

Focus: Real-time Recession Recognition

Coincident indicators like GDP are typically late in detecting the onset of recession in real time, as are consensus forecasts.

Are We There Yet? Over the past couple of months, a string of better-than-consensus economic data releases have eased recession fears. Yet, as discussed in the October issue of this publication (*Vol. XVI, No. 10*), none of that data is inconsistent with recession. Meanwhile, most of ECRI's forward-looking indexes of overall economic activity continue to point to an impending contraction of the U.S. economy.

Given this divergence, we examine when past recessions were recognized in real time by the consensus. It is at those moments in time that data releases would plainly align with a recessionary reality.

GDP and Recessions The popular "definition" of recession is two consecutive down quarters of GDP. As we have discussed over the years, there is no compelling theoretical or empirical justification for such a definition. A quick review of the postwar period shows that this rule of thumb is not a necessary condition for recession. For instance, the 2001 recession, which saw one of the largest job losses of any postwar recession, did not include two successive quarters of negative GDP growth. Neither did the 1960-61 recession.

Despite such shortcomings, negative GDP growth remains the main data signpost that alerts the general public that a recession is afoot. A review of historical GDP data going back nearly a century reveals that, in 72% of all recessions, GDP growth was positive in the first recession quarter.

But when do we typically see the first report of negative GDP growth during recessions? Charts 2a to 2n show the initial "advance" report of GDP growth in the first and the second quarter of every recession since 1969, and the subsequent significant revisions to those figures since they were first reported. While, from 1996 onwards, headline real GDP figures were released in chain-weighted terms, from 1991 to 1996 they were released in fixed-weighted terms. Prior to that, the headline measure was Gross National Product (GNP), which measures the market value of goods and services produced by labor and property supplied by U.S.

residents. For the U.S., the GDP and GNP numbers are not very different. The yellow bars in these charts denote GNP growth, the red bars fixed-weighted GDP growth, and the blue bars chain-weighted GDP growth.

A close look at this data reveals an important insight. In five out of the last seven recessions (including the Great Recession), the first recession quarter was initially reported as showing positive annualized quarter-over-quarter GNP or GDP growth. In the 1990-91 (Chart 2e) and 2001 (Chart 2c) recessions, those initial positive figures were revised to negative readings within two years. In the 2007-09 recession, the "advance" GDP growth reading in the first recession quarter was revised briefly to a negative reading in the July 2008 data release, but has since been revised upward and now stands at a positive 1.7% (Chart 2a).

In the case of the 1981-82 recession (Chart 2g), the very first read was actually negative, only to be revised to a positive number the following month and remain

