

# Real Estate Bubbles and Monetary Policy – the US Case<sup>1</sup>

Ansgar BELKE – Marcel WIEDMANN\*

---

## Abstract

*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, also monetary policy in the euro area in these days 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.*

*Our aim is to divide the valuation of the US housing market into a “bubble” component and into a fundamentally justified component. For this purpose, the US real estate market and its peculiarities are described and empirical indications of a bubble are identified. We contrast the empirical results with the ongoing question 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.*

**Keywords:** *asset prices, bubbles, Federal Reserve, real estate, monetary policy, inflation*

**JEL Classifications:** E52, G12

---

## 1. Introduction

In the United States of America (US), the first years of the new millennium have shown record levels of both, the amount of real estate sales and the value of house prices. This pattern has evolved notwithstanding difficult economic conditions, entailing phases of rising unemployment and insignificant or negative

---

\* Ansgar BELKE – Marcel WIEDMANN, University of Hohenheim and IZA Bonn, Department of Economics, Chair of International Economics (520E), 70593 Stuttgart, Germany; e-mail: belke@uni-hohenheim.de

<sup>1</sup> We gratefully acknowledge valuable comments from Thorsten Polleit and two anonymous referees.

growth rates. Increased spending on housing and related items have prevented a 'double dip' recession or a more ruthless downturn in the economy. 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 USD333 billion, compared to USD114 billion in the next highest period, 1998 – 2000 (Joint Center for Housing Studies of Harvard University (JCHS), 2004, p. 7). The ongoing high levels of private consumption are extremely important for the economy of the US, because consumer spending accounts for more than two thirds of total demand. Over recent years, the average rise in real house prices across the country has been the fastest in US history (The Economist, 2003a, p. 72). However, averages tend to hide exaggerations in regional markets where increases were even more dramatic.

Six years after the peak of the stock market boom, the economy of the US has picked up again, investment has increased, financial markets have left their troughs and jobs are being created. Rising real estate prices have contributed to ongoing domestic demand and a high level of consumer confidence. However, the house price increases have been exorbitant during the last ten years. Nominal house prices rose an average of six per cent per year.<sup>2</sup> In addition, they outpaced inflation by more than 45 per cent, which is, historically speaking, highly atypical. Therefore, the question was raised by various people, from journalists to economists to central bank officials, of whether the boom in the real estate market has become a bubble and whether house prices have already reached unsustainable levels.

In addition, history shows that once housing prices decline the economy is in for a bumpy ride. A downward pressure on the real estate prices would be highly problematic since many consumers have already spent the capital gains from the real estate market. Especially today, with a record current-account deficit and a negative household saving rate, this could cause the American economy to slip into a recession.

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 recently expressed by the European Central Bank (ECB), similar fears are relevant for the euro area. This is especially true in the cases of Spain and France. Real estate prices in Spain have risen by more than 75 per cent within the past four years, in France by more than 50 per cent.

---

<sup>2</sup> 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 question is how to proceed. In contrast to earlier statements, the ECB is now of the opinion that speculative exaggerations can be identified before they have occurred. Recognizing a bubble in real-time is possible through historical comparisons of index numbers like, for instance, the relationship between house prices and rents and/or between house prices and overall inflation. Important insights can also be gained through a deeper analysis of the development of price-earnings ratios on stock markets and/or the degree of excess liquidity and of credit supply. Admittedly, no index number is a good and sufficient indicator on its own.<sup>3</sup> Instead, one needs a comprehensive analysis based on a number of indices as applied in this paper.

The attempt to provide an answer to the question of 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 of tackling such a question, it is no surprise that so far a final conclusion has not yet emerged in the literature. As a second step, based on the results of our findings the subordinate objective is to find the best policy reaction for the Federal Reserve to handle the current situation.

The outline of the paper is as follows. Section two is divided in four parts. First, it provides an analysis of asset price bubbles. Second, the real estate market and its specialties are described. Parts three and four, which represent the majority of this paper, analyze the current situation in the US real estate market. On the one hand, possible fundamental drivers are introduced, which are discussed controversially in the literature. On the other hand clear bubble indications are presented. Section three provides a conclusion.

## **2. Boom or Bubble in the US Real Estate Market?**

### **2.1. Definition and Repercussions of Asset Price Bubbles**

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 (Mussa, 2003, p. 41).<sup>4</sup> Assets are often bought to generate

---

<sup>3</sup> In the case of Spain, for instance, parts of the increase in real estate prices can be attributed to the introduction of the euro which blessed the country with a significantly lower interest rate level. Problems of a single-focus analysis are also well-known from the analysis of statistically measured liquidity.

<sup>4</sup> In contrast to asset prices, consumer prices include goods and services that are consumed for every-day living, such as food, gas or automobiles.

earnings (Bollard, 2004, p. 1). All are essential macroeconomic variables. However, their impact on the real economy differs. In addition, they are indicators of the issues that monetary policy is concerned with, largely, general price stability and economic growth.<sup>5</sup> 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 behavior, credit cycles and output than stock price fluctuations (see Helbling and Terrones, 2003, p. 68; BIS, 2001, p. 127; Barata and Pacheco, 2003, p. 11; Case, Quigley and Shiller, 2001, p. 14; Detken and Smets, 2004, p. 13; Caruana, 2003, p. 539). While boom phases of a bubble have short-term benefits for the economy, 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 (BIS, 2001, p. 123; Allen and Gale, 2000, p. 236). As a result of the wealth effect, asset price swings also affect the real economy through the consumption channel (Just, 2003, p. 4). In addition, investment behavior, through a change in external financing costs due to altering collateral and net asset values, is also impacted by the movements of asset prices (IMF, 2000, p. 99; Detken, Masuch and Smets, 2003, p. 2). Aside from these real transmission channels, the positive impact on consumer sentiment also influences spending decisions (Kent and Lowe, 1997, p. 5).

