US Business Cycle Risk Report

CapitalSpectator.com

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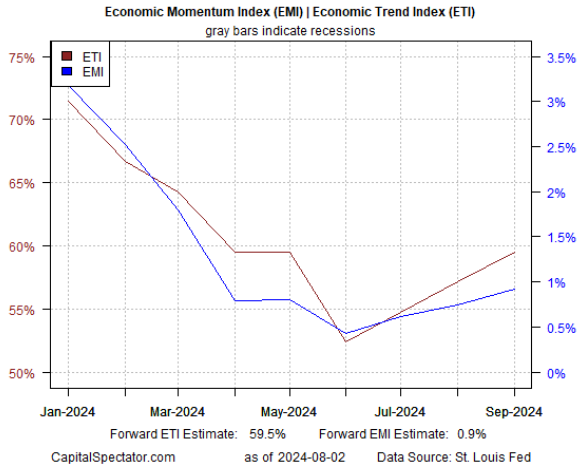
Softer-than-expected growth in US payrolls in July triggered concerns that recession risk is rising, but the case is weak for confidently declaring that a downturn has started or is imminent. The reasoning for reserving judgment on the recession call: there's minimal support for determining that an NBER-defined contraction is underway, based on an array of indicators. Many pundits seem to disagree, citing the downshift in hiring last month and the ongoing rise in unemployment, which triggered a recession warning via the so-called Sahm Rule. To be fair, it's possible that the US economy slipped over the edge into recession, based solely on labor market data. The question is whether there's a *high-confidence* case for that claim? As discussed below, the answer is still "no," or at least "not yet."

Let's start with new forward estimates for ETI and EMI through September, which show a modest rebound above their respective tipping points that mark recession for each indicator (see chart at left and p. 2). The slowdown in growth that these indicators have been highlighting for much of the year to date bottomed out in June and, as we've been discussing in recent weeks, are showing signs of recovery. The implication: the economy appears to be stabilizing.



Several other business-cycle indicators tracked on these pages also suggest that the economy is still expanding. Aggregating multiple indicators via CRPI indicates the probability that an NBER-defined downturn has started or is imminent at 7% -- roughly in line with recent estimates (p. 9).

If the case for low recession risk is misguided, we'll soon see clear deterioration in the suite of indicators monitored on these pages. Two reports next week deserve close attention for updating the outlook, starting with revised July numbers for PMI survey data and the first look at the ISM Services Index for last month (Mon., Aug. 5). More importantly, Thursday's jobless claims data (Aug. 8) will be closely watched in the wake of a rising trend for new filings for unemployment benefits. The claims data will help clarify the debate about whether the weak July payrolls report was partly due to a temporary effect from Hurricane Beryl—a possibility that the Labor Dept. dismisses.

Mon, Aug 5 Composite/Services PMIs (Jul), ISM Services Index (Jul)
Tues, Aug 6 Imports/exports (Jun)
Wed, Aug 7 Consumer credit (Jun)
Thurs, Aug 8 Jobless claims (8/3)
Fri, Aug 9 NY Fed consumer inflation expectations (Jul)

Primary Business Cycle Indicators

Indicator: Date	Current Data	Recession Probability %	Page
ETI 3mo avg: Jul	54.80	9.6	2-3
EMI 3mo avg: Jul	0.60	10.3	2-3
MMRI: Aug 2	10.80	0.0	4
CFNAI-MA3: Jun	-0.01	7.3	5
ADS: Jul 31	-0.14	2.4	6
CRPI: Aug 2		7.3	9

Alternative Business Cycle Indicators

Indicator: Date	Current Data	Recession Probability %	Page
ETI monthly: Jul	57.10	4.7	2-3
EMI monthly: Jul	1.00	6.5	2-3
CFNAI monthly: Jun	0.05	2.7	5
WEI weekly: Jul 31	1.95	5.2	7
SECI monthly: Jun	0.16	2.6	12
Short CRPI: Aug 2		5.6	8

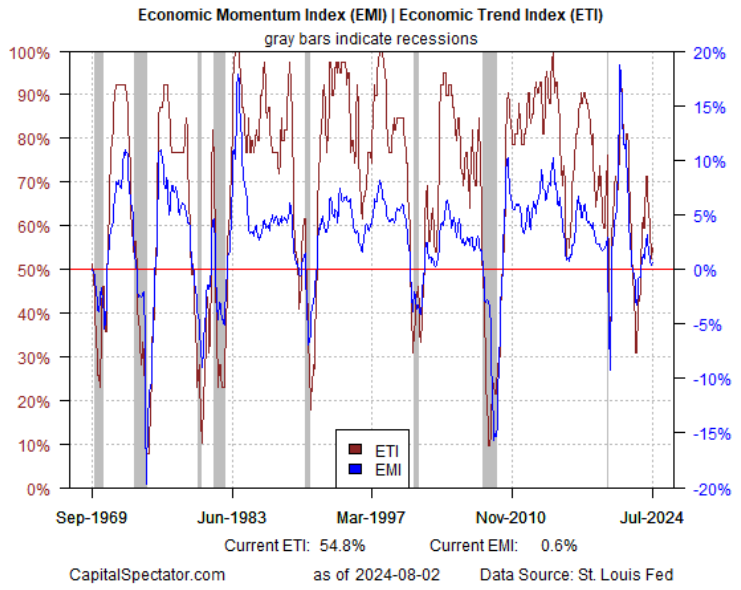
Indicator: Date	Current Data	Page
Q3 GDP (Aug 2)	1.8	10

Indicator: Date	Current Data	Page
MTI: Jul 31	0.36	11

color code indicators ->	low risk	medium-high risk	neutral (MTI only)
See parameter rule definitions on p. 14	medium-low risk	high risk	

