

# Research

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Carsten Valgreen, Chief Economist, +45 33 44 05 30, [cval@danskebank.dk](mailto:cval@danskebank.dk)

Peter Passing Andersen, Analyst, +45 33 44 20 67, [pa@danskebank.dk](mailto:pa@danskebank.dk)

## USA: US housing bottoming out

- Since late 2005, home sales have been plunging, homebuilding activity has slowed significantly and homebuilder sentiment has dropped to its lowest level since the early 90s.
- But, how much worse will it get? We expect that new home sales have reached a trough, as mortgage applications have been relatively stable in recent months and the S&P500 homebuilder index has rebounded. Further, the pace of deterioration in the inventory-sales ratio for new home sales is slowing and new home sales now seem well aligned relative to fundamentals such as interest rates, income and unemployment.
- This implies that the negative impact of construction on economic growth will peak in Q3/Q4 and then gradually ease in H1 2007. Nevertheless, it will take a few quarters before residential construction spending has adjusted fully to the slower pace of sales.
- We also suspect that the NAHB housing market sentiment index is close to a turnaround. When signs of stabilisation in the housing market becomes visible in the data, the ramifications for the financial markets and fed thinking could be significant.
- While the exact timing of a stabilisation in the housing market is very difficult to determine, we think that the case for a stabilisation has strengthened of late, meaning such a scenario could very well play out during the coming months.

### Bottoming out

#### *US construction is bottoming out*

The US residential construction sector is currently in recession. In Q2, residential construction spending contracted 11.1% q/q AR, and we expect that the Q3/Q4 figure will be even worse. Add to this that homebuilder sentiment is close to historical lows and that home sales have dropped significantly since the highs in summer 2005. Given this, it seems reasonable to ask how deep and how long the residential construction recession will be.

This report should be considered as a supplement to our earlier reports on the US housing market. In "Research USA: US housing boom or doom?" from February 20, 2006, we argued that US house prices will continue to appreciate during 2006 and 2007, although at a slower pace. In our second report "Research USA: Housing market slows - but consumption might not" from August 24, 2006, we visited the implications of the large drop in the NAHB index. Here we argued that while the deterioration in the NAHB index reflected a decline in residential investment growth, it did not necessarily indicate a sharp slowdown in private consumption or declining house prices.

In this report we primarily focus on the outlook for the US construction sector and the impact on GDP growth. We argue that the greater part of the adjustment in the US housing sector has already taken place.

First, we show that new home sales are the key variable to watch in the US housing market, as it largely captures shifts in residential investment spending and in the underlying trend of real house price growth.

Second, we argue that there are several signs of a stabilisation in new home sales: mortgage applications have been relatively stable in recent months, the S&P500 homebuilder index has rebounded, and the pace of deterioration in the supply-demand balance in housing is slowing. Also, from a fundamental perspective (interest rates, income and unemployment), new home sales seem to have reached a trough. These are all signs that US housing could begin to turn around soon.

Third, we demonstrate that a trough in new home sales will imply a gradual stabilisation of residential investment during the next 2-3 quarters. Hence, we expect the negative impact from the housing slowdown on residential spending to peak in Q3/Q4.

Finally, the NAHB homebuilder sentiment index has become excessively negative. If new home sales stabilise and the supply-demand balance for new homes improves, a rebound in the NAHB index should be close at hand. Such a rebound could have significant ramifications for the financial markets and thinking at the fed.

## How to spot a bottom

### New home sales

New home sales are the key to understanding the cycles of the US housing market, and hence we will primarily focus on the new home sales outlook.

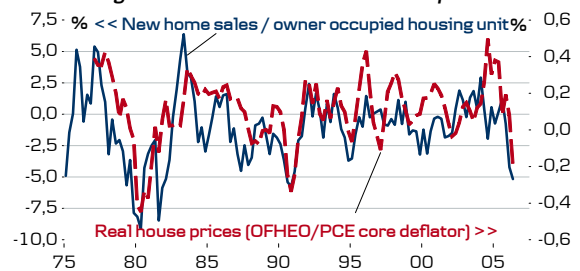
**Close relationship between new home sales and investments...**



Firstly, it is very clear that changes in new home sales growth are decisive for residential investment spending in the following 3-4 quarters (see chart above).

