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Would a Housing Crash Cause a Recession?

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Summary

After years of rapid appreciation, house prices barely rose in the second quarter of 2007, and many analysts expect price declines in many markets in the near future. There have already been large drops in house sales and residential investment (house building). Given the central role that the housing boom has played in the current economic expansion, many observers fear that a crash in the housing market will lead to an economy-wide recession. They are concerned that a fall in house prices could spill over into a decline in aggregate spending through four channels.

First, builders could respond to lower prices by reducing residential investment, an important component of gross domestic product (GDP). Second, since mortgages are backed by the value of the underlying house, a fall in prices could feed through to financial instability. Both of these effects have already been felt, with the rate of residential investment falling by double digits since mid-2006, and the entire financial sector undergoing a liquidity crunch triggered by problems with subprime mortgage-backed securities in August 2007.

Third, a fall in housing prices could lead to a decline in consumer spending through a negative "wealth effect." Some economists have argued that when house prices were rising, households responded to their greater housing wealth by increasing their consumption spending; were prices to fall, presumably the effect would be reversed. This effect is difficult to measure and faces some theoretical objections. For example, every housing transaction is composed of a buyer and seller. When house prices fall, sellers are made poorer but buyers are made wealthier, in the sense that they can now devote less of their income to mortgage payments and more to other consumption.

Fourth, the impending reset of mortgages to higher payments for many recent buyers could lead to a significant increase in the share of households suffering from financial distress. For some homeowners, a fall in prices would eliminate the option to refinance to avoid the distress. These homeowners may then be forced to reduce consumption spending in response.

Economic growth could decline in response to falling house prices through any of these four channels if all else remained equal. But it is possible that spending in other parts of the economy could rise and pick up the slack. And the government is not a neutral bystander when it comes to the path of aggregate spending. It can use expansionary fiscal or monetary policy to offset decreases to aggregate spending. The Federal Reserve has already responded to the housing and financial downturn by reducing short-term interest rates.

Most economic models suggest that a fall in prices in the range that has been predicted would not be enough to single-handedly cause a recession. But some observers think it may be enough to tip an already tepid economy into recession.

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Introduction

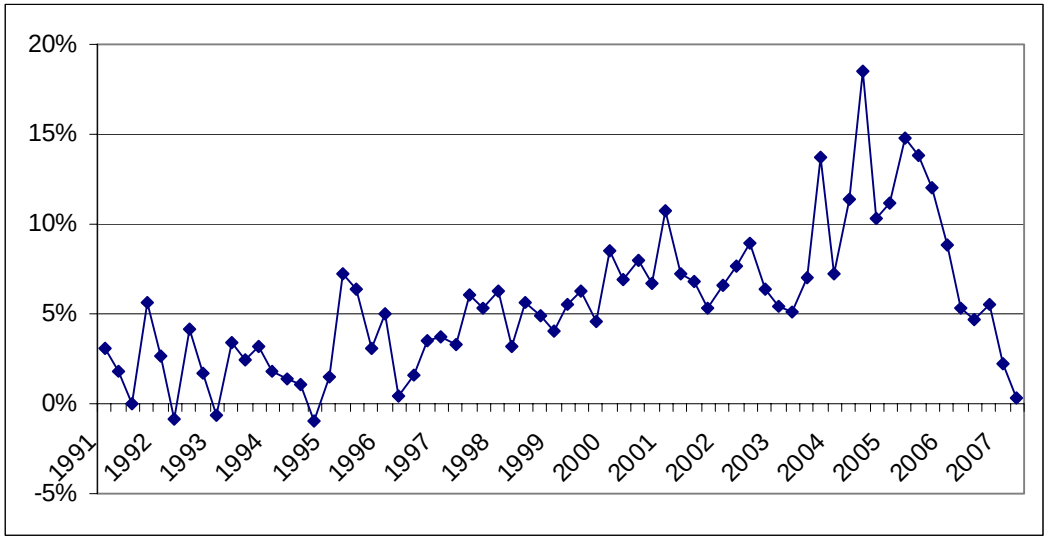
After several years of unprecedented price appreciation, the housing boom has come to an end, and some economists believe that prices in many markets will experience a near-term decline. The housing boom has gripped the public's imagination in the current economic expansion, and many observers now wonder if a housing crash would cause an economic recession (a sustained period of sub-par economic growth and higher unemployment). This report will examine the channels through which changes in the housing market affect the economy, and what policy options might be used to offset its adverse effects. It will begin with a brief discussion of the housing boom and its aftermath.

The Housing Boom and Its Aftermath

Figure 1 illustrates the unprecedented rates of increase in house prices that have occurred in recent years as measured by the Office of Federal Housing Enterprise Oversight's house price index. As **Figure 1** shows, while appreciation rates have fallen significantly since 2005, house prices are not yet falling by this measure. Price appreciation ground to a halt in the second quarter of 2007, however, and other data sources show small decreases in house prices over the past year. Although one quarter of zero price appreciation does not make for a trend, many analysts believe that house prices will fall significantly in the next few years.

Most parts of the country have seen the same pattern of boom and bust, although the timing has differed. Rapid appreciation rates began in California and the Northeast between 2000 and 2002, moved to the Mid-Atlantic, Hawaii, Florida, and Nevada by 2004, and the Southwest, Mountain region, and Pacific Northwest by 2005. The only regions of the country that did not experience an extraordinary housing boom in this decade were the Midwest and South. Prices increased more than 90% in five years in Florida, California, Arizona, Nevada, Rhode Island, Maryland, Hawaii, and the District of Columbia. Prices in the first five of these states fell through the first half of 2007.

Figure 1. Quarterly Changes in House Price Index (Annualized Rate)



Source: Office of Housing Enterprise Oversight
Notes: The house price index measures the change in price of repeat-sale, single-family, owner-occupied homes. The changes are not adjusted for general price inflation.

The proximate reason that rapid price appreciation abruptly came to an end — and why analysts believe prices will continue to deteriorate — was a sharp fall in housing sales. During the boom, sales rose to very high levels. Existing home sales fell by 8% in 2006 and 13% in the 12 months ending in August 2007. New home sales fell by 18% in 2006 and 21% in the 12 months ending in August 2007. One reason that some analysts argue house prices will continue to fall is because the number of unsold houses on the market has risen sharply. For example, it is estimated that there was 10 months supply of existing houses on the market in August 2007, up from 4 months supply in 2004.

Lower appreciation rates have already had a profound effect on residential investment (house building). Housing starts fell by 13% in 2006 and 25% in the 12 months ending in August 2007. Residential investment has fallen by 16% in the last four quarters. Residential investment is a component of gross domestic product (GDP) — if it falls, then GDP falls, all else equal.

A housing crash could be defined as a fall in residential investment or a fall in house prices. In the former case, a crash has already occurred. In the latter case, it has not yet occurred nationally, although it may be starting to occur in some local markets.

