

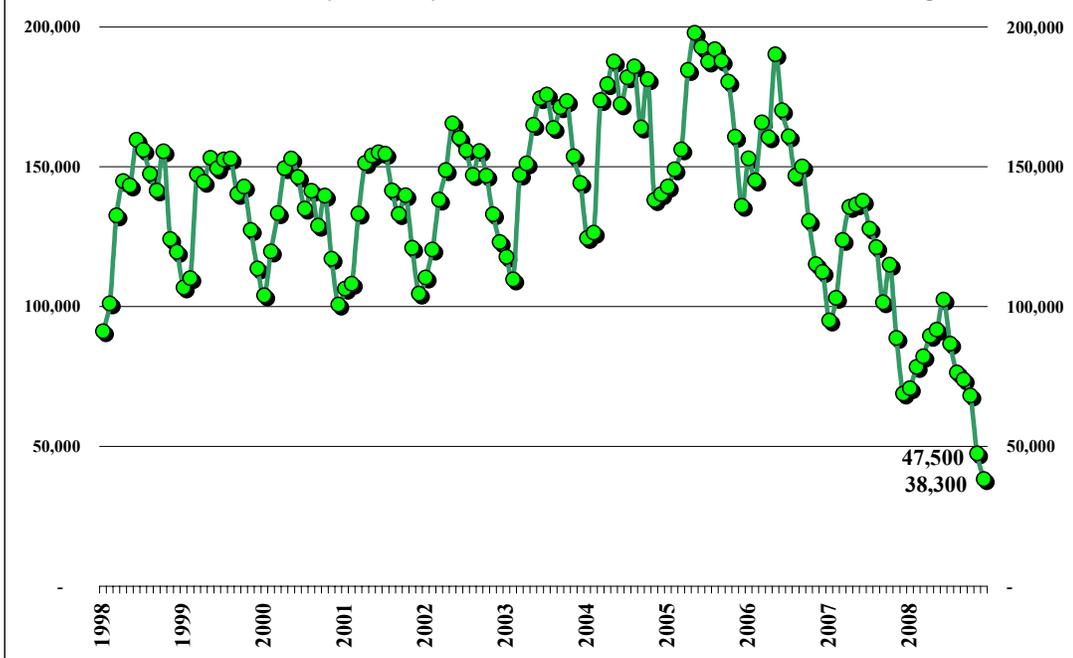
Building in Recovery

Housing inventories and outlook for the United States, 2008 to 2012

Introduction

Right now there is so much bad news about housing markets that what is actually good news is being called bad. Such is the case with the Bureau of the Census releases on the number of housing starts in the United States. Each report shows a lower level of housing starts than the previous, and each is being interpreted as a sign that things are getting progressively worse. Certainly the recent picture (Figure 1) can seem depressing, as the 38,300 units started in December 2008 was the smallest number of starts in any month since the

Figure 1. Privately Initiated Housing Starts
United States, Monthly, January 1998 to December 2008, Number of Dwelling Units



beginning of the Census Bureau's data file in 1959. This is a far cry from the exuberance that accompanied the 197,900 starts of May 2005, which was the largest number of monthly housing starts since the 1970s.

The interpretation of these data should be exactly the opposite. The high level of housing starts in the 2002 to 2006 period should have been viewed with great concern, as they created the mess that housing markets are currently in. The recent pattern of

declining housing starts, in turn, is good news, as it is only through a low level of housing starts that the large inventory of empty homes will be reduced to a level that will allow values, and hence markets, to recover.

Analysis of housing markets in their current condition can be likened to carrying out a medical diagnosis – it starts with symptoms, identifies causes, and then looks for solutions. In this report, the analysis begins with the excessive inventory of vacant housing and ends with a projection of housing occupancy demand and housing starts.

Housing Vacancies

One of the roots of the recent collapse of housing values was the unfortunate situation that when a household was not able to make the payments on its mortgage and the dwelling was offered for sale or rent, in many cases there was no one to occupy it at any price. Part of the reason for the absence of occupants was that there were simply too many vacant dwelling units (well over three million too many) on the market relative to occupancy demand – this excess vacancy is the focus of this report. Another part was that recent (necessary) changes in mortgage lending practice and an ensuing recession have greatly reduced the number of prospective purchasers and the price they could pay, a story that is better known, and told, in other contexts.

The extent of current vacancy in the housing stock is shown in the Census Bureau's Annual Estimates of Housing Inventory for the period 1965 to 2008ⁱ. On July 1, 2008ⁱⁱ, the total number of occupied dwelling units (full time residences) in the United States was 111,515,000, with an additional 18,603,000 units being

vacant (either year round or seasonal), for a total housing stock of 130,118,000 dwellings (Table 1).