Economic indicators: p. 13 Color key rules for tables: p. 14

ETI and EMI



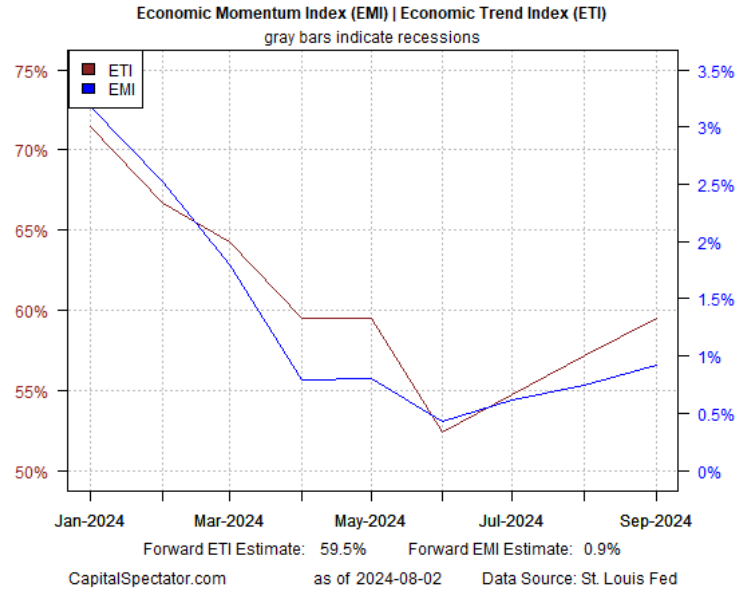
ETI is a diffusion index (i.e., an index that tracks the proportion of components with positive values) for the 14 leading/coincident indicators (see p. 11 ETI values reflect the 3-month average of the transformation rules defined in the table on p. 9. EMI measures the same set of indicators/transformation rules based on the 3-month average of the median monthly percentage change for the 14 indicators.

ETI values above (below) 50% align with growth (recession). EMI values above (below) 0% align with growth (recession).

The methodology for calculating ETI and EMI is detailed in:

Nowcasting The Business Cycle:
A Practical Guide For Spotting Business Cycle Peaks
(2014, Beta Publishing).

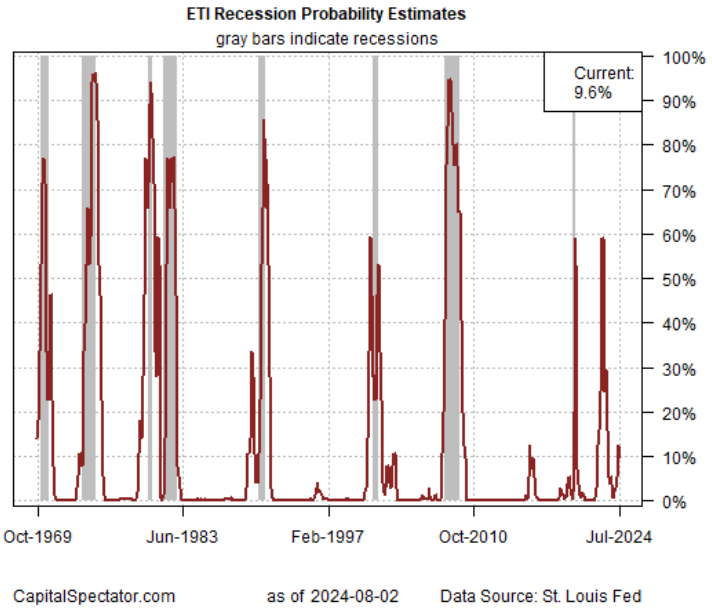
Near-term projections: ETI and EMI



For near-term projections of ETI and EMI, the missing data points are estimated with an ARIMA model.

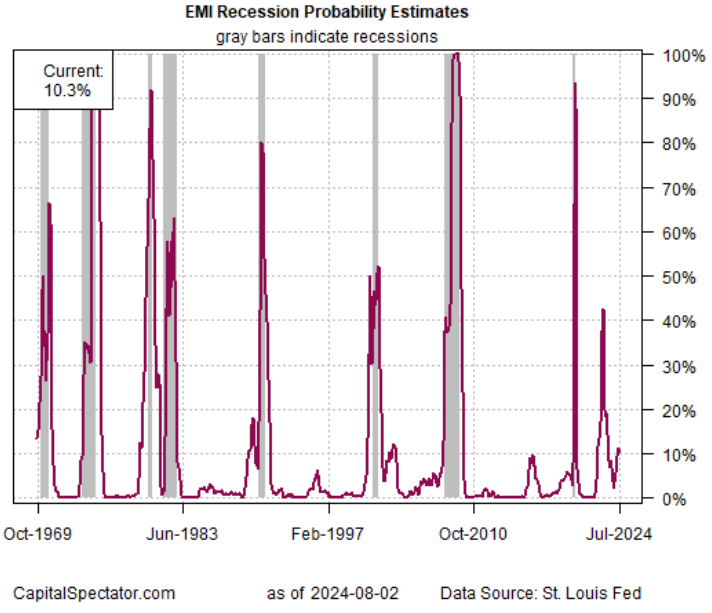
Forecasts are always suspect, of course, but recent projections of ETI & EMI for the near-term future have proven to be relatively reliable guesstimates vs. the full set of published numbers that followed. That's not surprising, given the broadly diversified nature of ETI & EMI. Predicting individual components, by contrast, is prone to far more uncertainty in the short run. The assumption here is that while any one forecast for a given indicator will likely miss the mark, the errors may cancel out to some degree by aggregating a broad set of predictions. That's a reasonable assumption based on the historical record for the forecasts.

Recession risk probability: ETI



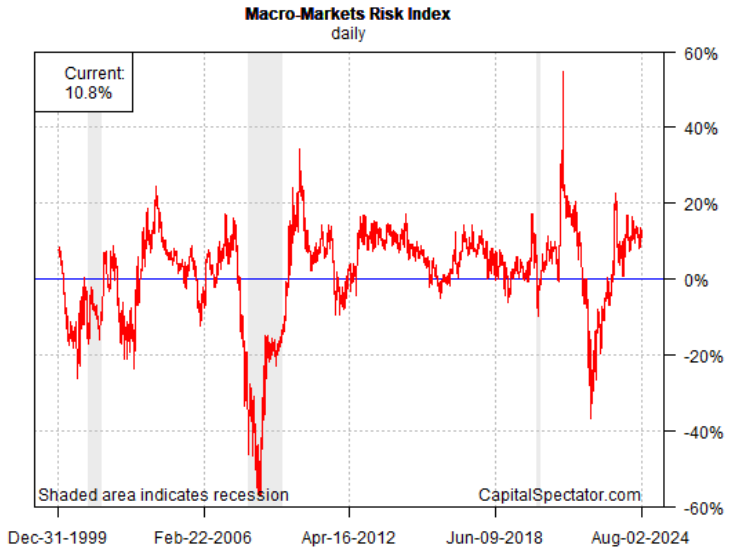
A probit model translates ETI's values into recession-risk probabilities on a monthly basis by comparing the index with the historical record of NBER's recession dates.