Boom or Bubble?

To determine why the housing boom ended and how far house prices might fall in the future, if at all, a key question to answer is to what extent the boom was caused by an asset bubble. An asset bubble refers to a rise in price that is due to "irrational

exuberance" rather than changes in economic fundamentals.[1] Unfortunately, it is difficult to identify bubbles until after the fact since economic models are based on assumptions that individuals behave rationally. If individuals always acted rationally, a bubble, by definition, could not exist since individuals would anticipate future price declines and reduce their demand for housing, thereby preventing a bubble from forming before it had started.

Rapidly rising prices do not, by themselves, prove that there is a bubble. In fact, there were many changes in economic fundamentals that, by making housing more affordable, increased the demand for housing over this period. Average after-tax income was rising, and, most importantly, mortgage rates fell from 8% in 2000 to less than 6% in 2003. Lower mortgage rates significantly reduce the cost of financing a home purchase, and would thereby increase the demand for housing. With housing supply unable to adjust immediately, increased demand would lead to some rise in real prices (beyond general price inflation). Yet mortgage rates did not fall any further after 2003, and the boom nevertheless continued in some parts of the country until 2006. Clearly, some other factor must be responsible for the later years of the boom.

To make mortgages more affordable, more borrowers took out adjustable rate mortgages (ARMs), which allowed them to reduce their initial mortgage rates below the fixed rate by taking on interest rate risk.[2] Affordability also improved, at least temporarily, thanks to the rise in alternative mortgages in the current boom, and this increased demand. Broadly defined, alternative mortgages are those that do not follow the traditional fixed payment structure. Alternative mortgages and smaller down payments expanded credit to buyers who could not previously borrow and temporarily lowered borrowing costs.[3] Borrowing costs were lowered through mortgage products such as "interest only" loans that allowed borrowers to make no payment on the mortgage principal for an introductory period. The rise in alternative mortgages could be seen as a change in economic fundamentals that caused the boom, or it could be seen as a symptom of the bubble. In the latter view, buyers took on mortgages that they could not afford or did not understand because they believed that prices would continue to rise.

Although the boom may have been initially driven by greater affordability as a result of rising incomes and lower borrowing costs, unsurprisingly rising prices led to a rapid deterioration in affordability from 2003 on, until ultimately the boom ended. In 2006, housing was less affordable than at any point in the previous 20 years, according to the housing affordability index, shown in **Figure 2**. Unlike the deterioration in affordability during the 1970s and 1980s, which was driven primarily by higher mortgage rates, the recent deterioration was driven primarily by higher house prices.

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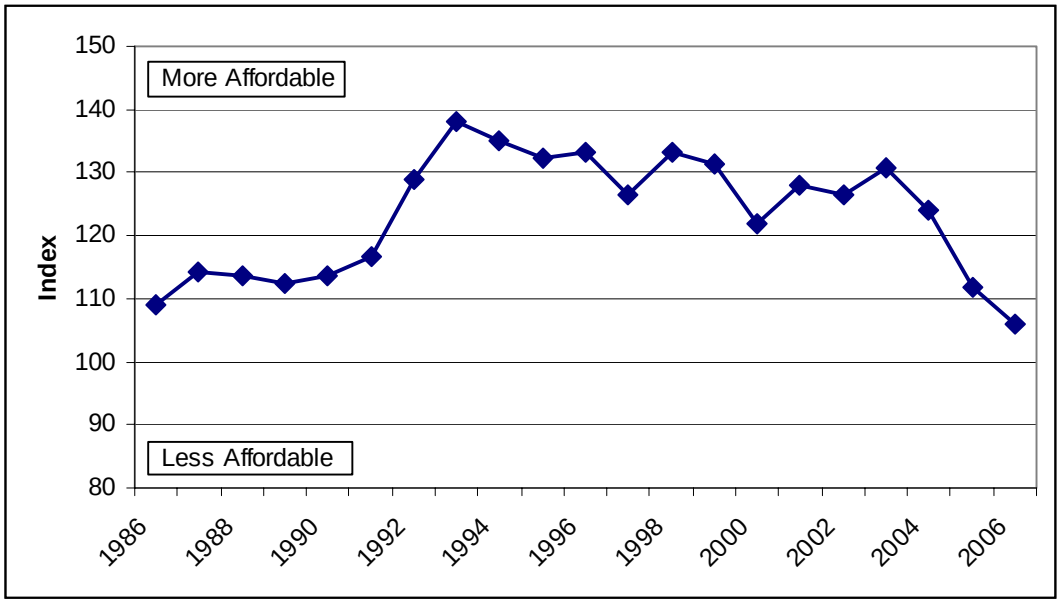
[1] See CRS Report RL33666, *Asset Bubbles: Economic Effects and Policy Options for the Federal Reserve*, by Marc Labonte.

[2] This strategy may have been myopic, since an ARM improves affordability only until interest rates rise, and short-term interest rates were unusually low until 2004. If the decision was driven by myopia, it could be taken as more evidence of a bubble.

[3] See CRS Report RL33775, *Alternative Mortgages*, by Edward Murphy.

Figure 2. Housing Affordability Index, 1986-2006



Source: National Association of Realtors.

Notes: Affordability index is based on median house prices, median family income, and mortgage rates, using a composite of fixed and adjustable mortgage rates. The index defines higher values as more affordable.

In most markets, an increase in demand would be expected to have little lasting effect on price because producers can increase supply in response to higher demand relatively quickly, causing prices to return to their previous level. Housing markets are different because it takes longer to add to the housing supply and because some areas have land constraints. In areas with land constraints, rising prices are not necessarily proof that a bubble is forming. And because of the lag in supply, a pattern of rising followed by falling house prices (as new supply becomes available) could be consistent with economic fundamentals, and does not constitute conclusive evidence that a bubble has occurred.

Whether the boom was a bubble is arguably academic at this point, since the end of the boom will affect the economy in either case. Nevertheless, it is an important question moving forward because of what it implies for the future. If the housing market is currently experiencing a bursting bubble, then prices may fall farther in the future than if the rise in prices were a reflection of economic fundamentals. A bursting bubble may also magnify the economic effects of a housing downturn since it would represent an independent shock to the economy. A bubble could deflate slowly via a long period of stagnant prices or suddenly. It is the latter scenario that threatens macroeconomic stability since the economy has proven resilient to gradual adjustments. Indeed, stagnant housing prices have not derailed the expansion to date.

Macroeconomic Effects of a Housing Crash

Although changes in house prices have no direct effect on GDP (since GDP measures current production in constant dollars), there are several channels through which the economy could be affected by a housing crash. Lower housing prices could lead to a slowdown in house building, to problems in the wider financial system, a reduction in housing wealth could lead to a reduction in consumption spending, and cause household debt burdens to become unsustainable. Each effect is discussed below.