The 18,603,000 vacant units

Table 1. Occupied Dwellings and Vacancy Ratios, The United States, 2000 to 2008

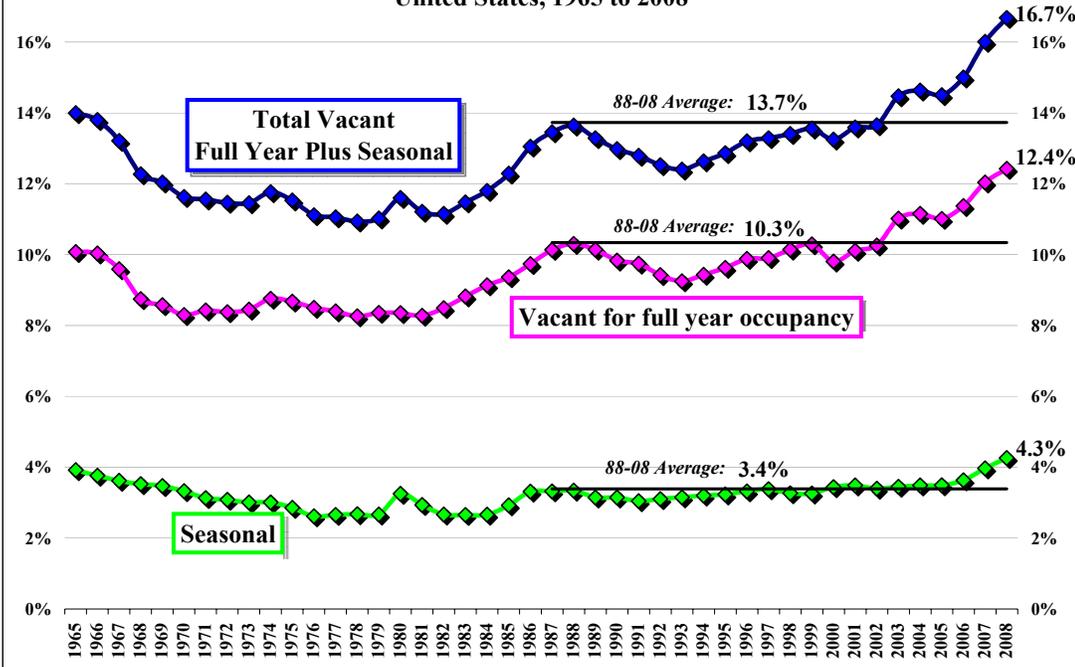
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2008 (1000s) | 88-.08 Average | 2008 at Average | Difference |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|-----------------|------------|
| Total vacant and seasonal | 13.2% | 13.6% | 13.7% | 14.5% | 14.6% | 14.5% | 15.0% | 16.0% | 16.7% | 18,603 | 13.7% | 15,312 | 3,291 |
| Year Round Vacant | 9.8% | 10.1% | 10.3% | 11.0% | 11.1% | 11.0% | 11.4% | 12.0% | 12.4% | 13,852 | 10.3% | 11,531 | 2,320 |
| For Rent | 2.8% | 3.0% | 3.2% | 3.5% | 3.6% | 3.4% | 3.4% | 3.5% | 3.6% | 4,021 | 3.1% | 3,482 | 539 |
| For Sale | 1.1% | 1.2% | 1.2% | 1.2% | 1.2% | 1.3% | 1.7% | 1.9% | 2.0% | 2,247 | 1.2% | 1,376 | 870 |
| Rented or sold | 0.8% | 0.8% | 0.8% | 0.9% | 0.9% | 1.0% | 1.0% | 1.0% | 1.0% | 1,097 | 0.8% | 935 | 162 |
| Held off market | 5.1% | 5.1% | 5.1% | 5.4% | 5.4% | 5.3% | 5.3% | 5.6% | 5.8% | 6,487 | 5.1% | 5,738 | 749 |
| Seasonal | 3.4% | 3.5% | 3.4% | 3.5% | 3.5% | 3.5% | 3.6% | 4.0% | 4.3% | 4,751 | 3.4% | 3,781 | 970 |
| Occupied units (1000s) | 102,626 | 103,682 | 104,965 | 105,560 | 106,588 | 108,231 | 109,575 | 110,306 | 111,515 | | | | |
| Increase in occupied units | | 1,056 | 1,283 | 595 | 1,028 | 1,643 | 1,344 | 731 | 1,209 | | 1,071 | | |

represents a 16.7 percent margin above the number of occupied units (i.e., for every 100 occupied units there were an additional 16.7 vacant ones). This vacant inventory was comprised of 4,751,000 seasonal units (a 4.3 percent margin over occupancy) and 13,852,000 vacant units (a 12.4 percent margin) that were intended for year round occupancy. Of these vacant units intended for year-round occupancy, 4,021,000 units were for rent, 2,247,000 units were for sale, 1,097,000 units were already rented or sold but not yet occupied, and 6,487,000 units were held off the market for various reasons (ranging from units that could not be sold and had been pulled from the for sale inventory to extra units that were occasionally occupied by folks who had a usual place of residence elsewhere).

These 2008 vacancy ratios established record highs, something that they have been doing almost continuously since 2002 (Figure 2). Each of these 2008 ratios were in the range of 20 to 25 percent above their long run averages, with the 2008 seasonal unit vacancy ratio of 4.3 percent compared to its 1988 to 2008 average of 3.4 percent, the 2008 ratio of vacant units that were intended for full year occupancy of 12.4 percent compared to its long run average of 10.3 percent, and the overall 2008 vacancy ratio of 16.7 percent compared to its long run average of 13.7 percent.

