An Analysis of the Housing Market and the Oklahoma Experience

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Abstract

Recently housing price hikes are spreading across America spatially, a reminder of the stock market hikes of the 1990s that ruptured in 2000. The aim of this study were to identify the determinants of housing prices, the differences between housing and stock markets, and whether the housing market can follow the path of the stock market. The aim was also to examine the existence of a housing bubble in the housing market. The findings suggest that the rising gap between the cost of owning and renting, and rising price-income ratios are alarming for possible existence of a housing bubble in some markets. In Oklahoma County the number of housing foreclosures has been rising since 2000, another indication of a bubble in that market. The findings imply that while there are housing price hikes in some hot markets that resemble bubbles there is not a general national bubble, at least not yet. The severity of a housing crash depends on the future state of the economy, the timing of economic slowdown, and also interest rates.

I. Introduction

In recent years a real estate-boom began in America appearing similar to the stock market obsession of the late 1990s. Recently, in some cities such as Naples, Florida, houses have been bought twice in a single day, similar to stock market day trading and margin buying. According to the Office of Federal Housing Enterprise Oversight the housing price index in the United States is at a record high level and, in the year 2004, housing prices increased an average of 10.7 percent—the highest yearly average in 25 years.[1] According to the National Association of Realtors' estimate one-quarter of home purchases last year were made by those who thought of the house as an investment rather than a place to live.

Housing price inflation has not been uniform across the country. Many cities and states have had price increases, some greater than others, while in some parts of the country there have actually been decreases (see Table 1). Nevada with a 32.38 percent increase and Las Vegas with 47.3 percent were on the top of the list in 2004. Other hot spots were Hawaii, California, the District of Columbia, and Florida. In some cities that experienced the largest price increases in the 1990s, such as Atlanta, Phoenix, San Diego, Austin, and Dallas, the number of foreclosures remains high and is rising.

[1] This index does not adjust prices for the changes in quality of housing over time. The Bureau of Census provides an index for new homes that adjusts the price for the changes in quality. Although each of these two indexes gives different measures of changes in housing prices, for the purpose of this study and measure of bubble, they do not make a significant difference.

Table 1

Table Percent Change in House Prices through Q4 2004

State	Rank*	1-Yr.	1-Qtr.	5-Yr.	Since 1980	State	Rank*	1-Yr.	1-Qtr.	5-Yr.	Since 1980
Nevada, (NV)	1	32.38	2.92	79.22	232.47	Minnesota, (MN)	27	8.08	0.99	55.98	239.15
Hawaii, (HI)	2	24.56	2.67	77.67	304.41	Wisconsin, (WI)	28	8.05	0.73	35.57	197.41
California, (CA)	3	23.44	2.72	102.35	402.87	West Virginia, (WV)	29	8.03	1.86	29.07	115.21
District of Columbia, (DC)	4	22.96	4.65	112.13	396.19	New Mexico, (NM)	30	7.96	1.18	27.74	155.8
Florida, (FL)	5	18.78	3.77	75.01	243.6	Missouri, (MO)	31	6.5	0.7	33.48	170.3
Maryland, (MD)	6	18.62	2.36	73.55	303.42	Arkansas, (AR)	32	6.18	1.62	25.66	126.59
Rhode Island, (RI)	7	16.76	1.53	99.42	433.12	South Carolina, (SC)	33	5.84	1.26	26.8	170.66
Virginia, (VA)	8	16.44	2.53	63.15	269.3	Kentucky, (KY)	34	5.76	1.79	25.47	170.21
Delaware, (DE)	9	15.19	2.76	59.31	312.93	Louisiana, (LA)	35	5.72	0.93	28.04	102.32
Arizona, (AZ)	10	14.46	3.3	47.27	185.83	South Dakota, (SD)	36	5.42	0.92	28.66	151.03
New Jersey, (NJ)	11	13.67	1.01	74.4	371.16	Utah, (UT)	37	5.29	1.49	16.17	173.79
New York, (NY)	12	12.56	2.02	68.89	458.22	Georgia, (GA)	38	5.22	0.87	29.58	195.06
Vermont, (VT)	13	12.28	0.9	56.15	282.54	Oklahoma, (OK)	39	5.19	1.56	25.82	80.61
Maine, (ME)	14	12.26	1.55	64.75	346.34	North Carolina, (NC)	40	5.18	1.5	23.63	189.32
Connecticut, (CT)	15	11.8	0.71	59.57	310.62	Alabama, (AL)	41	5.12	1.07	22.86	145.43
Pennsylvania, (PA)	16	11.02	1.36	44.55	239.41	Nebraska, (NE)	42	5.03	0.48	22.05	140.22
Wyoming, (WY)	17	10.98	1.7	40.9	111.88	Kansas, (KS)	43	4.87	0.83	26.49	124.26
Oregon, (OR)	18	10.95	1.77	35.71	232.9	Mississippi, (MS)	44	4.79	1.26	22.14	117.67
Washington, (WA)	19	10.9	1.67	37.05	260.91	Tennessee, (TN)	45	4.51	0.5	21.56	160.62
Massachusetts, (MA)	20	10.69	1.14	74.78	574.83	Michigan, (MI)	46	4.44	0.79	27.7	214.71
New Hampshire, (NH)	21	10.6	1.86	74.44	348.64	Colorado, (CO)	47	4.18	0.5	34.58	234.72
Idaho, (ID)	22	10.3	2.23	30.7	160.82	Iowa, (IA)	48	4.1	0.32	24.4	128.69
Montana, (MT)	23	9.92	1.43	40.76	192.41	Ohio, (OH)	49	3.91	0.62	23.18	163.13
Alaska, (AK)	24	9.24	1.61	35.18	126.03	Texas, (TX)	50	3.85	0.96	24.27	94.79
North Dakota, (ND)	25	8.45	2.29	32.46	113.59	Indiana, (IN)	51	3.7	0.79	20.02	144.65
Illinois, (IL)	26	8.2	1.02	38.56	225.34	United States	0	11.17	1.69	49.67	240.69

