bubble.htm [07.06.2004], p. 1.

Figure 6
The Real Cost of Owning and Renting,[1]
Annual Data from 1st Quarter 1981 to 1st Quarter 2004, 1981 = 100



[1] The cost of renting is measured by the rent index of the CPI (Bureau of Labor Statistics: Consumer Price Index - All Urban Consumers: Rent of primary residence, at: http://data.bls.gov/servlet/SurveyOutputServlet?jrunsessionnid=109364408895128337 [30.07.2004], p. 1); the House Price Index is from the OFHEO: House Price Index für the Census Divisions ans U.S., at: http://www.ofheo.gov/media/pdf/1q04_hpi_reg.xls [20.06.2004], p. 1. Both indexes are deflated by the CPI minus the shelter component (Bureau of Labor Statistics: Consumer Price Index - All Urban Consumers: All items less shelter, at: http://data.bls.gov/servlet/SurveyOutputServlet?jrunsessionid=109364463708635786 [30.07.2004], p. 1) to show the real costs of buying a home compared to renting one.

Sources: See footnote; own calculations.

misalignments in the US real estate market. We now focus on another market which is generally assumed to be closely related to real estate via arbitrage processes.

Developments in the Rental Market

It is intuitively clear that an increase in rental costs exerts pressure on home prices. If buying a home for dwelling purposes becomes relatively cheaper than renting it, prices for residential housing may rise. One method of comparing the real cost of owning and renting is jointly analysing the inflation adjusted rent and the house price indexes (see Figure 6).[51]

As the graph indicates, the costs of purchasing and of renting a home have moved in parallel to each other. This appears reasonable, given that these costs influence each other. Currently, however, there are sharp divergences between these costs, real home prices exceeding real rents. While the two indices are likely to re-converge, it is more likely that this happens via falling house prices than by means of a sharp rise in rental costs. After the housing boom in the late 1980s housing prices declined relative to the rent index. Already, rising vacancy rates indicate a slow-down in rent increases.[52] For the indexes to converge without house prices falling, rent growth rates would have to be higher than house price growth rates for many years.[53] A drop in nominal house prices is not necessarily a prerequisite for re-establishing the relationship between the time-series realisations of house prices and rents. However, with inflation at a low and constant level, it would take a long time to bring the ratio back to the long-term averages without nominal house price decreases. Hence, from this point of view, lower nominal house price increases or even declines in the future, at least in regional markets, appear to be more likely than before. The specific age distribution of the US population is an argument in favour of rents catching up with house prices, without a decline in house prices.[54] Due to immigration, the share of young adults will increase. In addition, the baby-boomers' children will enter phases of starting households themselves. It is more likely that they and the immigrants will start out renting, hence pushing rental demand upwards over the following decade.

The lack of understanding or indifference of homebuyers with respect to the connection between future income streams (rents) and asset prices (housing) is reminiscent of the stock market boom in the late 1990s.[55] At that time, analysts, fund managers and private investors ignored the historically well-observed price-earnings ratios. Instead, they came up with new evaluation models and searched for reasons why the disconnection between corporate earnings and stock prices had lost importance. History proved them all wrong. Once an asset is bought solely for the purpose of reselling it for a higher price to someone else, the market is confronted with speculation and loses contact with its fundamentally justified level. The rise in the price-earnings ratio for houses also puts into question whether the real estate market is driven by fundamentals. The increasing population and supply rigidities should affect rents in the same way as they affect house prices. In sum, the price of real property should

[51] Following D. Baker: The Run-Up in Home Prices, op. cit., p. 6.

[52] U.S. Census Bureau: Rental and Homeowner Vacancy Rates for the United States, in: http://www.census.gov/hhes/www/housing/hvs/q204tab1.html [21.07.2004], p. 1.

[53] An explanation for the recent divergence between renting and buying could be a mixture of the incentives of home ownership, the ease of receiving credit and historically low interest rates. Another influence may emerge from individuals buying homes for speculative reasons. In such case individuals do not base their investment decisions on future income streams from rents but on a higher resale price at a future date. All this has decreased the attractiveness of renting and has increased rental vacancy rates in recent years (H. Croke, op. cit., p. 4; U. S. Census Bureau: Rental and Homeowner Vacancy Rates ... , op. cit., p. 1).

[54] JCHS 2004, op. cit., p. 24.

[55] E. E. Leamer: Bubble Trouble? Your Home Has a P/E Ratio Too, UCLA Anderson Forecast Quarterly, June 2002, p. 1.

