

### Box 3

#### Recent developments in stock-building in the euro area

Inventory changes tend to be the most volatile component of GDP and, although they represent only a small share of overall GDP, their contribution to growth in individual quarters is often relatively large, in particular during the early stages of downturns and recoveries. Therefore, both the contributions of changes in inventories to GDP growth and their ratio to GDP can convey useful information regarding the short-term economic outlook. This box reviews the nature of inventories in the economic process and discusses recent developments in stock-building, as well as some of their possible implications.

#### The nature of inventories in the economic process

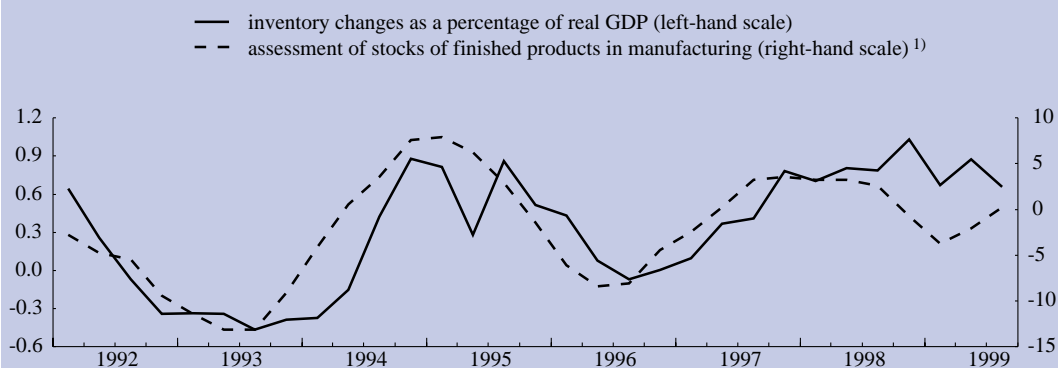
Inventories are mostly viewed as a buffer to enable a smooth production process in the face of changes in both demand and supply. They include final products as well as commodities used as intermediate inputs, and may therefore be related to different stages of the production process. Fluctuations in individual categories of inventories and in individual firms could hence partially offset one another in terms of aggregate changes in inventories. While inventories are also held in the agricultural and government sectors, it is the manufacturing and retail trade sectors, which account for the bulk of total inventories. Firms are usually thought to manage their stocks with a view to a desired ratio of inventories to expected production and sales levels. Changes in inventories will therefore normally reflect differences between actual and expected sales and production. The desired stock-to-sales ratio may be assumed to be fairly constant in the short term, but in the medium term it can be affected by changes in the production process and in logistics, such as “just-in-time” deliveries. Stock-building can hence also be caused by changes in the desired stock-to-sales ratio itself.

#### Changes in inventories in national accounts reflect developments in several types of inventories

Inventory changes recorded in national accounts statistics reflect developments in several categories of inventories, including finished products, goods for resale, materials, and work in progress. In practice, they may also reflect statistical discrepancies, arising in the compilation of overall GDP, thus explaining the relatively large revisions observed at times for this GDP component. Eurostat estimates for area-wide inventory changes include, in addition, the net acquisition of valuables such as precious metals and art objects, but these are unlikely to account for large variations in overall stock-building figures.

#### Inventory changes and the assessment of stocks in the euro area

(percentages, percentage balances; quarterly data)



Sources: Eurostat, European Commission Business and Consumer Surveys and ECB calculations.

Note: Changes in inventories also include acquisitions less disposals of valuables.

1) Quarterly averages; inverted sign; data are calculated as deviations from the average over the period since January 1985.

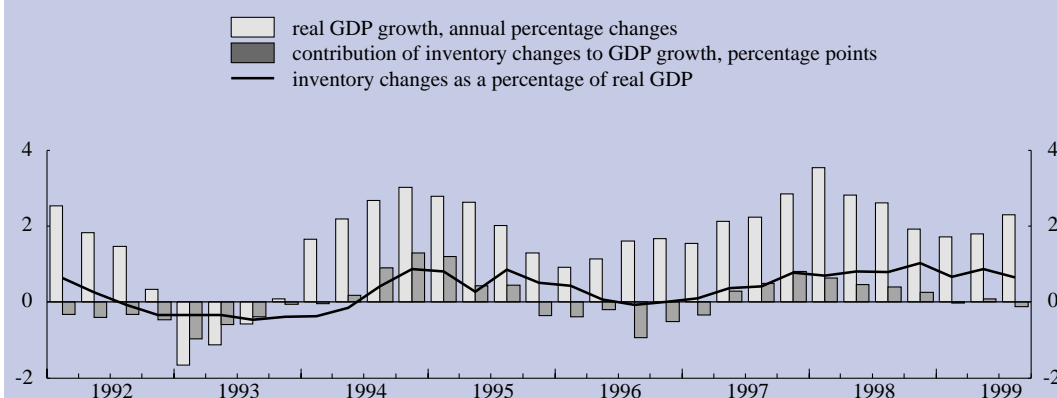
No breakdown is available for aggregate inventory changes in the euro area, but some information on the perception of businesses in the manufacturing and retail trade sectors of stock developments can be derived from the European Commission Business Surveys. The respective assessments for stocks of finished products and stocks of goods for resale may be seen as providing information on current inventory levels relative to desired ones. Notwithstanding some small discrepancies in the most recent past, it appears that the assessment of stocks of finished products in the manufacturing sector reflects the movements in the economy-wide ratio of inventory changes to GDP rather well (see the chart above). At the same time, the assessment of stocks of goods for resale in the retail trade sector does not seem to be closely aligned with movements in the ratio of inventory changes to GDP. When measured as a deviation from their long term averages the survey data for manufacturing and retail trade suggest that businesses currently consider their respective stocks as broadly appropriate.

### Recent data show continued stock-building despite slowdown in GDP growth

Reflecting demand conditions in the euro area, the contribution of inventory changes to real GDP growth in the 1990s turned negative during both the 1993 recession and the 1995/96 slowdown in activity. A small negative contribution to growth was also observed following the 1998 growth slowdown (see the chart below). However, in most of the recent period, stock-building has remained positive, with the ratio of inventory changes to GDP falling only slightly during the recent growth slowdown, implying a continuous rise in the level of inventories. To some extent, this might be a reflection of the statistical discrepancies referred to above, and changes in inventories might be revised downward with subsequent revisions of GDP data. However, this ongoing stock-building may also reflect the upward adjustment of inventories necessary to keep stock-to-sales ratios at their desired levels, as domestic demand growth remained fairly high, despite the noticeable slowdown in overall growth. This would be consistent with firms' recent assessment of stocks, which point to broadly appropriate levels of inventories. With an acceleration of total demand growth, a further increase in the level of stock-building might therefore be expected in the near future.

### Developments in inventory changes and real GDP in the euro area

(quarterly data)



Sources: Eurostat and ECB calculations.

Note: Changes in inventories also include acquisitions less disposals of valuables.