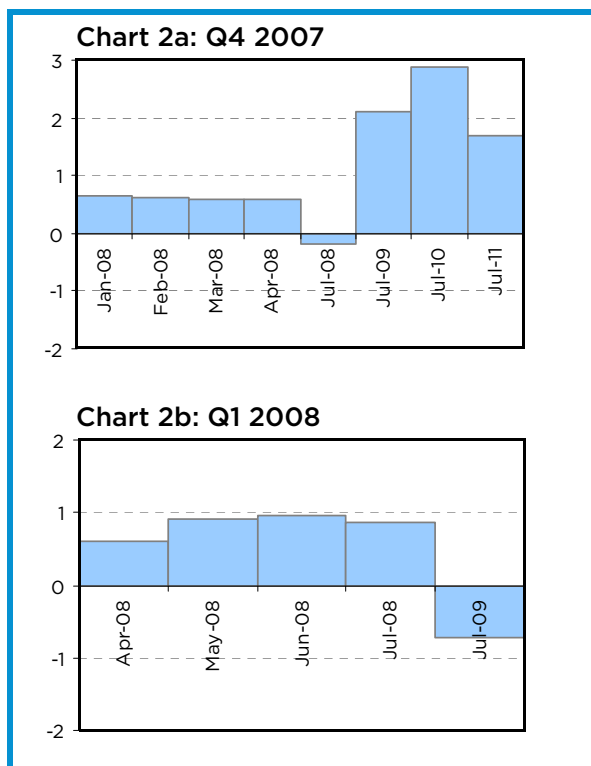


Chart 2c: Q1 2001

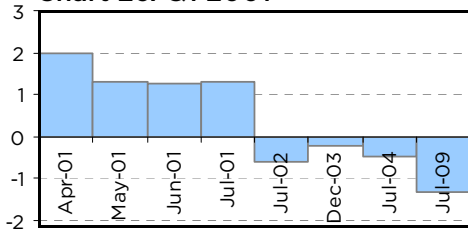


Chart 2d: Q2 2001

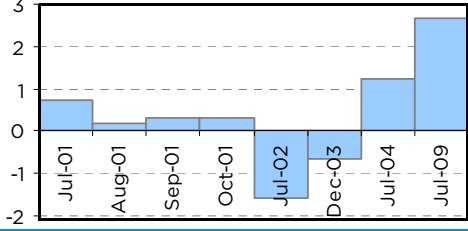


Chart 2m: Q4 1969

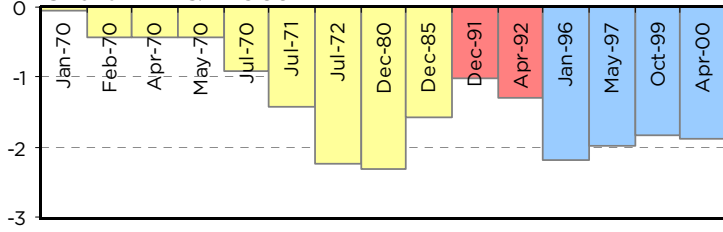


Chart 2n: Q1 1970

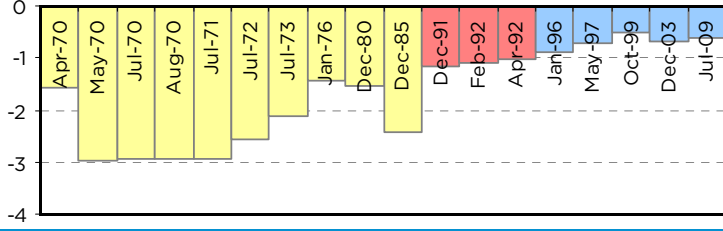


Chart 2e: Q3 1990

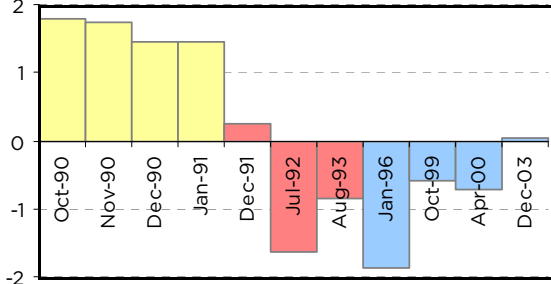


Chart 2k: Q4 1973

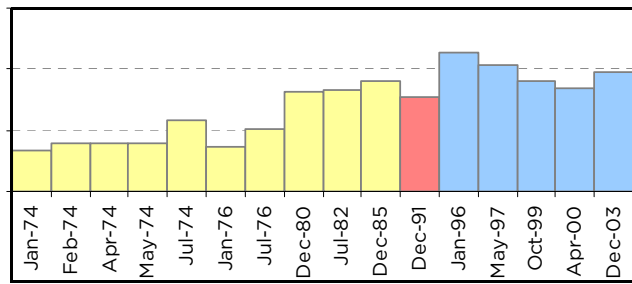


Chart 2f: Q4 1990

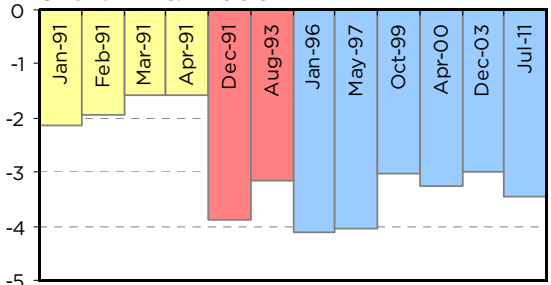


Chart 2l: Q1 1974