But what in the end is a bubble? Different definitions of bubbles are distinguished in the literature. According to Kroszner's (2003, p. 3) view, asset price bubbles "represent a mispricing of asset values by the market". This is in line with the definition put forward by Kindleberger (1987, p. 281) who states that one element of a bubble is that prices increase faster than can be explained by market fundamentals. The most difficult task is to identify whether asset price increases reflect economic fundamentals, or whether the rise is related to the "irrational" behavior of economic agents. Of course, not every fast rise in prices represents a bubble. For example, Meltzer (2003, p. 23) refers to the German Reichsbank's monetary acceleration and the people's rational expectation of rising prices. The difficulty in determining asset price bubbles not only exists *ex ante*, but also *ex post*. This enhances the challenge for policy makers to deflate, i.e. to puncture, asset price bubbles. A convincing indication of a bubble is given if people purchase an asset solely because they believe that the asset will be

---

<sup>5</sup> 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.



priced higher tomorrow (Meltzer, 2003, p. 23; Case and Shiller, 2003, p. 16). 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" (1987, p. 281). In such kind of situations, markets do not manage to get prices right. Such mispricing is sometimes aggravated by herding behavior and 'irrational exuberance.'

A large body of economic analysis assumes that economic agents act on the basis of rational expectations. If this is taken for granted, the occurrence of asset price bubbles would be difficult to justify. The only explanation for prices rising for reasons except of movements in their fundamentals would be that people behave rationally if they believe that other people will buy their assets for a higher price at a later point in time. However, if all economic agents behaved entirely rationally, they would know that not everyone would be able to sell in the future. Thus, in this case no bubbles would emerge. With respect to the severe and increasing volatility of real and financial asset prices, rational behavior across the board is not a realistic assumption.<sup>6</sup> Hence, the existence of bubbles cannot be excluded *ex ante*. Even though theoretical views on the subject differ, the existence of bubbles is at least supported by empirical evidence.<sup>7</sup> For the remainder of this paper, a bubble exists, if prices increase faster than can be explained by market fundamentals.

## 2.2. Real Estate Market Characteristics

Real estate markets around the world are still characterized by a lack of adequate information and insufficient market infrastructure (Renaud, 2003, p. 239). Good quality and timely data is scarce. Transaction costs are high and prices are often determined on the basis of bilateral negotiations (Hilbers, Lei and Zacho, 2001, p. 28). Low transparency and the absence of a central trading market complicate the purchase of homes. The traded objects are characterized by ample heterogeneity. In addition, people buy houses for two different reasons: either as a durable good to live in or as an investment good to bet on higher prices in the future or both. The reasoning behind the purchase has influence on demand and price. Whereas consumers' demand should be influenced largely by the development of

---

<sup>6</sup> Further reasons for the difficulty of including rational expectations in bubble modeling are given in Kent and Lowe (1997, p. 17).

<sup>7</sup> This discussion is closely related to the question of whether or not the "efficient market hypothesis" reflects reality. A broad discussion of the "efficient market hypothesis" can be found in Malkiel (2003).

rents and house prices (see part 3.2), investors demand is determined by price expectations (see part 3.3). The supply side in real estate markets is very rigid. New land must be made available for new construction which can be a 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 can not 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 (Herring and Wachter, 2002, p. 4). The investors' inability to imply '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, "optimists, those with reservation prices above the fundamental value, will determine the price in this kind of market with no short sales and fixed supply" (Herring and Wachter, 2002, p. 4). 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.

### **3. Points for Discussion**

#### **3.1. The Role of the Banking System**

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 (Bollard, 2004, p. 4). 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 credits. Credit and asset price cycles correlate and seem to feed one another (Schwartz, 2003, p. 387; Caruana, 2003, p. 537). Increasing asset prices stimulate the economy and reduce the cost of borrowing through higher collateral values (Bean, 2003, p. 13). This leads to rapid credit expansion in the financial system, which is often a strong indicator of future distress.<sup>8</sup>

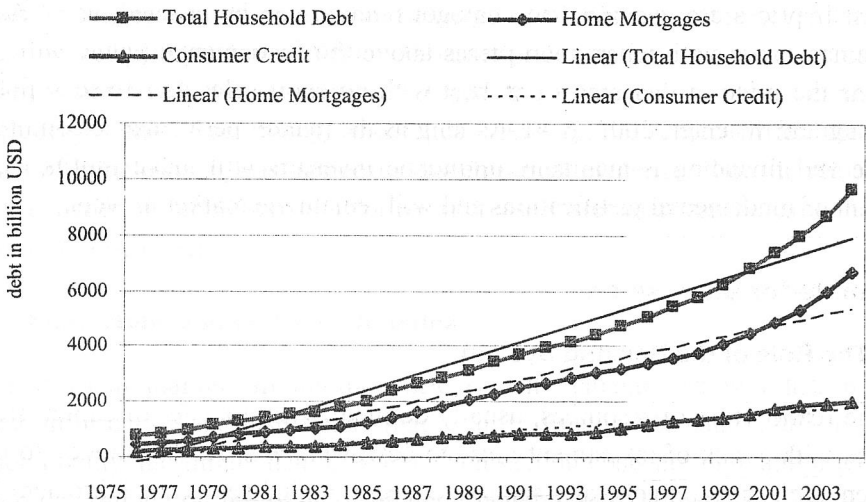
---

<sup>8</sup> The in-tandem behavior 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-

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 behavior 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 (The Economist, 2002, p. 22). Private household debt surged to formerly unknown levels (Barnes and Young, 2003, p. 11; see also Figure 1). The central bankers of the Federal Reserve do not explicitly look at credit expansion as long as inflation is under control.<sup>9</sup> Hence, US monetary policy, focused among others on short-term inflation, intensifies the risk of stronger credit expansion and more severe build-ups in credit (Borio and Lowe, 2002, p. 1). This increases the risk of asset price bubbles.