[56] House of cards, in: The Economist, Vol. 367, No. 8326, 2003, pp. 3-5.

thus also reflect the future rental prices.[56] For all these reasons, the divergence of rents and house prices is a strong sign of a housing price bubble, rather than an economic occurrence justified by fundamentals.

Speculation

Another sign of a bubble in the real estate market may be the increasing frequency and volume of real estate trading.[57] Existing single-family home sales increased by 22.4 % between the end of 2001 and March 2004.[58] Increasing turnover often indicates speculation. Speculators can take advantage of the low interest rate situation and decrease their opportunity costs. If house price growth rates remain higher than interest rates, speculators can earn profits through buying and selling homes. In addition, they can receive rents as extra profits for the time they hold the property.

There were about 6.6 million second homes in the USA at the end of 2003. Generally, second homes are used as vacation residences. However, a recent analysis by the National Association of Realtors[59] shows that buying second homes for investment purposes has increased. According to their data, the share of second homes as an investment rose from 20 per cent in 1999 to 37 per cent in 2002. The number of second home sales in general increased from 288,000 in 1989 to approximately 445,000 units in 2003. In addition to private second home sales, the increasing number of real estate investment trusts adds to the number of houses being bought for investment purposes.[60] Even though speculative transactions are still limited compared to other transactions in the overall housing market, they could play an essential role once prices decline. If there is an expectation of lower prices in the market, investments will turn sour and be sold. In such a case, the home-owner/resident might keep his home and prefer to follow a wait-and-see strategy. However, the home-owner/speculator has to sell to avoid larger losses and to pay for his refinancing. Therefore, buying homes for investment purposes poses a threat to the real estate market and has the potential to worsen the downturn.

Arguments against Declining Nominal House Prices

In contrast to shares, nominal house prices rarely decline and almost never fall on a national level. Over the last two decades, average nominal national house prices in the USA have never fallen for a full year.[61] Home-owners tend to delay sales because they do not want to accept a capital loss. The belief that declining house prices (if they exist at all) are a temporary phenomenon tends to lead to a breakdown in the volume of real estate trading, but not necessarily to a decline in prices. Additional reasons for the downward nominal house price stickiness are high transaction costs, which are an inherent part of house sales, and the fact that housing is regarded as a *sine qua non*, and thus people try to pay their mortgages even in times of economic difficulty. This argument becomes less convincing however if one takes into account that a lot of houses are bought for investment reasons. People might not be able to afford mortgage payments if prices, and thus rents, decline.

The strongest factor speaking against a collapse in housing prices is the strong American and world economy, at least in 2004. Growth rates of the world economy have been at a thirty-year high and US growth has been pushed further due to strong domestic demand. The Purchasing Manager Index of the national Institute for Supply Management has reached old highs and investments are strong. These investments will eventually lead to a rise in employment. This tendency is already apparent; over one million new jobs were already created in the first six months of 2004. In the past, concentrated job losses were a prerequisite for declining home prices.[62] The opposite is true of the current situation. Thus, the potential for declining home prices – even after the burst of a potential bubble – is lower.

Differences within the USA – The Regional Perspective

The task of puncturing asset price bubbles is especially difficult for a monetary policy which is common for all US regions if these bubbles bear a distinct regional or local character. In this respect it is important to note that the potential housing bubble does not encompass the entire USA. Instead, real estate price movements within the USA diverge. On the one hand, areas with moderate growth rates which are totally in line with inflation and other fundamentals

[57] B. Renaud, op. cit., p. 240.

[58] National Association of Realtors: Existing Single Family Home Sales, Current Release June 2004, in: http://www.realtor.org/Research.nsf/Pages/EHSdata [08.08.2004], p. 1.

[59] National Association of Realtors: Profile of Second Homes: 2004 Update, in: http://www.realtor.org/Research.nsf/files/secondhome04.pdf/$FILE/secondhome04.pdf [08.08.2004], p. 1.

[60] National Association of Real Estate Investment Trusts, op. cit., p. 1. Although real estate investment trusts invest largely in commercial real estate, they also participate in the residential real estate market, albeit mainly in metro areas.

[61] J. Krainer: House Price bubbles, Federal Reserve Bank of San Francisco Economic Letter, No. 2003-06, 2003, p. 2.

[62] JCHS 2003, op. cit., p. 8.