Recession risk probability: EMI



A probit model translates EMI's values into recession-risk probabilities on a monthly basis by comparing the index with the historical record of NBER's recession dates.

Macro-Markets Risk Index



Data: Treasury.gov, St. Louis Fed

The Macro-Markets Risk Index (MMRI) is designed as a real-time proxy for business-cycle risk based on four data sets:

- ***US stocks** (S&P 500), 252-trading day % change*
- ***High yield credit spread** (BofA ML US High Yield Master II Option-Adjusted Spread) inverted 252-trading day % change*
- ***Treasury yield curve** (10-yr Treasury yield less 3-month T-bill yield)*
- ***Oil prices** (US benchmark: WTI) inverted 252-trading day % change*

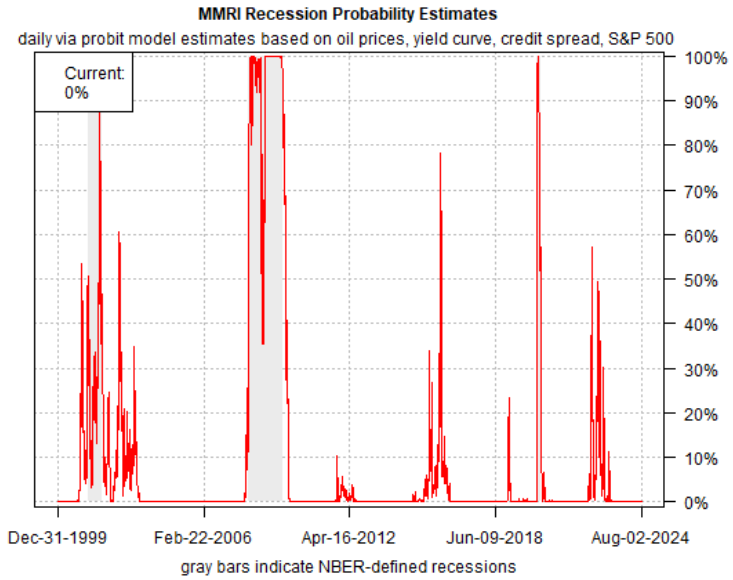
Analyzing the market-price components of ETI and EMI separately offers a real-time approximation of macro conditions, according to the "wisdom of the crowd."

Why look to the financial and commodity markets for insight into the economic trend? Timely signals. Conventional economic reports are published with a time lag. This analysis is intended for use as a supplement for developing real-time perspective until a complete data set is published for updating the monthly economic profile.

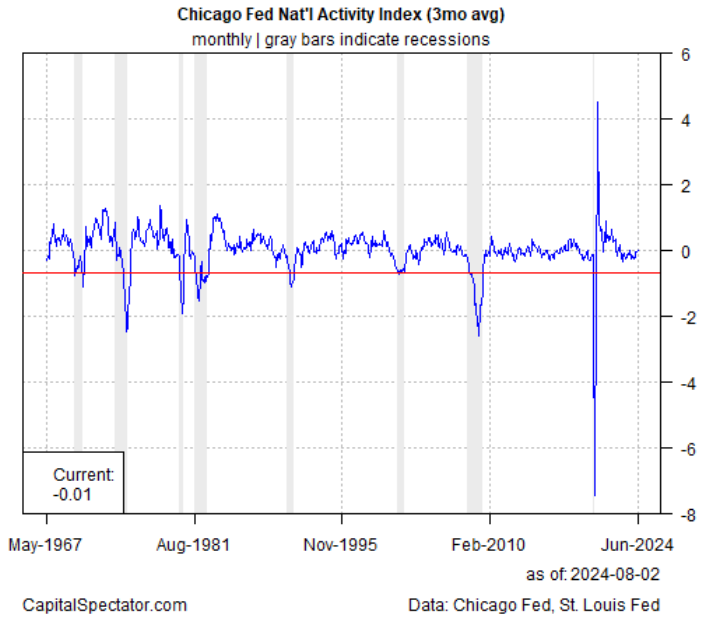
A decline below 0% in MMRI (horizontal blue line in to chart at left) indicates that recession risk is elevated while readings above 0% imply that the economy will expand in the near-term future.

A probit model translates MMRI's values into recession-risk probabilities on a daily basis by comparing the index with the historical record of NBER's recession dates.

Recession risk probability: MMRI



Chicago Fed Nat'l Activity Index



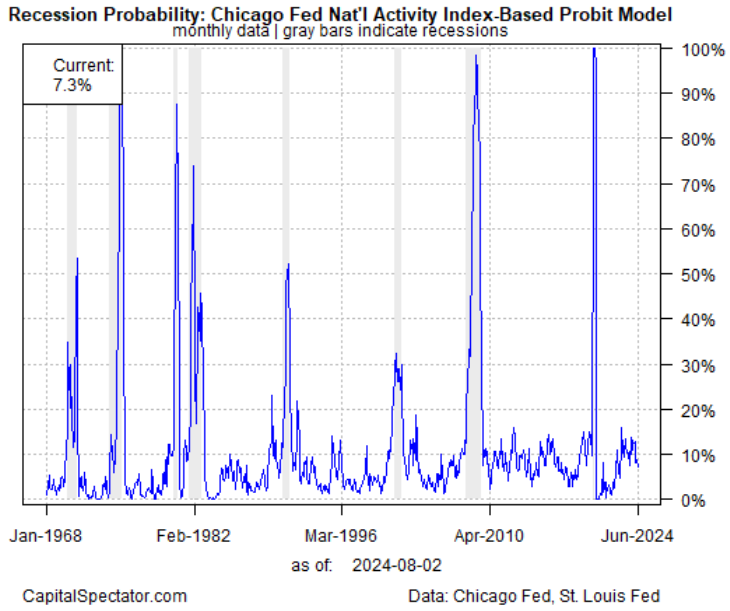
The Chicago Fed National Activity Index is a weighted average of 85 existing monthly indicators of national economic activity. It is constructed to have an average value of zero and a standard deviation of one. Since economic activity tends toward trend growth rate over time, a positive index reading corresponds to growth above trend and a negative index reading corresponds to growth below trend.