If the real-estate market follows the equity market, rapid price increases could suggest a real-estate bubble that would be expected to ultimately burst, resulting in a crash, as happened in Japan in the 1990s. An alarming question is whether this recent housing boom will end with a crash. However, since there are some major differences between housing and stocks, it may be that a housing "bubble" does not exist and thus, a crash will not happen. The United States has already experienced the stock market crash starting in the late1990s and early 2000s. Economists are neither unanimous on the possibility of a real estate crash with the resultant real estate deflation, nor on the degree of severity of the problem if it were to occur.

Similar to the enthusiasm surrounding stocks in the 1990s, some do not have concerns about the housing market and continue to advise investors to buy. This vision argues that the boom of the 1990s, the recent rebound in the economy, strong demand from the baby boomers in their peak earning years, innovations in mortgage markets, and the demand by foreigners represent a lasting demand and supported higher housing prices. For example, David Lereah, chief economist of the National Association of Realtors, argues in his book, Are You Missing the Real Estate Boom? (2005), "The long-term fundamentals for housing remain strong into the foreseeable future, far from a real estate "bubble." What we are experiencing today is a phenomenon that takes place only once every other generation: a long-term real estate market expansion."

Others, such as Robert Shiller (2001), warn about the housing bubble much as they did regarding the stock market bubble. Shiller argues that in the long run, discounting for inflation, housing prices cannot exceed the growth of real GDP. This vision further insists that the problem is more severe and more fundamental because the credit excess of the 1990s created huge debt and inflated asset prices in both corporate stocks and real estate. The asset price inflation has increased the value of the collateral for excess credit. In addition, easy, innovative, and sub prime lending (high risk borrowers) to home buyers by financial institutions has contributed to excess lending.

Between 2002 and 2005 the median home-price appreciation was 22 percent nationally compared with 14 percent in Oklahoma City, even as soaring energy prices have helped boost job levels in the region. The energy sector plays a role in job creation in the area because Oklahoma is one of the largest natural gas-producing states in the United States. In spite of home price increase and job creation, the number of housing foreclosures in Oklahoma City area has increased during that period.

The organization and purposes of this paper are as follows: Section II explains the fundamental forces influencing housing prices and identifies that those result in a housing bubble in several housing markets. Section III discusses the differences between stock and housing markets in order to determine whether these differences are sufficient to imply that the stock market crash does not necessarily portend a housing market crash. Section IV compares the real cost of owning with that of renting and the gap between the two, as a measure of bubble in the national market. Section V compares the housing price-income ratio, as another measure of a bubble for three markets: Oklahoma City, State of Oklahoma, and the U.S. Section VI examines the data and trends of housing foreclosures in Oklahoma County, Oklahoma, in the last five years, in an attempt to identify any sign of a bubble that would point towards a crash in that market. Note that Oklahoma County represents an area in which housing prices showed a moderate increase. Section VII summarizes and draws conclusions.

The results of this study suggest that while there is some housing speculation and a bubble in some cities, it is hard to conclude if there is a national housing bubble. If so, it is not yet serious. Therefore, some of those cities could experience a crash, but not as severe as the stock market crash of 2000. There are some signs of deterioration in the national market and in Oklahoma County, as reflected in the near record foreclosures. However, the future state of the economy and the interest rate policy of the Federal Reserve are extremely crucial.

An economic slowdown due to supply shocks, such as prolonged high cost of energy, or a weak aggregate demand could lead to a recession and a housing crash in a broader market. This is especially true due to the fact of highly leveraged households, corporations, government, and borrowing from abroad. Policy implications for the Federal Reserve, lending institutions, and policy makers are to formulate their lending policy to discourage speculation in the hot housing markets and reduce demand thus, reducing price increases. On the other hand, policy should encourage lending and credit to investors in weak markets to prevent or reduce price declines.

II. Determinants of Housing Prices

Housing prices and market trends are influenced by the buyers (demand-side) and the sellers (supply-side). The demand-side influences will be discussed first followed by supply-side influences.

II.1. Demand-Side Factors

The demand-side of housing prices are primarily influenced by the following causes: income and wealth growth, interest rates and the interest rate policy of the Federal Reserve, inflationary expectation, the magnitude and the degree of speculation in the housing market, and population growth. Each of these is explained briefly.