The two decade long run average vacancy ratios can be used as a measure of what normal vacancy levels would be, and assist in the determination of what will be necessary to return to them. If the ratio of vacant units intended for fully time occupancy to the number of occupied units was at the 10.3 percent long term

Figure 2. Annual Vacancy Ratios Relative to Occupied Dwellings United States, 1965 to 2008



average in mid-2008, there would have been only 11,531,000 such units vacant, compared to the 13,852,000 that actually were. Thus, in order to return to normal vacancy levels, 2,321,000 units intended for full year occupancy that were unoccupied in mid-2008 have to be either occupied or demolished. In total, the excess vacancy in 2008 was 3,291,000 units, which will all have to be removed from vacant inventory

for normal market conditions to prevail.

Returning to normal vacancy conditions is fundamental to the recovery of housing prices and housing values, and hence a brief discussion on vacancy is appropriate at this point. Housing units represent a lot of scarce resources, from land to lighting, and therefore at first glance it would appear that any vacancy would be bad, as it would represent a waste of resources. However, some level of vacancy is necessary to allow turnover to occur in housing markets, thereby ensuring that change within the market can occur efficiently, permitting occupants to locate and relocate within the housing stock without excessively high transaction cost.

Beyond this level, however, vacancies indicate market disequilibrium and inefficient operation. The reason for this lies within the price relationship between occupied and vacant units. What gives value to a housing unit is that someone will occupy it – there is no market for vacant units as such, only for vacant units that will sometime be occupied. Occupancy in turn is largely determined by population characteristics and household formation rates, determined by population growth and aging, and people's desire to live together for love, companionship, care and other non-economic reasons. As a result, the stock of occupied units changes relatively slowly, in the range of 1.1 – 1.2 million additional households per year. If too many housing units are added to the housing stock at a point in time, and occupancy does not expand to fill them, the vacancy level increasesⁱⁱⁱ. The probability of a vacant unit being occupied falls with relative increases in vacancy, resulting in declines in the value of the vacant housing stock. When this is combined with a significant tightening of underwriting rules and borrower qualification, it compounds the downward pressure on values.

A large vacant inventory can also have a self-perpetuating tendency, as few households want to be the only occupants of an apartment building or the only residents of a sub-division. Further, the longer the high level of vacancy persists, the greater the probability of units becoming vandalized or derelict, which will in turn have a negative impact of the value of proximate units.

Thus, while a normal level of vacant inventory is essential to the efficient operation of housing markets, levels much above this have pernicious impacts on housing markets, depressing their own and other prices. In clinical terms, high levels of vacancy are a sure sign of a sick market, one that will need treatment to get well. The nature of the treatment lies in market adjustment; when the value of units fall below their replacement costs, developers and builders have no incentive to add units to the stock and housing construction ceases. The absence of construction will continue until enough of the vacant inventory is absorbed by occupancy demand that the probability that an additional unit will be occupied, and hence its value, increases to the level that new construction is again justified.

Housing Completions

The next step in the diagnosis is to determine why vacancy levels reached record levels. There are only two possible answers; vacancy increases either because occupancy demand falls faster than supply or supply increases faster than occupancy demand. The first possible answer does not apply, as housing occupancy demand (the number of units occupied full time) has increased continuously in the post world war two period; over the past decade occupancy demand increased by an average of 1,071,000 units per year, and over the past two decades it increased by an average of 1,068,000 occupied units per year. Even over the past year, one generally seen as gloomy in terms of the housing market, housing occupancy demand increased by 1,209,000 units (a 1.1 percent increase over 2007).

Thus the source of growth in vacancy was not shrinking demand, but rather a rapidly expanding supply of housing. Over the past year, 2,910,000 dwelling units were added to the housing stock, compared to an increase in occupancy demand for 1,209,000 units, adding just shy of one million (951,000) units to the vacant housing stock. This situation resulted in an increase of 5.1 percent in the total number of vacant units, and a 4.2 percent increase in the number of units intended for year round occupancy that were vacant.

At this point it is useful to pause to do what is admittedly some simple math, but which offers some insight into the timing of housing market recovery. There were, on July 1, 2008, 2,433,100 more units intended for full year occupancy sitting vacant than would exist under long run average vacancy conditions. If long run occupancy demand increases at the rate of 1,171,000 units per year, then it would take just over two years for