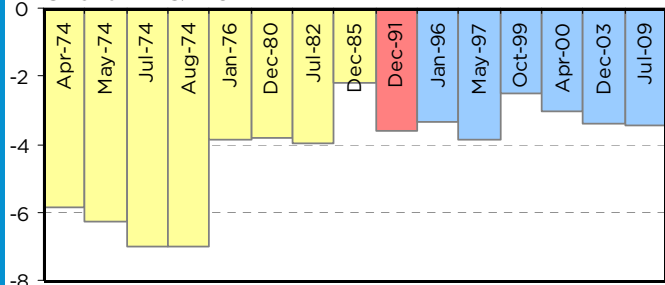


Chart 2g: Q3 1981

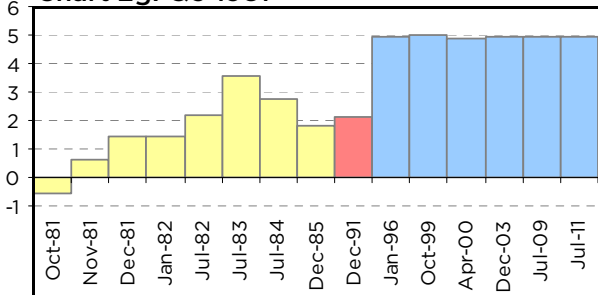


Chart 2i: Q1 1980

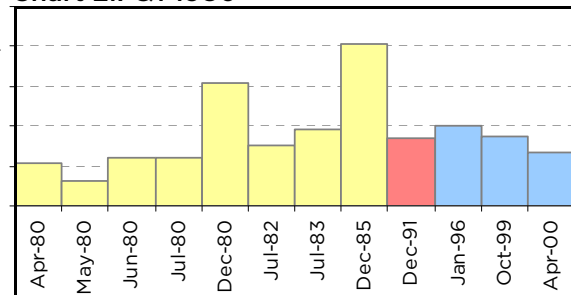


Chart 2h: Q4 1981

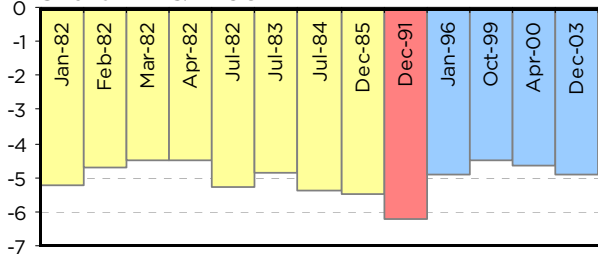
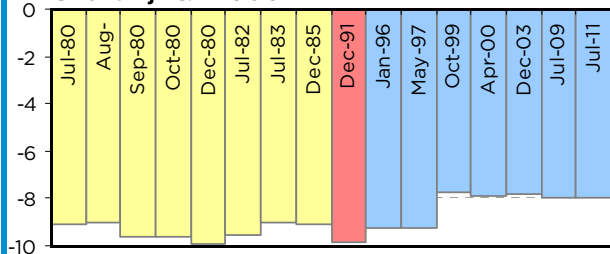


Chart 2j: Q2 1980



that way thereafter. According to the latest vintage of data available for the last seven recessions, the initial recession quarter saw positive GDP growth in the 1973-75, 1980, 1981-82, and 2007-09 recessions.

