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Gonna Change My Way of Thinking: Is Recession Coming?

Part I: A New Toolkit to Predict Recessions

Economist(s)

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Summary

- Recession is top of mind. This is the first installment of a two-report series to shed some light on the recession talk.
- We updated our existing toolkit to predict recessions. We present a set of Probit models that generate probabilities of a recession over the next year.
- Specifically, two major changes were introduced. The first change presents new methods based on the CPI to better capture today's inflation risk. The second change expands the framework's forecast horizon from 6 months ahead to 12 months ahead.
- Using 50% as a threshold, our preferred Probit approach has never produced a false signal and has predicted all recessions since 1980. The 50% line was breached in Q2-2022, jumping to a 57% probability from 28% the prior quarter. Through August, the Q3 probability is 48%.
- The new regressions with the CPI also signal recession. Each model with the CPI as a predictor variable showed the probability of recession surpassing 50% in Q1-2022. Furthermore, the average probability of the framework's eight regressions also crossed 50% in Q2-2022.
- Given the historical accuracy of this Probit approach, a recession in the next year is more likely than not, in our view.
- We do not believe the U.S. economy is in a recession at present. Our forecast calls for a recession starting in Q1-2023 with three consecutive quarters of negative real GDP growth and output growth turning positive in Q4-2023.
- In addition to the Probit framework, the inverted yield curve is another popular recession predictor. The second installment of this series will evaluate the historical accuracy of different yield spreads.

A New Toolkit to Predict Recessions

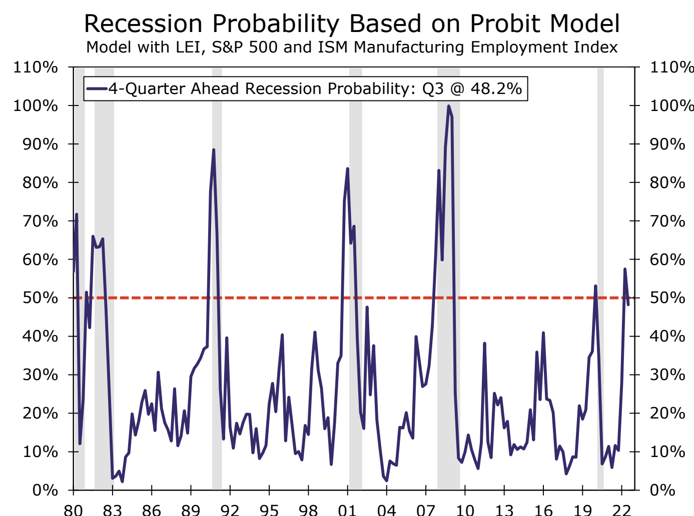
Since 2007, our preferred Probit framework has served us well in accurately predicting recessions in real time, without any false signals. The drivers of recession do evolve over time; however, so we periodically update our models to reflect different pressures on the economy. Back in 2016, a slowdown in manufacturing posed a systemic risk to the U.S. economy. We updated our framework then to include measures of the manufacturing sector as downturn predictors.

At present, the major risk to the economy is elevated inflation. Price growth was not explicitly measured in our existing Probit framework, compelling us to update the models with an inflation measure. Specifically, we made two major changes. First, we included the Consumer Price Index (CPI) as a predictor variable to better incorporate inflation risk. Second, we expanded the framework's forecast horizon from two quarters ahead (6 months) to four quarters ahead (1 year).

Taking a step back, Probit models are often utilized to predict the probability of a near-term recession. Our updated framework is composed of eight different models.[1] That is, eight different probabilities are generated when we run the framework. The average probability of all these models represents the risk of a recession posed by the major sectors of the economy.

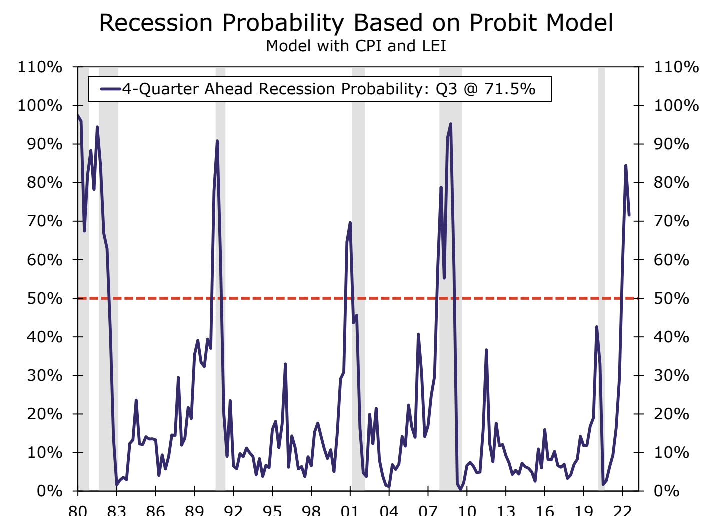
Our preferred Probit approach utilizes three predictors: the Leading Economic Index (LEI), the S&P 500 index and the ISM Manufacturing employment index. Figure 1 shows the probability of recession over the next four quarters based on that method. Using 50% as a threshold, the framework has never produced a false signal and has predicted all recessions since 1980 in a simulated out-of-sample analysis. Recently, the 50% probability line was breached in Q2-2022, jumping to a 57% chance from 28% the prior quarter. Through August, the Q3 probability is 48%. The historical accuracy of the estimates suggests a recession is indeed in the near-term picture.