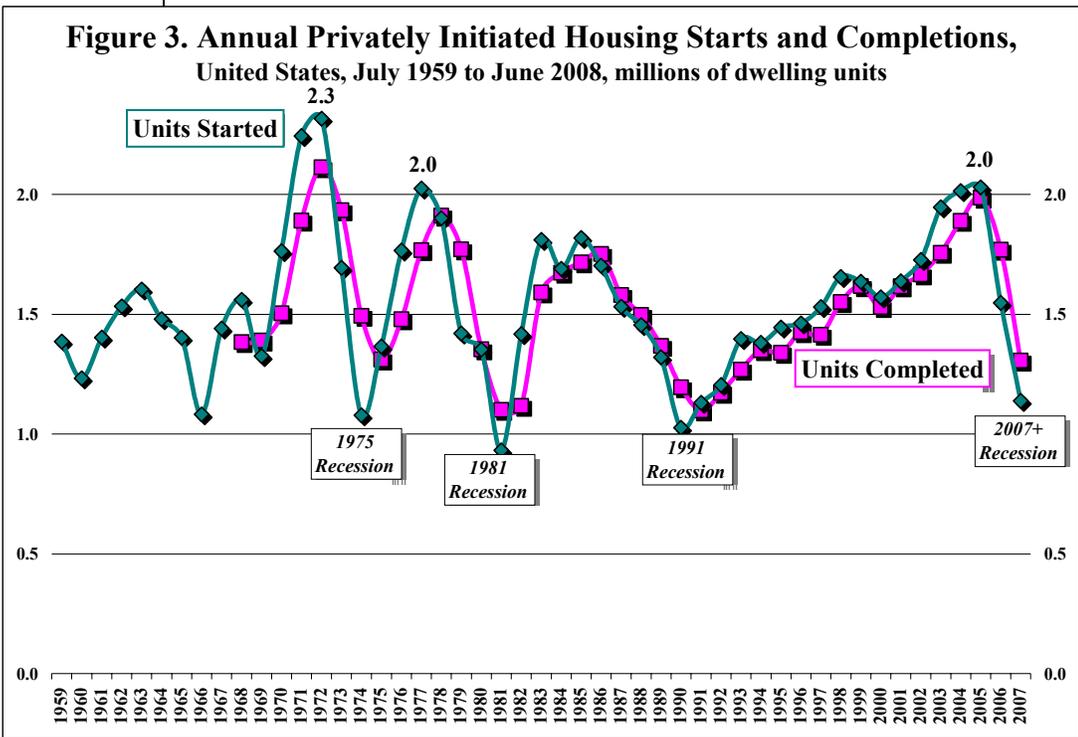
2008's excess vacancy to be eliminated by growth in occupancy demand alone. Thus it would be mid-2010 before normal vacancy levels would prevail – **if no more dwelling units were added to the housing stock between mid-2008 and 2010**. We will return to this discussion later in presenting more detailed projections, but it clearly outlines the order of magnitude of the challenge of treating excess vacancy.

The high levels of vacancy are the result of housing markets being overbuilt, with additions to the housing stock during this decade far in excess of incremental growth in occupancy demand. To examine the reasons for such extensive over-building, it is necessary to consider the two general (and competing) factors that bring about change in the total number of units available for occupancy. The first of these factors is that the housing stock is reduced over time primarily by demolition^{iv}, generally for residential redevelopment or to facilitate the conversion of residential land to non-residential uses. In contrast, the housing stock is expanded mainly by the completion of the construction of new residential units^v.

Measuring the contribution of each of these factors to the build up of the inventory of vacant units is limited somewhat by both the focus and the availability of data. Most restrictively, there are no data available on the level of loss of residential units due to demolition and conversion to non-residential uses. There are data on the addition of residential units to the housing stock as a result of the completion of construction^{vi} of residential units, but it is specifically limited to privately initiated residential units and does not include mobile and moveable homes, which are included in the housing inventory^{vii}. Evaluation of these limitations suggests that, without putting too fine a point on the analysis, housing completions provide a reasonable estimate of the role of construction in expanding the housing stock, and in contributing to vacant inventory.

Figure 3 shows the Census Bureau data on housing completions (1968 to 2007 fiscal years) and housing starts (fiscal 1959 to 2007). What is immediately obvious from this chart is the cyclical volatility in housing construction activity, with four dramatic cycles of construction booms and busts over the past four decades. In terms of magnitude, the current cycle thus far is no larger than previous ones; however, by the time it is finished it is likely to be much larger, as it built up a much greater vacant inventory than the previous three.

In the analysis of the consequences of this large vacant inventory, the first step is to consider the extent of replacement demand (the share of housing units that are constructed to replace those demolished or converted to non-residential uses). Putting aside for a moment consideration of seasonal housing (as many of these units may not be included in the housing completion data), over the past 20 and 10 year periods, replacement accounted for 14 percent of housing completions^{viii}. Bringing seasonal units into consideration, as well as the estimated annual additions of mobile/manufactured homes and the expansion of the publicly owned housing stock as sources of additional completions, results in an estimate of replacement representing ten percent of additions.



Between mid 2007 and mid 2008, 1,306,700 units were added to the housing stock by the completion of privately initiated residential construction. Accounting for a share of additions for replacement demand would indicate a net contribution to the non-seasonal housing stock of 1,126,900 units – close to the 1,209,000 unit increase in occupancy demand recorded between 2007 and 2008. Rolling in

an estimate of additional public sector housing completions and additional manufactured and mobile homes, suggests that this broader definition of completions added upwards of 1,247,690 units (net of replacement demand) when occupancy demand increased by approximately the same number, and when there were over 3 million excess vacant units already in inventory.

Looking farther back, in terms of construction levels and vacancy margins, housing markets were generally in balance in 2001. Since then average growth in occupancy demand has been in the range of 1,118,951 units per year. There has also been an annual average of 1,713,114 privately initiated residential units completed, which, when reduced for replacement demand, results in annual average contributions to the housing stock of 1,471,046 units per year (not considering seasonal housing). This means that there has been an average annual surplus of 352,095 units completed per year which, over the past seven years, sums to a 2,464,664 unit surplus over average vacancy (comparable to the excess vacancy of 2,320,000 non-seasonal units observed in 2008). Accounting for additional public and manufactured housing, and seasonal accommodation, moves this cumulative overbuilding in the range of excess vacancy of 3,291,000 units observed in 2008.

Housing Starts

There is no way that the excess inventory of vacant units can be reduced in any appreciable way as long as completions of new construction are above, or even close to, the same level as occupancy demand growth. So why were so many units added to the housing stock in light of the dire circumstances facing the housing market? Why would anyone spend new capital to add units in the face of a huge inventory of units already sitting on the market? In some specific cases, it may make sense to add units in the face of excessive vacancy, but only when they are for a very narrow market segment that is better off than, and well insulated from, the average. In the vast majority of cases, however, it does not make sense.