II.1.1. Income and Its Growth

Overall, this factor is the most important due to the fact that the demand for housing must be backed by income and the ability to make monthly mortgage payments. This implies that a major recession resulting in reduction of income could lead to reduced demand and concomitant decrease in housing prices, i.e. crash. The likelihood of an economic slowdown exists both on the demand (spending) side and the supply (cost of production) side of the economy. On the supply side, there is a possibility of an interruption in the flow of oil resulting in a higher cost of energy that could push the economy to stagflation, as has happened in the past.

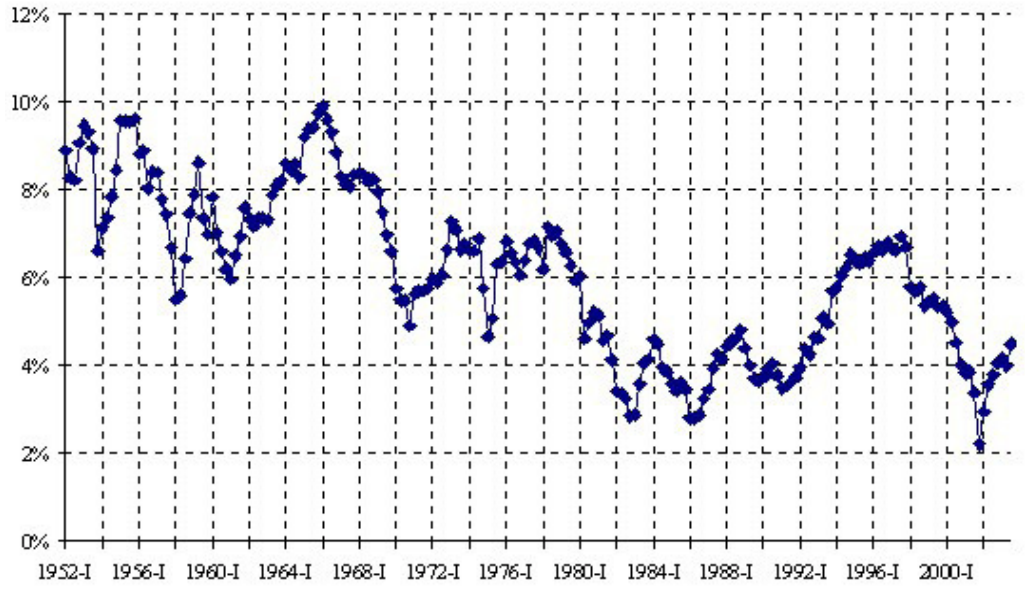
The likelihood of an economic slowdown on the demand side may, in fact, be even higher due to the overall weakness of the components of aggregate demand: consumption, investment, government fiscal condition, and the foreign sector with its negative interaction on the other three. In the early 2000s, business investment and capital formation substantially dropped, causing the economy to slow down and the stock market to decline precipitously. However, American consumer spending as a major engine of the economy continues to rise, partly due to the housing boom and home refinancing to capture inflated equity. This force is keeping the economy from taking a

severe downturn. In fact, American consumers are becoming the world consumer of the last resort.

Some macroeconomists suggest that at least two forces could prevent this consumer sentiment from sustaining for extended period; 1) at present, personal debt is very close to an all-time high and cannot continue to rise much further, and 2) the wealth effect of the stock market crash was a sharp decline in the household net worth. Economic theory implies that this can cause a slowdown in consumer spending. Although empirical evidence indicates that the wealth effect is not as strong an effect on consumption as income, at best consumer sentiment is no longer fed from their stock portfolio.

The second component of aggregate demand is business investment. This measure recently rebounded, but since its sharp decline in the year 2000 it could deteriorate due to high corporate debt and/or low corporate profit (sees Figure 1).

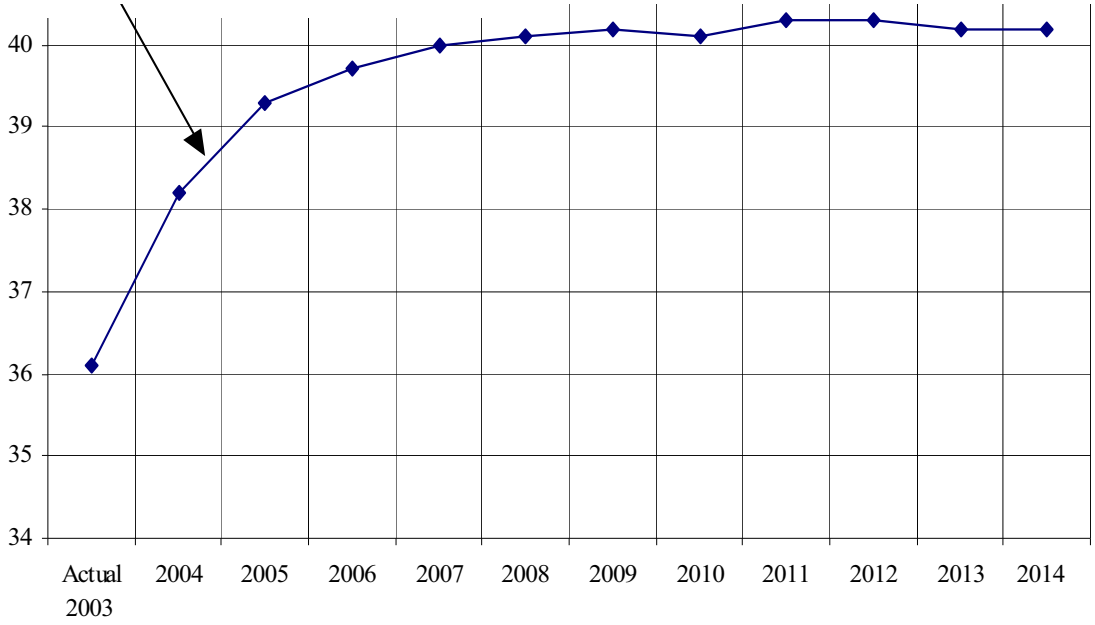
Figure 1: Non-Financial Corporate Profit Rates