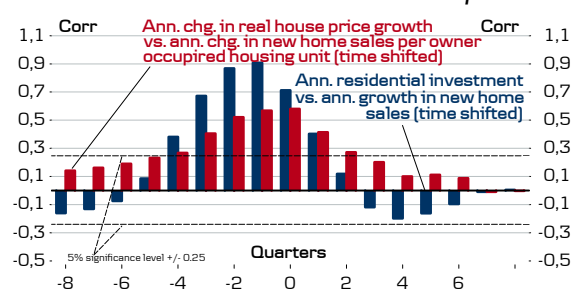
Secondly, as we have previously argued in "Research USA: Housing market slows - but consumption might not" from August 24, 2006, changes in the level of home sales correlate with changes in real house price growth. Hence, the drop in new home sales is equivalent to a deceleration - but not necessarily a decline - in real house prices (see the chart below). Obviously this has very important implications for the US consumption outlook.

**... and changes in the trend in real house prices**



While correlation is not causality, the autocorrelations between new home sales and prices or residential investments in the chart below surely tell us that new home sales are a strong leading indicator for construction activity and changes in the underlying price trends. Hence the near-term development in new home sales is of particular interest here.

**New home sales lead investment and prices**

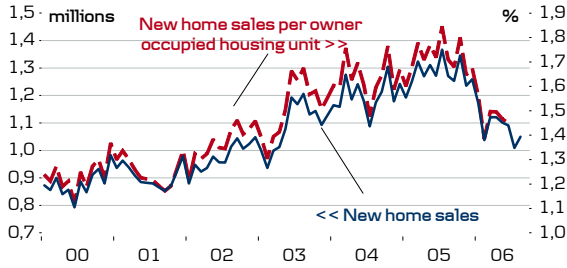


Note: A positive correlation coefficient to the left of zero indicates that new home sales lead the variable.

### Close to a stabilisation

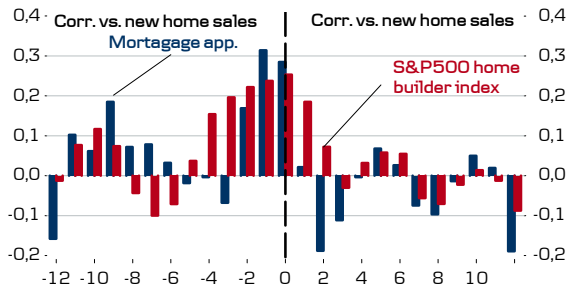
New home sales have been trending downwards since mid-2005, with a very sharp deterioration around New Year 05/06, and it is this deterioration that is currently impacting the construction sector. However, there are several reasons to believe that new home sales are about to stabilise.

**New home sales have plunged since late last year**



Firstly, housing activity statistics such as mortgage applications and the S&P500 homebuilder index are currently sending positive signals. As the correlations below indicate, these two variables usually lead growth in new home sales by some months.

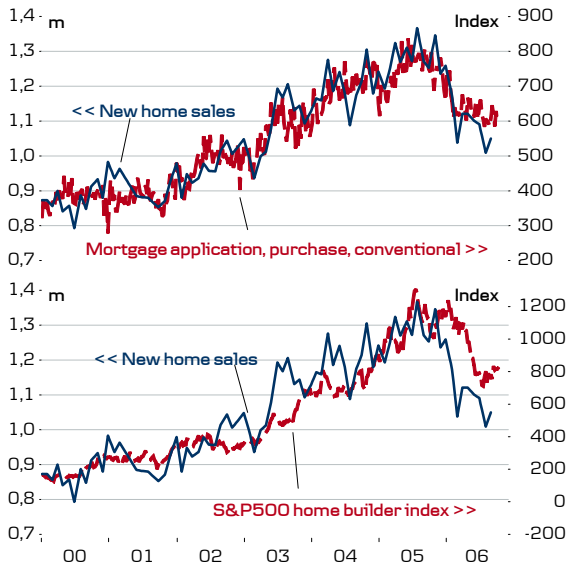
**Mortgage applications and homebuilder index lead new home sales**



Note: All variables are measured in 3-month percentage changes. A positive correlation coefficient to the left of zero indicates the variable is leading new home sales.