The reason for most of the additions in 2007 and 2008 specifically, and to housing cycles generally, was that critical decisions to build are typically made not in the current context, but in previous years, back in 2004, 2005 and 2006 for the additions in '07-'08. The long lag times between project initiation and planning, issuance of a building permit, the start of construction, and finally the completion, often lasting more than three years for large multi-unit projects, means that completion is often – but not always – a given once a decision to pursue a project is made. Few are willing to abandon the money, time and effort represented by a project that is underway, although as the markets have worsened more builders and developers are forced to take such action, either by abandoning projects or postponing their completion^x. This is demonstrated in the historical data on housing starts and completions. For example, over the past decade, assuming a one year lag between starts and completions, the number of dwelling units completed has been 96 percent^x of the number of units started. This ratio has not been uniform over the decade, with completion to starts ratio of 99 percent during the first half of the decade and only 92 percent over the past five years. The level of project abandonment and delay has increased during this recent period, with a completion to starts ratio of 88 percent over the past three years, and of only 82 percent over the past two years.

The housing market signalled in 2006 that it was overbuilt through a decline in the number of housing starts over the previous year, but project lags meant that units continued – and continue – to come on stream. Having noted this, the relatively small number of units started in 2008 will mean that completions in 2009 will be well below the growth in occupancy demand, thereby speeding the process at which the excess vacant inventory is reduced. This takes us back to the opening comments on the fact that the current “low level” of housing starts is the cure for many of the problems currently afflicting housing markets.

The Road To Recovery

Having identified the symptoms, causes and potential medicine (significant declines in residential construction activity) it is appropriate to estimate how long it will take the patient to recover. To do so, it is necessary to project both sides of the market; growth in occupancy demand and the supply of completions which will be added to the housing stock.

The projection of growth in occupancy demand relies on two projections. The first is the Census Bureau's projection of population growth by age group in the United States – this projection shows the population of

the United States increasing by an average of almost three million people per year over the next four years (one percent per year)^{xi}. The second being projections of housing occupancy rates. With relatively stable rates and the short projection horizon, it was assumed that age specific household occupancy rates would remain essentially at their current levels^{xii}. Accommodating this growing population would generate annual average occupancy demand for 1,179,000 additional dwellings per year over the next four years.

As noted earlier, even if there was no new housing added to the stock, it would still take two years from mid-2008 for occupancy demand to eliminate the current level of excess vacancy. However, units will inevitably be added to the housing stock through new construction, something that will prolong the time it takes for recovery to occur. Part of the reason is that in the six months between July 1, 2008, and December 31, 2008, there were been 573,500 dwelling units completed, units which will add to the housing stock in fiscal 2008, thereby pushing out recovery four to five months beyond the two year horizon detailed above. Further, during the same period there were 391,000 units started, units which will further add to the stock during this and next year, and hence also delay recovery.

The timing of a full recovery will depend upon how the housing market responds to both the current excess inventory and growing occupancy demand. Two scenarios highlight the directions that this response might take. The first scenario, the Baseline Recovery Scenario, is based strictly on the mathematical ratios discussed earlier in this report; the second, the Adaptive Recovery Scenario, interprets how these ratios may change in light of the new financial reality that is settling in.

Setting aside consideration of the seasonal housing market to focus on the occupancy market, the Baseline Scenario assumes that a) completions would continue to be 82 percent of starts one year earlier, b) replacement demand would continue to account for 14 percent of housing completions, and c) starts would continue the pattern of precipitous decline observed over the past two years.

Using July 1, 2008 as a starting point, the annual pattern of demand and supply that would result from these conditions is presented on Table 2 (the model that produces this output runs on a monthly basis, with the annual summary used for convenience of presentation). It shows that the continuation of an 18 percent reduction between starts and subsequent completions is perhaps the most significant issue for the market, as it means that the 1,138,400 units started in 2007-2008 will contribute another 995,186 completed units (854,563 net of replacement demand) to the housing market by mid-2009 in spite of the glut of vacant units already on the market. With occupancy demand increasing by 1,191,774 households over this period, adding only 854,563 net new units for occupancy will mean a 337,210 unit reduction in the vacant inventory. While this is a positive step, it still leaves excess vacancy of 1,859,080 units in July of 2009, as the impact on completions (and vacancy) of the significant fall in starts in the last six months will not be felt until 2009.

