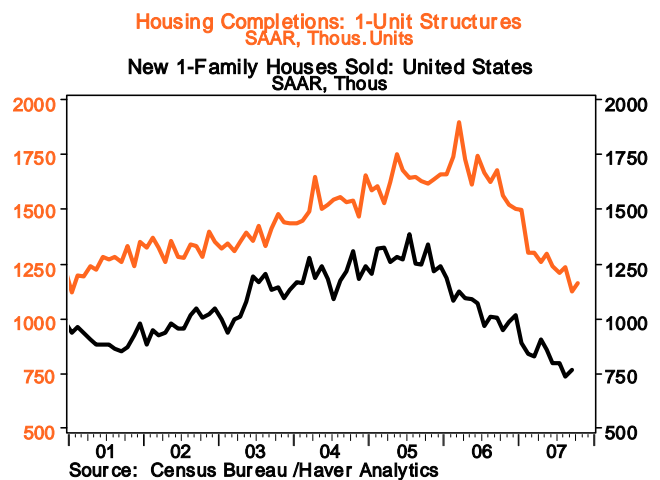


### Seeing the Light at the End of the Housing Tunnel

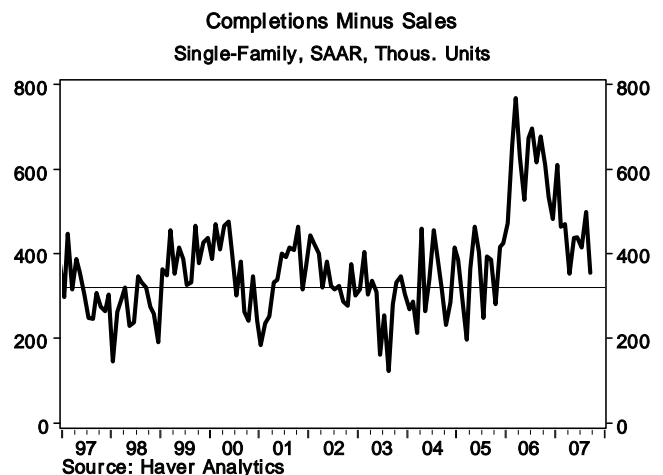
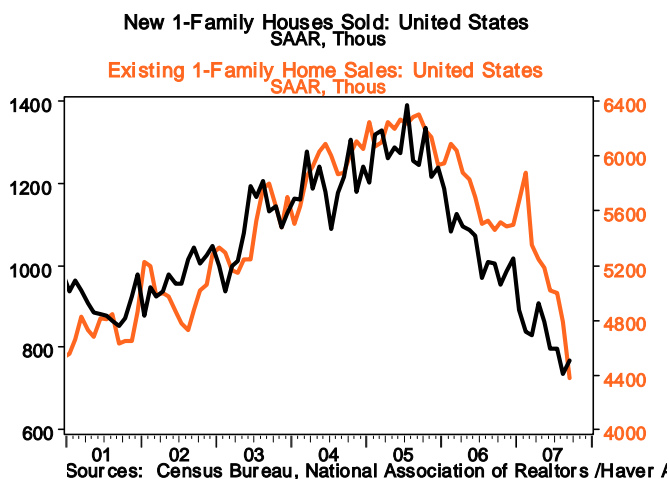
**Summary:** *Home sales peaked two years ago, but homebuilders got caught flat-footed. As a result, inventories of unsold homes piled up to record levels and prices are falling. Given the excess inventory of unsold homes, we expect housing starts will continue to decline in the near-term, while prices fall further in the next 12-24 months. Nonetheless, using a framework described in this piece, we can see the light at the end of the tunnel. Housing starts have declined rapidly in recent months and home inventories are at, or very near, their cycle peak. If housing starts average at, or slightly above, current levels over the next three years, our calculations suggest inventories can be brought down to historical norms. The pattern of activity we expect is for home construction to decline through early 2008 but then begin to rise.*

After peaking in mid-2005, sales of existing single-family homes are down 30.5% while sales of new single-family homes are down 44.6%. Both are back down to levels last seen in the late 1990s.