In the second recession quarter, it is usual to see negative GDP growth in the "advance" release of that quarter's GDP figures. In five out of seven recessions – namely, in 1969-70, 1973-75, 1980, 1981-82 and 1990-91 – second quarter GDP growth was initially reported negative and has stayed that way since. In the Great Recession, GDP growth in the second recession quarter was first reported to be positive, only to be revised to a negative reading 15 months later, after the recession had ended. In the 2001 recession, the initial reading of GDP growth for the second recession quarter was reported as positive, only to be revised to a negative reading in 2002, and then revised back up to a positive reading in 2004.

Looking at how soon after the business cycle peak there was the first report of negative GDP growth, the lag has ranged from one month in the case of the 1969-70 recession to seven months in the cases of the 2001 and the 2007-09 recessions. The median lag was six months. This suggests that it is typically well into a recession that GDP can offer the general public a clear indication that one is underway.

Recessions Challenge Professional Forecasters

While the wider public might generally be alerted to a recession rather late, do professional assessments of recession probability fare better? To examine this question, we turn our attention to the Anxious Index (AI₁), which is reported in the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters. This index measures those forecasters' assessment of the

probability of a GDP decline in the quarter following the survey quarter. The survey also reports corresponding probabilities of a decline in GDP in the survey quarter itself (AI₀) as well as two (AI₂), three (AI₃) and four (AI₄) quarters following the survey quarter. Our investigation examines all five probabilities and their timeliness in detecting a recession.

We first looked at these measures through a cyclical lens, trying to assess how they have performed as leading indicators of U.S. business cycles. We found that all five recession probabilities tend to rise near recessions, but cyclical upturns in AI measures are not always followed by recessions. More specifically, while these recession probabilities typically lead at business cycle peaks and troughs, they exhibit false alarms 30% to 64% of the time (not shown). In other words, nearly one-third to almost two-thirds of all cyclical upturns in these recession probabilities were not actually followed by recession. In addition, the AI₄, which measures the probability of a recession occurring four quarters after the survey quarter, misses roughly 30% of all business cycle turns.

We then considered the AI measures as straight probabilities, measuring the likelihood of a recession in their corresponding reference periods. In this view, for all five AI measures, a probability above 50% indicates that a recession is more likely to occur than not in the quarter in question. The opposite is true when the recession probability is below 50%. Chart 20 summarizes the performance of the AI measures, assessing their accuracy in predicting recessions. The green bars indicate the percentage of accurately-predicted recession quarters, the peach bars indicate the percentage of missed recession quarters, while the

Chart 2o: Forecast Success Using the Anxious Index (50% Threshold)

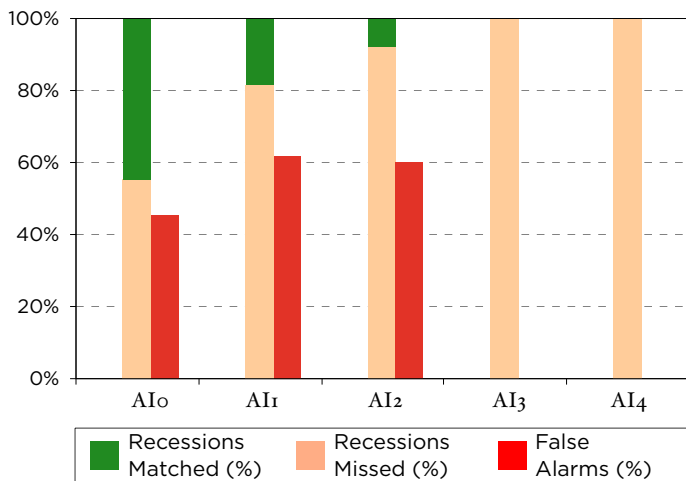
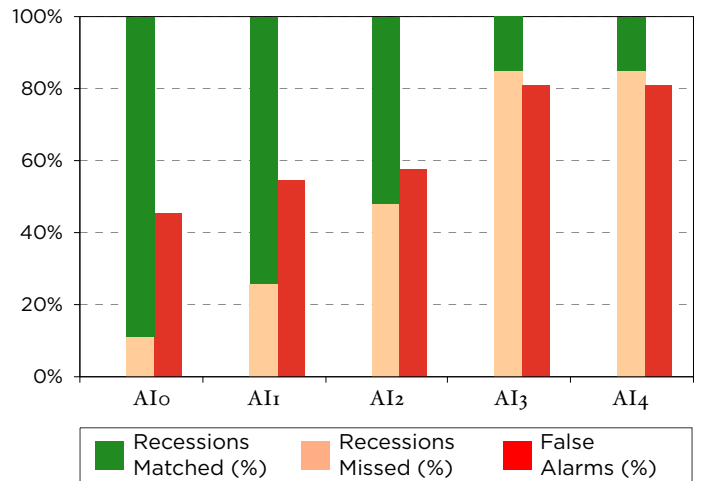