Presuming that the declining trend in starts observed over the past couple of years continues throughout 2009 (and the first half of 2010), annual starts in 2008-2009 could fall to 635,930 units, with 61 percent of these being the 391,000 units already started in the last half of 2008. The vacant inventory as of July 1, 2009 would still be far in excess of the long term level, implying that starts would continue to drop, with 2009-2010 starts being in the range of 417,000 units. The impact of this drastic reduction in starts would not be felt until 2010-2011. Thus in July, 2010, there would still be an excess vacancy of 1,017,912 units, equivalent to almost a year's growth in occupancy demand. The low level of housing starts in 2009-2010 would ensure

Table 2. Baseline Recovery Scenario

| | July 1 2008 | 08..09 | July 1 2009 | 09..10 | July 1 2010 | 10..11 | July 1 2011 | 11..12 | July 1 2012 |
|---|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|-----------------|--------------------|
| Total Population | 301,279,593 | | 304,228,257 | | 307,212,123 | | 310,232,863 | | 313,232,044 |
| Additional Population | | 2,948,664 | | 2,983,866 | | 3,020,740 | | 2,999,181 | |
| Occupancy Demand | 111,523,762 | | 112,715,536 | | 113,886,763 | | 115,077,407 | | 116,239,521 |
| Additional Occupied Households | | 1,191,774 | | 1,171,227 | | 1,190,643 | | 1,162,114 | |
| Total Vacancy Non-Seasonal | 13,851,664 | | 13,514,453 | | 12,794,397 | | 11,899,603 | -800,903 | 11,098,701 |
| Normal Vacancy | 11,532,138 | | 11,655,373 | | 11,776,484 | | 11,899,603 | | 12,019,772 |
| Excess Vacancy | 2,319,526 | | 1,859,080 | | 1,017,912 | | 0 | | -921,071 |
| Vacancy Ratio | 12.4% | | 12.0% | | 11.2% | | 10.3% | | 9.5% |
| Vacancy Reduction Though Occupancy | | -1,191,774 | | -1,171,227 | | -1,190,643 | | -1,162,114 | |
| Vacancy Gain Though Completions | | 854,563 | | 451,171 | | 295,850 | | 361,211 | |
| Net Change in Vacancy | | -337,210 | | -720,057 | | -894,793 | | -800,903 | |
| Total Starts | | 635,930 | | 417,004 | | 509,131 | | 901,168 | |
| Total Completions | | 995,186 | | 525,413 | | 344,533 | | 420,651 | |
| Replacement Demand | | 140,623 | | 74,242 | | 48,684 | | 59,439 | |
| Additions to the Stock from Completions | | 854,563 | | 451,171 | | 295,850 | | 361,211 | |

that by July 1, 2011, the vacant inventory would have reached

11,899,603 units, achieving the 10.3 percent long run average level and hence eliminating the excess inventory.

Under current parameters, therefore it would take another two and one half years for the housing market to return to normal vacancy levels (three years from July 2008). The logic of supply and demand will require that the excess construction of the four years from 2002 to 2006 be matched by four years of below average construction from 2007 to 2011. It will clearly be a long road to recovery, but as recovery proceeds, the probability of a vacant unit being occupied will increase, and hence values will stabilize and then climb. Achieving normal levels of vacancy and experiencing rising prices will provide support for increasing construction activity.

As a parenthetic comment on the cyclical nature of housing markets, the need to dramatically cut development over the next couple of years to get rid of the vacant inventory will likely mean that the housing market will undershoot in 2011-2012. Then, as always, the industry will have to crank up to ensure that completions meet the 1.2 million additional units per year required to accommodate a growing and changing population after 2011. Inevitably, the planning, financing, and construction lag means that the development cannot respond immediately and hence vacancy levels will fall below the long run level, and another housing market cycle will begin.

There are many possible alternatives to the Baseline Scenario, each of which reflects the consequences of changes in the market parameters that were held constant in the Baseline. One such scenario, an Adaptive Scenario, is presented here to indicate the degree to which the timing of recovery is sensitive to changes in market behaviour. One fundamental change would be that the project postponement and abandonment ratio is likely to increase substantially over the next year; rather than 82 percent of starts reaching the market as completions one year later, this ratio is likely to fall as low as 70 percent, with 30 percent of units started not being completed as purchasers and financiers fall away after project initiation. Once people give up on even contemplating residential development projects, the abandonment rate will decline, as it will when the relative

Table 3. Adaptive Recovery Scenario

| | July 1 2008 | 08..09 | July 1 2009 | 09..10 | July 1 2010 | 10..11 | July 1 2011 | 11..12 | July 1 2012 |
|---|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|
| Total Population | 301,279,593 | | 304,228,257 | | 307,212,123 | | 310,232,863 | | 313,232,044 |
| Additional Population | | 2,948,664 | | 2,983,866 | | 3,020,740 | | 2,999,181 | |
| Occupancy Demand | 111,523,762 | | 112,715,536 | | 113,886,763 | | 115,077,407 | | 116,239,521 |
| Additional Occupied Households | | 1,191,774 | | 1,171,227 | | 1,190,643 | | 1,162,114 | |
| Total Vacancy Non-Seasonal | 13,851,664 | | 13,333,602 | | 12,490,608 | | 11,571,410 | | 10,810,106 |
| Normal Vacancy | 11,532,138 | | 11,655,373 | | 11,776,484 | | 11,899,603 | | 12,019,772 |
| Excess Vacancy | 2,319,526 | | 1,678,228 | | 714,123 | | -328,193 | | -1,209,666 |
| Vacancy Ratio | 12.4% | | 11.8% | | 11.0% | | 10.1% | | 9.3% |
| Vacany Reduction Though Occupancy | | -1,191,774 | | -1,171,227 | | -1,190,643 | | -1,162,114 | |
| Vacancy Gain Though Completions | | 673,712 | | 328,233 | | 271,446 | | 400,810 | |
| Net Change in Vacancy | | -518,062 | | -842,994 | | -919,197 | | -761,304 | |
| Total Starts | | 635,930 | | 417,004 | | 509,131 | | 901,168 | |
| Total Completions | | 939,110 | | 453,391 | | 346,890 | | 479,551 | |
| Replacement Demand | | 265,398 | | 125,158 | | 75,444 | | 78,741 | |
| Additions to the Stock from Completions | | 673,712 | | 328,233 | | 271,446 | | 400,810 | |

size of the vacant inventory begins to fall. For purposes of this Adaptive Scenario, the ratio of completions to starts is presumed to fall to

70 percent for all of 2009, gradually returning to its 96 percent average by 2012.