The charts below provide some quite strong indications that new home sales may be close to a stabilisation.

**Are new home sales about to stabilise?**



Mortgage applications have remained more or less stable since early this year, and the S&P500 homebuilder index has picked up over the summer. If these developments continue, we would be very

surprised to see another sharp deterioration in new home sales.

Secondly, there seems to be a close historical relationship between interest rates deflated by GDP growth (ex. residential construction) and the level of new home sales measured as a percentage of owner-occupied housing units. This relationship seems to hold for short as well as long interest rates (see charts below).

**External economic factors remain supportive**



These relationships suggest that the underlying equilibrium level of new home sales is determined by fundamental factors such as income and interest rates and generally not a bubble sentiment or other psychological factors.

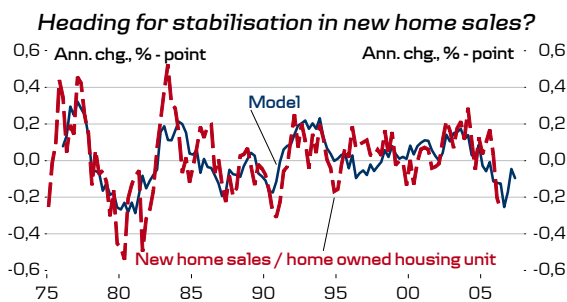
**Have new home sales reached a fair level?**



Based on this insight, we have estimated an equilibrium model using unemployment, real wage measures and long bond yields (see the chart above). The model and the charts above provide some important evidence.

Firstly, new home sales were probably fundamentally misaligned during 2004-05, and this might be the underlying reason behind the current housing correction. Secondly, following the recent correction, new home sales are well-aligned within the fundamentals of the model.

To get a grip on the short-term movements we have estimated the short-run dynamics in an error-correction model. The model (see chart below) is based on the error-term from the fundamental model above and short- and long-term interest rates. Interestingly, it seems like the short-term dynamics are very much driven by movements in short- and long-term interest rates.



Note: The model is based on the error term of the fundamental model above and short- and long-term interest rates.

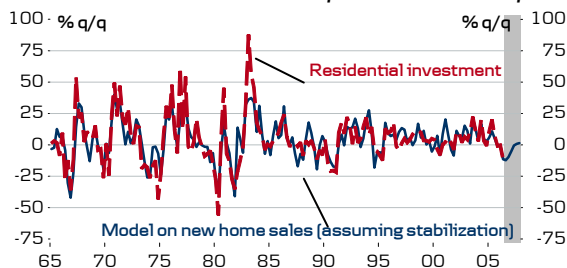
This model is far from perfect, but generally it captures the direction of the short-term movements in home sales. Taking an annual increase in owner-occupied housing units of 1-1.5% into account, the model predicts a slight pick-up in the level of new home sales over the next year.

### Construction outlook to improve

#### It's getting better from here

What does it imply for residential construction if we take the signals above at face value, and assume that new home sales will stabilise around the current level of 1050K?

**If new home sales stabilise the residential investment correction will be complete within 2-3 qtrs**



A very simple model (see chart above), based only on new home sales and the assumption of a immi-

grant stabilisation, indicates that residential investment growth will already be bottoming out during Q3/Q4. Heading into 2007 the negative impact on construction spending will gradually ease, and the model suggests that the level of residential investment will stabilise around summer next year. This implies that the overall impact from residential investment on GDP growth will go from an estimated -1% in Q3/Q4 to neutral in early H2 2007.

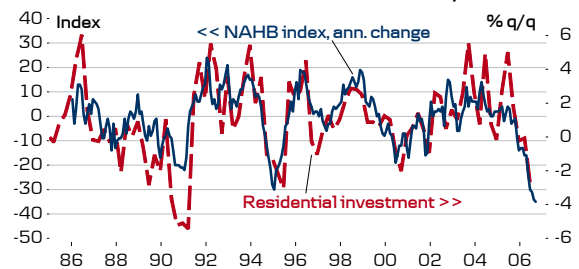
### Homebuilders - too pessimistic?