Chart 2p: Forecast Success Using the Anxious Index (25% Threshold)



red bars measure the percentage of false recession predictions, i.e., the percentage of instances where the probability measures rose above 50% but there was no recession in the reference quarter.

Clearly, the highest accuracy in detecting recession quarters is recorded by AIO, the AI that references the survey quarter. The probability of recession occurring in one, two, three and four quarters following the survey quarter show lower levels of accuracy. More specifically, the AIO shows 44% accuracy in "predicting" recession quarters, but also, 46% of all recession signals are false alarms. The AI1, which is also the headline number, correctly signals just 19% of all recession quarters, while issuing false alarms 62% of the time. The AI2, AI3 and AI4 are grossly inaccurate, failing to predict practically all recession quarters.

Lowering the 50% threshold improves the performance somewhat, but not dramatically so. Chart 2p shows the performance of the AI measures with a 25% threshold, where we find that the AIO accurately signals 89% of recession quarters, while at the same time issuing false recession alarms 46% of the time. The AI1 accurately signals 74% of all recession quarters, but 55% of its recession signals are false alarms. Recession predictions for the third or fourth quarter following the survey remain highly inaccurate, with a 15% success rate and an 81% rate of false recession flags for both.

Thus, it seems that, in real time, professional forecasters can often detect a recession after one has already begun or is about to begin. However, the high incidence of false recession signals makes such forecasts unreliable. More forward-looking indicators

like stock prices have a better cyclical record. As we have discussed, stock price cycles have virtually a one-to-one correspondence with U.S. growth rate cycles and, since they start to decline around the onset of slowdowns they also become harbingers of upcoming recessions. However, as only some slowdowns deteriorate sufficiently to become recessions, even stock prices are not reliable recession indicators.

A Looming Recession The above analysis examines why one cannot rely on forecasters' surveys or on coincident data like GDP for real-time detection of recessions. However, ECRI's leading indexes of overall economic activity have had a much more consistent record in predicting recessions with no false alarms. Given the record of historical lead times of the U.S. Long Leading Index (USLLI), the Weekly Leading Index (WLI) and the U.S. Short Leading Index (USSLI), it is feasible to estimate the timing of the likely peak in U.S. economic activity.

Chart 2q shows the probabilities, based on the April 2011 WLI and USSLI peaks, that a recession will begin by a certain date. Based on the April 2011 peak in the WLI (solid light green line), it is almost certain that a recession will commence by June 2012 and it is more likely than not that it will do so by February 2012 (dashed light green line). Separately, based on the April 2011 peak in the USSLI (solid dark green line), it is almost certain that the business cycle peak will occur by July 2012, and more likely than not that it will do so by December 2011 (dashed dark green line). Thus, based on the timing of the cyclical downturns in the WLI and USSLI, it is almost certain that a recession

Chart 2q: Probability of U.S. Business Cycle Peak
(Assuming April 2011 Peak in WLI and USSLI)

