



A New Index of the Business Cycle

Is the U.S. economy on the precipice of recession?

Investors, policy makers, and business leaders can access economic data from a wide array of sources. But they have long struggled to synthesize this information into concise and rigorous forecasts. If industrial production falls by 1 percent, how much more likely is the onset of recession in the next 18 months? What does a 25 basis point steepening in the yield curve portend for the real economy?

We introduce a new index of the business cycle that reports the likelihood of recession relative to robust growth. To do this with statistical rigor, we use the Mahalanobis distance – a measure originally introduced in 1927 and modified in 1936 to compare human skull samples in India. It was later applied to measure financial turbulence, diagnose diseases and detect anomalies in self-driving cars. We use it to measure the similarity of current economic variables to their values during past periods of recession and growth.

Our index has several important features. Unlike the coincident and leading indicators published by the Conference Board, our index explicitly accounts for the interaction, along with the level, of the economic variables from which it is constructed. Unlike the National Bureau of Economic Research’s (NBER) process for labeling recessions in retrospect, our index is strictly data driven and thus unaffected by human bias. Our index gives an objective assessment of the business cycle because it is expressed in units of statistical likelihood.

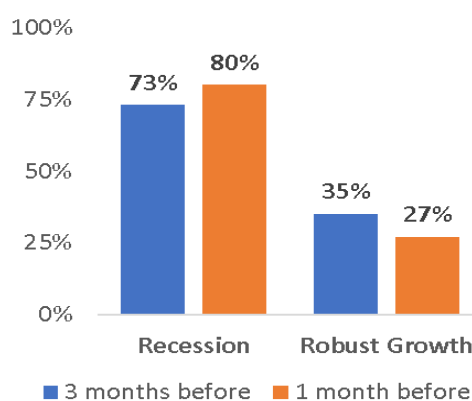
We construct the index starting in 1956 using “vintage” data that would have been available at each point in time (prior to any subsequent revisions) for industrial production, nonfarm payrolls, stock market returns, and the slope of the yield curve. As of January 2020, our index points to a likelihood of recession above 70 percent – nearly three times that of robust growth.

Historically, when the index rose above levels of 50, 60, 70, 80 and 90 percent, a recession subsequently occurred within the next six months almost that exact proportion of the time: 54, 61, 70, 77, and 91 percent, respectively. By comparison, the unconditional likelihood of a recession occurring in any six-month period is only 17 percent. This level of accuracy exceeds that of other frequently-cited recession signals, such as an inverted yield curve. And we argue that our index is more efficient, more objective, and more informative than the Conference Board’s coincident, leading, and lagging indicators.

For more on this topic, see our [2021 journal article](#):

“A New Index of the Business Cycle” by W. Kinlaw, M. Kritzman, and D. Turkington, *Journal of Investment Management*, Vol. 19, No. 3, Q3 2021.

Average index values before U.S. recessions and growth periods (1956-2019)




Source: State Street Global Markets. Data spans Jan 1956 to Nov 2019.

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