Source: U.S. Dept. of Commerce National Income and Product Accounts and Federal Reserve Flow of Funds.

This would result in layoffs, and other cost cutting measures. This deterioration in investment could lead to a recession, income decline, and consumer spending reductions. The third component of aggregate demand is government spending. At present, the federal government budget deficit and debt is at all time high and the prospect for a reduction in the foreseeable future does not exist (see Figure 2).

Figure 2: **Government Indebtedness**



Source: Congressional Budget Office

Notes: Predicted Debt Held by the Public as a Percentage of GDP - ignores the costs of the wars in Afghanistan and Iraq along with the proposed permanent tax cuts for the rich and the like.

As a result, the government is very limited in its ability to stimulate the economy. In addition, if the economy slides into a recession, the political will to stimulate the economy will take time to materialize. That time lag could lead to massive mortgage default and a housing crash.

The forth component of aggregate demand is the foreign sector. Further deterioration of the current account deficit that is accompanied by a weak dollar could induce foreign lenders to reduce investment for fear of further weakness of the dollar. This could result in higher interest rates, deteriorating investment, and reduced consumption. Thus, due to balance-sheet imbalances in both households and businesses; and unwillingness by the foreign sector to continue lending, the possibility of a recession becomes more likely. Furthermore, since government fiscal policies intended to stimulate the economy are held hostage to record budget deficits and national debt, quick action on the part of the government is not politically feasible. This could result in a recession leading to loan default, asset liquidation, and asset deflation in all sectors.

II.1.2. Housing Investment and Speculation

One explanation for the current housing boom is a direct result of the stock market crash which caused investors to shift their money from stocks, with a low return, to investment in real estate with an expected higher return. In addition, since the rate of profit in general has been low (see Figure 1) investors have been rushing to find alternative investment opportunities. Obviously, if a large number of investors shift funds into the real estate market it could result in a housing bubble that could burst in the

future. Real estate speculation with the goal of capital gain return on investment is another factor that can fuel demand and increased costs of real estate. Speculation may start following a shift in demand as a result of attractiveness and/or an economic boom in some markets, or due to limitation of supply of land or housing. A higher speculative demand for houses will result in a rapid rise in housing prices, although speculative force cannot sustain in the long run.

This implies that the impetus for the current housing boom is important; if fueled by speculation, a housing crash would be expected to occur sooner or later. This is especially true in those cities that are experiencing a significant magnitude of speculation. It further implies that, while some speculators could benefit in that type of market, it is dangerous to the late comers, as was the case during the stock market crash. At the present time one-forth of all home purchases nationally are by investors whose speculative activities in some areas of the country is much higher than in others. Also, while some of those investment activities are speculative in certain parts of the country, it is not widespread, and thus this factor will not be significant in the national market.

II.1.3. Interest Rates

During the 1990s the Fed kept interest rates relatively low because it determined there was little risk of rising inflation feeding a boom in the stock market. After the stock market plunge, to prevent its impact from being transferred to the real sector of the economy, and following September 11th this policy was continued in order to provide liquidity; rates neared 50-year lows. These actions, combined with speculative investment helped to fuel the housing boom.

Since interest rates strongly influence monthly mortgage payments, fractional rate changes impact affordability, demand, and price. The lower (higher) interest rates cause lower (higher) monthly mortgage payments, leading to higher (lower) demand for houses, which then leads to higher (lower) housing prices. Thus, the role of the Federal Reserve interest rate policy is pivotal. If the Federal Reserve is required to raise interest rates to prevent a high rate of inflation and/or to prevent further weakness of the dollar, it would result in higher mortgage payments, reducing affordability, and resulting in lower demand for houses. In addition, higher interest rates cause existing mortgage payments of those loans with flexible rates to rise, which may lead to loan default, asset liquidation, and asset price deflation.

II.1.4. Inflationary Expectations

Since real estate is considered a good hedge against inflation, an expectation of higher (lower) rate of inflation leads to higher (lower) general demand for real estate and higher (lower) housing prices. At present, the rate of inflation is low, and is expected to remain low. However, recent increases in the Federal government budget deficits, a change from the surplus of the late 1990s, the rapid rise in national debt, and a gloomy outlook may feed inflationary expectations for some buyers in the market.