#### Homebuilder sentiment - heading north or south?

Another interesting issue is the NAHB homebuilder sentiment index, which is enjoying a great deal of attention in the financial markets at the moment.

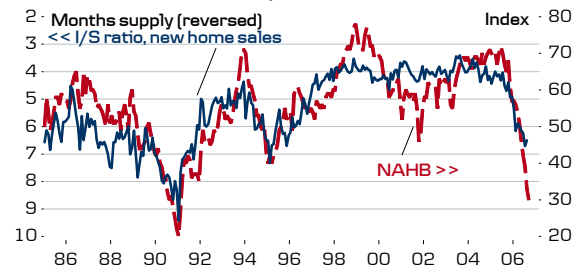
We have earlier touched upon the NAHB indicator, in the report "Research USA: Housing market slows - but consumption might not", where we demonstrated that the NAHB index might not be that good as an indicator of housing wealth and consumption.

**NAHB tracks residential investment quite well**



However, changes - not levels - in the NAHB index have been tracking residential investment growth pretty well (see chart above). Therefore stabilisation in this index would also be a strong signal that the outlook for the residential construction sector might soon improve.

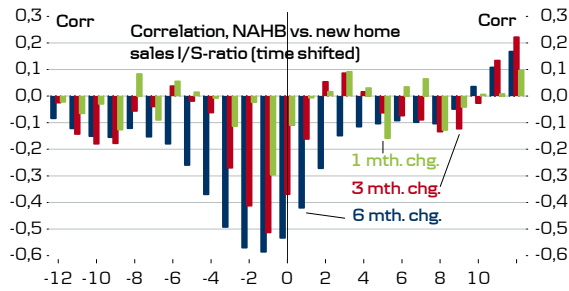
**New home sales I/S ratio drives NAHB**



As the chart above suggests, the major driver behind this index is the inventory-sales ratio (I/S-ratio). Further, the correlation chart below confirms that it is the I/S ratio for new homes that drives the NAHB index and not the other way round. This

could be evidence that the drop in the NAHB index has been “too large”.

#### New home sales I/S-ratio - a strong lead for NAHB

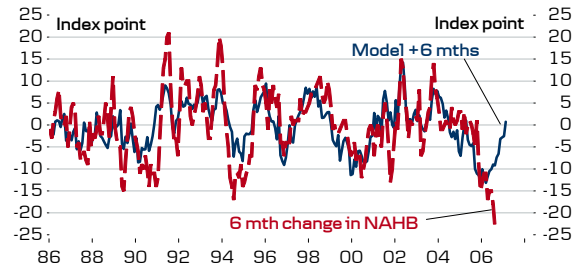


Note: A positive correlation coefficient to the left of zero indicates that the new home sales I/S ratio is leading the NAHB index.

As new home sales stabilise and the supply of new homes (construction spending) adjusts, the I/S ratio will also stabilise (in fact it already did in August). This will eventually lead to a stabilisation or even a rebound in the NAHB index. The big issue is, of course, the exact timing of the turnaround. We think that there is not a long way to go and that the NAHB index could pick up within the next few months.

To test this we have estimated a 6-month forward model for changes in the NAHB index (based on the I/S ratio, new home sales pipeline measures, interest rates and construction prices). The model confirms the above picture that the drop in the NAHB index seems excessive, as it cannot explain the recent very sharp deterioration in the index. Secondly, the model has now drifted into positive territory, indicating that a stabilisation in the NAHB index might be close at hand.

#### Did home builders turn too negative?



#### Summary

While the exact timing of a stabilisation in the housing market is very difficult to determine, we think that the stabilisation case has grown stronger of late. Mortgage applications have stayed relatively stable since the spring, the S&P500 homebuilder index has picked up during the summer and the supply-demand balance in the housing market seems to be stabilising. All these are the usual initial signs of a turnaround in the housing market. Finally, new home sales seem well aligned within their fundamental drivers, i.e. interest rates, unemployment and income growth.

A stabilisation in new home sales and a rebound in the NAHB index could have significant ramifications for financial markets and for US monetary policy. Further this could easily imply that the current market view that the Fed will cut rates during H1 2007 may fade further or even that markets may begin to believe in rate hikes.