inflation, which is to be expected in that the uncertainties in the assessment mainly concern future relationships between supply and demand and their effects on prices.

The overall inflation assessment indicates that the probability of CPI inflation being above 2 per cent in 1998 is negligible. Instead there is a very high probability of inflation being outside the tolerance interval's lower limit even at the end of this year (Table 2). Towards the end of the forecast period there is a greater probability of inflation being higher than 2 per cent but this is still not as great as the probability of inflation being less than 2 per cent. Over the forecast period there is a growing probability of inflation being inside the tolerance interval, as the downward tendency from transitory effects becomes smaller and inflation is affected to a greater extent by relationships between demand and supply.

INFLATION FORECAST WITH UNCERTAINTY INTERVAL

Since December 1997 the Riksbank publishes paths for forecast inflation with an interval for uncertainties in the assessment. A new construction of the uncertainty interval is introduced in this report. It shows the perceived probability of inflation being inside a particular interval in some future period (Fig. B3). This is intended to clarify the element of uncertainty in the forecast and whether the risk of a forecasting error is greater on the upside or the downside.

The calculation of the uncertainty interval is to some extent subjective. One of the intentions is to provide a picture of the current appraisal of uncertainties, upside or downside, in components of relevance for the path of inflation in the main scenario. More specifically, two aspects of the forecast distribution are assessed subjectively: whether the uncertainty in the forecast differs from the historical uncertainty (more simply, whether there are grounds for being more, or less, uncertain that usual), and whether the risk of forecasting errors is symmetric, upside or downside. In the absence of information to the contrary, the risk is assumed to be symmetric. One example of uncertainty that exceeds the historical average over a number of business cycles could be that economic activity is assumed to be approaching a turning-point, the reason being that cyclical swings are difficult to predict. But uncertainty can also be less than the historical average, for instance if all the indicators point in the same direction.

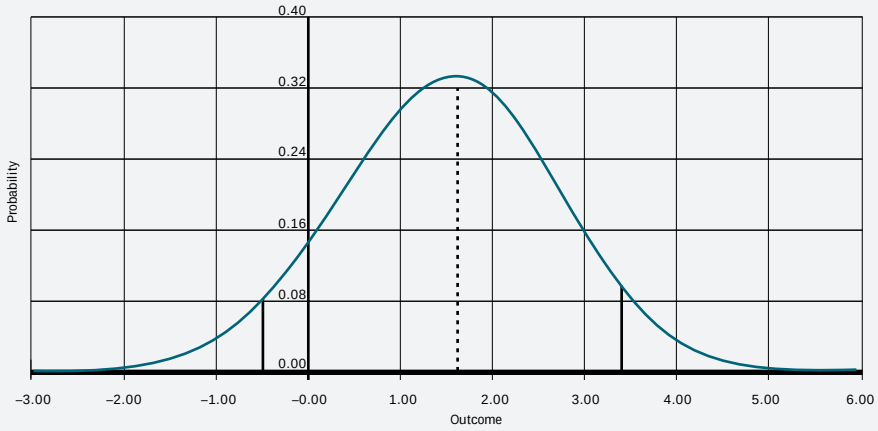
The overall assessments of the macro variables that are relevant for monetary policy are then weighted together in a model to get a single measurement of the uncertainty in the inflation forecast. A skewed uncertainty (a difference between the upside and downside risks in the assessment of a particular variable, e.g. imports) affects the distribution of the inflation forecast by the amount of the variable's weight in the macro model. Skew is measured as the difference between the mean value and the most probable value (the mode of the distribution). A distribution that is considered to be highly skewed may warrant a revision of the original forecast in the main scenario. Whether an exceptional course of events—a pronounced exacerbation of the Asian crisis, for example—should affect the forecast is a matter that has to be judged in the light of its perceived probability.

The distribution that is used as an approximation of the inflation forecast's distribution is known in statistical terminology as two-piece normal. A probability distribution to the right of the type value is proportional to a normal distribution with a certain standard deviation, while a probability distribution to the left of the type value is proportional to a normal distribution with another standard deviation. If the two standard de-

viations do not differ, then the probability distribution for the inflation forecast has a normal distribution, which implies that upside risks in the inflation forecast are balanced by downside risks.

From Fig. B3 it will be seen that forecast inflation for the second quarter of 2000 carries a downside risk (the distribution in Fig. B3 is somewhat skewed to the left). The broken line is the inflation forecast in the main scenario (the mode), which is 1.6 per cent, and the continous lines demarcate 90 per cent probability. This signifies an assessment that with 90 per cent probability, inflation will be somewhere between –0.5 and 3.4 per cent. As the mean value (not shown in Fig. B3) is 1.5, the distribution is skewed –0.1 percentage point.

Figure B3.
CPI inflation in 2000 Q2 with 90 per cent likelihood. Percentage 12-month change



Source: The Riksbank.