Effects on the Housing Industry

Residential investment (house building) would respond directly to lower house prices. Holding construction costs constant, lower housing prices would lead to lower revenues and profits for the housing industry. As a result, fewer new houses would be built, reducing the residential investment component of GDP. Besides construction, related industries such as real estate services and home improvement services are likely to be negatively affected by a housing bust. Building projects are lengthy to complete, so residential investment is also sensitive to future prices — if builders believe that prices will fall, due to falling income, rising mortgage rates, or a deflating bubble, some will forgo new projects now. This may explain why residential investment has already declined sharply although prices are not yet falling nationally.

Because of its sensitivity to changes in interest rates and prices, the residential investment sector has historically been one of the more volatile sectors of the economy, as shown in **Figure 3.** During the housing boom, it was one of the fastest growing sectors of the economy, growing an average of 9% annually in 2003-2005. In 2005, *The Economist* estimated that "over two-fifths of all private-sector jobs created since 2001 have been in housing-related sectors, such as construction, real estate, and mortgage brokering."[4] Beginning in the fourth quarter of 2005, residential investment stopped increasing. Since the second quarter of 2006, it has declined by more than 10% a quarter at annualized rates. Over this period, residential investment has reduced GDP growth by an average of 1.0 percentage points, all else equal.[5] Surprisingly, construction employment has fallen by only 1% so far, in part because commercial construction has remained strong.

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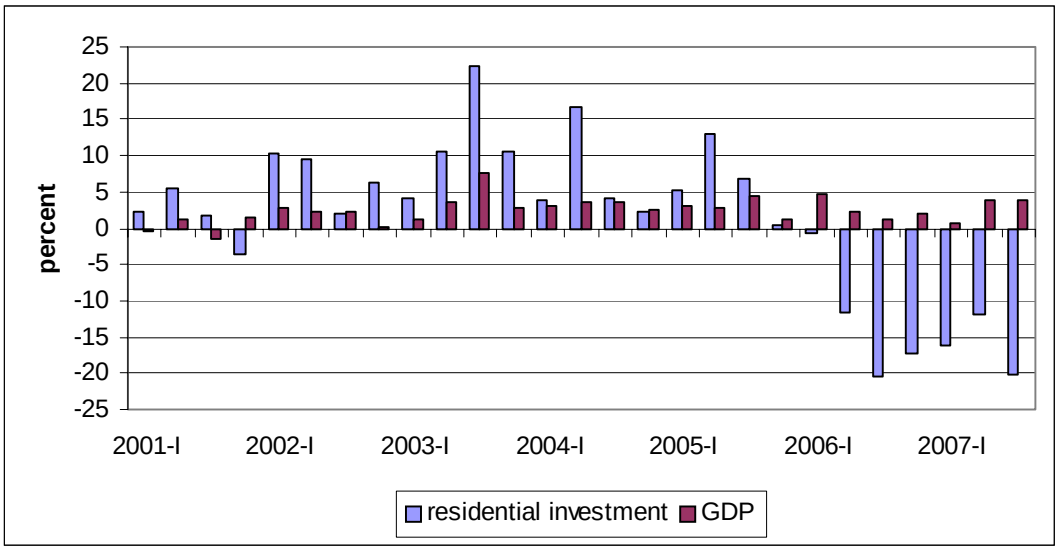
[4] "The Global Housing Boom," *The Economist*, June 18, 2005, p. 66.

[5] This figure measures the drag on GDP due to falling residential investment in an accounting sense. It does not represent the difference between overall GDP and the counterfactual case where residential investment does not fall, since it does not account for multiplier effects that could make the overall impact bigger, nor potential offsetting effects in other sectors that could make the impact smaller.

Figure 3. Quarterly Growth Rate of Residential Investment and GDP, 2001-2007



Source: Bureau of Economic Analysis

Notes: Quarterly growth rates have been annualized. Data are adjusted for inflation.

The recent contraction in residential investment is not the first. There were two similar episodes at the beginning and end of the 1980s. Both of these episodes, as well as the current one, coincided with contractionary monetary policy (periods of rising short-term interest rates). From 1980 to 1982, residential investment shrank by a cumulative 40.6% in real terms, while GDP grew by 0.2%. From 1988 to 1991, residential investment shrank by 23.9%, while GDP grew by 9.2%. It is useful to note that the latter bust preceded the recession, which did not begin until July 1990. The period of monetary tightening preceding that recession spanned from 1988 to 1989. The current housing bust has not yet bottomed out, but the decline in residential investment was already as large as the 1988-1991 episode by the third quarter of 2007.

Table 1. Historical Declines in Residential Investment

	Change in Residential Investment	GDP Growth	Federal Funds Rate
1980-1982	-40.6%	0.2%	Rose from 9.0% in 7/80 to 19.1% in 6/81
1988-1991	-23.9%	9.2%	Rose from 6.6% in 2/88 to 9.9% in 3/89

Source: Bureau of Economic Analysis; Federal Reserve.

Note: Percent changes are cumulative total.

Effects on the Financial Sector

Because efficient financial intermediation is vital to a healthy economy, if a housing downturn caused widespread harm to the financial sector, the overall economy could suffer.

A change in the value of a house has no direct effect on the value of a loan. But falling prices would be harmful to the financial system if homeowners responded by defaulting on existing loans.[6] While this strategy could be profitable in theory when the value of a mortgage exceeds the value of the home, in reality it seems unlikely given that houses are not solely investments to most homeowners and that people wish to maintain a good credit history. For the value of the mortgage to exceed the value of the house, even after prices have fallen, the loan would have to have a high loan-to-value ratio (a loan made fairly recently and probably to a first-time homeowner). It should be noted, however, that loan-to-value ratios have risen significantly in the past few years because homes are being purchased with smaller downpayments and because existing homeowners have borrowed against their equity.

To date, overall default rates have risen but remain low.[7] Default rates on subprime loans, loans made to borrowers with weak credit profiles, have risen more rapidly, however. Default rates on all adjustable rate mortgages (prime and subprime) have risen as well, and the problem may worsen in the near future as a significant share of existing mortgages are forecast to adjust to higher interest rates. To the extent that falling prices lead to rising defaults, it seems likely that it will be caused by the combination of falling prices and mortgage payments that borrowers cannot afford, either because of adjustable mortgages resetting to higher payments or because borrowers took on mortgages they could not really afford in the first place.[8]

Mortgages that have lost value but are still current are unlikely to threaten a bank's overall health, but could lead the bank to curtail new lending through a balance sheet effect. When the value of a bank's assets declines, then its capital will also decline if its liabilities remain constant. The bank may then wish to replenish its capital by taking on fewer new loans. If banks make fewer loans, then all bank-financed projects could decline, including business capital investment.