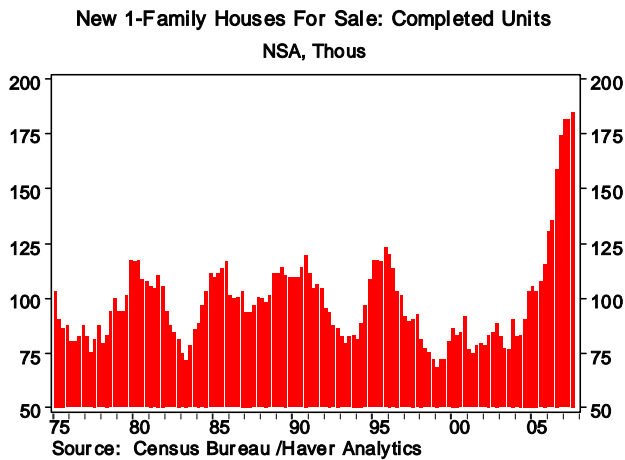
Residential construction peaked several months *after* the mid-2005 peak in home sales. There were two reasons for this. First, it takes time to finish homes already under construction. Second, it appears many home builders (including those new to the industry) had a delayed reaction to the initial signs of a sales slowdown, perhaps thinking it was temporary.



As can be seen in nearby charts, housing completions typically run well above new home sales. Between 1997 and 2005, new home completions outpaced sales by an average of 320,000 per year.



Despite this gap, the inventory of completed, but unsold, new homes remained relatively stable until 2005. While this may seem odd at first, it is a function of what the data measures. New home sales only include houses built on land owned by developers. By contrast, housing completions include this category *plus* homes built on land already owned by the homeowner and homes built to rent.



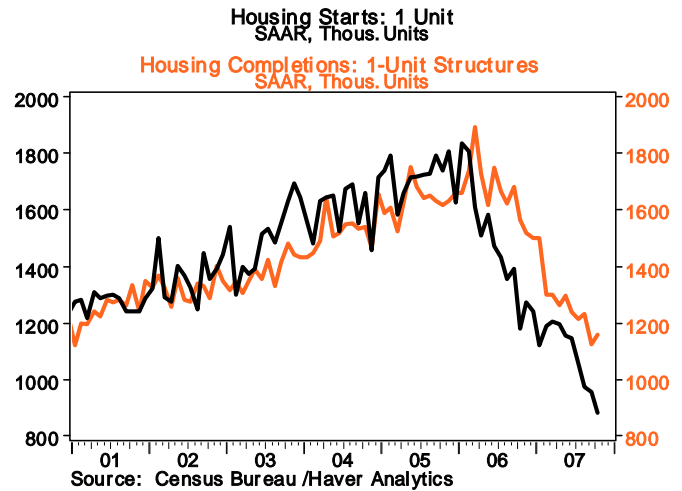
In late 2005 and early 2006, the gap between new home completions and sales widened significantly – peaking at an annualized record of 768,000 in March 2006. As a result, the inventory of completed new homes also soared to a record level – 185,000 by September 2007. For comparison sake, between 1975 and 2005, over many business cycles, the number of completed new homes hovered between 65,000 and 125,000. Today, the US housing market has roughly twice its 30-year average inventory level.

### The Good News

Despite this surge in inventories, it appears the housing market is beginning to normalize. The gap between completions and sales fell to an annual rate of 357,000 in September, close to the level consistent with stable inventories.

Meanwhile, housing starts have fallen much faster than completions (see chart), suggesting further declines in completions are already in the pipeline, which will result in falling inventories of completed new homes.

How much further starts must fall before they bottom depends on the level of inventory builders are willing to hold, the speed at which they get there, and the rate of new home sales.



### Assumptions

We assume builders would like to reduce the inventory of completed new homes to 80,000 units, the average level in 2001-03. This would constitute a massive and unprecedented reduction of 105,000 units from the current level of 185,000.

We also make the aggressive assumption that builders would like to work off the 105,000 units in three years. Why three years? Because previous housing inventory cycles have lasted about this long.

Although the size of the current inventory overhang argues for a longer, more gradual, reduction in inventories – which would allow for more building during the inventory correction – we doubt builders will do this. It is a tough choice between keeping crews busy and losing money because houses sit unsold. Weaker builders will not be able to hang on.

Our last assumption is that the pace of new home sales will average 770,000 per year for the next three years. Some months will be below this level, particularly in the near term, some months will be above.

### The Home Building Forecast

At first glance, calculating the change in completed new home inventory seems relatively straightforward: all we need to do is take completions, subtract the 320,000 associated with homeowners who already own the land, and then subtract new home sales.

But this method is flawed because the 320,000 “extra” home completions are just an average that varies from year to year. To make matters even more confusing, a new home sale is counted when a contract is signed, even if the house has yet to be started or is still under construction.

