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Is a Recession Imminent?

The sharp slowdown in housing and the inverted yield curve have led to concerns that the odds of a recession have risen. For instance, Dow Jones News-wire reported on November 2 that one model based on the yield curve put the probability of a recession over the next four quarters at more than 50%. This *Letter* presents and discusses various estimates of the probability of recession. Our review of the evidence suggests two conclusions: First, recessions appear difficult to predict; second, while the probability of a recession over the next year may now be somewhat elevated, it does not appear to be nearly as high as the yield curve suggests.

Indicator models for predicting recessions

One way to predict the likelihood of a recession would involve simulating a large structural model of the U.S. economy. But economists disagree about the structure of the economy, so several have suggested using indicator models instead. The indicator models constructed by James Stock and Mark Watson (SW) are among the best known. Their work in this area preceded the 1990–1991 recession and continued through December 2003 (see, for instance, SW 1989). Their recession index (which estimates the probability of recession six months hence) and variations thereof are themselves a function of two indexes for Leading and Coincident Indicators. Unfortunately, their real-time performance has not been wholly satisfactory. The first index failed to predict the 1990–1991 recession, and a variation failed to predict the 2001 recession.

Of course, the SW indicators are not the only ones that failed. SW (2003) discusses this widespread failure and argues that it is hard to predict recessions because each is caused by a unique set of factors. For instance, income and consumption data did not provide much evidence portending a recession in 2001, but industrial production data did, because the recession was associated with IT manufacturing. By contrast, in the 1990–1991 recession, consumption did slow. Thus, “without knowing these shocks in advance, it is unclear how a forecaster would have decided in 1999 which of the many promising leading indicators would perform well over the next few years and which would not” (p. 88).

It should be noted that the SW approach definitely has had successes; the version used by the Chicago

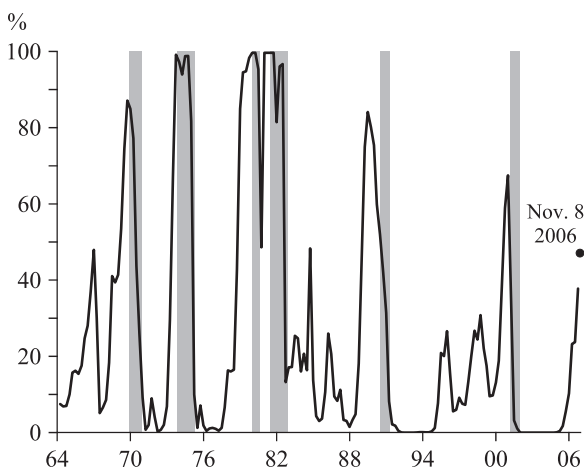
Fed, for instance, did a reasonably good job in real time of signaling a (coincident) slowdown in activity early in the 2001 recession. What does the index say now? As of October 25, the three-month average of the Chicago Fed’s National Activity Index (2006) stood at -0.25 . A value below zero implies that growth is below trend; values below -0.7 are associated with an “...increasing likelihood that a recession has begun” (p. 2).

Information from the yield curve

The yield curve is perhaps the best known of all the indicator models used to predict recessions. We begin with a model developed by Wright (2006) that uses information on the term spread and the funds rate. As Figure 1 shows, this model has done a reasonably good job of predicting recessions. Based on data for November 8, the model estimates a 47% probability of recession over the next four quarters. As a reference point, note that over 1964:Q1–2005:Q2, 27% of the four-quarter periods after any given quarter contained a recession; however, over 1984:Q1–2005:Q2, a period when output growth was noticeably less volatile than before, this frequency falls to only 15%.

There is reason to be skeptical about the current high estimate of the probability of recession, because the

Figure 1
Probability of recession in the next four quarters from Wright’s (2006) model



Note: Gray bars denote NBER recessions. These estimates are based on quarterly data except for Nov. 8, 2006, which is based on a daily value.

unusually low rates at the long end of the yield curve are not well understood; indeed, former Fed Chairman Greenspan famously pointed out that this behavior is a conundrum (2005). Wright attempts to deal with these problems by estimating several alternative versions, but the results are virtually indistinguishable from the base model. Hence, the statistical evidence does not clearly indicate how to incorporate the low long-term yields into the probability estimates.

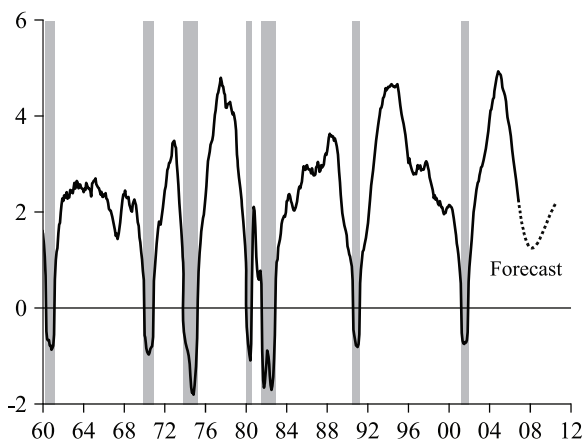
Concern about the behavior of long-term yields could be allayed by adding other variables to the forecasting equation. For example, Dueker (2005) included real GDP growth and CPI inflation (in addition to the spread and the funds rate) and estimated a vector autoregression to improve the modeling of the dynamics of the process. Unlike the SW models, real-time estimates from the Dueker model made at the end of 2000 placed the probability of recession in mid- to late 2001 above 50%. Figure 2 shows the business conditions index that underlies this probability; this version is updated and based on currently available data. When this index falls below zero (as it did in 2000), the recession probability rises above 50%. Although the figure indicates that business conditions have deteriorated recently, they remain comparable to those prevailing around 1995–1996, a period when the economy had slowed but did not enter a recession. While the model predicts some further deterioration in business conditions over the next year, it does not see much more than a 10% chance of a recessionary quarter over this period.