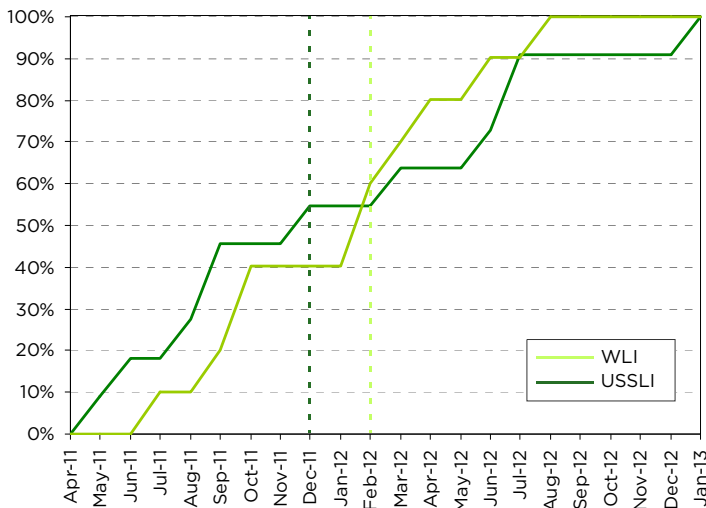
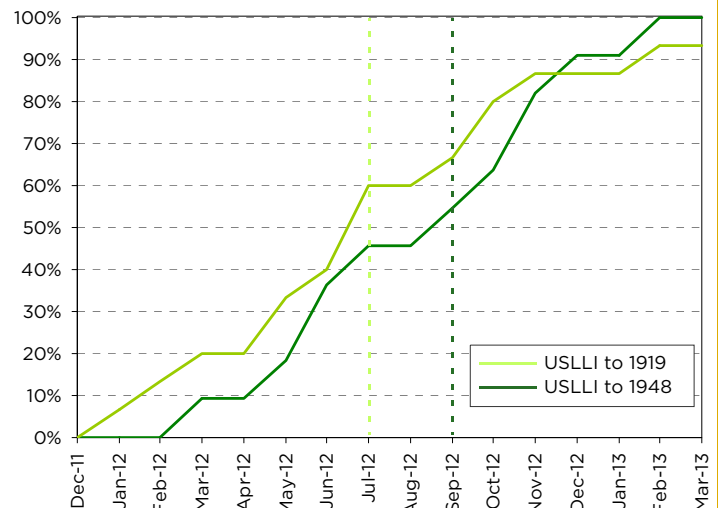


Chart 2r: Probability of U.S. Business Cycle Peak
(Assuming November 2011 Peak in USLLI)



will begin by mid-2012, but it is more likely than not that it will start by the first quarter of next year.

While the USLLI had originally peaked in December 2010, in its latest reading it rose higher. As discussed earlier, this indicates three possibilities. One is that the WLI and USSLI are incorrectly pointing to a recession while the USLLI is not. This would be a first, as it has never happened in the entire common history of these three indexes, spanning more than six decades. Another is that the USLLI has failed to signal recession, which has happened at 12% of business cycle peaks since 1919. In either of these cases, recession timing would be a moot point.

Alternatively, the USLLI peak might be in November 2011 or soon thereafter, with implications about the timing of the onset of the next recession. Chart 2r shows the probabilities, based on the assumption of a November 2011 USLLI peak, that a recession will begin by a certain date. Given the historical record of lead times of the USLLI in the post-World War II period, it appears more likely than not that a U.S. recession will start by September 2012 (dashed dark green line). However, based on the USLLI's leads over its entire history going back to 1919, it looks more likely than not that a recession will start by July 2012 (dashed light green line).

In sum, the current alignment of ECRI's leading indexes of economic activity points to a recession starting as early as the current quarter, but more likely sometime between the first and third quarters of 2012. But even after the U.S. economy begins to contract, it is apt to take several more months before GDP growth numbers turn negative and the broader consensus acknowledges the reality of a recession. ■