So, for example, let’s say developers build 25,000 new homes, 100,000 homes are built and paid for on homeowner-owned land and new homes sales rise by 100,000. In this scenario, sales would rise by 100,000, completions would rise by 125,000, but inventories would fall 75,000.

Here’s another example: if developers complete 25,000 new homes *and* sell 25,000 completed new homes, inventories do not change. But if developers complete 25,000 new homes, sell 15,000 of these and also sell 10,000 other units that are still under construction, inventories rise 10,000.

In other words, it is important to be careful when analyzing the data. They are not completely compatible and therefore adding and subtracting completions and sales can be misleading. Another complication is that contracts that are later cancelled are still counted as sold.

To incorporate all these possibilities and variables, we must resort to a regression equation to calculate changes in inventory levels based on completions and sales, as follows:

$$\text{Inventory Change} = -62,500 + (0.2)*(C-S)$$

where, C = Single-Family Completions, and  
S = Single-Family New Home Sales.

So, for example, when completions and sales equal each other for a year, the inventory of completed new homes drops by 62,500.

Our assumption that builders want to lower inventories by 35,000 *per year* (105,000 in three years), when combined with our estimate of a 770,000 per year sales rate, indicates a completion rate of 911,000 per year.

Typically, starts run 5% above completions, so putting all these assumptions together suggests builders can work off excess inventories with the annual pace of single-family housing starts averaging 957,000 for the next three years.

*This is good news.* In October (most recent data available), the annual pace of starts was already down to 884,000. If the pace of starts stays at this level for the next three years, builders can easily bring down inventories to acceptable levels.

Of course, varying our assumptions affects the average level of housing starts during the inventory correction. For example, if builders want to reduce their excess inventory in only one year, starts must fall about 35% below current levels, and stay there for one year. If builders are willing to take five years to reduce inventory, starts can average roughly 17% *higher* than the October level.

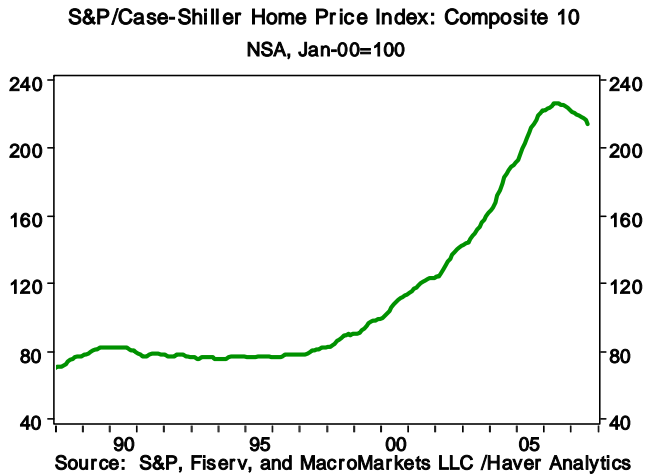
If new home sales average 650,000 per year during the correction, a three-year inventory fix would require starts to average 6% below the October level; if new home sales average 900,000 per year, the inventory fix would allow starts to run about 24% above the October level. The magnitude of the inventory fix could also have a large influence on the housing starts projection. We assume builders want to reduce inventory by 105,000 units. A smaller reduction of 60,000 units would allow starts to average 17% more than the October level (assuming sales average 770,000 per year).

Demographics will also play an important role. Because our model is based on nationwide data, it does not capture the major differences from state to state. Much of the excess building occurred in California, Florida, and Nevada. These states, plus Ohio and Michigan, have had the most damage from sub-prime loans. As a result, they will experience more pain than the average, while some states and regions of the country are most likely very near equilibrium already. Most importantly, markets are responding in an understandable way to very difficult times. Left to their own devices, markets work.

### **Home Prices**

Of course, the desire to reduce inventory will not just dampen home building, it will also exert downward pressure on home prices. According to a Case-Shiller home price index, as of September home prices were down 5.5% versus last year.

Our price model, which depends on the ratio of new home inventory to sales, as well as general price inflation, suggests prices will fall another 10% in the next two years, with almost all the drop in the next 12 months. However, beyond 24 months, home prices should start to rise again, as inventories approach appropriate levels while economy-wide inflationary pressures also support real estate prices.



**The Bottom-Line:** Although home builders were caught flat-footed when home sales peaked, the recent sharp contraction in home building has brought *new* supply and demand back into alignment. Builders must now work-off the excess supply generated in the previous two years. We believe the inventory-correction process will take three years and can be accomplished with (1) the pace of home building averaging about where it was in October 2007 and (2) home prices falling about 10% in the next 24 months.

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