Traditionally, bank regulation has been justified on the grounds that if losses on mortgages (or other loans) became widespread enough, the solvency of large segments of the banking sector could be at risk, and efficient financial intermediation could break down. Depository institutions have been required to hold adequate capital, adhere to prudent lending standards, and so on, to avoid this outcome.

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[6] Lower housing sales would require financial institutions to shift some of their activity from mortgage lending to other types of lending or investments. While this would not necessarily affect the overall profitability of the financial sector, some institutions might find the shift in lending difficult, particularly if they are small and heavily reliant on mortgage lending.

[7] Mortgage Bankers Association, "Delinquencies Increase in Latest MBA Delinquency Survey," press release, September 6, 2007.

[8] For information on mortgage resets, see CRS Report RL33775, *Alternative Mortgages*, by Edward Murphy.

Today, some mortgages are held by depository institutions and some are securitized and sold on the secondary market as mortgage backed securities (MBS). One rationale for the development of a secondary market was to move non-diversified risk off of bank balance sheets and disperse it throughout financial markets. So far, the increase in default rates has not resulted in any widespread problems for depository institutions, and the intermediation channel has continued to function smoothly. There is a fear, however, that as the mortgages underlying the MBS default, they will be brought back onto the bank's balance sheets, either through guarantees made to MBS investors or structured investment vehicles (SIVs.)[9]

Ironically, the housing downturn has instead led to widespread financial turmoil in secondary markets. The repricing of MBS to reflect the housing downturn has been untidy, leading to financial distress for many non-bank mortgage lenders that rely on securitization and for MBS investors. In August 2007, problems with MBS spilled over into other financial markets, leading to a widespread "liquidity crunch," in which financial intermediation ceased to function smoothly.[10] At this point, it is too soon to tell how quickly financial markets will recover from the liquidity crunch, and if the crunch will have lasting effects on economic activity.

Effects on Consumption

Many analysts have speculated that the housing boom had a positive "wealth effect" on personal consumption, which will become negative during a housing crash. Viewing housing as an asset from a life-cycle saving perspective, an increase in the value of that asset would increase an individual's potential lifetime consumption, assuming the asset would be liquidated at some point. The life-cycle theory suggests that the individual would wish to spread the consumption derived from the future income from the sale of the asset evenly over his lifetime beginning immediately. Since the theory predicts that consumption derived from the increased wealth would be spread over a lifetime, the increase in consumption in any given year would be very small. Evidence that the effect of a change in housing wealth is greater than a change in stock market wealth is mixed. One study estimated that households increase consumption by 0.08% for every 1% increase in housing wealth, which was about three times larger than the authors' estimate of a stock market wealth effect.[11] Another study estimated that households increased consumption by 0.03%-0.09% for every 1% increase in housing wealth, compared with a 0%-0.07% increase in

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[9] SIVs are off-balance sheet entities established (but not owned) by commercial banks. An SIV finances the purchase of long-term MBS by selling short-term notes and commercial paper. The spread between the long- and short-term rates is profit. For the concept to work, the SIV must be able to borrow cheaply — a triple-A rating is a basic requirement. To secure that rating, the SIV generally agrees to maintain certain levels of collateral and the sponsoring banks often commit themselves to providing lines of credit if the SIV becomes unable to raise funds in the market.

[10] See CRS Report RL34182, *Financial Crisis? The Liquidity Crunch of August 2007*, by Darryl Getter, Mark Jickling, Marc Labonte, and Edward Murphy.

[11] John Benjamin, Peter Chinloy, and G. Donald Jud, "Real Estate Wealth Versus Financial Wealth in Consumption," *Journal of Real Estate Finance and Economics*, vol. 29, no. 3, 2004. The results are statistically significant at the 1% level.

consumption for a 1% increase in stock market wealth.[12] Still, if housing wealth fell sharply, even small wealth effects can add up to large effects on the macroeconomy.[13]

While this analysis has much to recommend it, there are some offsetting factors that could diminish the importance of a wealth effect on the overall economy. First, the proponents of the wealth effect tend to focus on the gains to the sellers, but the housing market is made up of both buyers and sellers. When prices increase, sellers are wealthier and can increase their lifetime consumption. But this is exactly offset by buyers, whose non-housing wealth falls when house prices go up (e.g., they will now have to borrow more to purchase the house and devote more of their income to repaying their mortgage). Thus, a change in housing prices causes an income transfer from buyers to sellers, which reduces the lifetime consumption of buyers by as much as the lifetime consumption of sellers is raised.[14]

Second, there is another, more direct, channel through which a rise in housing wealth influences consumption: by *reducing* disposable or after-tax income. Most counties or municipalities levy a property tax as a percentage of the house's value, so that payment rises when a house's assessed value rises. This factor partially offsets any positive wealth effect.

Third, the life-cycle model makes several specific assumptions in determining whether or not consumption would be affected. The appreciation must be unexpected, since an expected appreciation would already have been incorporated into the individual's saving and consumption plans. The asset cannot be held until death. To finance higher lifetime consumption, it must at some point be liquidated, which is a problematic assumption with owner-occupied housing since the homeowner still needs to live somewhere after the asset is liquidated. To increase consumption upon the liquidation of a primary residence, the owner must move to a lower cost region or residence. (This is not the case for houses that are rented or secondary residences.) The riskiness surrounding the appreciation would also be an important determinant of how much consumption would increase when housing wealth increased. Some economists have argued that the wealth effect from housing is greater than the wealth effect from the stock market because gains in housing prices are less likely to be suddenly reversed. (The current state of housing markets

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[12] Karl Case, John Quigley, and Robert Shiller, *Comparing Wealth Effects: The Stock Market Versus the Housing Market*, National Bureau of Economic Research, Working Paper 8606, November 2001. The wealth effect for housing is statistically significant at the 1% level; the wealth effect for equities is statistically insignificant in some regressions.

[13] In the long run, there can be no net wealth effect from housing because consumption is determined by the economy's productive capacity, and a change in the price of an existing asset does not alter the economy's productive capacity. Thus, the wealth effect should be thought of as a short-term factor that affects the business cycle but has no lasting effect on long-term growth.

[14] A wealth transfer has no net change in consumption if buyers and sellers have the same marginal propensity to consume. The life-cycle model predicts that sellers would have a higher marginal propensity than buyers if they were much older, but empirical evidence casts doubt on this prediction since the elderly have higher saving rates and home ownership rates than the young.

might suggest otherwise.) In markets that had rapid appreciation, home owners may have felt hesitant to spend that wealth because of their uncertainty about whether or not the appreciation represented a bubble that would soon burst. If prices did subsequently fall but remained above pre-boom levels, this hesitancy may prevent consumption from falling significantly.

