Box 5

RECENT DEVELOPMENTS IN STOCK BUILDING

This box discusses available evidence regarding recent developments in inventories and considers the implications for the assessment of the current economic situation. Given widespread evidence of substantial destocking in the euro area and the rest of the world in recent months, for instance from the surveys for the Purchasing Managers' Index (PMI),[1] it is important to understand the effects of this factor on recent and prospective developments.

1 The Purchasing Managers' Index is produced by Markit.

Historically, it has been a common feature of economic slowdowns that an inventory cycle can procyclically accentuate both the downturn and the subsequent recovery. At the beginning of a downturn, involuntary stock building occurs, as demand falls faster than production can be adjusted. This period is followed by a process of destocking as companies seek to reduce the level of their inventories through production cuts, while still maintaining cash flow. Once the trough in activity is reached, the contribution from inventories to GDP growth starts to rise again, thereby supporting the overall economic recovery.

One may ask to what extent the current inventory cycle follows this stylised pattern and what differences can be observed. Focusing on the most recent period, information reported in national accounts for the fourth quarter of 2008 differs across countries, with some reporting large negative contributions of inventories to GDP growth (e.g. France) and others positive contributions (Germany and the Netherlands) – while inventories made a positive contribution to euro area GDP growth of 0.3 percentage point (after 0.2 percentage point, -0.1 percentage point and 0.3 percentage point contributions in the first, second and third quarters of 2008 respectively).[2] This box focuses on complementary information provided by surveys, which has the advantage of being available on a more frequent and timely basis.

Evidence from surveys

Evidence provided by the PMI points to a destocking movement in the euro area that began in the latter part of last year. Although manufacturers accumulated stocks of finished goods until around mid-December 2008 (and in the fourth quarter of 2008 as a whole), stocks of inputs have rapidly contracted since last summer, as have inventories in the retail sector. According to surveys, the scope of destocking broadened across the economy – to encompass finished goods – and the pace accelerated markedly in late 2008 and in the first quarter of 2009.

This movement of destocking reported by surveys is not limited to the euro area but is observable worldwide. In the United States, the survey of purchasing managers produced by the Institute for Supply Management (ISM) shows that accelerated destocking has been taking place in manufacturing since at least September 2008. The "global PMI" – which combines the results of the Markit PMI surveys with those of other surveys, such as the US ISM surveys – shows accelerated destocking in inventories of inputs in manufacturing, at least since September 2008, and even earlier for some components, such as the PMI for the United Kingdom.

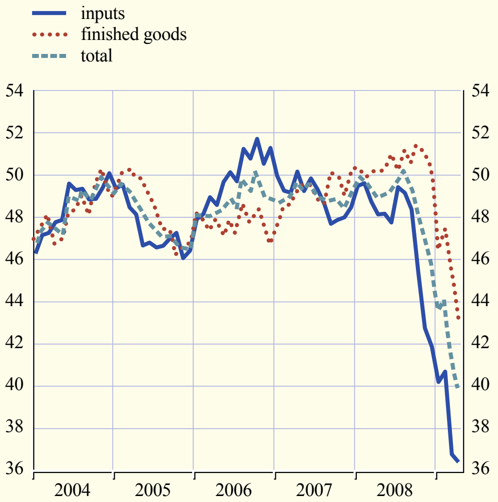
Charts A and B show the diffusion index of the PMI relating to the survey question on inventories. A value above 50 should denote stock accumulation, while a value below 50 should be consistent with destocking.[3] However, one should be wary of interpreting a value of 50 as some form of equilibrium for two reasons. First, there is a certain degree of uncertainty

2 While national accounts generally have the advantage of full coverage, caution is needed when interpreting changes in inventories on a quarterly basis, because they are the least reliable component of the expenditure breakdown of GDP. Owing to a frequent lack of actual source data on inventories at a quarterly frequency, changes in inventories often play a prominent role in the balancing process of national accounts and thus contain a large residual element. Practice also shows that inventory developments are often substantially revised. See the box entitled "The reliability of estimates of euro area GDP growth and its components" in the June 2006 issue of the Monthly Bulletin.

3 A diffusion index adds the percentage (appropriately weighted) of respondents who answered "up" with half of those who answered "no change". For inventories, respondents are asked to report on "the level of inventories of materials purchased/finished goods (in units, not money) this month compared with one month ago".

Chart A Composition of changes in manufacturing inventories in the euro area

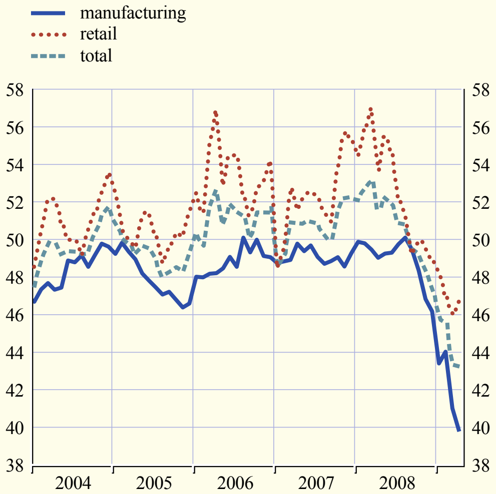
(diffusion index)



Sources: Markit PMI and ECB calculations.
Note: Last observation refers to April 2009.