When the three-month moving average of the index (CFNAI-MA3) moves below –0.70 (horizontal red line in top chart at left) following a period of economic expansion, there is an increasing likelihood that a recession has begun. Conversely, when the CFNAI-MA3 value moves above –0.70 following a period of economic contraction, there is an increasing likelihood that a recession has ended.

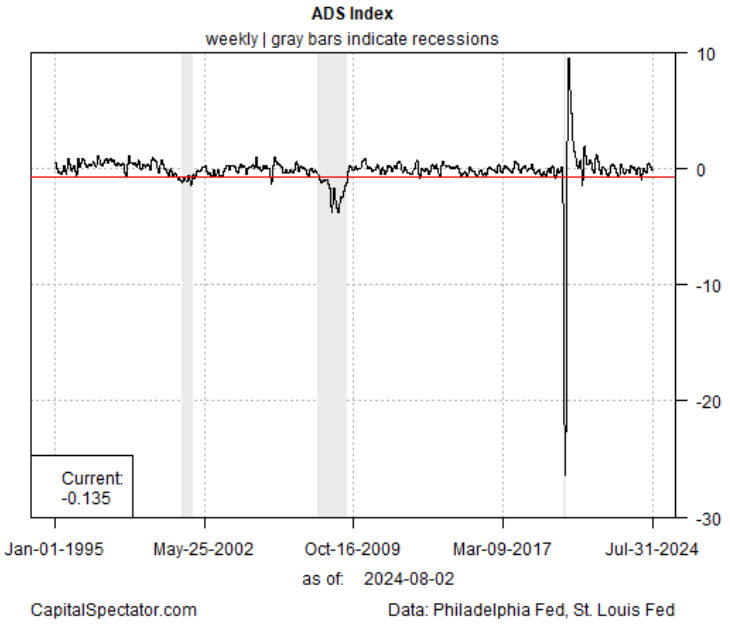
For additional information, see the Chicago Federal Reserve's web site: www.chicagofed.org

A probit model translates CFNAI-MA3 values into recession-risk probabilities on a monthly basis by comparing the index with the historical record of NBER's recession dates.

Recession risk probability: Chicago Fed Nat'l Activity Index



ADS Business Conditions Index



The Aruoba-Diebold-Scotti (ADS) Business Conditions Index is designed to track real business conditions at high frequency. Its underlying (seasonally adjusted) economic indicators (weekly initial jobless claims; monthly payroll employment, industrial production, personal income less transfer payments, manufacturing and trade sales; and quarterly real GDP) blend high- and low-frequency information and stock and flow data. The ADS Index is updated as data on the underlying components are released.

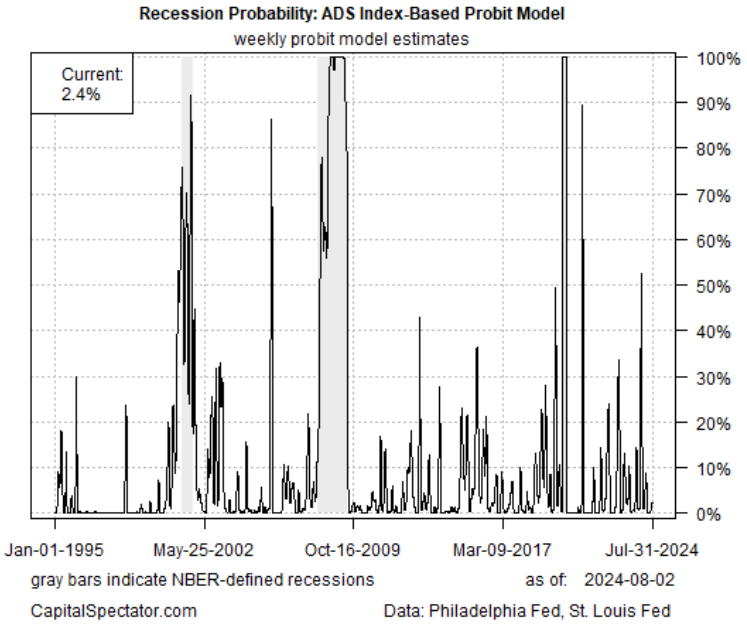
The average value of the ADS index is zero. Progressively bigger positive values indicate progressively better-than-average conditions, whereas progressively more negative values indicate progressively worse-than-average conditions. A value of -3.0, for example, would indicate business conditions significantly worse than at any time in either the 1990-91 or the 2001 recession, during which the ADS index never dropped below -2.0.

Analysis by the San Francisco Fed advises that the "optimal recession threshold" for the ADS Index is -0.80, indicated by the horizontal red line in the top chart at left. For details on this analysis, see: "Diagnosing Recessions" by Òscar Jordà in the Federal Reserve Bank of San Francisco Economic Letter (Feb. 10, 2010) at: www.frbsf.org