Table 2
Housing Price Changes and Annual Growth Rates

Rank	State	Percentage Change 1975-Q1-2004-Q1	1996-Q1-2004-Q1	2001-Q1-2004-Q1	Annual Growth Rates 29 years	8 years	3 years
1	Rhode Island	639	88	**51**	7.1	8.2	**14.7**
2	District of Columbia	853	107	**50**	8.1	9.5	**14.4**
3	California	893	104	**41**	8.2	9.3	**12.0**
4	New Jersey	554	74	**37**	6.7	7.2	**11.1**
5	Maryland	462	60	**36**	6.1	6.0	**10.9**
6	Massa-chusetts	794	107	**36**	7.8	9.5	**10.7**
7	Florida	321	71	**35**	5.1	6.9	**10.6**
8	New Hamp-shire	582	98	**35**	6.8	8.9	**10.5**
9	New York	542	75	**35**	6.6	7.2	**10.4**
10	Hawaii	499	29	**35**	6.4	3.2	**10.4**
11	Maine	748	72	**32**	7.7	7.0	**9.7**
12	Nevada	398	49	**31**	5.7	5.1	**9.3**
13	Conecti-cut	489	62	**30**	6.3	6.3	**9.0**
14	Virginia	357	59	**30**	5.4	6.0	**9.0**
15	Delaware	375	54	**28**	5.5	5.5	**8.7**
18	**USA**	**400**	**59**	**23**	**5.7**	**6.0**	**7.2**

Sources: Office of Federal Housing Enterprise Oversight (OFHEO): House Price Index 2004; Office of Federal Housing Enterprise Oversight (OFHEO): House Price Index for the individual state, 2004, at: http://www.ofheo.gov/media/pdf/1q04_hpi_sts.xls [08.07.2004]; own calculations.

can be found. However, history tells us that housing bubbles have almost never been a nationwide occurrence. On the other hand, at present, many regional markets have experienced strong and persistent price increases. These areas include the coastal areas, with the most extreme housing price growth in the New England area and California. So far, the analysis has been limited to national data. This enables one to view the situation in the USA in general. This is necessary as the Federal Reserve works to find responses that serve the country as a whole, rather than the individual states. However, real estate markets have a regional rather than a national character.[63] Hence, it is of great importance also to assess whether regional exaggerations pose a threat to the economy as a whole. Table 2 lists the 15 states with the top housing price increases over the last three years, as well as the increases that occurred in the USA as a whole.[64] In addition, it provides data on three time periods to follow closely the pattern of the increase in growth rates over recent years.

Ten of the fifteen states lead the ranks in each of the three time periods analysed. Growth rates in general are accelerating. As mentioned above, these states also have a higher housing price volatility. Growth rates which exceed ten per cent are generally regarded as clearly unsustainable. Beyond doubt, the consensus view among analysts is that the exorbitant real estate price increases in cities like Boston, Los Angeles, San Diego and Miami are excessive. Hence, in these cases declines in growth rates are unavoidable and decreasing nominal house prices on regional levels are quite likely. Hence, significant parts of the US real estate market will probably come under massive downward price pressure. It has to be noted that many states with high housing price increases are at the lower ranks of income increases (see Table 3). In other words, the excessive growth rates are not justified by rising income in the respective area.

The 15 states with the biggest bubble potential, listed in Table 3, represent 38.2 per cent of the population and 42.6 per cent of the gross domestic product of the USA. Additionally, they encompass important business areas. As a result, economic disturbances provoked by bursting regional real estate market bubbles have the capacity to damage the economy as a whole. Moreover, consumer confidence will fall jointly with house prices. Contagion effects to other regional real estate markets may occur as well. However, for individual markets some justification for growing home prices might be found. For example, Nevada ranks number one in income growth for both the last eight and the last three years. Hawaii and Florida are famous for vacation homes. However, it is quite obvious that home prices have reached unsustainable growth rates in most of the east and west coast states, but not in the central and mountain states. Coastal states have the greatest economic significance. Hence, it can be inferred that bursting real estate bubbles at regional levels pose a threat to the American economy.

Conclusions

Seen on the whole, our analysis has shown that the question of whether the rapid increase in real estate prices reflects a bubble or is based, rather, on fundamentals does not have a clear-cut answer. However, it seems fair to say that bubble symptoms clearly dominate over evidence of fundamentals. Expansionary monetary policy appears to have flooded the markets with liquidity and provided the preconditions for the bubble. The increasing amount of credit is a well-

[63] D. Baker, S. Baribeau: Homeownership in a Bubble: The Fast Path to Poverty?, in: http://www.cepr.net/homeownership_in_a_bubble.htm [07.06.2004], p. 4; A. Greenspan: Home Mortgage Market, in: http://www.federalreserve.gov/boarddocs/speeches/2003/20030304/default.htm [08.06.2004], p. 3.

[64] While the District of Columbia is not a state, it is looked at separately.