Survey evidence

Surveys, such as the well-known Blue Chip survey and the Survey of Professional Forecasters, represent subjective probability assessments and could incorporate judgmental adjustments to model forecasts. In November, the Blue Chip survey asked a special question on the odds of a recession in the next 12 months. The consensus was 24.8%; the average of the highest ten responses was 36.5%, and the average of the lowest ten was 14.8%. Earlier, the consensus was 25.1% in September and 26.9% in August.

Although these numbers are well below those from the yield curve model, they also are not that different from those recorded before the beginning of the last recession in March 2001; for example, in every month from May to September 2000 and again in November 2000, the consensus probability of recession varied from a low of 16% to a high of 23%. Moreover, respondents found it hard to tell if the economy was in a recession in real time; for instance, when asked whether the economy had entered a recession in June 2001, 93% said no.

Figure 2
Business conditions index
from Dueker's (2005) model



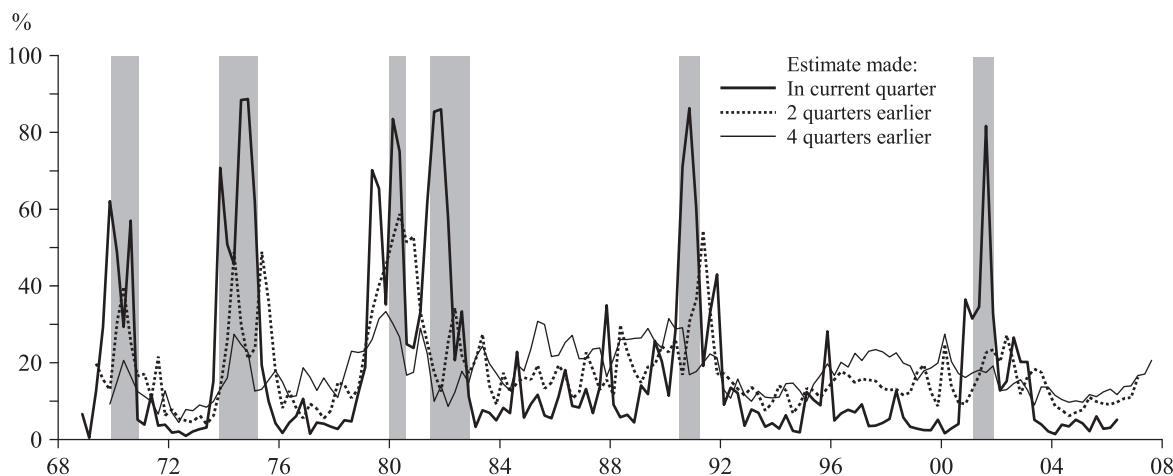
The Survey of Professional Forecasters regularly asks respondents to provide separate estimates of the probability that real GDP growth will be negative in the current quarter and the subsequent four quarters. Figure 3 displays data for three of these five quarters; for example, regarding the forecast for 2006:Q3, the line labeled “current quarter” shows the mean probability of negative real GDP growth as estimated in 2006:Q3, and the line labeled “2 quarters earlier” shows this probability as estimated in 2006:Q1.

Recently, the probabilities have crept up, with the third quarter survey results indicating close to a 10% chance of recession in 2006:Q4 and a 19% chance in 2007:Q2. Still, these levels are around the middle of the range that prevailed during the boom years of the late 1990s (see the line labeled “2 quarters earlier,” for instance). Furthermore, probabilities from this survey did not give much warning of the last recession, as even the current-quarter estimate did not rise substantially until after the recession had begun.

An assessment

Because the single-equation model based on the yield curve and the funds rate appears to have performed better historically than other models, it makes sense to take its pessimistic forecast seriously. Yet there also are mitigating factors to consider. For example, the ability of the yield curve to forecast recessions is often attributed to the fact that the long-term rate reflects market expectations about future developments in the economy. But in that case, one would expect professional forecasters to have this information as well, leading to survey probabilities similar to those from the yield curve. At a minimum, forecasters should be incorporating information from the yield curve into their forecasts.

Figure 3
Mean probability of negative real GDP growth in indicated quarter



Note: Data from Survey of Professional Forecasters.

A more concrete reason to be cautious about this forecast lies in the recent behavior of long-term rates, which argues for reducing the weight one places upon the term spread and relying upon other variables when making forecasts. The Dueker model provides one way of doing so, and its forecast (based on data through August) is noticeably more optimistic. However, deciding what to include brings us back to the problem discussed by Stock and Watson: The forecast we get depends on the indicators we add to the term spread. In particular, adding data on the housing sector is sure to lead to more pessimistic forecasts.

That said, our review of the available surveys, indicators, and model forecasts leads to estimates of the probability of recession that are all lower than the one based on the term spread and the yield curve. Furthermore, financial markets exhibit little evidence of distress: the Dow has hit record highs recently, and various risk spreads (such as the rate on corporate bonds relative to Treasuries) remain at low levels. Taken together with our inability to explain the unusually low level of long-term rates, this suggests to us that while the probability of recession might have gone up somewhat in recent months, it is not yet at worrisome levels.

Finally, not only are recessions hard to predict, it is even hard to tell that the economy is in a recession once it has begun. This is especially true in the low volatility regime that has prevailed since the mid-1980s. Here, the evidence suggests that it may be useful to supplement data from the surveys with data from indicator models that attempt to measure the current state of the economy.

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