Figure 1

**Credit Growth in the US, Annual Data from 1975 to 2003**



Data sources: Federal Reserve (2004a-c, p. 54) and own calculations.

-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 (2002, p. 11) 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 (see also Allen and Gale, 1999, p. 11). Obtaining a stable price level alone may not be enough to prevent these excesses (BIS, 2001, p. 139). Thus, such a simultaneous increase should caution policy makers and fuel discussion about tighter monetary policy.

<sup>9</sup> This is a main difference in the policy making process of the ECB, where special attention is paid to monetary growth (pillar two, measured via M3). By looking at the money supply and thus to credit, the ECB has the potential to fight bubbles at an earlier point in time.

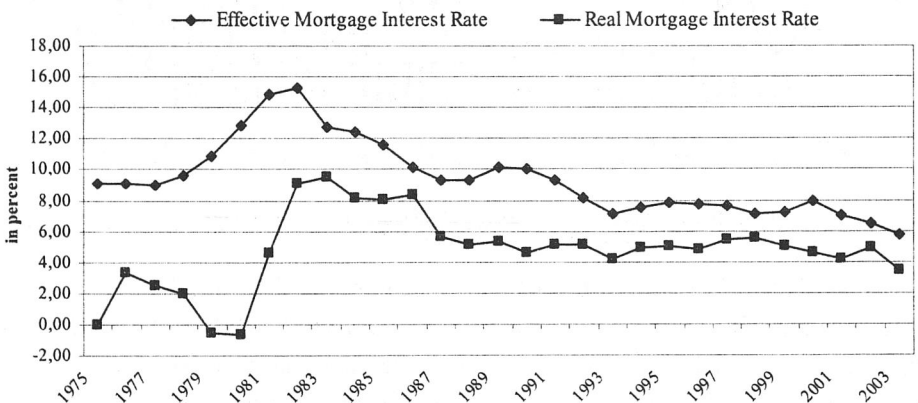
As can be seen in Figure 1, household debt increased continuously over the last three decades. The consumer financial position significantly worsened. The alarming aspect of the general picture is the increase in credit growth rates that began around 1998. Debt levels took off, spurred largely by mortgage 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.

### 3.2. The Mortgage Market

Low interest rates in general, and joint with it also low mortgage interest rates, are seen as a major determinant of increasing real estate prices. Currently nominal mortgage rates take historically low levels. However, according to Baker (2002, p. 9), it is the real mortgage interest rates and not the nominal ones that determine 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 indicates that real mortgage interest rates have not put upward pressure on housing prices.

Figure 2

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



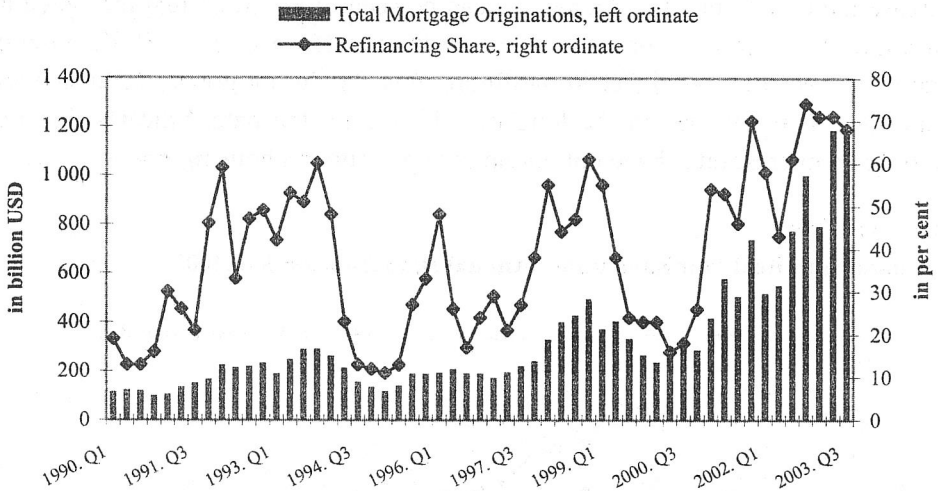
Data sources: Federal Housing Finance Board (2004, p. 1) and own calculations.

However, homebuyers may tend to focus on nominal mortgage rates, because they are not as aware of inflation as economic analysts. Case and Shiller (2003, p. 21) 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.<sup>10</sup> Low nominal mortgage interest rates have enabled millions of homeowners in the US to refinance their mortgages over the last years and to fix them on 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, variations between different states can not be explained (Case and Shiller, 2003, p. 3; see section 2.6).

Figure 3

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



Data source: Mortgage Bankers Association (2004a, p. 1); Figure created by authors.