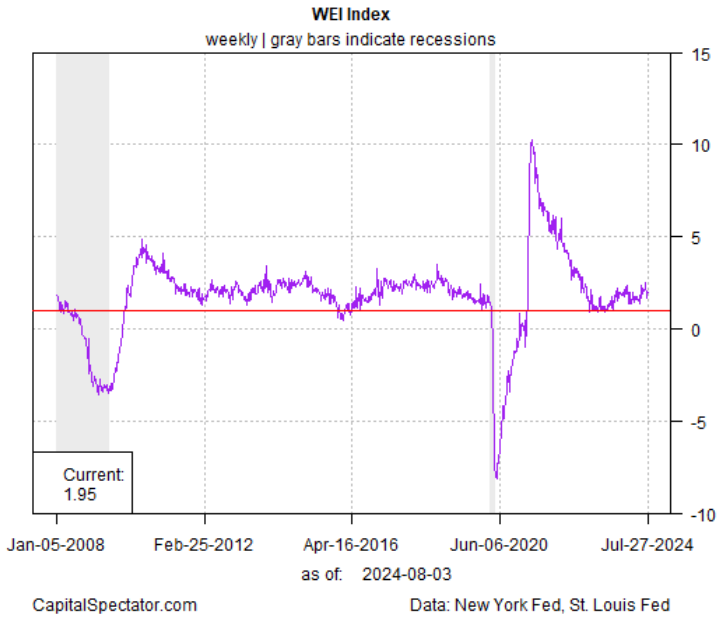
For additional information about the ADS Index, see the Philadelphia Federal Reserve's web site: www.philadelphiafed.org

A probit model translates ADS Index values into recession-risk probabilities on a daily basis by comparing the index with the historical record of NBER's recession dates.

Recession risk probability: ADS Business Conditions Index



Weekly Economic Index



The Weekly Economic Index (WEI) tracks real economic activity at a relatively high frequency. It's comprised of ten daily and weekly series covering consumer behavior, the labor market, and production.

The index's design was inspired by research published in 2013 by the Council of Economic Advisers: bit.ly/2VD05Oc

The New York Federal Reserve, which developed WEI, advises: "The WEI is scaled to the four-quarter GDP growth rate; for example, if the WEI reads -2 percent and the current level of the WEI persists for an entire quarter, we would expect, on average, GDP that quarter to be 2 percent lower than a year previously."

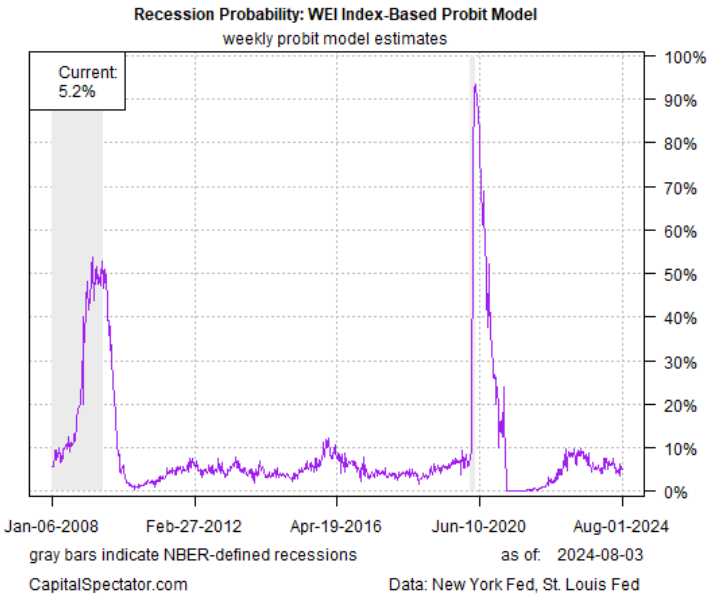
By that standard, WEI values below 1 (red line in top chart) suggest that a recession has started, based on reviewing the benchmark's history since 2008.

WEI is currently maintained by the Dallas Fed. For additional information see:

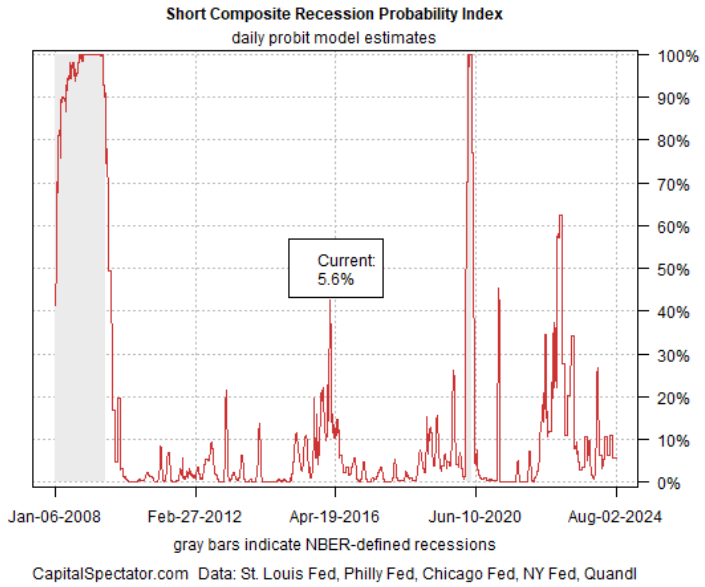
www.dallasfed.org/research/wei

A probit model translates WEI values into recession-risk probabilities by comparing the index with the historical record of NBER's recession dates.

Recession risk probability: WEI Index



Recession risk probability: Short CRPI



The Short Composite Recession Probability Index (CRPI) reflects the median recession probability via probit modeling of the following indexes:

1. *ADS Index: (p. 6)*
2. *CFNAI (monthly) (p. 5)*
3. *Weekly Economic Index (p. 8)*
4. *MMRI (p. 4)*
5. *ETI (monthly) (pp 2-3)*
6. *EMI (monthly) (pp 2-3)*

