US Business Cycle Risk Report

With a bit more than half of the second-quarter data published (see p. 12), the case is strengthening for expecting that the upcoming second-quarter GDP report will show a modest economic expansion rolls on. *BCRR*'s revised nowcast for Q2 output indicates a 1.3% increase (seasonally adjusted annual rate) via the median of several estimates (see chart at right and p. 10). That's a sluggish pace and it's been revised down recently, but the current nowcast suggests that next month's initial GDP estimate from the government will align with other indicators that point to low recession risk.

BCRR's primary recession indicator still reflects low recession risk. CRPI's current estimate of the probability that the US is in recession is roughly 12% (see chart below and p. 9). Several risk factors are keeping this indicator from falling into the "low risk" zone – weak manufacturing, for instance. But until/if the probability of recession via CRPI rises further it's highly likely that the economy will continue to expand. Note that CRPI spiked in late-2022/early 2023 to nearly 30%, but quickly retreated, implying that the

US Real GDP Quarterly % Changes
seasonally adjusted annual rate

2023 Q2 median nowcast: 1.3%
2023 Q1 actual change: 1.3%

current median nowcast
actual change in previous quarter
current individual nowcasts

STLENI GDPNOW WELLSF CNBC MOODYS BMO PMI

Data: BEA, St Louis Fed,
Atlanta Fed, Wells Fargo, CNBC, St. Louis Fed, BMO, S&P Global   as of: 2023-06-17

Composite Recession Probability Index
daily probit model estimates

Current: 12.4%

Dec-31-1999   Nov-11-2005   Sep-23-2011   Aug-04-2017   Jun-16-2023
gray bars indicate NBER-defined recessions

CapitalSpectator.com   Data: St. Louis Fed, Philly Fed, Chicago Fed, Quandl

recession warning was a false alarm. CRPI never got close to/rose above the 50%-plus level, and remains well below that mark – a sign that recession is still nowhere on the immediate horizon.

This week will stress test the case for expecting a slow/sluggish expansion endures. First up is housing starts for May (Tues., June 20). Economists see new residential construction steady at a middling level vs. the past two years. Friday's PMI survey data (June 22) offers an early look at June's economic profile. Economists expect the Composite PMI (a GDP proxy) will ease slightly, but continue to indicate modest growth.

Mon, Jun 19 Housing Market Index (Jun)
Tues, Jun 20 Housing starts (May)
Wed, Jun 21 No major US economic releases scheduled
Thurs, Jun 22 Jobless claims (wk 6/17), Chicago Fed Nat'l Activity Index (May), existing home sales (May), Leading Economic Index (May)
Fri, Jun 23 Composite/Mfg/Services PMIs (Jun)

Primary Business Cycle Indicators

Indicator: Date	Current Data	Recession Probability %	Page
ETI 3mo avg: May	47.60	19.5	2-3
EMI 3mo avg: May	-0.60	17.2	2-3
MMRI: Jun 16	16.50	0.0	4
CFNAI-MA3: Apr	-0.22	12.4	5
ADS: Jun 10	-0.15	2.5	6
CRPI: Jun 16		12.4	9

Indicator: Date	Current Data	Page
GDP: Q2 2023	1.3	10

Alternative Business Cycle Indicators

Indicator: Date	Current Data	Recession Probability %	Page
ETI monthly: May	57.10	4.7	2-3
EMI monthly: May	0.10	10.9	2-3
CFNAI monthly: Apr	0.07	2.6	5
WEI weekly: Jun 10	0.93	9.1	7
Short CRPI: Jun 16		7.8	8

Indicator: Date	Current Data	Page
MTI: Jun 10	0.25	11

color code indicators		low risk	medium-high risk		neutral (MTI only)
See parameter rule definitions on p. 13		medium-low risk	high risk		

Key economic indicators: p. 12

ETI and EMI

Economic Momentum Index (EMI) | Economic Trend Index (ETI)
gray bars indicate recessions