In addition, further worsening of current account deficits, the mirror image of increased borrowing from abroad accompanied by a weak dollar, could potentially create inflationary expectation. This inflationary expectation has been cited by the Fed as justification of recent interest rate hikes, and could be one of the sources of the current boom in the housing markets.

II.1.5. Population Growth

Population growth is another factor influencing demand and following that, the price of housing. The higher (lower) the rate of growth of the population, the higher (lower) the demand and the higher (lower) the price of housing. Since, at the present time, the birth rate in the United States has been negative and the rate of growth of the population has not been significant, it can be argued that this factor is not a momentous force for the current general housing price hikes. However, some economists and realtors believe that the demand from baby boomers with many resources and fairly certain income, and immigrants will prolog the housing boom and ever increasing housing prices indefinitely. This argument is especially true for the faster growing population centers, such as those in the South and the Southeastern United States.

II.2. Supply Side Factors

On the supply side of the housing market, the following major forces influence the price: the current level and the growth of housing construction with its limitations, regulatory burdens regarding construction, purchasing, and foreclosures, and Federal Reserve interest rate policy. Each is explained briefly.

II.2.1. Housing Construction, Limitation, and Regulatory Burdens

The current level and growth of housing construction profoundly influences housing prices. A lower level of housing construction reduces supply and increases housing prices. Furthermore, given a sound income growth, if the growth of housing construction does not match the growth of the population, housing prices will increase. This could be due to limitation of land for construction as well as regulatory factors such as fees, rules, regulations, laws and procedures. Other issues, such as closing costs, property taxes, housing foreclosures, building and zoning also have an impact on the demand and supply, which directly affect housing prices.

II.2.2. Interest Rates

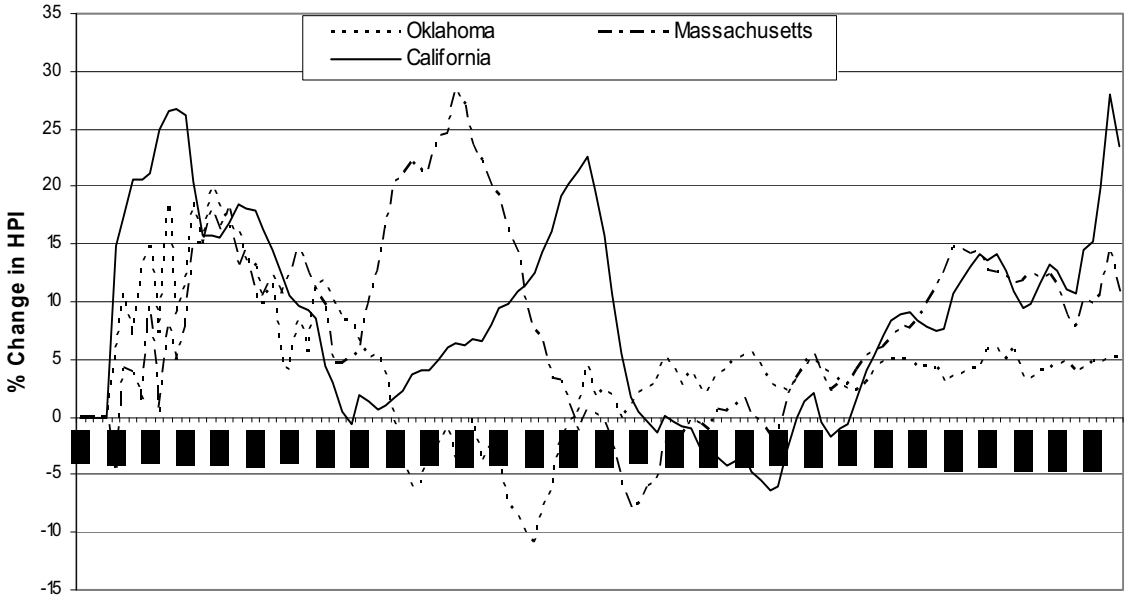
Interest rates play a role not only on the demand side of the housing market as explained earlier, but also on construction activity, supply, and prices of housing. Higher interest rates lead to more expensive housing construction financing which results in lower supply of houses, and higher housing prices. On the other hand, lower interest rates for contractors tend to keep the cost of financing low, and housing prices from rising.

III. Differences of Housing and Stock Markets

There are some major differences between the stock and housing markets. First, housing markets are local and segmented, and are to a large degree limited, compared with the stock market, which is not local, but national and global. Figure 3 compares annual percentage changes in the housing price index in three states: California,

Massachusetts, and Oklahoma. During the 1980s, housing prices in California were rising, while declining in Oklahoma. During the 1990s the opposite was true. Confirming the fact that housing markets are local and segmented; changes in housing prices are not uniform across the country.

Figure 3: Annual Percent Change of Housing Price Index: 1975-2004



Source: Office of Federal Housing Enterprise Oversight (OFHEO)

Secondly, houses are by nature tangible; owning a large number of houses requires management and maintenance, thus incurring costs that are not typical of stocks. Stocks are considered to be paper claims and do not require management and maintenance, as does real property. This implies that if factors such as speculation and higher inflationary expectation are excluded from consideration, the housing demand and subsequently, the price increase will be limited.