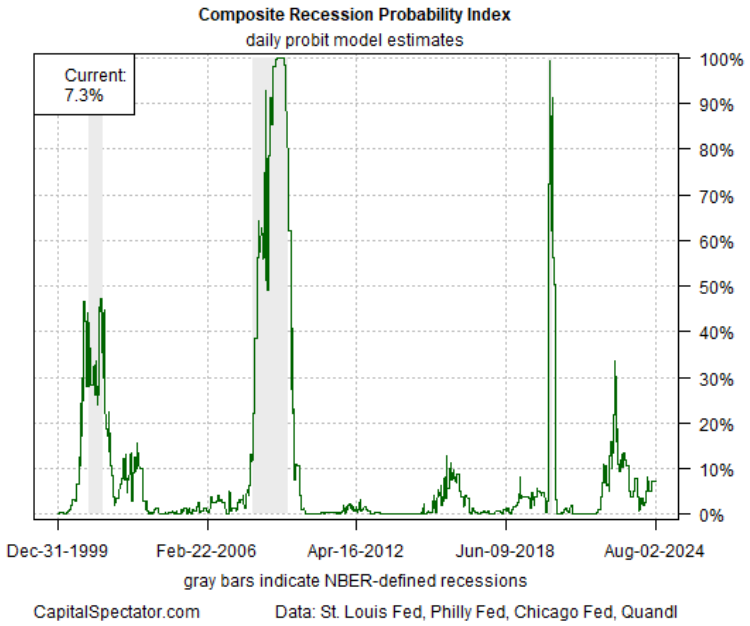
Short CRPI is designed as robust measure of US recession risk that's expected to benefit from the advantages of combining forecasts/nowcasts. The literature is long and deep in this niche, starting with "The combination of forecasts" by J. Bates and C.W.J. Granger in Operations Research Quarterly, *20:451-468, 1969.*

In contrast with the standard CRPI (p. 9), which is designed to estimate recession risk probability during the onset of a "normal" business cycle (in contrast with the sharp, sudden arrival of the Covid-19 triggered recession of 2020), the Short CRPI react to shifting economic conditions at a faster pace.

Overall, combining forecasts/nowcasts typically delivers more reliable signals by reducing dependence on any one model. That's because every model is flawed in some degree. Combining the forecasts/nowcasts based on models with different assumptions, parameters, and inputs is a reasonably reliable methodology for improving output accuracy relative to any one forecast/nowcast from a single model.

*For details on the literature, see "Combining forecasts: A review and annotated bibliography" by Robert T. Clemen (*Journal of Forecasting, *5(4):559{583, 1989) and "Forecast combinations" by Allan Timmermann (*Handbook of Economic Forecasting, *1:135-196, 2006).*

Recession risk probability: CRPI



The Composite Recession Probability Index (CRPI) reflects the median recession probability via probit modeling of the following indexes:

1. *ETI (pp. 2-3)*
2. *EMI (pp. 2-3)*
3. *MMRI (p. 4)*
4. *CFNAI (p. 5)*
5. *ADS Index (p. 6)*

CRPI is designed as robust measure of US recession risk that's expected to benefit from the advantages of combining forecasts/nowcasts. The literature is long and deep in this niche, starting with "The combination of forecasts" by J. Bates and C.W.J. Granger in Operations Research Quarterly*, 20:451-468, 1969.*

In contrast with the Short CRPI (p. 9), which is designed to react quickly to shifting economic conditions, the standard CRPI presented here is expected to provide a more reliable estimate of recession risk during "normal" business cycles, i.e., the onset of recessions that arise organically from standard macro and financial factors that prevailed prior to the Covid-19 triggered recession in 2020.

The main takeaway: combining forecasts/nowcasts typically delivers more reliable signals by reducing dependence on any one model. That's because every model is flawed in some degree. Combining the forecasts/nowcasts based on models with different assumptions, parameters, and inputs is a reasonably reliable methodology for improving output accuracy relative to any one forecast/nowcast from a single model.

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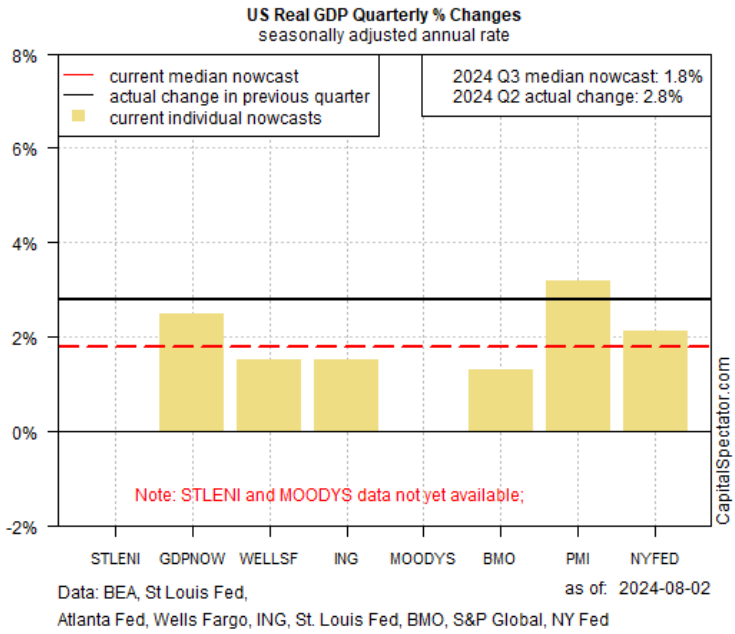
Gross Domestic Product Nowcasts



The chart at left summarizes several estimates of the quarterly % change for the next GDP report. For context, the current reported GDP % change for the previous quarter is shown, as calculated by the US Bureau of Economic Analysis (solid black line).

The GDP data doesn't formally factor into the econometric recession-risk estimates for BCRR*; rather, the GDP profiling is presented for additional context for assessing the near-term outlook for economic activity.*

The current projection reflects the median estimate of the following eight models based on the latest revisions:

STLENI: A nowcast model developed by St. Louis Fed. For details, see: stlouisfed.org

GDPNOW: a nowcast model developed by the Atlanta Fed. For details, see: frbatlanta.org

WELLSF: The current quarter's estimate from economists at Wells Fargo. For details, see: www.wellsfargo.com/com/insights/