Figure 1



Source: The Conference Board, Bloomberg Finance L.P., Institute for Supply Management and Wells Fargo Economics

Figure 2



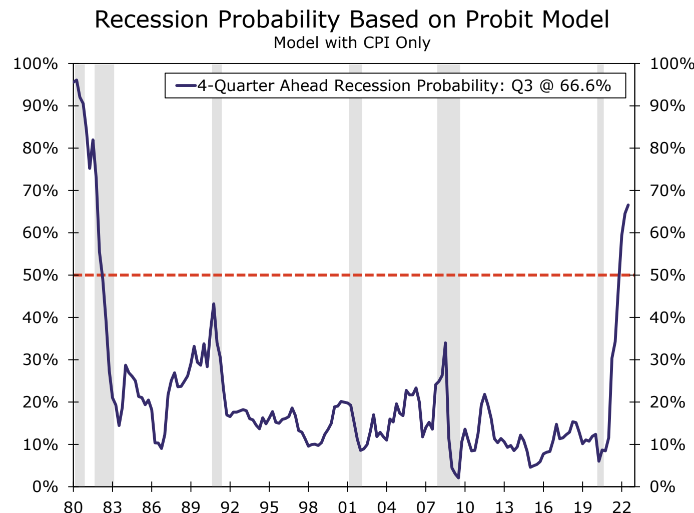
Source: U.S. Department of Labor, the Conference Board and Wells Fargo Economics

Our second Probit model utilizes the CPI and LEI (Figure 2). The CPI has a longer monthly history than the PCE deflator, which is the Fed's preferred measure of inflation. Consequently, we use the CPI in our estimation process because it incorporates more recessionary periods in the historical sample. The Probit with the CPI and LEI predicted all recessions without any false signals since the 1980s. This model breached the 50% threshold in Q1-2022, rising to a 59% probability. Since then, the probability of recession has remained well above 50%.

The third regression with just the CPI did predict the 1980 and 1981-82 recessions, but failed to project the past four recessions (Figure 3). The four misses may actually boost the CPI-based model's accuracy as inflation was not among the major drivers of those downturns, while the 1980s recessions were attributed to higher inflation. As stated previously, inflation is the major pressure point of the economy today. The CPI-based model first crossed the 50% threshold in Q1-2022 and has remained

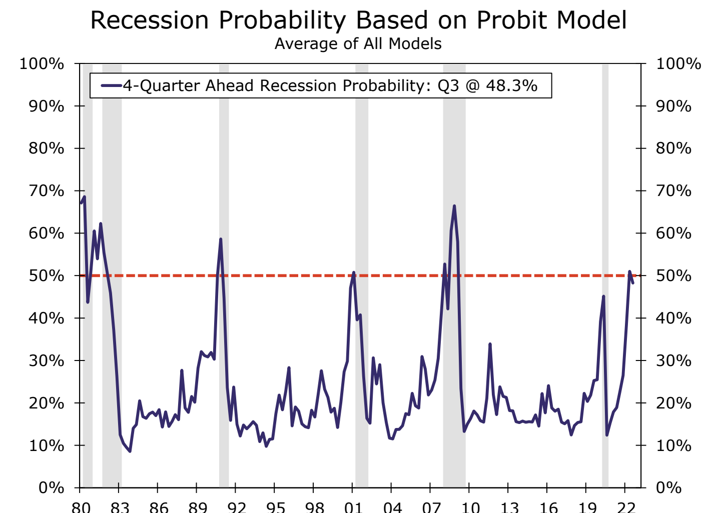
above that line in Q2 and Q3. In aggregate, the average probability of all eight models has also risen. The average surpassed 50% in Q2-2022, increasing to 51% from 38% in the first quarter (Figure 4).

Figure 3



Source: U.S. Department of Labor and Wells Fargo Economics

Figure 4



Source: Wells Fargo Economics

'Tis the Recession Season

Since June, we have been forecasting that the U.S. economy would slip into recession in 2023, and our latest forecast calls for the recession to start in Q1-2023. The Probit framework set forth in this report supports that call. In addition to our preferred Probit model projecting a recession within the next year (referring back to Figure 1), the regression based on the CPI and LEI, as well as the average of all eight probabilities, also point to an upcoming recession. Given the historical accuracy of these measures, recession next year is more likely than not, in our view.

While the Probit framework is widely utilized to predict recession, it is not the only tool. Another popular predictor is the inverted yield curve. As is widely known, the U.S. 2-year/10-year Treasury yield curve has inverted, signaling recession in the coming quarters. In the second installment of this series, we evaluate the historical accuracy of the recession predictions of a few yield curves. We also evaluate our preferred spread: the spread on the 10-year Treasury yield and the federal funds rate.

Endnote

1 Each Probit model uses a unique mix of predictors:

1. Leading Economic Index, S&P 500 and the ISM Manufacturing employment index
2. Consumer Price Index and the Leading Economic Index
3. Consumer Price Index
4. Consumer Price Index and the Chicago Fed National Activity Index
5. Leading Economic Index
6. Yield Spread (between 10-year and 3-month Treasury yields)
7. VIX and the S&P 500
8. Chicago Fed National Activity Index (Return)

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