Box 8

UNCOVERING THE DYNAMICS OF RESIDENTIAL INVESTMENT

In the light of the widespread recognition of investment as a key element in economic growth and of the role played by the housing sector in the current crisis, this box applies a theoretical model of investment (Tobin's q) to euro area residential investment, with two goals in mind.[1] The first is to analyse the determinants of real residential investment. The second is to evaluate the developments in the housing market both in the run-up to and during the course of the ongoing crisis, with the aim of discussing the dynamics of the supply side.

Tobin's q and residential investment

Tobin's q is a model of real investment activity, an approach that can be applied to residential investment. Investors find it attractive to invest in new buildings when the price of existing houses is higher than their replacement cost. The q ratio for residential investment is therefore computed as the ratio between the price of the existing stock of dwellings (i.e house prices) and the corresponding replacement cost (i.e. construction costs).[2] The higher house prices are, the greater real residential investment will be, and the higher construction costs are, the more

1 See Tobin, J., "A General Equilibrium Approach to Monetary Theory", *Journal of Money*, *Credit and Banking*, Vol. 1, No 1, 1969, pp. 15-29.
2 Construction costs are measured as the residential investment deflator.

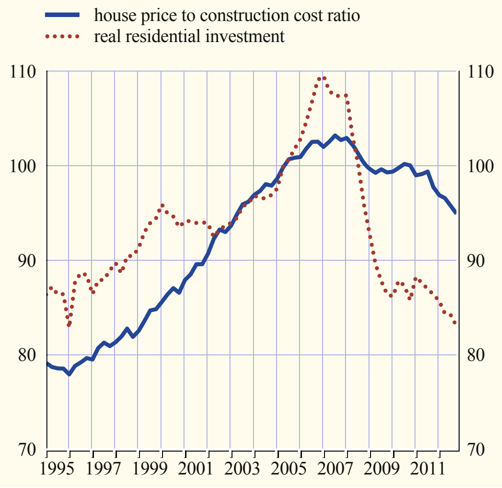
expensive it is for investors to replace the existing stock of dwellings and the lower residential investment will be. Clearly, market frictions, such as a lack of transparency and land available for construction, time-consuming institutional procedures for granting building permits, and the time between starting and finishing a new building, may imply a slow adjustment of real residential investment to house price and construction cost movements.

Real residential investment and the house price to construction cost ratio (the q ratio) for the euro area as a whole are shown in Chart A. In the years preceding the crisis, with the exception of the period from 2000 to 2002, the positive co-movement between the two series supports the validity of Tobin's q. Following the outbreak of the crisis, when house price dynamics reversed, the q ratio and real residential investment both declined but showed a weaker correlation.

A log-linear regression model relating real residential investment to fundamentals (i.e. house prices, construction costs and the cost of capital) shows that, in the years preceding the crisis, investment activity for the euro area as a whole was higher than its equilibrium level (see Chart B). This suggests that construction was excessive and led to an over-supply of residential properties. This situation has also affected the development of house prices and real residential investment in recent years. The need to absorb an excess of dwellings has weighed negatively on house prices and, therefore, real residential investment activity has plummeted to levels even lower than that suggested by the model.

Chart A Real residential investment and the house price to construction cost ratio (q ratio)

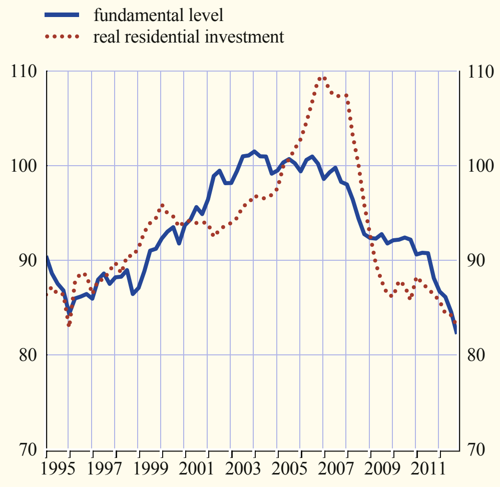
(index (2005 = 100))



Sources: Eurostat and ECB calculations.

Chart B Real residential investment and its fundamental level as implied by the empirical model

(index (2005 = 100))



Sources: Eurostat and ECB calculations.
Notes: The fundamental level is the level predicted by the model relating real residential investment to house prices, construction costs (i.e. the residential investment deflator) and the cost of capital (proxied by the ten-year government bond yield). The latter two components represent the replacement cost of the existing dwellings. The model is specified in logarithms and estimated over the period from the first quarter of 1995 to the fourth quarter of 2012.

Implications for the outlook for residential investment

At the aggregate euro area level, the excess supply appears, despite the weakness of housing demand since 2009,[3] to have been gradually absorbed over the past few years. Looking ahead, financing conditions and consumer confidence will be crucial for the outlook of residential investment. For instance, despite historically low mortgage rates, tight conditions for the supply of credit may, in some countries, impact on investors' ability to finance new residential investment.[4] In addition, generally weak economic conditions, implying subdued growth in disposable income, as well as fragile consumer confidence, which is recovering only tentatively, impact on housing demand and house prices, and highlight the possibility of further weakness in overall euro area residential investment lasting for some time. However, the outlook differs significantly across countries.

3 See the box entitled "Recent house price developments in the euro area" in this issue of the Monthly Bulletin.
4 See the box entitled "The results of the euro area bank lending survey for the first quarter of 2013" in this issue of the Monthly Bulletin.