Record levels of mortgage debt also bear risks. The number of borrowers with weak credit histories that are approved for mortgages is growing (JCHS, 2003, p. 2). 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 last two decades (JCHS, 2003, p. 17).<sup>11</sup>

<sup>10</sup> This is actually an award for a central bank, because the perfect inflation rate is one that does not effect investment decisions.

<sup>11</sup> Moreover, between 2001 and 2003 homeowners converted more than USD300 billion of their home equity into cash (Freddie Mac, 2004, p. 1).

Another influence is the tax deductibility of mortgage interest, which is further decreasing mortgage costs. Additional encouragement for residential investment can be found in the low volatility of major macroeconomic variables, such as interest rates, income growth and the unemployment rate (Croke, 2003, p. 3). These variables remained more stable in comparison to other recession periods. This reduced uncertainty for potential homebuyers.

In recent years adjustable rate mortgages became more popular. As of April 2004, 50 per cent of new mortgages were adjustable rate mortgages (CIBC, 2004, p. 2). For owners of adjustable rate mortgages rising interest rates will lead to higher monthly payments. This will reduce their disposable income, decrease spending and force some homeowners to sell their homes. In sum, low mortgage rates can be seen as a demand driver because they enable homeowners to move into more expensive homes while their monthly mortgage payments remain stable. In addition, a high share of adjustable rate mortgages could be a trigger for falling prices once homeowners can no longer afford their monthly payments and have to sell their homes.

### 3.3. Demographic Factors

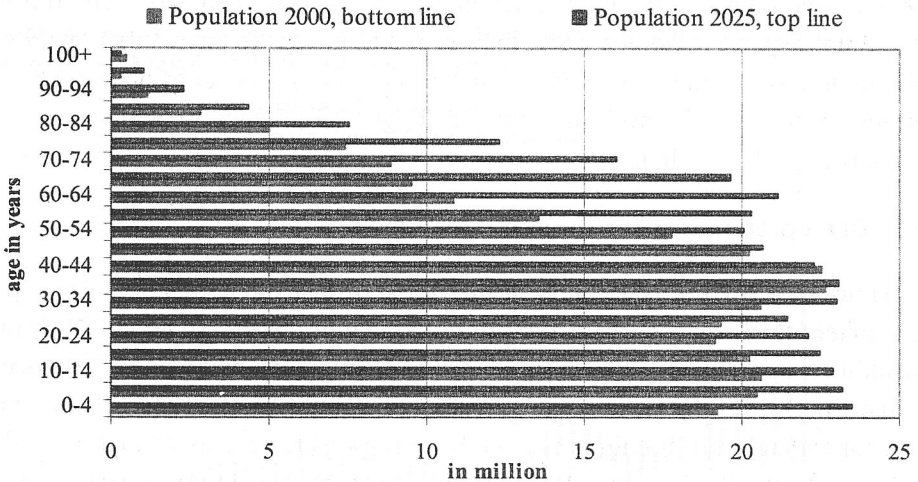
Household growth is a major driving force of real estate demand. An important determinant of household growth is population growth. The US birth rate, in addition to the continuing large stream of immigrants, can be seen as a driver of demand for housing. Although growth rates are declining they will stay positive for a long time. Immigrants have been responsible for more than a third of household growth since the 1990s (JCHS, 2004, p. 11). Minority shares of US households went up from 17 per cent in 1980 to 26 per cent in 2000 (JCHS, (2004, p. 13) estimates that this share will reach 34 per cent by 2020. Thus, immigrants will continue to drive housing demand. Additionally, currently many immigrant households have below average incomes and rent their homes. Once this situation has changed, these households will try to enter the market as buyers. The increased availability of capital for low-income and minority communities makes this outcome even more likely (JCHS, 2004, p. 4).

Figure 5 shows the actual and forecasted distribution of population by age for the year 2000 and 2025 respectively. Like in other industrialized countries, the number of retirees will increase immensely during the next decades. However, in contrast to Europe and Japan, the aging of the American society is built on a sound foundation of the simultaneous increase in the number of young people. The increasing number of young adults and children will guarantee a constant demand for homes. Aside from immigrants, the baby-boomer generation will still play an important role in the demand for housing. In the coming years, older



baby boomers will reach their peak wealth years and the younger ones will reach new earning highs (JCHS, 2003, p. 3). In addition, the baby boomers will inherit record amounts over the next 20 years. They will enter phases where they can afford to buy second homes and support their children in starting new households, thereby sustaining demand at high levels. In short, demographic factors can be a driver for housing demand, in effect, increasing the chances that house prices will not decline nominally. However, demographics can only partly explain the recent surge in home prices.

Figure 5  
**Population by Age Groups in 2000 and 2025**



Data source: U.S. Census Bureau (2004a, p. 1) and own compilation.

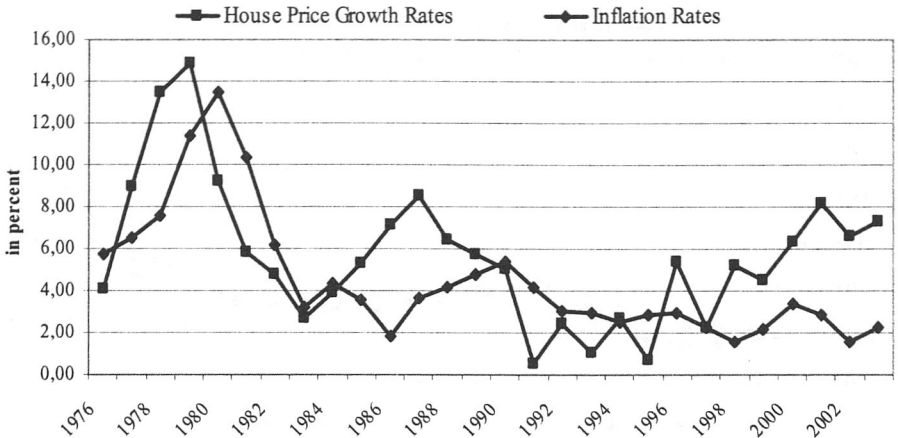
## 4. Unambiguous Evidence for a Bubble

### 4.1. Interdependency of House Prices and Inflation

History shows a relatively stable correlation between US housing price growth rates 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 (Baker, 2004, p. 1).