Consumption has remained strong to date. This is not surprising since the wealth effect would reduce consumption only if house prices fell. If prices instead stagnated, as they have so far, then consumption would not fall since household wealth would remain unchanged. CBO estimates that if house prices fell by 10% and consumption fell 2 cents per $1 in lost wealth, GDP growth would be reduced by 0.4 percentage points, while a wealth effect of 7 cents per $1 would reduce it by 1.4 percentage points.[15] If their assumptions accurately approximate reality, the wealth effect on consumption alone would not be enough to push the economy into recession.

The Household Debt Channel

The objections to the wealth effect raised in the previous section apply mainly to homeowners with unlimited access to credit. When homeowners are instead "liquidity constrained," a rise in house prices increases net housing equity and the potential to borrow. As access to credit increases, the ability to consume more increases, so a stronger wealth effect would be expected. This scenario would be consistent with rational households (who wish to smooth lifetime consumption) or households that borrow unsustainably. Of course, the number of homeowners who are liquidity constrained is arguably limited, given that homeowners tend to have above average credit histories and unsecured debt (e.g., credit cards) is prevalent in the U.S. economy.

While house prices were rising, homeowners increased their indebtedness rapidly, both because households financed bigger home purchases with smaller down payments and because they responded to rising prices by withdrawing equity from their homes through home equity loans (second mortgages) and refinancing. From 2002 to 2006, mortgage debt increased from $6.4 trillion to $10.4 trillion and home equity loans more than doubled to $1.1 trillion.[16]

During the housing boom, some analysts argued that "mortgage equity withdrawal" (MEW) was fueling consumption spending. They argued that when many homeowners sold their homes or refinanced their mortgages, they were borrowing against some of their built up home equity to finance additional consumption spending.[17] This scenario can come about through an increase in the

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[15] Congressional Budget Office, *Housing Wealth and Consumer Spending*, Background Paper no. 2834, January 2007.

[16] Federal Reserve, *Flow of Funds*, September 2007, Table L.218.

[17] Mortgage equity withdrawal does not lead to a one-to-one increase in consumption. For example, some of the equity withdrawn may be used to pay off other debt and some may

(continued...)

house's value (in which case, it can be seen as a manifestation of the "wealth effect") or a decrease in borrowing costs. A study by Alan Greenspan and James Kennedy estimated that four-fifths of the increase in mortgage debt since 1990 was the result of equity withdrawal.[18]

If house prices were to fall or mortgage rates were to rise, this process could work in reverse. As long as households' borrowing is sustainable, a fall in house prices has no direct effect on consumption. But with higher indebtedness and falling house prices, there is the potential for the share of homeowners in distress to rise sharply in the near future. Compounding this risk is the impending reset of many adjustable rate mortgages to higher interest rates between now and 2009. If mortgage resets force homeowners to devote a larger share of their income to mortgage payments, their consumption spending could fall. Whereas struggling homeowners could withdraw equity to meet mortgage payments when prices were rising quickly, this option will no longer be available for many homeowners. Furthermore, lending standards have tightened and non-prime mortgage rates have risen since August 2007, making it less likely that mortgages will reset or be refinanced on favorable terms. Consumption purchases financed by borrowing could be curtailed as borrowing sources dry up, either because homeowners run out of home equity to tap or because default cuts off other sources of credit. This problem is likely to turn out to be more serious if the housing boom turns out to have been a bubble since it implies that more borrowers have gotten themselves into unsustainable situations.

How important is this factor quantitatively? In the second quarter of 2007, 0.65% of all mortgages entered foreclosure and the overall delinquency rate was 5.12%. Even assuming that all of these households reduced their consumption spending, overall consumption growth would still fall by a modest amount. While these rates are predicted to rise, even at the predicted rates, too few households would be affected to have a significant impact on overall consumption. Furthermore, the empirical evidence that mortgage equity withdrawal leads to higher consumption is mixed.[19]

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[17] (...continued)
finance consumption that would have occurred in any case.

[18] Alan Greenspan and James Kennedy, "Sources and Uses of Equity Extracted from Homes," Federal Reserve, *Finance and Economics Discussion Series 2007-20*, 2007.

[19] Greenspan and Kennedy, Op Cit, estimate that MEW was used to finance 1.75% of consumption spending from 2001 to 2005, but do not attempt to estimate how much of that spending would have occurred anyway. See also Macroeconomic Advisers, "Fear Not MEW," *Macro Focus*, vol. 1, no. 2, October 2006. Macroeconomic Advisers did not find any evidence that MEW Granger causes consumption, and in regressions results the variable was not statistically significant and had the wrong sign. See also Vladimir Kluyev and Paul Mills, "Is Housing Wealth an 'ATM'?", International Monetary Fund, working paper 06/162, July 2006. Kluyev and Mills found MEW to have a small (with the right sign) but statistically insignificant effect. Goldman Sachs, on the other hand, found a larger and statistically significant effect. See Jan Hatzius, "Housing Holds the Key to Fed Policy," Goldman Sachs Economics Paper no. 137, February 2006.

Overall Effect on the Economy

In the long run, economic theory states that housing cycles have no lasting effect on the economy because markets naturally adjust to reallocate resources. In the short run, a decline in economic activity via any of the four channels discussed above could lead to a slowdown in aggregate spending, but only if other sectors of the economy were unable to pick up the slack. Envision scenarios where other sectors would pick up the slack. For example, the current expansion has been characterized by a low national saving rate made up for by borrowing from abroad that comes to the United States in the form of a trade deficit. If falling house prices were to lead to lower consumption and higher saving, the effect on overall spending might be offset by a smaller trade deficit since foreign borrowing needs would diminish. Expansionary monetary or fiscal policy could also be used to offset any decline in spending, as will be discussed in a later section.

The strength of a housing crash's effect on the economy depends on the magnitude of the crash. While economic models predict that a fall in prices in the range that has been predicted would not single-handedly derail the economic expansion (see below for an example), some observers think it may be enough to tip an already tepid economy into recession. It could also make the expansion less capable of withstanding any additional unrelated shocks. Economic growth was below 3% for four straight quarters beginning in the second quarter of 2006, and, although it grew rapidly in second and third quarters of 2007, most forecasters had predicted it would remain tepid through the first half of 2008 even before the financial turmoil began in August 2007. Nonetheless, none of the 50 private sector forecasters surveyed by Blue Chip in October 2007 were predicting that the economy would enter a recession, although they have reduced their growth forecasts since August. Of course, the housing crash could turn out to be more severe than the forecasters are currently predicting, in which case their growth projections would be revised downward.