Thirdly, the higher transaction costs incurred in real estate transactions is another element that distinguishes real estate from stocks, which have lower transaction costs. Those higher transaction costs make houses less liquid than stocks, i.e., less easy to sell for full value. This means that people do not sell real estate as quickly as stocks, making panic less likely, housing price variations less dramatic, and corrections less severe than is often witnessed in the stock market. In other words, the dynamics of changes in housing prices are slower than that of the stock market.

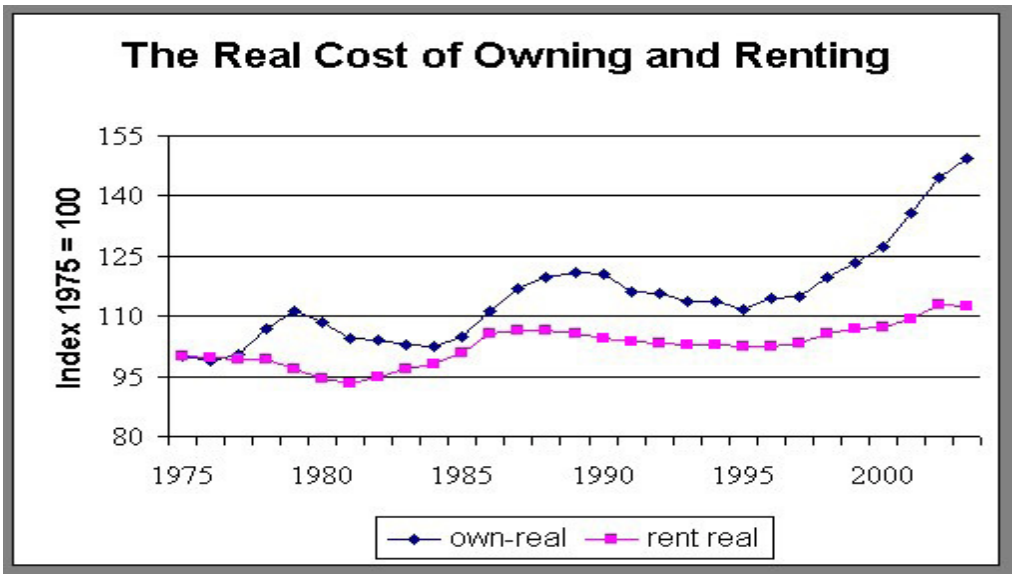
Fourth, due to existing tax advantages inherent in housing and the fact that people require shelter, they typically do not sell their homes in favor of renting from someone else simply because local housing prices change. Thus, houses have permanent demand and consequently have downward price rigidity and stability compared with that of stocks.

Lastly, there are some vital differences between the Japanese experience and that of the United States regarding the timing and the extent of the stock and housing booms. In Japan the boom in stock and housing markets took place concurrently for many years

before the stock market crash of 1991, and the subsequent real estate market crash. This general asset deflation resembles the Great Depression of the1930s.

However, in the United States the stock market boom of the 1990s did not coincide with that of the housing market. Instead, the housing boom followed the stock market crash. Moreover, the extent and magnitude of the current housing boom in the United States is not as significant as that of Japan. The boom in the Japanese real estate market was much stronger and of longer duration than that of the United States. These two vital differences reduce the chance of a housing crash in the United States, or at least a crash of a magnitude comparable to that in Japan.

Figure 4: Gap between the Cost of Owning and Renting



Source: Dean Baker & Simone Baribeau, "Homeownership in a Bubble: The Fast Path to Poverty?" (August 13, 2003)
http://www.cepr.net/homeownership_in_a_bubble.htm.

Accordingly, since there are several major differences between the housing and stock markets and the Japanese experience in these two markets is different from that of the United States, real estate will not mirror the stock market. Therefore, the behavior of the stock market does not predict future behavior of the housing market, and current high housing prices in the United States do not necessarily represent a housing bubble.

IV. Housing Bubble Indicators

One of the measures economists use to gauge the likelihood of a bubble in the housing market is the gap between the real cost of renting and that of owning. These measures for U.S. housing are shown in Figure 4. Accordingly, the gap between these two costs has been widening. Considering rent as earning on a rental house, it reveals that the price-earning ratios in the housing market are high and rising. This widening gap could be justifiable and sustainable if the housing market experiences permanently higher prices in the future. If this market expectation is wrong regarding future high prices, we are in a housing bubble at the present and will see a housing crash in the future. This is similar to