Table 3
Population, Gross State Product and Income Ranks of 15 States with Highest Three-Year Percentage Change in House Prices

	Population in 2000	Per-cent-age of USA	Gross State Product in $ million, 2001	Per-cent-age of USA	Income Rank	
					3-year aver-age	8-year aver-age
Rhode Island	1,048,319	0.4	36,939	0.4	19	29
District of Columbia	572,059	0.2	64,459	0.6	34	23
California	33,871,648	12.0	1,359,265	13.4	45	8
New Jersey	8,414,350	3.0	365,388	3.6	43	27
Maryland	5,296,486	1.9	195,007	1.9	9	12
Massachu-setts	6,349,097	2.3	287,802	2.8	51	19
Florida	15,982,378	5.7	491,488	4.8	11	9
New Hamp-shire	1,235,786	0.4	47,183	0.5	46	16
New York	18,976,457	6.7	826,488	8.2	48	46
Hawaii	1,211,537	0.4	43,710	0.4	5	52
Maine	1,274,923	0.5	37,449	0.4	12	18
Nevada	1,998,257	0.7	79,220	0.8	1	1
Connecticut	3,405,565	1.2	166,165	1.6	52	36
Virginia	7,078,515	2.5	273,070	2.7	13	7
Delaware	783,600	0.3	40,509	0.4	10	22
Sum (15)	**107,498,977**	**38.2**	**4,314,142**	**42.6**		
USA	281,421,906		10,137,190		35	25

Sources: Office of Federal Housing Enterprise Oversight: House Price Index 2004; Office of Federal Housing Enterprise Oversight: House Price Index for the individual state, 2004; Bureau of Economic Analysis: SQ1 Personal Income, 2004; Bureau of Economic Analysis: Gross State Product 2001, at: http://www.bea.gov/bea/regional/gsp/ [30.07.2004], p. 1; U.S. Census Bureau: State Population Datasets, Population July 1, 2003, at: http://eire.census.gov/popest/nat_st_dataset.csv [30.07.2004]; own calculations.

known and econometrically robust indication of future difficulties with inflation. The divergence of housing price time-series from those of the inflation rate and from the development of rents is a clear indication of misalignments in the real estate market and a bubble component contained in the recent US boom. In addition, private sector expectations about future price increases are highly unrealistic, because double-digit growth rates are neither sustainable nor observed in history. If, additionally, the fact that short sales are impossible is taken into consideration and the resulting price setting is regarded as too optimistic by far, a quite explosive mixture emerges.

Low short-term interest rates, low fixed mortgage interest rates and even lower adjustable-rate mortgage interest rates are the most important fundamental reasons for the increase in house prices. Low interest rates have enabled low-income households to become first-time buyers. Thus, housing demand was shifted towards more expensive homes, while monthly mortgage payments stayed constant. However, they do not explain price growth differences between the individual states. Another important fundamental factor that speaks in favour of rising house prices is the demographic pattern of the US population. High birth rates and the continuous stream of immigrants have endorsed rising prices in the past and increase the possibility of maintaining prices at a high level in the future. Government actions have also supported access to housing. However, the scale of this support has been rather limited.

In contrast, the strong recovery of the economy does not appear to be a fundamental reason for the rapid increase in house prices, but it may help to prevent nominal prices from falling in the future. The result of the analysis of the supply side of real estate is ambiguous. While real estate bubbles can only be found in some specific regional markets, the extent of the economic importance of these "bubble" states is large. This pushes the problematic developments in the regional real estate markets up to a national level with economy-wide implications.

We see two possibilities for the burst of the bubble. First, due to the currently observed misalignment of house prices and general inflation, prices will either decline in real or, worse, in nominal values. To restrict the necessary price declines to real values, inflation rates have to pick up and exceed two per cent for the next few years. Only in such a case can major misalignments be eased without a nominal drop in housing prices. The general probability of an increase in inflation rates is currently quite high due to comparatively low interest rates world-wide. Second, nominal price declines may be avoided through economic growth. As long as the employment situation improves, individuals will not be put under pressure to sell their homes. However, if inflation remains at low levels or sentiment over future house price developments changes, nominal house price declines become more likely. Nominal price declines, even if limited to the US states with the biggest increases in home prices, would have damaging effects on the real economy. In addition, the danger in the present situation has been increased because rising house prices are accompanied by a proportionately larger rise in household debt.