Macroeconomic Policy Response

A housing crash leads to lower economic growth through the channels described above only if all else remains equal. But the government need not remain idle and allow falling prices to feed through to lower economic growth. It can boost aggregate spending in the economy through expansionary fiscal or monetary policy. Expansionary fiscal policy refers to increases in the budget deficit; expansionary monetary policy refers to reductions in short-term interest rates.[20] Indeed, the Fed reduced interest rates by 0.5 percentage points on September 18, 2007, justifying the change on the grounds that "[w]ithout such policy action, members saw a risk that tightening credit conditions and an intensifying housing correction would lead to significant broader weakness in output and employment."[21] Ideally, expansionary

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[20] For an in-depth discussion of fiscal and monetary policy, see CRS Report RL34072, *Economic Growth and the Business Cycle*, by Marc Labonte.

[21] Federal Reserve Board, "Minutes of the Federal Open Market Committee," September 18, 2007.

policy and natural market adjustment can boost overall spending enough to offset any reduction in spending that resulted from the housing downturn. In reality, policymaking is hampered by enough lags and uncertainty that at times policy changes cannot prevent recessions. Policymakers err on the side of caution because if policy is too expansionary, inflation would rise to undesirable levels.

Based on simulations using the Federal Reserve's marcoeconomic model, Fed Governor Frederic Mishkin recently made the case that the Fed could largely offset the negative marcroeconomic effects of a housing crash even in what would presumably be the worst case scenario.[22] The first simulation assumes that house prices fall by 20% over two years — a much larger decline than has ever occurred in recent decades — and the Fed responds to the change in economic conditions in the same way it has in recent history. The simulation shows that by gradually reducing short-term interest rates by nearly 1 percentage point, the Fed can limit the reduction in GDP to 0.5% below the baseline at its trough. The effect on GDP comes from lower residential investment and consumption. Lower interest rates keep residential investment from declining significantly despite the fall in house prices — a surprising result given recent experience. The Fed model also makes conservative assumptions about the relationship between house prices and consumption, which, as noted above, is subject to a relatively wide band of uncertainty. Therefore, Governor Mishkin performs another simulation making alternative assumptions that the response of residential investment and household consumption to house prices is much stronger than assumed in the Fed's model. In this case, the 20% decline in prices causes GDP to fall 1.5% below the baseline at its trough — three times greater than predicted in the standard model, but still not enough to cause a recession.

Both of these results are based on an assumption that the Fed reacts as it has historically when it sees GDP and inflation fall below their baselines. But Mishkin argues that the Fed can further minimize the macroeconomic effect of a house price decline by reducing rates before lower house prices have fed through to lower GDP growth. In this case, GDP declines by only 0.25% under normal assumptions and 0.5% assuming house prices have stronger effects compared to the baseline. The Fed does not have to reduce interest rates further to achieve these results; it merely has to reduce them sooner. Essentially, the Fed can take advantage of the lag between the decline in house prices and its effect on the economy by putting expansionary policy in place in the meantime.

In reality, economic models cannot perfectly predict reality, and a decline in house prices could have additional negative ramifications for the economy that the simulation results do not capture. For example, it could reduce confidence or cause financial disruptions of the kind seen in August 2007. And the Fed, operating in an environment of uncertainty, may not be able to make the optimal policy choices that the simulation assumes. Nevertheless, the basic message that one can take away from these simulations is that, with the proper monetary policy response, even the effects of a much more severe housing crash than experienced to date would not be expected to cause a recession.

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[22] Frederic Mishkin, "Housing and the Monetary Transmission Mechanism," working paper presented at the Federal Reserve Bank of Kansas City symposium, August 2007.

Empirical evidence suggests that the Fed's ability to counteract a housing downturn may be more limited than it used to be, however. One New York Fed study found that residential investment responds more slowly to a change in short-terms interest rates than in the past — it now takes two years for the change in interest rates to have its maximum effect.[23] According to Fed Chairman Ben Bernanke, the Fed estimates that residential investment's share of the economy's response to a change in short-term interest rates has fallen from 25% to 14%.[24] Furthermore, the new channels through which mortgages are financed may not be as sensitive to monetary policy changes as the traditional banking channel. While this evidence may be bad news for the housing sector, it does not necessarily imply that monetary policy has become less effective overall, however.

As Governor Mishkin suggested, the sooner the Fed acts to offset a housing crash, the more limited the crash's effect on the economy would be. This has led some critics to argue that the Fed should go even further, and raise interest rates to try and deflate a housing bubble while it is forming. According to this logic, if a bubble is never allowed to form, then it cannot cause economic damage by bursting. Chairman Bernanke has pointed out two main drawbacks to this proposal.

> If we could accurately and painlessly rid asset markets of bubbles, of course we would want to do so. But as a practical matter, this is easier said than done, particularly if we intend to use monetary policy as the instrument, for two main reasons. First, the Fed cannot reliably identify bubbles in asset prices. Second, even if it could identify bubbles, monetary policy is far too blunt a tool for effective use against them.[25]

In other words, aggressively raising interest rates to counteract a bubble risks instigating the very recession that critics presumably wish to avoid.[26]

Another critique of the Fed's current response to bubbles would be that although eliminating bubbles should not be a policy goal in and of itself, the Fed should have recognized that the housing bubble — like the stock market bubble before it — was a symptom of an overheating economy. By keeping interest rates too low, critics argue the Fed caused the economy to overheat and inflation to rise. As a result, the Fed has made a recession less avoidable and limited its room to maneuver to prevent it, because there is now the risk that rate cuts would increase inflation even further.

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[23] Jonathan McCarthy and Richard Peach, "Monetary Policy Transmission to Residential Investment," Federal Reserve Bank of New York, *Economic Policy Review*, May 2002, p. 139.

[24] Chairman Ben Bernanke, "Housing, Housing Finance, and Monetary Policy," speech at the Federal Reserve Bank of Kansas City symposium, August 31, 2007.

[25] Ben Bernanke, "Asset Price 'Bubbles' and Monetary Policy," Speech before the National Association of Business Economics, New York, NY, October 15, 2002.

[26] For an in-depth discussion, see CRS Report RL33666, *Asset Bubbles: Economic Effects and Policy Options for the Federal Reserve*, by Marc Labonte.

Previous Housing Crashes

In determining the likelihood of future house price declines, it useful to look at past declines. Since the house price index was first recorded in the 1970s, housing prices have never fallen in *nominal* terms on a national basis for more than one quarter, and when they fell, the decrease was more than reversed in the next quarter. However, house prices did fall in *real* (inflation-adjusted) terms nationwide in the early 1980s. From the second quarter of 1980 to the fourth quarter of 1983, house prices rose 15.6%, whereas overall inflation, as measured by the GDP deflator, rose by 26.6%. This trend seems easily explained by the change in economic fundamentals during that period: the economy in 1980-1982 featured historically high real interest rates and the worst economic recession in the post-war period. During this period, nominal mortgage rates peaked above 18% and the unemployment rate reached double digits. Although there have not been large nominal declines in housing prices historically, the housing market has been highly cyclical, with little appreciation in the early 1980s and early 1990s, and significant appreciation in the late 1980s and 1990s.

