Box 7

DEVELOPMENTS IN POTENTIAL OUTPUT IN THE LIGHT OF CHANGES IN OIL PRICES AND CREDIT RISK PREMIA

Against the backdrop of the major shocks that have been affecting the euro area economy, it is widely anticipated that there will be a sharp slowdown in economic activity. However, in order to assess the extent to which the projected slowdown will be accompanied by a reduction in resource utilisation in the economy, possible changes in potential output have to be considered. Since part of the slowdown in activity may reflect the negative impact of supply-side factors, these may also lower potential output, so that the emergence of slack in the economy may be lower than in the case of a purely demand-driven cyclical downturn.

As is well-known, there are significant difficulties in measuring potential output in real time. The European Commission estimates that, from 2007 to 2009, potential output growth will decline from 2.0% to 1.5%, and the OECD estimates a decrease from 2.1% to 1.9% (see Table).

Potential output depends on a number of supply-side factors related to production inputs, such as capital, labour and energy, as well as productivity. Variations in potential output growth will thus reflect developments in these supply-side factors, but such variations may be induced by cyclical or structural developments. Examples of the former include cyclical changes in investment or labour force participation. The latter may stem from factors such as demographic trends, institutional reforms, technological innovation or persistent changes in the costs of factor inputs. It is very difficult to distinguish cyclical and structural factors in real time. In principle, only the latter matters for the estimation of trend potential output growth.[1]

Among the possible structural factors contributing to a decline in the growth of potential output at the current juncture, this box focuses on the effect of two shocks that have been impacting on the euro area, namely increases in oil prices and increases in credit risk premia. Oil prices have been very volatile in recent years, with strong rises seen up to mid-summer 2008 and marked falls thereafter. Given that oil is used to produce output, higher oil prices result in higher marginal costs for the same production level. An equality between marginal costs and marginal products in the economy is then restored through a lower use of factors of production. This, in turn, will then imply lower output. Moreover, financing costs have also increased since the middle of 2007, following a widening of credit spreads. If these credit spreads were to remain higher for a protracted period of time, this would imply a longer-lasting reduction in the demand for capital and therefore lower potential output.

1 See the Boxes entitled "The (un)reliability of output gap estimates in real times" and "Trends in euro area potential output growth" in the February and July 2005 issues of the Monthly Bulletin respectively.

Estimates of annual growth in euro area potential output

(annual percentage changes)

	2007	2008	2009
European Commission	2.0	1.7	1.5
OECD	2.1	2.0	1.9

Sources: Based on European Commission Autumn Economic Forecasts (2008), OECD Economic Outlook No. 83 June 2008.

A production function approach can be used as a way of illustrating the possible magnitude of these effects. An increase in the price of an input to the production process relative to the output price will result in an increase in its real marginal cost. In equilibrium, this requires an increase in marginal productivity, which is obtained by lowering the use of this input, thereby reducing output. In turn, a reduction in the use of this input results in a deterioration in the marginal productivity of other inputs. It can be shown that the extent to which this impacts on potential output growth actually depends on the flexibility of the prices of other inputs and the scrapping rate of capital. It is important to note that the less flexible prices are, the stronger the downward adjustment on potential output will be. Similarly, the higher the scrapping rate of capital, the stronger the short-term effects on potential growth.

In June 2008 the OECD (2008)[2] used a production function approach to produce some estimates of the impact on potential output of persistently higher risk premia and oil prices. The OECD estimates are based on an assumption of real oil prices being 170% above their 20-year average for the euro area (this corresponded to oil prices of USD 120 per barrel). With the many caveats involved, as documented by the OECD, higher oil prices could reduce potential output growth by between 0.1 and 0.2 percentage point on an annual basis in the first years of adjustment. Given that oil prices have come down substantially since the peak reached in the middle of the summer, the possible effect which might be computed assuming that oil prices remain at their current level is likely to be much weaker.

In the case of credit spreads, between the second quarter of 2007 (i.e. before the start of the financial turmoil) and the third quarter of 2008, such premia for MFI lending to non-financial corporations have increased by around 50 basis points. The OECD estimates, which are based on a similarly-sized structural increase in real financing costs, would imply a decline in potential output growth of between -0.2 and -0.3 percentage point per annum in the first few years of adjustment.

Thus**,** persistently higher credit spreads materialising in a structurally higher cost of capital as well as persistently higher oil prices could be expected to result in a reduction in the growth of potential output. However, it should be borne in mind that, when it comes to estimating the size of this effect, several assumptions need to be made, and the obtained impact is surrounded by a high level of uncertainty. Still, if the current high level of risk premia were to prevail for a longer period of time, or if oil prices were to again reach significantly higher levels, this should have a negative impact on euro area trend potential growth in the years ahead.

2 OECD, "The implications of supply-side uncertainties for economic policy", OECD Economic Outlook No. 83, June 2008.