For these reasons, the Federal Reserve is urged to respond to the real estate price bubble which has been established, for instance, by the analysis in this paper. Above all, the tenor of our paper is that it should do so by informing the public that house price growth rates are unsustainable and that there is a high risk of a future fall in these prices. It should not stick to vague insinuations but, instead, should disclose the main reasons (as derived in this paper) for its assessment. Which markets are concerned? Which numbers give reason for worry? Only if implemented in this way will the warnings reach the consumers and hence clarification is a strong weapon. In general, central banks are in a comfortable position and can take the relaxed role of a neutral observer. They are not part of the market, are not driven by special interests and do not find themselves under pressure to act immediately. And they can convey a signal that, for example, a price-earnings ratio on a certain asset market is high as compared to a long-run average. In this case, it is private investors who have to draw the correct conclusions from it.

Only if there is no effective information policy and if there are significant medium run dangers for stability which clearly emerge from the asset markets, should the central bank raise interest rates – however, this time not merely by a warning shot of a small and cautious small-scale increase but with determination. However, this would only represent a stopgap solution. In a more general context, the strategy of puncturing a real estate price bubble by raising short-term interest rates would bear high risks, as frequently stressed by the ECB chief economist Otmar Issing. On the one hand, a strong interest rate increase might lower investment in physical capital and thus hamper economic growth. On the other hand, a strategy of "leaning against the wind", i.e. a pre-emptive little bit more restrictive monetary policy than usual if a bubble is identified and a slightly more expansionary policy if prices plummet, also does not appear to be feasible since especially price bubbles which are in the process of manifesting themselves are extremely difficult to identify. In this phase, the probability of a wrong diagnosis is tremendously high. In addition, a slight increase in interest rates would probably not be sufficient to end speculation. Finally, as shown in this paper regional real estate price movements within the USA diverge, which makes the task of puncturing bubbles even more difficult for a monetary policy which is common to all US regions.[65] This again shows the important role of a sound central bank information policy when fighting asset price bubbles.

Mervyn King, the Governor of the Bank of England, recently started to explicitly warn the public that property prices in the UK had reached unsustainable levels. In the ideal case, this example of a sound information policy should be followed by Federal Reserve officials. However, until the end of 2004 the Federal Reserve has denied the existence of a bubble. Furthermore, the Federal Reserve even questioned the ability of a central bank to recognise bubbles. Revealingly, a study recently published by the Federal Reserve Bank of New York[66] concludes that there is no bubble in the housing market. But how can it be impossible to recognise bubbles, but at the same time, possible to recognise the non-existence of a bubble?[67] In the same vein, Fed chairman Alan Greenspan did not see any parallels between the current state of the real estate market and the performance of the stock market more than four years ago. He thinks nothing of talking from both sides of his mouth about whether he can identify a bubble. He blows the biggest one in history, but claims he did not know it was happening. And then he bails it out with a housing bubble that he says cannot exist because real estate cannot experience a bubble.

Ironically, Greenspan was even right in principle. The fall in housing prices will not be as extreme as the fall in stock prices was. However, it has to be taken into account that a much smaller drop in housing prices has the capacity to harm the economy a good deal more. Some analysts argue that if there were a bubble in the real estate market, it should have burst already. However, one should be careful with premature conclusions with an eye on the fact that the boom in US equities at the end of the 1990s also lasted much longer than expected by many market participants. In addition, the subsequent downturn in financial markets was also larger.

In sum, the dangers of a continuous inflation of the housing bubble are too large not to respond at all. The Federal Reserve at least implicitly reacted in 2004 by raising interest rates in several consecutive steps. However, a sound information policy might have been the better alternative. Hopefully, the ECB will stick to a communication strategy superior to that of the Fed these days and will not play down the dangers of a real estate price bubble in the euro area.

[65] The ECB is confronted with a similar situation of steeply increasing real estate prices in France and Spain whereas house prices in the largest euro area country Germany have tended to fall in the last couple of years.

[66] J. McCarthy, R. W. Peach: Are Home Prices the Next "Bubble"?, Federal Reserve Bank of New York Economic Policy Review, Vol. 10, 2004, No. 3.

[67] By the way, this view is even corroborated by a Fed transcript. Today's housing bubble in the USA is a consequence of policies designed to ameliorate the effects of the bursting of the stock-market bubble. All in all, it does not seem to be too far-fetched to place the blame for the stock and real-estate bubbles squarely on Alan Greenspan and his easy-money colleagues at the Fed. Consequently, it was with interest that one could read "Fed Officials Worried in 1999 About Managing Stock 'Bubble'" in the Wall Street Journal of 7 March 2005. The article discusses the fact that in 1999 Fed officials were aware of the stock-market bubble, even though they claimed before and after not to have known. See explicitly the just released revealing December 1999 Federal Open Market Committee minutes (Federal Reserve: December 1999 Federal Open Market Committee Transcripts, at: http://www.federalreserve.gov/fomc/transcripts/1999/19991221meeting.pdf [22.06.2005]).