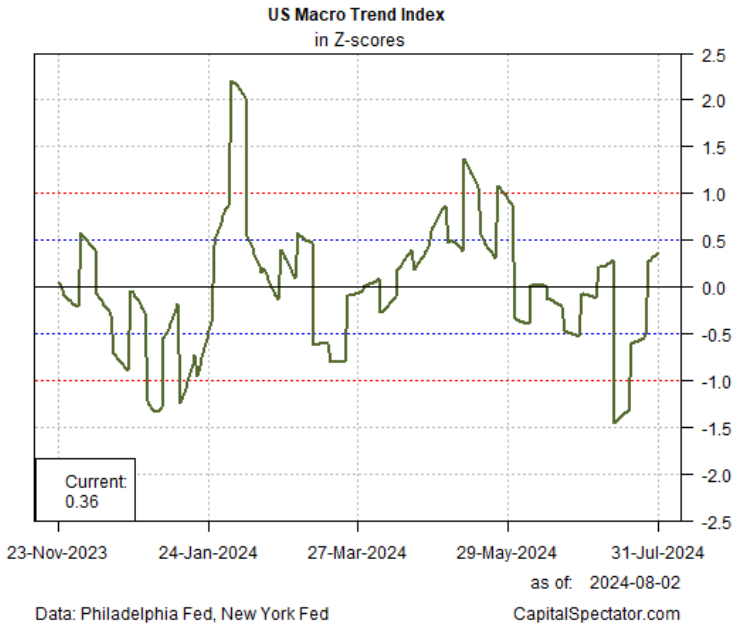
ING: The point forecast for ING's model. For details, see: think.ing.com

MOODYS: Current quarter's estimate based on econometric model run by Moody's Analytics. For details, see: economy.com

BMO: Current quarter's estimate from economists at BMO. For details, see: economics.bmo.com

PMI: Current US Composite PMI, a survey-based GDP proxy that's updated monthly, published by S&P Global. For details, see: pmi.spglobal.com

US Macro Trend Index



The US Macro Trend Index (MTI) measures the strength of the directional bias of US economic activity. MTI reflects analysis of two business cycle indexes: ADS Index, published by the Philly Fed, and the Weekly Economic Index (WEI) via the New York Fed. Each index takes a different approach to monitoring US economic activity in real time, using a variety of indicators, some of which are published at daily and weekly frequencies. The goal with MTI is to quantify the degree of deceleration and acceleration in the overall macro trend via ADS and WEI. As such, MTI is not a measure of growth or contraction per se; rather, MTI is an index quantifying the strength or weakness of the overall trend.

MTI is a tool for developing context for assessing the overall strength or weakness of the current economic trend and quantifying the trend's evolution.

MTI is designed as follows:

1. Calculate the mean of the 1-, 2-, 5- and 10-period differences for ADS.
2. Calculate the mean of the 1- and 2-period differences for WEI.
3. Calculate the mean for 1 and 2; transform to Z-scores on a rolling 1-year basis.

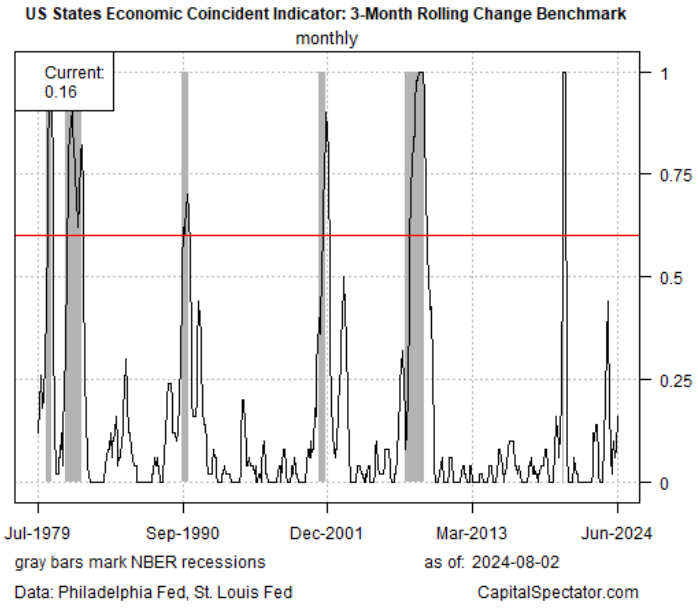
Note: MTI is not used for any any other business-cycle calculations in US-BCRR.

For details on the underlying ADS and WEI indices, see:

tinyurl.com/yu4ncyav

tinyurl.com/dbtp8djx

US States Economic Coincident Indicator

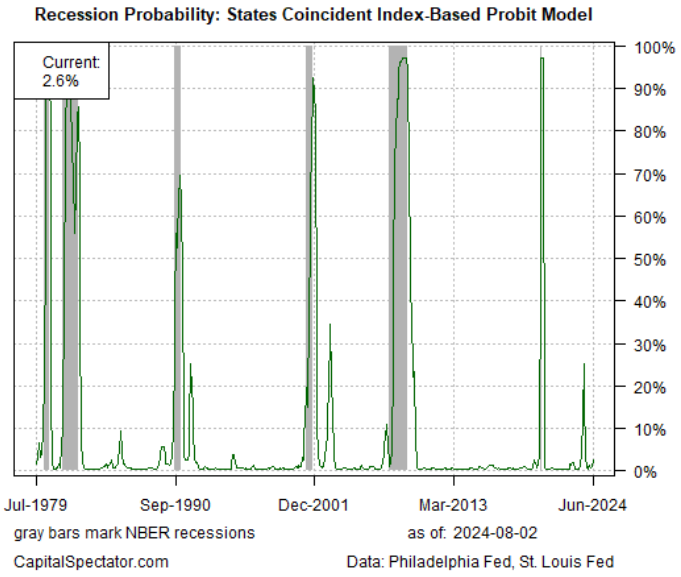


The US States Economic Coincident Indicator (SECI) measures the aggregate strength of US economic conditions based on 50 coincident indicators for each state. The analytics uses the 3-month change for each state. If a state's 3-month change is negative (positive), the signal is negative (positive). Summing the negatives and positives provides a national profile. For example, if all 50 state indicators are negative for the 3-month change, SECI would print at 1.0. At the opposite extreme, if all 50 state indicators are positive for the 3-month change, SECI would be 0.0. Readings for SECI above 0.6 are assumed to be indicative of a high risk that the US is in or near recessionary conditions. The red line in the chart at left marks the 0.6 level. Readings below 0.6 are assumed to be low-risk signals for a US recession.