There have been historical examples of sharp nominal drops in local housing markets, however. A recent Federal Reserve study identified 17 states that experienced significant declines in housing prices in the 1980s or 1990s. All 17 episodes were linked to four specific economic shocks, which would point to some role for fundamentals — the farm and rust belt decline of the early 1980s, the drop in energy prices in the mid-1980s (which negatively affected energy-producing states), the downturn in New England in the late 1980s to early 1990s, and the downturn in California and Hawaii in the early 1990s (which the author links to the reduction in defense spending and Japanese financial crisis). Interestingly, most of the states affected by the first two shocks did not experience a preceding housing boom, ruling out a bubble. On balance, these examples seem to illustrate that recessions can cause house price declines, but do not speak to whether causation can run in the opposite direction. Further, the author identified several other housing booms in the 1980s and early 1990s that never resulted in housing declines, underlining the point that not all booms are followed by busts.[27] Another recent study identified historical housing booms and busts, and found that only nine housing booms (17% of the total) were followed by busts.[28]

Figures 4, 5, and **6** focus on three cases, California, Texas, and New England, where a sharp prolonged increase in house prices was followed by a significant and prolonged nominal decline in house prices. In California, after rising about 75% in four years, nominal prices fell by 13.3% from the fourth quarter of 1990 to the first quarter of 1995. In Texas, after rising about 25% in five years (with most of the increase in the first two years), nominal prices fell by 14.4% from the first quarter of 1986 to the fourth quarter of 1988. In New England, after rising about 170% in six

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[27] David Wheelcock, "What Happens to Banks When House Prices Fall?," Federal Reserve Bank of St. Louis, *Review*, vol. 86, no. 5, September 2006, p. 413.

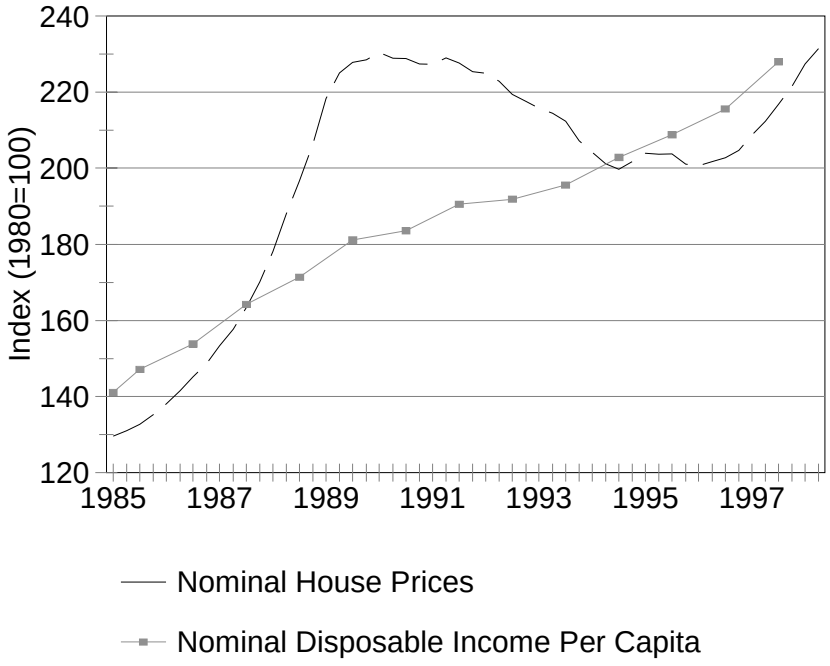
[28] Federal Deposit Insurance Corporation, "U.S. Home Prices: Does Bust Always Follow Boom," *FYI*, May 2005. The study identifies booms as increases in real prices of at least 30% over three years and busts as declines in nominal prices of at least 15% in five years.

years, nominal prices fell by 12.9% from the first quarter of 1990 to the first quarter of 1995. In all three of the cases, although the trough of housing prices took several years to be reached, most of the decline occurred in a relatively short time. In Texas, prices were 12.8% down from their peak by the fourth quarter of 1987; in New England, prices were down 10.6% by the third quarter of 1991. The pattern was a little different in California, where most of the decline occurred toward the end of the housing bust, rather than the beginning: prices fell 12.3% from the second quarter of 1992 to the first quarter of 1995. All three areas took several years after the bust had ended to reach their previous peak, as seen in the figures. A hopeful sign for today is that, in each case, the crash did not reverse much of the prior appreciation.

It would be difficult to explain these price increases and subsequent declines — which are quite large in real terms — by macroeconomic factors alone. In each of these cases, while there were periods of rising (and falling) interest rates within each downswing, the episode as a whole could not be characterized as a period of rising interest rates. However, in each case, the local economy was experiencing a recession, although in each case the housing bust exceeded the length of the recession. In Texas, the state economy shrank 0.5% in 1987; in California, the economy shrank 1.9% from 1992 to 1993; and in New England, the economy shrank 4.6% from 1990 to 1991. In California and New England, a simple comparison of house prices and per capita disposable income suggests the pattern of house prices in the 1980s fits a bubble. During the boom, house price increases exceeded income gains. When house prices crashed, they were brought back into line with nominal income (which helps explain why house prices did not decline as much as they had previously risen). The Texas experience looks least like a classic bubble. There, the pattern is different: house prices never exceeded income during the boom, which was considerably smaller than the California and New England booms, and never caught up to income gains after the housing crash.

Parallels between past housing crashes and the current episodes are limited by changes to the housing market. These differences include the growing importance of mortgage securtiziation, the growth in subprime lending, the increase in the homeownership rate, and easier access to borrowing against home equity.

Figure 4. California Housing Bust



Source: Office of Federal Housing Enterprise Oversight, Bureau of Economic Analysis.