Current ETI: 47.6%   Current EMI: -0.6%

CapitalSpectator.com   as of 2023-06-17   Data Source: St. Louis Fed
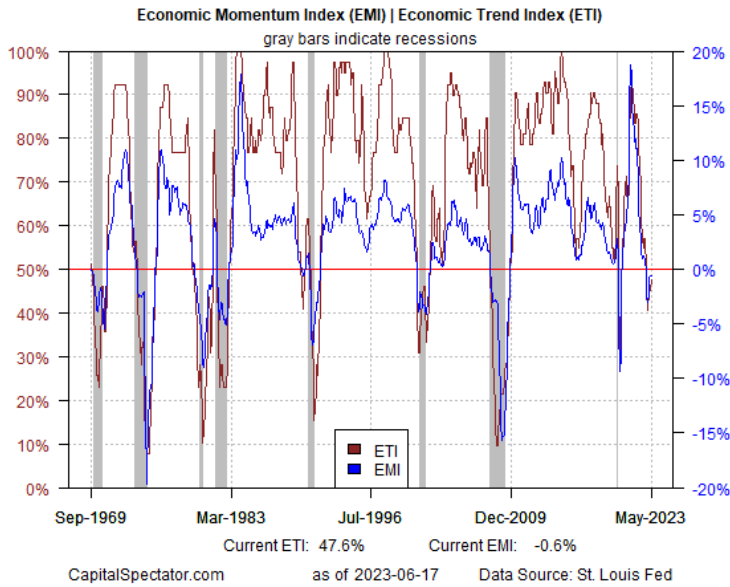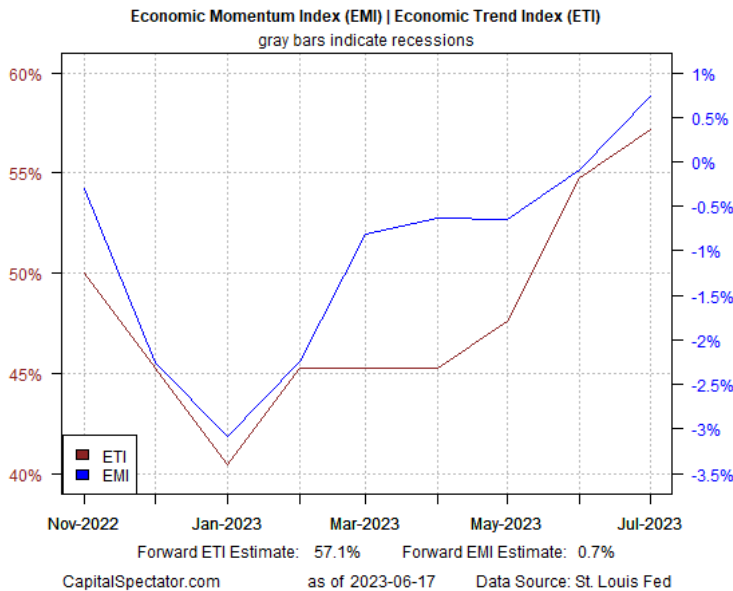
ETI is a diffusion index (i.e., an index that tracks the proportion of components with positive values) for the 14 leading/coincident indicators (see p. 11 ETI values reflect the 3-month average of the transformation rules defined in the table on p. 9. EMI measures the same set of indicators/transformation 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
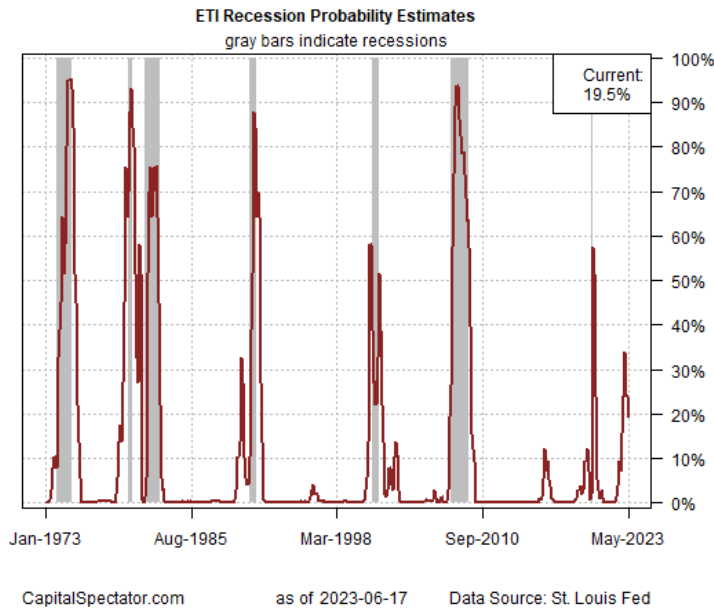Cycle Peaks
(2014, Beta Publishing).