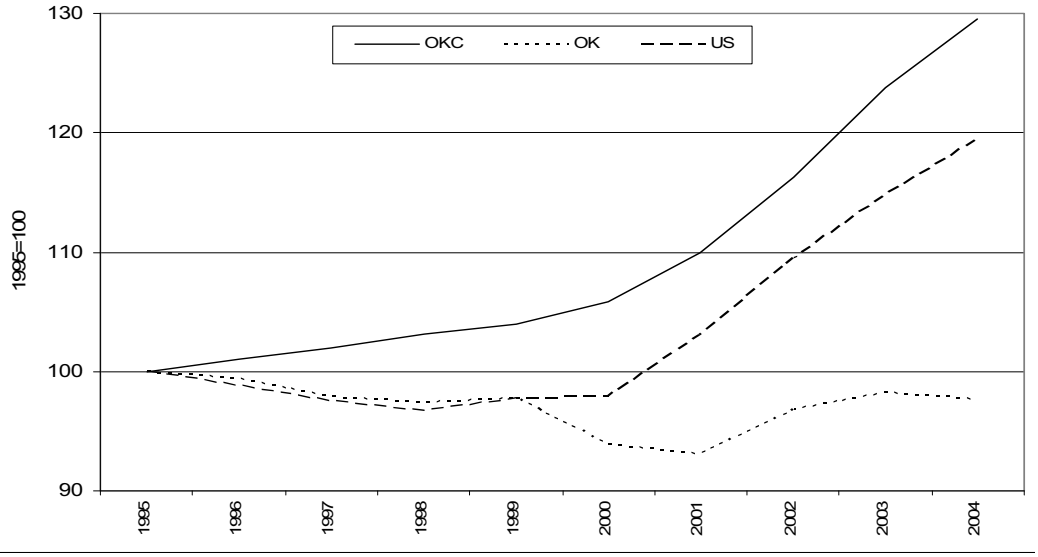
the high price earning ratio of stocks during the 1990s that resulted in crash in the late 1990s and early 2000s, as shown in Figure 5. Therefore, the widening gap between purchase cost and renting could be an indication of imbalance and disequilibrium in the housing market which could lead to housing liquidation and market crash.

Figure 5: Stock Price/Earning Ratio

Source: Robert Shiller: (http://www.econ.yale.edu/~shiller/data/ie_data.htm)

Another tool to gauge the possibility of housing market bubble is price-income ratio, which is a measure of home ownership affordability. This ratio represents the price of housing relative to the income required to pay for it. If the ratio is high and rising, it suggests the income needed to pay those higher prices did not increase proportionately and thus, the trend could not continue. At the present time this ratio has reached a historic high for the U.S. housing market (McCarthy et. Al, 2005, p. 5). This index has been calculated for three housing markets: Oklahoma City, the state of Oklahoma, and the U. S. for 1995 to 2004 (Figure 6).

Figure 6: Housing Price/Income for OKC, Oklahoma, and U.S.



Sources: Office of Federal Housing Enterprise Oversight; Oklahoma Department of Commerce, and Author's Calculation.

The index was normalized at 100 in 1995 for all three markets. Accordingly, during the study period, the index for Oklahoma City and the U.S. has been rising, suggesting that the trend is moving in the direction of a bubble, which cannot be sustained. Figure 6 also shows that the index for Oklahoma City has been far above the national market for the entire period. This pattern was due more to slower income growth in Oklahoma City and Oklahoma than rising housing prices. In fact, during this period the average price growth for Oklahoma City, Oklahoma, and the U.S. was 4.31, 4.25, and 4.05 percent respectively, and the average income growth was 1.36, 4.55, 6.12 percent respectively. This implies that the problem is more serious in Oklahoma City than in the national market. This fact is reflected in an increase in the number of housing foreclosures in Oklahoma County.[2]

V. Foreclosures in Oklahoma County

In addition to factors previously discussed, another tool to gauge the possibility of a housing bubble is the rate of foreclosures and the trends as a measure of potential for a crash in the market. If the number is high, it suggests large mortgage defaults and many forecloses followed by housing price deflation—crash. In the last five years the number of housing foreclosures in Oklahoma County has been rising modestly. The average number of foreclosures per year has continued to rise from 52 in 2000, 61 in 2001, 73 in 2002, 76 in 2003, 82 in 2004, and 90 for the first nine months of 2005.[3]

[2] There are two imperfections regarding both price-rent gap and price-income ratios. One, neither ratios take interest rates into account. Because interest rate has impact on the affordability, a lower interest rate is similar to have higher income, and thus makes houses to be more affordable. Second, the type of housing price index applied to measure the ratios could influence the ratio. For more detail see McCarthy, et. Al (2005).