The last time house prices grew remarkably faster than overall prices was at the end of the 1980s. Figure 6 shows that, after the positive exaggeration, growth rates leveled out for several years.

Figure 6  
House Price Growth Rates and Inflation Rates



Data sources: OFHEO (2004, pp. 1); Bureau of Labor Statistics (2004a, p. 1) and own calculations.

Growth rates sank below inflation levels, and thus inflation was able to catch up again to bring the relationship between house price and general inflation into balance again. This time however, the positive deviations are higher and more sustained and inflation rates take 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 to 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 misalignments in the US real estate market. We now focus on another market which is generally assumed to be closely related with real estate via arbitrage processes.

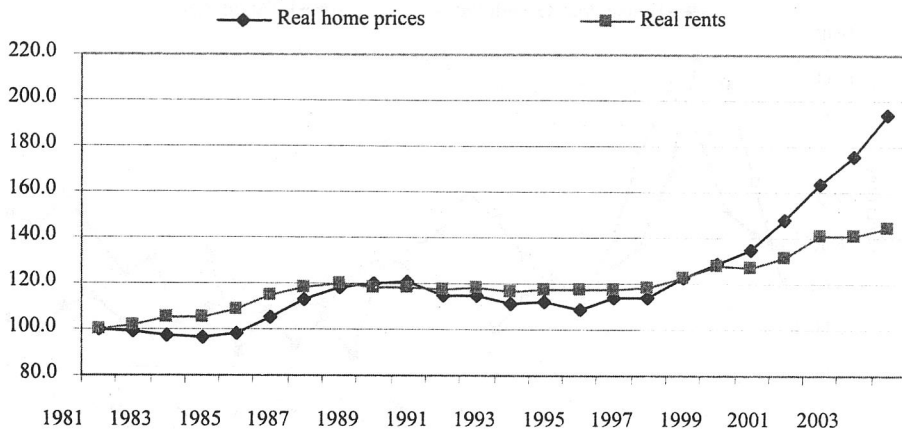
#### 4.2. Interdependence of House Prices and the Rental Market

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 analyzing the inflation adjusted rent and the house price indexes (see Figure 7, following Baker, 2002, p. 6).

Figure 7

**The Real Cost of Owning and Renting,<sup>12</sup> Annual Data from 1<sup>st</sup> Quarter 1981 to 1<sup>st</sup> Quarter 2004, 1981 = 100**



Data sources: OFHEO (2004, p. 1); Bureau of Labor Statistics (2004b,c, pp. 1) and own calculations.

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 (U.S. Census Bureau, 2004b, p. 1). 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.<sup>13</sup>

A drop in nominal house prices is not necessarily a prerequisite for re-establishing the relationship between the time series realizations of house prices and rents. However, with inflation at a low and constant level, it would take

<sup>12</sup> The cost of renting is measured by the rent index of the Consumer Price Index (CPI) (Bureau of Labor Statistics, 2004b, p. 1); the House Price Index is from the OFHEO (2004, p. 1). Both indexes are deflated by the CPI minus the shelter component (Bureau of Labor Statistics, 2004c, p. 1) to show the real costs of buying a home compared to renting one.

<sup>13</sup> An explanation for the recent divergence between renting and buying could be a mixture of the incentives of homeownership, 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 (Croke, 2003, p. 4; U.S. Census Bureau, 2004b, p. 1).

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 favor of rents catching up with house prices, absent a decline in house prices (JCHS, 2004, p. 24). 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 (Leamer, 2002, p. 1). 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 thus also reflect the future rental prices (The Economist, 2003b, p. 4). 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.

### **4.3. The Perils of Speculation**

Another sign of a bubble in the real estate market may be conveyed by an increasing frequency and volume of real estate trading (Renaud, 2003, p. 240). Existing single-family home sales increased by 22.4 per cent between the end of 2001 and March 2004 (National Association of Realtors, 2004a, p. 1). 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 US at the end of 2003. Generally, second homes are used as vacation residences. However, a recent

analysis by the National Association of Realtors (2004b, p. 1) 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 (National Association of Real Estate Investment Trusts, 2004, p. 1).<sup>14</sup> 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 case, the homeowner/resident might keep his home and prefer to follow a wait-and-see strategy. However, the homeowner/speculator has to sell to avoid larger losses and to pay for his refinancing.