Near-term projections: ETI and EMI

Economic Momentum Index (EMI) | Economic Trend Index (ETI)
gray bars indicate recessions

Forward ETI Estimate: 57.1%   Forward EMI Estimate: 0.7%

CapitalSpectator.com   as of 2023-06-17   Data Source: St. Louis Fed

For near-term projections of ETI and EMI, the missing data points are estimated with an ARIMA model.
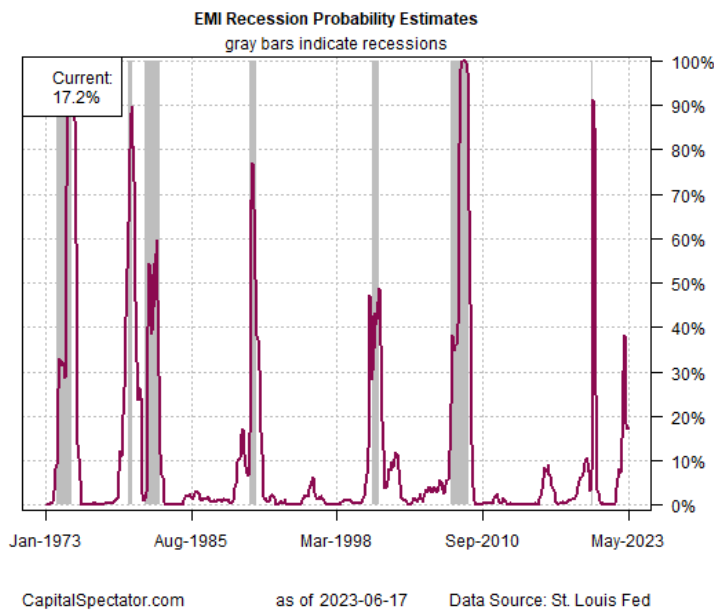
Forecasts are always suspect, of course, but recent projections of ETI & EMI for the near-term future have proven to be relatively reliable guesstimates vs. the full set of published numbers that followed. That's not surprising, given the broadly diversified nature of ETI & EMI. Predicting individual 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

ETI Recession Probability Estimates
gray bars indicate recessions

Current: 19.5%

CapitalSpectator.com   as of 2023-06-17   Data Source: St. Louis Fed

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

EMI Recession Probability Estimates
gray bars indicate recessions

Current: 17.2%

CapitalSpectator.com   as of 2023-06-17   Data Source: St. Louis Fed

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

Macro-Markets Risk Index
daily

Current:
16.5%

Shaded area indicates recession

CapitalSpectator.com
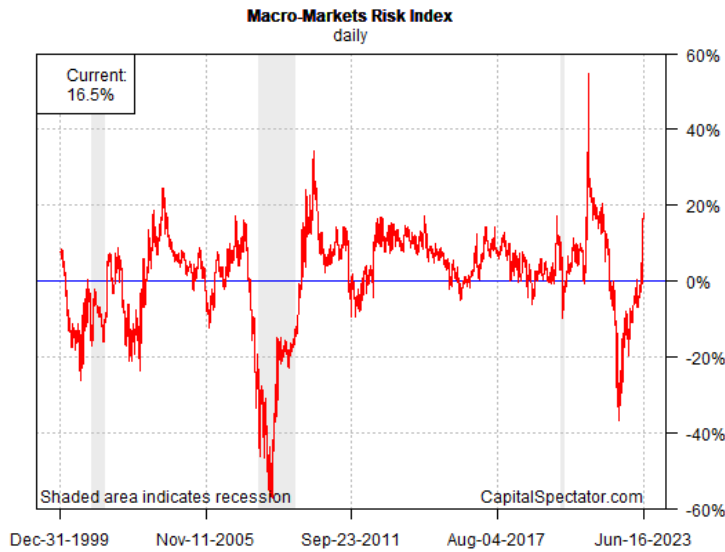
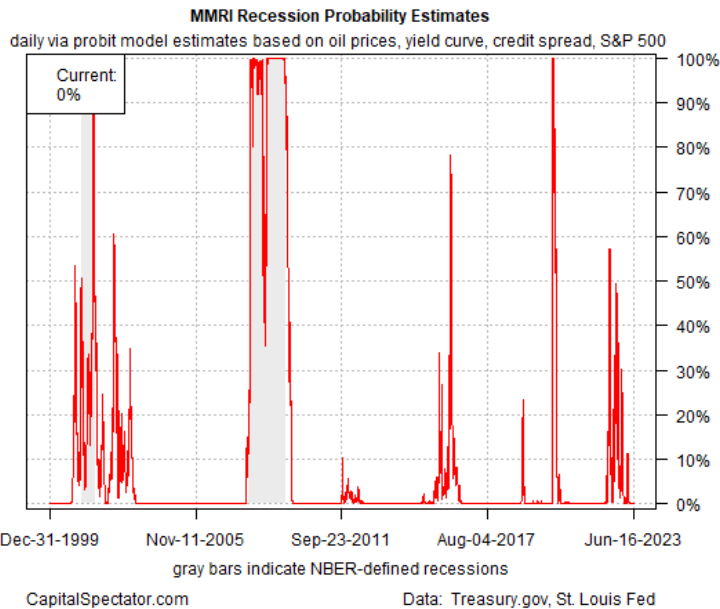Data: Treasury.gov, St. Louis Fed