Another fundamental change would be a substantial increase in the removal of units from the housing stock as a result of dereliction rather than redevelopment. Many units sitting in the current inventory of vacant units will never be occupied, with some so vandalized or weather damaged that they cannot be occupied, and others bulldozed to avoid liability. In terms of a projection, this would be expressed by a higher replacement rate, as on a net basis a greater share of completions would merely be to take the place of a unit that was removed from the stock. For this scenario, the replacement level is presumed to double from a 14 percent share to 28 percent until the end of 2010 (when vacancy begins to decline noticeably) and then to gradually fall back to the 14 percent level by 2012. Finally, a higher than the long run average vacancy level will become the norm as the spectrum of market participants begin to work with the reality of a relatively large number of vacant units by building longer sales and leasing times into their pro-formas.

Assuming exactly the same pattern of housing starts as the Baseline Scenario, these changes in market parameters will have a surprisingly small impact on the rate of recovery of the US housing market. Normal vacancy levels will be attained in February of 2011 rather than July, shortening the recovery period by only four months. The reason the impact is not greater lies in the reality of the large number of units started in the past 12 months. The reduction of excess vacancy in 2008-2009 will be 518,062 units (Table 3) 54 percent more than the 337,210 reduction in the Baseline Scenario. As the Adaptive Scenario involves a return to historical levels for the replacement and abandonment parameters by 2012, the difference between the two scenarios shrinks over the longer term, with only 18 percent greater reduction in vacancy in the Adaptive Scenario compared to the Baseline over the 2009 to 2010 period (842,994 fewer units compared to 720,057).

Conclusions

The modest differences between the results of these two scenarios show that there is not much that can be done to speed the recovery of housing markets. The current excess inventory of vacant units is simply too large relative to growth in occupancy demand to contemplate any realistic reduction in additional supply having any near term impact. Compounding this delay will be the absorption of the units currently in the construction pipeline that will be added to the housing stock over the next year or so.

The road to recovery is two to two and a half years long from the beginning of 2009, as normal levels of vacancy will not be reached until the first half of 2011. 2009 will be particularly hard, as construction levels must continue to fall dramatically in order to reduce the vacant inventory, and hence to begin the process of bringing value to the vacant inventory. As growing occupancy demand is as fundamental to market recovery as slowing construction, anything that stifles the growth in occupancy demand (from high unemployment to reduced migration) will make the recovery rockier and longer. Also, what happens in the seasonal housing market will have some impact on recovery, as there has been a shift of some units (for example in amenity and resort areas) from the “for full year occupancy” to the “occasional seasonal use” category; the extent to which these units flow back into the full year market will slow the tempo of recovery in this market.

Note that this national overview involves the aggregation of many local real estate markets, each of which is affected not only by national economic and financial conditions, but local supply and demand equations as well. In this context, some markets will recover earlier and some later than that presented by the national average. A market by market analysis will show when recovery will occur in each, but it will also show that recovery is not just around the corner for any of them. Financial markets, which are much more integrated nationally than real estate markets, will continue to feel the consequences of high vacancy, and in turn the national financial context will continue to have detrimental impacts on all local real estate markets.

The most important conclusion of this research is that there is a road to recovery – the patient is not dead, in spite of rumours to the contrary. Not only will the patient recover, it will become robust and active, so much so that a warning must be given. Whenever housing starts move out of the 1.4 to 1.5 million starts a year (above 1.2 million units for growth in occupancy demand, accounting for a certain loss between starts and completion and for replacement demand), housing markets are headed for trouble. If starts overshoot this range, vacancies will increase, prices will fall, and, ultimately, starts must fall below this range until the vacancies are absorbed. If starts undershoot, vacancies will decline, prices will rise, and construction will pick up. Avoiding the construction cycle, difficult as that may be, would bring a lot of stability to everyone.

Note also that while the full reduction of the excess vacancy will take two and one half more years, price stability and recovery will start earlier, as excess vacancy is reduced. Thus, so long as construction remains in the projected range over the coming year, by the end of it prices should have found their floor and begun to climb, bringing some comfort to homeowners and lenders alike.

Finally, note that this paper on the sickness and recovery of housing market has not talked about CDOs, CDS, RMBS, or SIVs; it has not talked about hedge funds, merchant banks or sub-prime. The reasons that these have not been mentioned is that this paper focuses on getting the patient healthy by getting rid of what is making it sick – an enormous inventory of vacant units. To stay healthy, the patient is going to have to cut out those things that made it susceptible to the disease in the first place. In this case, the health risks presented by an unhealthy financial environment.