“A tendency to view housing as an investment is a defining characteristic of a housing bubble.” (Case and Shiller, 2003, p. 16) With a higher future resale price in mind, home buyers tend to pay less attention to the actual price. The aforementioned fact that housing prices are rising much faster than rents suggests that homes are being bought in the expectation of capital appreciation.<sup>15</sup> According to Case and Shiller (2003, p. 16), the motive to buy because of price increases is among the roots of the danger of the emergence of a bubble. Once the motive weakens, sales increase and prices have the tendency to crash. The results of the authors’ questionnaire are that investment was a major consideration in the decision process preceding the purchase of a new home. The interviewees expect an average annual growth rate in home prices of between 11.7 per cent (Milwaukee) and 15.7 per cent (San Francisco) over the next ten years, while they have a very low risk perception. These are incredibly high figures and clearly show the individuals’ misperceptions of future prices. “Eventually, unrealistic expectations of future earnings will be proven wrong.” (Greenspan, 2002, p. 4) In the current case, expectations about future growth rates will not last indefinitely. Once expectations change, real estate prices will rebound to more sustainable levels, which are in line with future earnings. Therefore, buying homes for investment purposes poses a threat to the real estate market and has the potential to worsen the downturn.

---

<sup>14</sup> 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.

<sup>15</sup> However, some economists point out that speculation as observed in the stock market rarely happens in residential housing, because transaction costs are much higher (McCarthy and Peach, 2004, p. 12).

However, we are well aware of a potential drawback of the historical comparison which consists of a temptation to preliminarily conclude that there is a bubble. However, another plausible explanation would be that there is a structural break in the market as the historical data fail to capture new features of the market. If one assumes that individuals are rational agents and do not face an asymmetric information problem, this could be equally possible. Further research could clarify this issue by an econometric estimation.

## Conclusion

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 on fundamentals does not have a clear-cut answer. However, it seems fair to say that bubble symptoms clearly dominate over the evidence of fundamentals. Expansionary monetary policy appears to have flooded the markets with liquidity and provided the preconditions for the bubble. The divergence of housing price time series from those of the inflation rate and from the developments 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 of future price increases are highly unrealistic, because double-digit growth rates are neither sustainable nor observed in history. Additionally, if one considers the fact that short sales are impossible and regards the resulting price-setting as being far too optimistic, a quite explosive mixture emerges.

Low short-term interest rates, low fixed mortgage interest rates and even lower adjustable-rate-mortgage interest rates are 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 shifted towards more expensive homes, while monthly mortgage payments remained constant. However, they do not explain price growth differences between the individual states. Another important fundamental factor that speaks in favor of rising house prices is the demographic pattern of the US population. High birth rates and the continuous stream of immigrants have contributed to rising prices in the past and increase the possibility of maintaining prices on a high level in the future. Government actions have also supported access to housing. However, the scale of this support has been rather limited.

For these reasons, the Federal Reserve is urged to respond to the real estate price bubble, whose existence has been proven, 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 worries? Only if implemented in this way, will the warnings reach the consumers. 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; they can convey a signal that, e.g., 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.

The central bank should only raise interest rates if information policy has no effect and there are significant medium run dangers of instability (which clearly emerge from the asset markets). Under such circumstances the central bank should not fire a warning shot, implementing a small and cautious increase, it should, instead, act with determination, implementing a large scale increase. However, this would only represent a stopgap solution. In a more general context, a 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, thus hampering economic growth. On the other hand, a strategy of "leaning against the wind", i.e. a pre-emptive slightly 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. One reason for that is that price bubbles which are in the process of manifesting themselves are extremely difficult to identify. During this phase, the probability of a false diagnosis is tremendously high. In addition, a slight increase of interest rates would probably not be sufficient to end speculation. Finally, regional real estate price movements within the US diverge from each other which makes the task of puncturing bubbles even more difficult for a monetary policy, which is common for all US regions.<sup>16</sup> 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, began explicitly warning the public in June and November 2004 that property prices in the UK had reached unsustainable levels. In the ideal case, this example of sound information policy should be followed by Federal Reserve officials. In sum, the dangers of a continuous inflation of the housing bubble are too large not to respond at all. The Federal Reserve implicitly reacted in 2004 by enacting several consecutive steps of raising interest rates. However, sound information policy might have been the better alternative.

---

<sup>16</sup> 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 for the past couple of years.

It has to be emphasized that the rate hikes themselves were not an explicit response to the housing price inflation (as it does not have a political mandate to respond to the housing market development, this should be stressed). In reality, the FED has paused from hiking the rates for the first time only since May 2004 only very recently, in August 2006. It left the key fund rate at 5.25 per cent, which is well above the historical lows seen before mid-2004. Around the turn-of-year 2004/2005, we basically would have recommended a large scale increase of interest rate to the central bank and well information policy or hardened rhetoric to prevent the real estate bubble burst. However, the policy question now stands pretty different, because the US key rate has already been significantly (and incrementally) raised. The long-term US Treasuries yields (mortgage rates are traditionally with fixed rates) picked up significantly as well, although at a slower pace than the FED would have wished (this is referred as Greenspan's 'conundrum' in the bond market). The rhetoric by the FED has been also hardened as documented above. Because of the policy tightening, there is a wide belief that the housing market will eventually slows. In turn, this slow down might cause serious problems to the US economy-hitting the private consumption which has been driven by wealth effects and GDP growth thereafter. Thus the policy question is how to avoid this and at the same time respond to the (ongoing) inflation worries, which is a key policy task of the FED. The observers now start asking when the FED will eventually start cutting the rates in order to avoid the hard landing scenario (vast negative impact on GDP), as there is an evidence that house prices have exceeded the fundamental values (on the historical basis comparison).