Figure 5. Texas Housing Crash

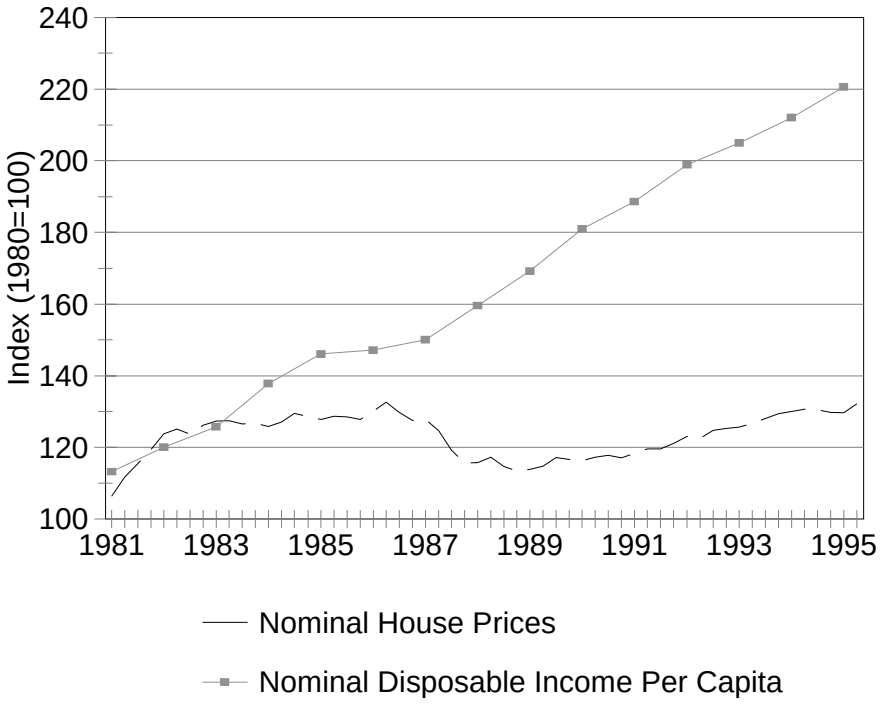
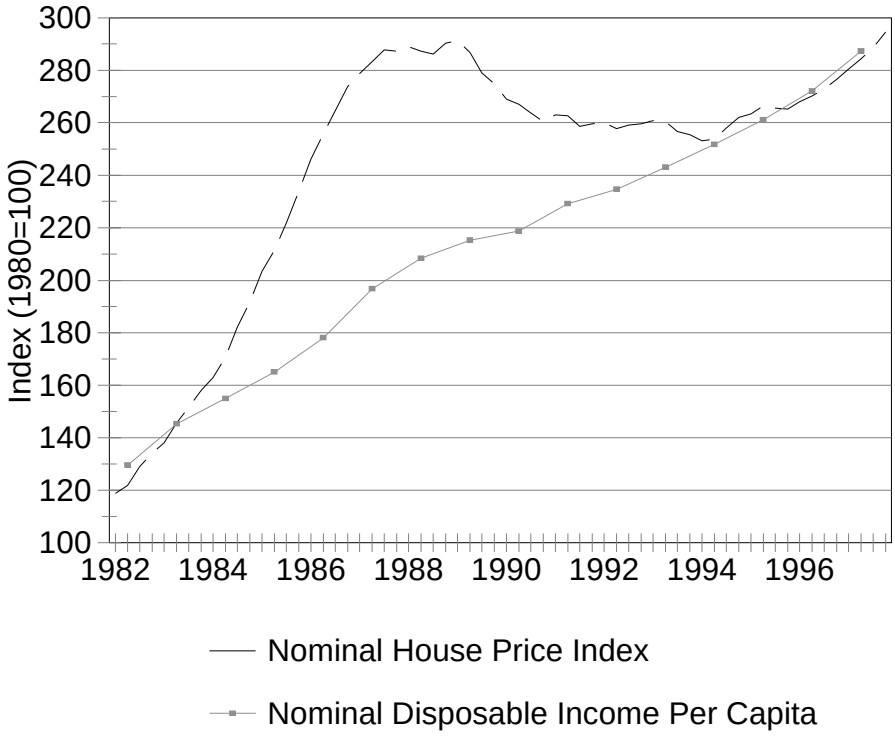


Figure 6. New England Housing Bust



Source: Office of Federal Housing Enterprise Oversight, Bureau of Economic Analysis

Conclusion

If a housing crash is defined as a significant decline in house prices, then the United States has not yet experienced a crash, although it cannot be ruled out in the future given the continuing fall in housing sales. Were house prices to fall gradually or stagnate, the economy is likely to be able to adjust without significant disruption. Were prices to drop sharply, the risk to the economy is much greater. If the boom was caused by a bubble, it implies that the housing downturn will probably get worse, and a sharp drop in prices is much more likely. Although changes in economic fundamentals, particularly lower mortgage rates, played an important role in the early years of the housing boom, it is difficult to identify non-bubble explanations for their unprecedented rise in the latter years.

If a housing crash is defined as a sharp decline in residential investment, then a crash has already occurred. Over the past five quarters, the rate of residential investment has declined by double digits and reduced overall GDP growth by an average of 1.0 percentage points, all else equal. While this drag on growth may persist in coming quarters, it is unlikely to get much larger. This suggests that the drag from the slowdown in house building could not cause a recession by itself.

Many economists have also predicted that a fall in prices would have a negative wealth effect on consumption. If so, and some doubts have been cast on this theory, the effect has not been strong enough to perceptibly reduce consumption yet. This is not surprising since the wealth effect predicts that stagnating (as opposed to falling) house prices, as seen so far, would not reduce consumption.

Another channel through which falling prices, combined with mortgage resets, could affect consumption would be if it led to a spike in mortgage default rates. While subprime default rates have risen sharply, the number of homeowners involved is too small to have much of a macro effect. But since the number of resets has not yet peaked and lending standards are tightening, the default rate could get worse.

Thus far, a more serious effect of the housing downturn has been the spillover of turmoil in financial markets, culminating in the August liquidity crunch. Widespread liquidity problems have the potential to interfere with the smooth functioning of financial intermediation that is necessary for robust economic growth. At this point, it is too soon to say whether the liquidity crunch has fed through to lower economic growth. Banks could also respond to falling house prices by curbing new lending since falling prices reduces the value of their assets.

To date, the sharp decline in residential investment has not disrupted the economic expansion, but since national prices have not yet fallen, it may be that the full effects of the downturn are yet to come. While it appears that a housing crash could not singlehandedly derail the expansion, it is possible that it could tip an already tepid economy into recession. Economic growth was below 3% for four straight quarters beginning in 2006:2, and, although it grew rapidly in second quarter of 2006, and, although it grew rapidly in second and third quarters of 2007, most forecasters had predicted it would be modest through the first half of 2008 even before the financial turmoil began in August 2007. Nonetheless, none of the 50

private sector forecasters surveyed by Blue Chip in October 2007 were predicting that the economy would enter a recession.

Were the housing market to crash, policymakers need not stand by and allow it to act as a drag on the overall economy. Indeed, the Federal Reserve has already reacted to the liquidity crunch by reducing short-term interest rates. Simulations by Fed Governor Frederic Mishkin suggest that the economic fallout from even a severe drop in housing prices could be modest if the Fed responds optimally.

On the other hand, some economists would argue that the Fed has already committed a policy error by not preventing what they characterize as a housing bubble from forming in the first place. While using monetary policy to target asset prices is likely to be problematic given the difficulty of identifying bubbles, one could argue that the current housing cycle of boom and bust has led to a less stable economy. If a housing crash were to lead to a recession, it would strengthen the argument that the Fed should take a less passive approach to asset bubbles in order to fulfill its mandate to maintain economic stability.