Notes and references

ⁱ The values for 2008 are estimates prepared by the author, based on the Census Bureau inventory estimates data for the first three quarters of the year. The historical time series on the housing inventory has been revised a number of times over the past four decades. Some of these revisions have been the result of rebasing the survey to calibrate it to the most recent census counts; in other cases it has been the result of changing survey coverage and methodology. For the purposes of this analysis, the published data have been adjusted to account for these revisions in order to provide annual inventory estimates on a standardized base; as a result, the pre-2000 data included in this report will not precisely match those found in the published data files. For definitions of units and vacancies, see [Housing Vacancies and Homeownership \(CPS/HVS\) at http://www.census.gov/hhes/www/housing/hvs/qtr308/q308def.html](http://www.census.gov/hhes/www/housing/hvs/qtr308/q308def.html).

ⁱⁱ The Census Bureau annual values are averaged of quarterly surveys, approximating a mid-year stock of units.

ⁱⁱⁱ Under tight market conditions, an increase in vacancy and fall in prices will permit some un-doubling, as people who formed households primarily for economic reasons will move to their own residences. This un-doubling will have some finite limit, as most households are formed for non-housing market reasons (love, companionship, child-raising, etc.), and hence as some point absorption will stop. In the current circumstances, however, economic conditions are likely to lead to doubling, rather than un-doubling. Further, inducements to household formation during the 2001 to 2007 period led to significant premature household formation (and hence undoubling), thereby removing much of the potential for this source of demand to aid in vacancy reduction. This premature formation is demonstrated in the increase in age specific household formation rates in the younger age groups observed over the 2001 to 2006 period, with declines observed in the 2007 data.

^{iv} In addition to demolition, some units are removed from the residential housing stock through conversion to non-residential uses without demolition; abandonment of units, primarily as a result of not being fit for occupancy, without their demolition could be characterized a conversion to a non-residential use.

^v In addition, some units are added are converted to residential from non-residential without construction.

^{vi} For documentation housing starts and completions data, see US Census Bureau Publications [New Residential Construction \(http://www.census.gov/const/www/newresconstdoc.html\)](http://www.census.gov/const/www/newresconstdoc.html) and [Relationship Between Building Permits, Housing Starts, and Housing Completions \(http://www.census.gov/const/www/nrcdatarelationships.html\)](http://www.census.gov/const/www/nrcdatarelationships.html).

^{vii} According to the Bureau of the Census and HUD [American Housing Survey for the United States Current Housing Reports](#), public housing accounted for a small share of total housing (1.5 percent in 2007) and an even smaller share of the increase in the housing stock (0.5 percent of the growth in the housing stock between 2007 and 1997). While manufactured and mobile housing accounted for a larger share, 6.8 percent in 2007, it too accounted for a less than proportionate share (2.5 percent) of growth in the housing stock over the decade. In adjusting starts for these two exceptions, an annual average of 48,700 additional units was added from these two sources.

| | Manufactured/Mobile Homes | | Owned by Public Housing Authority | | All Housing Units |
|---------------|---------------------------|------|-----------------------------------|------|-------------------|
| 2007 | 8,705,000 | 6.8% | 1,943,000 | 1.5% | 128,203,000 |
| 1997 | 8,301,000 | 7.4% | 1,860,000 | 1.7% | 112,357,000 |
| Growth | 404,000 | 2.5% | 83,000 | 0.5% | 15,846,000 |

^{viii} This estimate is calculated by calculating the difference in the size of the total housing stock in, for example, 1998 and 2008, and comparing this to the total number of housing units completed over this period.

| | 1988-2007 | 1998-2007 |
|--|---------------|---------------|
| Completions | 29,818,900 | 16,690,300 |
| minus Increase in non-seasonal vacancy | 4,683,184 | 3,699,954 |
| equals Completions net of non-seasonal vacancy | 25,135,716 | 12,990,346 |
| minus Increase in occupancy | 21,008,017.36 | 10,631,958.26 |
| equals Replacement | 4,127,698 | 2,358,388 |
| Replacement as share of completions | 13.8% | 14.1% |
| Completions | 29,818,900 | 16,690,300 |
| plus Estimated Net Public & Manufactured | 891,000 | 487,000 |
| equals Total Additions | 30,709,900 | 17,177,300 |
| minus Increase in total vacancy | 6,459,482 | 5,180,308 |
| equals Additions net of vacancy | 24,250,418 | 11,996,992 |
| minus Increase in occupancy | 21,008,017 | 10,631,958 |
| equals Replacement | 3,242,400 | 1,365,034 |
| Replacement as a share of additions | 11% | 8% |

^{ix} Over the past decade, assuming a one year lag between starts and completions, the number of dwelling units completed has been 96 percent of the number of units started; this reflects an average ratio of 99 percent during the first half of the decade and only 92 percent over the past five years. Over the past three years the completion to starts ratio with a one year lag has been only 88 percent, and only 82 percent over the past two years.

^x This calculated ratio corresponds to the survey value published by the Census Bureau (Relationship Between Building Permits, Housing Starts, and Housing Completions , page 3, <http://www.census.gov/const/www/nrcdatarelationships.html>)

^{xi} Census Bureau 2008 National Projections <http://www.census.gov/population/www/projections/2008projections.html>

^{xii} Age specific maintainer rates were reduced slightly in the younger age groups to reflect the slight doubling up that may result from the current recessionary environment, and in the oldest age group to reflect long run non-cyclical trends, Census Bureau Estimates of the Housing Inventory by Age of Householder <http://www.census.gov/hhes/www/housing/hvs/historic/files/histtab12.xls>