The 50 state coincident indicators used in SECI are published by the Philadephia Federal Reserve. For details, see:

www.philadelphiafed.org/surveys-and-data/regional-economic-analysis/state-coincident-indexes

Recession risk probability: US States Economic Coincident Indicator



ETI and EMI Component Indicators

US Economic Profile
August 3, 2024

	Indicator	Transformation	Apr-24	May-24	Jun-24	Jul-24
1	Labor Market Index [1]	1 yr % change	-1.5%	-0.8%	-0.5%	-3.9%
1a	*Private non-farm payrolls*	*1 yr % change*	*1.6%*	*1.6%*	*1.5%*	*1.5%*
1b	*Initial Jobless Claims [2]*	*1 yr % chg (inverted)*	*2.9%*	*1.8%*	*6.6%*	*-0.7%*
1c	*Employ.-to-Unemploy. Ratio*	*1 yr % change*	*-11.7%*	*-7.8%*	*-11.8%*	*-17.5%*
1d	*Index of Agg. Weekly Hours [3]*	*1 yr % change*	*1.3%*	*1.2%*	*1.6%*	*1.2%*
2	US Stock Market (S&P 500) [2]	1 yr % change	24.0%	26.3%	24.6%	22.8%
3	Real personal income ex current transfer receipts	1 yr % change	1.6%	1.8%	1.8%	NA
4	ISM Manufacturing Index	% +/- neutral: 50 [5]	-1.6%	-2.6%	-3.0%	-6.4%
5	Spot Oil (W. Tex. Intermed.) [2]	1 yr % chg (inverted)	-7.4%	-11.8%	-13.6%	-8.1%
6	Consumer Spending Index [6]	1 yr % change	0.9%	1.0%	1.0%	NA
6a	*Real Pers. Cons. Expend.*	*1 yr % change*	*2.4%*	*2.6%*	*2.6%*	*NA*
6b	*Real Retail Sales*	*1 yr % change*	*-0.6%*	*-0.6%*	*-0.7%*	*NA*
7	Treasury Yield Curve (10 yr Note less 3 mo T-bill) [2]	current monthly spread [7]	-7.0%	-7.7%	-9.3%	-9.5%
8	High-Yield Bond Spread (BofA ML US HY Option-Adjusted Spread) [9]	1 yr % chg (inverted)	29.3%	33.5%	25.5%	19.9%
9	Real Monetary Base (M0)	1 yr % change	-0.1%	-0.4%	-0.8%	NA
10	University of Michigan Consumer Sentiment Index	1 yr % change	21.6%	16.7%	5.9%	-7.3%
11	Industrial Production	1 yr % change	-0.8%	0.3%	1.6%	NA
12	New Residential Bldg. Permits	1 yr % change	-2.0%	-8.7%	-2.6%	NA
13	Real Mfg. & Trade Sales [8]	1 yr % change	1.7%	1.6%	NA	NA
14	ISM Non-Mfg. Index [4]	% +/- neutral: 50 [5]	1.8%	22.4%	-0.8%	NA

and weekly hours index.
2. Average monthly data based on daily closes.
3. Production and Nonsupervisory Employees: Total Private Industries.
4. Data series begins Jan. 2008.
5. A neutral reading is assumed to be 50. The transformation is calculated as the % deviation for each monthly reading relative to 50.
6. Average of 1-year % changes for real personal consumption expenditures & real retail sales.
7. Monthly difference: 10yr less 3mo % rates, multiplied by 10.
8. Manufacturing & wholesale sales via BEA. Note: retail sales excluded.
9. Average monthly data. Moody's BAA-AAA spread through Nov-1997, HY spread data thereafter.

Note: The Labor Market Index is considered as 1 indicator, comprised of the four indicators in green cells. The same applies to the Consumer Spending Index, which is comprised of 2 indicators.

NA = data not yet available from source

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The Economic Trend & Momentum indexes are aggregates of 14 economic and financial indicators, as shown in the table at left. A complete data set for each month tends to lag by one to three months, depending on the indicator. Manufacturing and trade sales suffer the longest lag. By contrast, the market figures are available in real time.

To calculate ETI and EMI in the graphs and analysis above, missing data points must be estimated. To fill in the missing data points, an ARIMA model is used.

Standard Methodology Parameter Rules for Summary Table on Page 1:

Business Cycle Index Values							GDP Nowcast
		ETI	EMI	MMRI	CFNAI	ADS	
	low risk	>80%:100%	> 5%	> 5%	> 0.2	> 0.2	> +3.5%
	medium-low risk	55%:80%	1%:5%	0%:5%	-0.2:+0.2	-0.2:+0.2	+1.5%:+3.5%
	medium-high risk	45%: < 55%	-1%: < 1%	-5%: < 0%	-0.7: < -0.2	-0.8: < -0.2	0%:<+1.5%
	high risk	< 45%	< -1%	< -5%	< -0.7	< -0.8	<0%

Recession Risk Probability Estimates							
		ETI	EMI	MMRI	CFNAI	ADS	CRPI
	low risk	0%:10%					
	medium-low risk	> 10%:30%					
	medium-high risk	> 30%:50%					
	high risk	> 50%					

Parameter Rules for Alternative Data Sets On Summary Table on Page 1:

Business Cycle Index Values							
		WEI weekly	ETI monthly	EMI monthly	MMRI	CFNAI monthly	SECI
	low risk	>3	>80%:100%	> 5%	> 5%	> 0.2	< 0.2
	medium-low risk	2:3	55%:80%	1%:5%	0%:5%	-0.2:+0.2	0.2: 0.4
	medium-high risk	1:2	45%: < 55%	-1%: < 1%	-5%: < 0%	-0.7: < -0.2	0.4: 0.6
	high risk	<1	< 45%	< -1%	< -5%	< -0.7	> 0.6

Recession Risk Probability Estimates									
		WEI weekly	ETI	EMI	MMRI	CFNAI	ADS	CRPI	SECI
	low risk	0%:10%							
	medium-low risk	> 10%:30%							
	medium-high risk	> 30%:50%							
	high risk	> 50%							

MTI Risk Probability Estimates		
	low risk	> +1.0
	medium-low risk	> +0.5: +1.0
	neutral	+0.5: -0.5
	medium-high risk	< -0.5: -1.0
	high risk	< -1.0