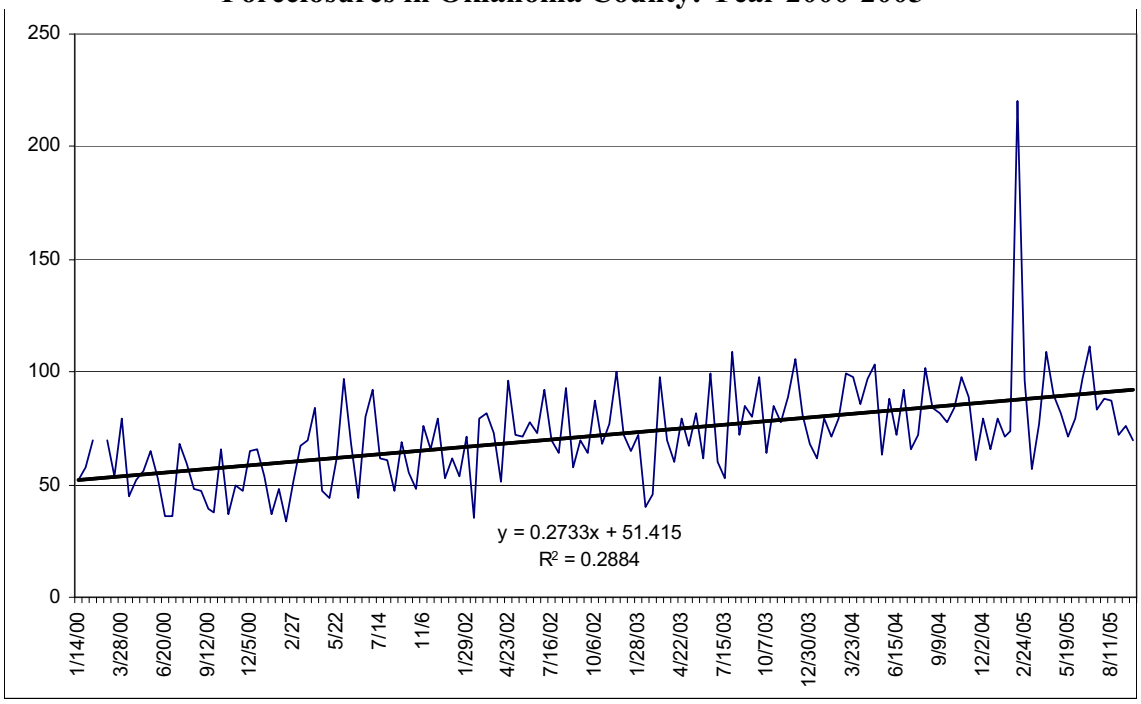
[3] A better measure is the number of foreclosures relative to the number of loans. Or, the amount of foreclosures relative to the amount of loans. Since the data of number of foreclosure and the amount of

Table 2
Comparison of Trend Lines for
Housing Foreclosures in Oklahoma County: 2000-2005

Year	2w-Average Foreclosure	Slope (Rate)	Intercept (Fixed)	Intercept Normalized	R2
2000	52.2	-0.409	59.912	0.000	0.0641
2001	61.3	0.613	53.071	- 6.841	0.0807
2002	72.5	0.703	63.34	3.428	0.1232
2003	75.7	0.972	62.575	2.663	0.1767
2004	81.9	-0.154	83.966	24.054	0.0084
2005	90	-1.556	112.53	52.618	0.0448
AVG		72.27		72.57	
2000-05		0.273	51.415		0.2884

Figure 7 presents the biweekly Sheriff-sale foreclosures in Oklahoma County, that encompasses Oklahoma City, for years 2000 to the present (September 2005). The trend line has an upward slope of 0.27 and an intercept of 51. Accordingly, between 2000 and September 2005 the number of foreclosures has been increasing by 0.27 houses every two weeks, i.e., 7.1 (0.2733 * 26) houses per year, in addition to a fixed number of 51 houses.

Figure 7: Numbers and Trends of Housing Foreclosures in Oklahoma County: Year 2000-2005



Sources: Sheriff's Office of Oklahoma County and Author's Calculation.

loans were not available in this study the number (instead of the rate) of foreclosure as crude measure was used.

According to these findings, the upward surge of housing foreclosures in Oklahoma County is alarming. Nevertheless, because Oklahoma City has one of the lowest housing prices in the nation, and the degree and the size of speculation in that market is not significant, this may not indicate as severe a correction as in other cities.

VI. Summary and Conclusions

Until recently a real estate boom, with housing price hikes, began spreading across America, a reminder of the stock market boom of the 1990s, which turned out to be a bubble that ruptured in 2000. The aim of this study was to identify the determinants of housing prices, the differences between the housing and stock markets, and explore whether the housing market is likely to follow the path of the stock market. An additional aim was to examine the possible existence of a housing bubble that has the potential to lead to a crash in the national, the state of Oklahoma, and/or the Oklahoma County markets.

The findings suggest that, while housing price hikes exist in some cities, implying local bubble effects, it is not a generalized national bubble. The rising gap between the cost of owning and renting, and the rising price to income ratios are alarming and indicate the possible existence of a housing bubble. In Oklahoma County, the number of housing foreclosures has been rising since 2000, another indication of a bubble in that market. However, the danger is more serious in hot markets with high speculative demand, and markets that are experiencing high and rising foreclosures and delinquency.

The likelihood of either supply or demand shock recession exists and thus the likelihood of loan default and housing deflation in hot markets cannot be ruled out. A supply-side recession is possible resulting from a prolonged high cost of energy. A demand side recession is also likely due to a weakness in the market with high leverage in all four sectors of aggregate demand. Massive current account deficits and weakness of the dollar further constrain borrowing from abroad for domestic spending.

The current federal government record deficits and debt will constrain government fiscal policy if the economy falls into a recession. The severity and the magnitude of the problem depends on the future state of the economy, the timing of economic slowdown, interest rates and the lending policy of the Federal Reserve and lending institutions. If possible the Federal Reserve, other policy makers, and financial lenders would be wise to formulate a tight policy to discourage credit, and loans to investors in hot markets as a way of slowing down increases in housing prices. On the other hand, adapting an easy credit policy to encourage credit, and loans to investors in weak markets would serve to reduce the rate of price declines. Lastly, the Fed should formulate its policy to be aligned with the magnitude and the dynamics of hot housing activity on the one hand, and those of weak market on the other.

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