## References

- [1] ALLEN, F. – GALE, D. (2000): Bubbles and Crisis. *The Economic Journal*, Vol. 110, January, pp. 236 – 255.
- [2] BAKER, D. (2002): The Run-Up in Home Prices: Is It Real or Is It Another Bubble? <[http://www.cepr.net/Housing\\_Bubble.htm](http://www.cepr.net/Housing_Bubble.htm)>, accessed June 7, 2004.
- [3] BAKER, D. (2004): The Housing Bubble in New England. <[http://www.cepr.net/New\\_England\\_Housing\\_Bubble.htm](http://www.cepr.net/New_England_Housing_Bubble.htm)>, accessed June 7, 2004.
- [4] BARNES, S. – YOUNG, G. (2003): The Rise in US Household Debt: Assessing its Causes and Sustainability. [Bank of England Working Paper, No. 206.] <<http://www.bankofengland.co.uk/publications/workingpapers/wp206.pdf>>, accessed November 12, 2006.
- [5] BEAN, Ch. (2003): Asset Prices, Financial Imbalances and Monetary Policy: Are Inflation Targets Enough? [BIS Working Papers, No. 140.] <<http://www.bis.org/publ/work140.pdf>>, accessed November 12, 2006.
- [6] BIS (2001): Cycles and the financial system. [71<sup>st</sup> Annual Report of the Bank for International Settlements, pp. 123 – 141.] <<http://www.bis.org/publ/arpdf/ar2001e7.pdf>>, accessed November 12, 2006.
- [7] BOLLARD, A. (2004): Asset Prices and Monetary Policy. <<http://www.bis.org/review/r040206f.pdf>>, accessed June 21, 2004.

- [8] BORIO, C. – LOWE, Ph. (2002): Asset Prices, Financial and Monetary Stability: Exploring the Nexus. [BIS Working Papers, No. 114.] <<http://www.bis.org/publ/work114.pdf>>, accessed November 12, 2006.
- [9] Bureau of Labor Statistics (2004a): Consumer Price Index – All Urban Consumers, U.S. All Items, 1982 – 84 = 100. <<http://data.bls.gov/cgi-bin/surveymost?cu>>, accessed July 15, 2004.
- [10] Bureau of Labor Statistics (2004b): Consumer Price Index – All Urban Consumers: Rent of Primary Residence. <<http://data.bls.gov/servlet/SurveyOutputServlet?jrnsessionid=109364408895128337>>, accessed July 30, 2004.
- [11] Bureau of Labor Statistics (2004c): Consumer Price Index – All Urban Consumers: All Items Less Shelter. <<http://data.bls.gov/servlet/SurveyOutputServlet?jrnsessionid=109364463708635786>>, accessed July 30, 2004.
- [12] CARUANA, J. (2003): Banking Provisions and Asset Price Bubbles. In: W. C. Hunter, G. G. Kaufman and M. Pomerleano (eds.): Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies. Cambridge: MIT Press, pp. 537 – 546.
- [13] CASE, K. E. – SHILLER, R. J. (2003): Is There a Bubble in the Housing Market? An Analysis. [Paper prepared for the Brookings Panel on Economic Activity September 4 – 5, 2003.] Washington: Brookings Institution BPEAD.
- [14] CIBC World Markets (2004): Higher US Rates: Why a Little Means a Lot. Consumer Watch U.S., June 17, 2004, pp. 1 – 4.
- [15] CROKE, H. (2003): The Run-Up in Housing Prices is Not a Bubble. <[http://www.cepr.net/columns/housing\\_bubble/no\\_housing\\_bubble.htm](http://www.cepr.net/columns/housing_bubble/no_housing_bubble.htm)>, accessed on June 29, 2004.
- [16] DETKEN, C. – MASUCH, K. – SMETS, F. (2003): Issues Raised at the ECB Workshop on Asset Prices and Monetary Policy. <<http://www.ecb.int/events/pdf/conferences/detken-masuch-smets.pdf>>, accessed August 4, 2004.
- [17] European Central Bank (2005): Monthly Report. Frankfurt/Main, February.
- [18] Federal Housing Finance Board (2004): Monthly Interest Rate Survey. <[http://www.fhfb.gov/MIRS/mirs\\_t1.xls](http://www.fhfb.gov/MIRS/mirs_t1.xls)>, accessed July 14, 2004.
- [19] Federal Reserve (2004a): Households and Non-Profit Organizations (1). Flow of Funds Accounts of the United States 1975 – 1984, June 10, 2004.
- [20] Federal Reserve (2004b): Households and Non-Profit Organizations (1). Flow of Funds Accounts of the United States 1985 – 1994, June 10, 2004.
- [21] Federal Reserve (2004c): Households and Non-Profit Organizations (1). Flow of Funds Accounts of the United States 1995 to 2003, June 10, 2004.
- [22] Freddie Mac (2004): Cash-Out Refi Report. <[http://www.freddiemac.com/news/finance/docs/cashout\\_volume.xls](http://www.freddiemac.com/news/finance/docs/cashout_volume.xls)>, accessed on July 15, 2004
- [23] GREENSPAN, A. (2002): Economic Volatility. <<http://www.federalreserve.gov/boarddocs/speeches/2002/20020830/default.htm>>, accessed July 7, 2004.
- [24] HERRING, R. – WACHTER, S. (2002): Bubbles in Real Estate Markets. [Zell/Lurie Real Estate Center Working Paper, No. 402.] <<http://realestate.wharton.upenn.edu/papers.php>>, accessed November 12, 2006.
- [25] HILBERS, P. – LEI, Q. – ZACHO, L. (2001): Real Estate Market Developments and Financial Sector Soundness. [IMF Working Paper, No. 01/129.] <<http://www.imf.org/external/pubs/ft/wp/2001/wp01129.pdf>> accessed November 12, 2006.
- [26] IMF (2000): Asset Prices and the Business Cycle. IMF World Economic Outlook, May 2000, pp. 77 – 112.
- [27] JCHS (2003): The State of the Nation's Housing: 2003. <<http://www.jchs.harvard.edu/publications/markets/son2003.pdf>>, accessed June 15, 2004.
- [28] JCHS (2004): The State of the Nation's Housing: 2004. <<http://www.jchs.harvard.edu/publications/markets/son2004.pdf>>, accessed July 14, 2004.
- [29] JUST, T. (2003): Bubble Trouble am Wohnungsmarkt? Deutsche Bank Research Aktuelle Themen, No. 257.

