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Economics Group

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Philadelphia Fed Index: Can It Predict a Recession?

Last week, the plunge in business activity in the Philadelphia Fed manufacturing survey roiled financial markets. While one month does not make a trend, the drop signals downside risks to real GDP growth.

Philly Fed Plummets: Noise or Signal?

Weak early economic indicators for August have sent financial markets into a downward spiral, but how reliable are these indicators for forecasting recessions? Well, the most telling may be the sharp decline in the headline index of the Philadelphia Federal Reserve's Business Outlook Survey (BOS). In August, the Philly Fed index plummeted to -30.7, the lowest reading since March 2009, with roughly 45 percent of manufacturing firms in the region reporting a decrease in activity. Moreover, the forward-looking new orders component dropped to -26.8. While the BOS can be extremely volatile on a monthly basis, it can offer some insight on the plausibility of a recession.

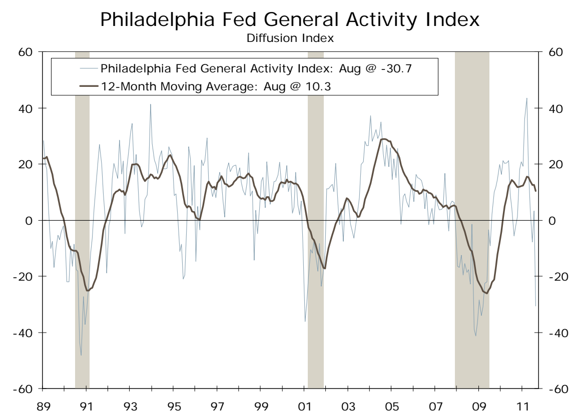
How Is the Survey Calculated?

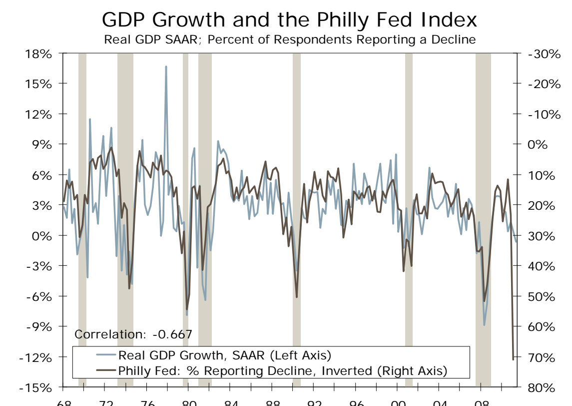
The BOS headline number is a diffusion index, which reflects how manufacturing firms in the Third Federal Reserve District feel about overall business activity. To construct the index, the percentage of firms reporting an increase in general business activity minus the percentage of respondents indicating a decrease in activity is calculated.

What About the Possibility of Recession?

Many forecasters know about the BOS's ability to forecast national manufacturing activity, but how effective is it in projecting a recession? There are two ways to explore this question: first, by reviewing how the headline index performed in past recessions, and second, by drilling down to the percentage of firms reporting an increase or decrease. From a historical standpoint, we found that the index declined at least one month before every recession since 1969 with the exception of the 1973-75 and the 2007-09 recessions. We also observed that since 1968, an index reading of -22 or less has always historically been associated with a recession.

Another way to analyze the index is to use a simple regression. The first challenge with using a regression is that the index is based on a simple yes or no result, which can lead to spurious output. To alleviate this issue, we drill down and find that the percentage of respondents reporting a decrease is 67 percent correlated and statistically significant to real GDP growth with an R^2 of 44 percent. We find that a one-point increase in the percentage of respondents reporting a decline can reduce real GDP growth by 0.22 percentage points in the same quarter. Due to the high correlation, it turns out the spike in manufacturing firms reporting a decrease is indeed an early warning signal of looming economic distress. It is important to note, however, that while this one data point is convincing, one month does not make a trend. Our outlook is for real GDP to increase at around a 1.0-1.5 percent pace in the second half of the year and a 1.1 percent pace in 2012. While it is still too early to call a recession, we continue to acknowledge that there are significant downside risks to economic growth.





Philly Fed General Business Activity and GDP Growth

Percent of Respondents Reporting a Decrease in Activity and Real GDP (SAAR)

Coeffticient	-0.22
T-Value	-11.66
R-Square	0.4443
Durbin-Watson	2.0662
Correlation	-0.6665

Source: Federal Reserve Bank of Philadelphia, U.S. Department of Commerce and Wells Fargo Securities, LLC

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