Chart B Change in inventories in manufacturing and retail in the euro area

(diffusion index)



Sources: Markit PMI and ECB calculations.
Note: Last observation refers to April 2009.

as to what index value is compatible with a genuine zero change in inventories. Second, economic growth may be compatible with persistent destocking for very long periods – given the growing importance of services in the economy and the continuous improvement in "just-in-time" inventory management techniques.

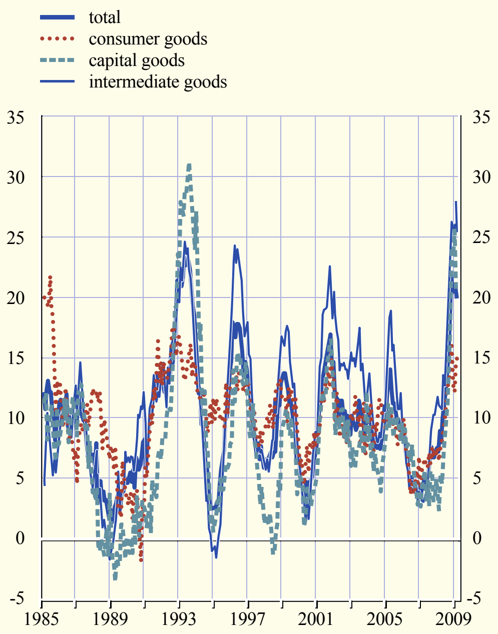
Chart A clearly points to a sharp difference in the evolution of inventories of inputs and finished goods in manufacturing. A destocking movement of inputs is likely to have started as early as September 2008 and subsequently gathered pace. By contrast, the accumulation of stocks of finished goods appears to have continued (and even slightly accelerated) until mid-December 2008. A simple average of the two series provides a profile that suggests that overall destocking by manufacturers began as early as October 2008.[4]

While the PMI survey provides information on the change in inventories in each period, some other surveys instead enquire directly about the levels of inventories, asking to what extent they differ from "normal" (such as the business surveys by the Directorate General for Economic and Financial Affairs of the European Commission – DG ECFIN – see Chart C). The sharp rise in the assessment of stock levels compared with "normal" in the course of 2008 is consistent with the PMI evidence of accumulation of stocks of finished goods in 2008. However, the fact that this indicator has continued to record high readings in the assessment of stocks in relation to "normal" in early 2009 may initially appear to contradict the evidence from the PMI which suggested that stock levels were falling. However, the two series can be reconciled if the destocking movement in finished goods reported by the PMI was voluntary or deemed insufficient, with the inventory targets of firms being reduced in parallel to the inventory levels themselves.

4 These results for the euro area are generally replicated in each of the euro area countries covered by the PMI, except Italy where destocking started in 2009 and, to a lesser extent, Austria.

Chart C Level of inventories of finished goods compared with "normal" in manufacturing in the euro area

(net balances)



Source: DG ECFIN.
Note: Last observation refers to April 2009.

Interpretation of this survey evidence

The evidence provided by the PMI suggests inter alia that the slowdown in household consumption in the course of 2008 – on the back of oil price-driven downward pressures on the purchasing power of households – may have been a surprise to the retail sector (as well as car dealers) and led to involuntary inventory accumulation. In addition, during the autumn, the fall in export orders, the decline in investment and the tighter financing conditions gave firms reasons to reduce inventory holdings. On the part of retailers, this involved reducing stocks of goods for sale by purchasing fewer goods from manufacturers, and on the part of manufacturers this involved reducing stocks of inputs (materials and other purchases). This caused an involuntary build-up of finished goods by manufacturers as, given the lags in production, they had little scope to stem such a build-up in the short term. In addition, these developments provided manufacturers with additional incentives to reduce stocks of inputs in anticipation of lower production needs in the near future. This then prompted manufacturers to rapidly reduce production – for instance by shutting down factories for much longer than usual over the Christmas period – in a bid to run down excess inventories of finished goods. From December, this led to a sharp reduction in these unwanted inventories of finished goods.

Finally, merchandise that is in transit in the context of international trade can also constitute a broader concept of inventories, which may be captured by the PMI. Given the very sharp contraction in international trade, it seems likely that there has been a notable decline in the stock of goods in transit.

Implications of this pronounced movement in inventories

The pronounced destocking in late 2008 and the first quarter of 2009 suggests that euro area output actually fell more than final demand in the first quarter of this year. Thus, if, as expected, there was a sharp contraction in GDP in the first quarter, this may have contained a substantial technical element reflecting inventory adjustment. The PMI data also indicate that the destocking in the first quarter of 2009 is likely to have reached an exceptionally high rate. In view of recent information, the pace of destocking may, however, be expected to slow in the coming quarters.

A moderation in the pace of destocking would have implications for GDP growth in the course of this year. It is important to note that it is not the quarterly change in inventories itself that has an impact on the quarterly growth of GDP, but the "change in the change" (i.e. its acceleration or deceleration). This stems from the fact that it is the change in the stock of inventories that is a component of the expenditure breakdown of the GDP level (e.g. production not sold in the same accounting period, thus increasing inventories in that period). Hence, it is the change in the change (i.e. the change in the flow) of inventories that has an impact on GDP growth. Thus, a positive contribution of inventories to growth does not require any stock accumulation to take place, but merely that the pace of destocking slows.