- [30] KENT, Ch. – LOWE, Ph. (1997): Asset-Price Bubbles and Monetary Policy. [Reserve Bank of Australia Research Discussion Paper, No. 9709.] <<http://www.rba.gov.au/rdp/RDP9709.pdf>>, accessed November 12, 2006.
- [31] KINDLEBERGER, Ch. P. (1987): Bubbles. In: J. Eatwell, M. Murray and P. Newman (eds.): *The New Palgrave: A Dictionary of Economics*, Vol. 1, A to D, London: Macmillan, pp. 281 – 282.
- [32] KROZNER, R. S. (2003): Asset Price Bubbles, Information, and Public Policy. W. C. Hunter, C. William, G. G. Kaufman and M. Pomerleano (eds.): *Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies*. Cambridge: MIT Press, pp. 3 – 13.
- [33] LEAMER, E. E. (2002): Bubble Trouble? Your Home Has a P/E Ratio Too. *UCLA Anderson Forecast Quarterly*, June 2002.
- [34] MALKIEL, B. G. (2003): The Efficient Market Hypothesis and Its Critics. *Journal of Economic Perspectives*, Vol. 17, No. 1, pp. 59 – 82.
- [35] MELTZER, A. H. (2003): Rational and Nonrational Bubbles. In: W. C. Hunter, C. William, G. G. Kaufman and M. Pomerleano (eds.): *Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies*, Cambridge: MIT Press, pp. 23 – 33.
- [36] Mortgage Bankers Association (2004a): Mortgage Originations: Total, Purchase, and Refinance. <<http://www.mortgagebankers.org/marketdata/index.cfm?STRING=http://www.mortgagebankers.org/marketdata/rates.html>>, accessed July 21, 2004.
- [37] MUSSA, M. (2003): Asset Prices and Monetary Policy. In: W. C. Hunter, C. William, G. G. Kaufman and M. Pomerleano (eds.): *Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies*. Cambridge: MIT Press, pp. 41 – 50.
- [38] National Association of Real Estate Investment Trusts (2004): Annual Market Capitalization. <<http://www.nareit.com/researchandstatistics/marketcap.cfm>>, accessed July 30, 2004.
- [39] National Association of Realtors (2004a): Existing Single Family Home Sales, Current Release June 2004. <<http://www.realtor.org/Research.nsf/Research.nsf/Pages/EHSdata>>, accessed August 8, 2004.
- [40] National Association of Realtors (2004b): Profile of Second Homes: 2004 Update. <[http://www.realtor.org/Research.nsf/files/secondhome04.pdf/\\$FILE/secondhome04.pdf](http://www.realtor.org/Research.nsf/files/secondhome04.pdf/$FILE/secondhome04.pdf)>, accessed August 8, 2004.
- [41] OFHEO (2004): House Price Index for the Census Divisions and U.S. <[http://www.ofheo.gov/media/pdf/1q04\\_hpi\\_reg.xls](http://www.ofheo.gov/media/pdf/1q04_hpi_reg.xls)>, accessed June 20, 2004.
- [42] RENAUD, B. (2003): Comments on Theory and History of Asset Price Bubbles. In: W. C. Hunter, C. William, G. G. Kaufman and M. Pomerleano (eds.): *Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies*. Cambridge: MIT Press, pp. 239 – 243.
- [43] SCHWARTZ, A. J. (2003): Comments: Shifting the Risk after Shifting the Focus. In: W. C. Hunter, C. William, G. G. Kaufman and M. Pomerleano (eds.): *Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies*. Cambridge: MIT Press, pp. 383 – 387.
- [44] *The Economist* (2002): Bubble and Squeak. *The Economist*, 364 (8292), pp. 22 – 24.
- [45] *The Economist* (2003a): Betting the House. *The Economist*, 366 (8314), pp. 72 – 73.
- [46] *The Economist* (2003b): House of Cards. *The Economist*, 367 (8326) (Close to Bursting: A Survey of Property), pp. 3 – 5.
- [47] *The Economist* (2003c): Castles in Hot Air. *The Economist*, 367 (8326) (Close to Bursting: A Survey of Property), pp. 8 – 10.
- [48] U.S. Census Bureau (2004a): IDB Summary Demographic Data for United States. <<http://www.census.gov/cgi-bin/ipc/idbsum?cty=US>>, accessed July 26, 2004.
- [49] U.S. Census Bureau (2004b): Rental and Homeowner Vacancy Rates for the United States. <<http://www.census.gov/hhes/www/housing/hvs/q204tab1.html>>, accessed July 21, 2004.
- [50] U.S. Department of Housing and Urban Development (2004): U.S. Housing Market Conditions. <<http://www.huduser.org/periodicals/ushmc/SPRING2004/USHMC-04Q1.pdf>>, accessed July 21, 2004.