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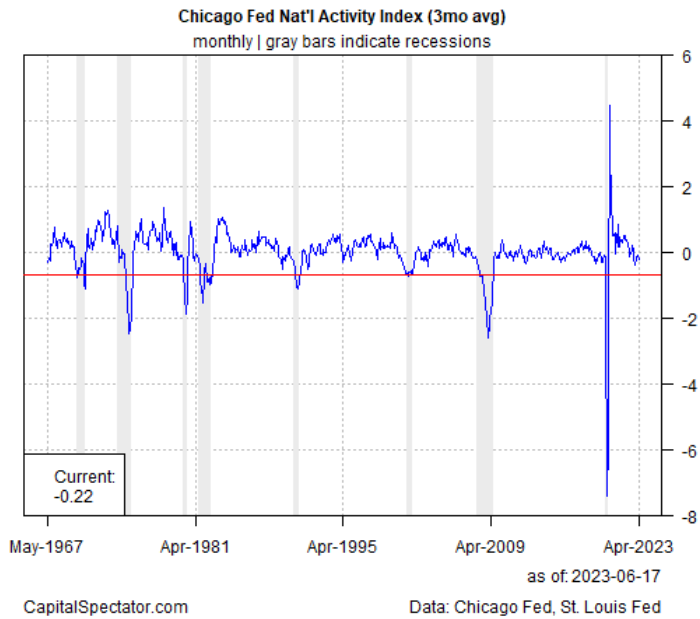
A decline below 0% in MMRI (horizontal blue line in to chart at left) indicates that recession risk is elevated while readings above 0% imply that the economy will expand in the near-term future.

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

MMRI Recession Probability Estimates
daily via probit model estimates based on oil prices, yield curve, credit spread, S&P 500

Current:
0%

gray bars indicate NBER-defined recessions

CapitalSpectator.com

Data: Treasury.gov, St. Louis Fed

Chicago Fed Nat'l Activity Index

Chicago Fed Nat'l Activity Index (3mo avg)
monthly | gray bars indicate recessions

Current:
-0.22

May-1967   Apr-1981   Apr-1995   Apr-2009   Apr-2023

as of: 2023-06-17

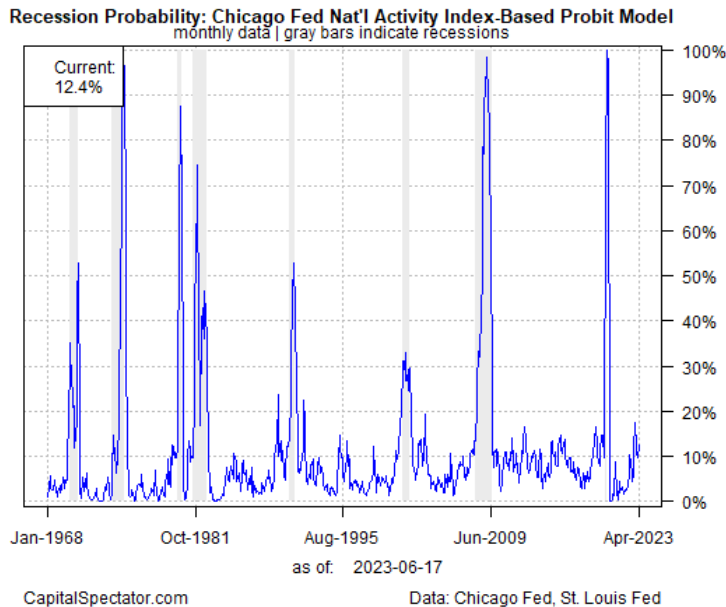CapitalSpectator.com   Data: Chicago Fed, St. Louis Fed

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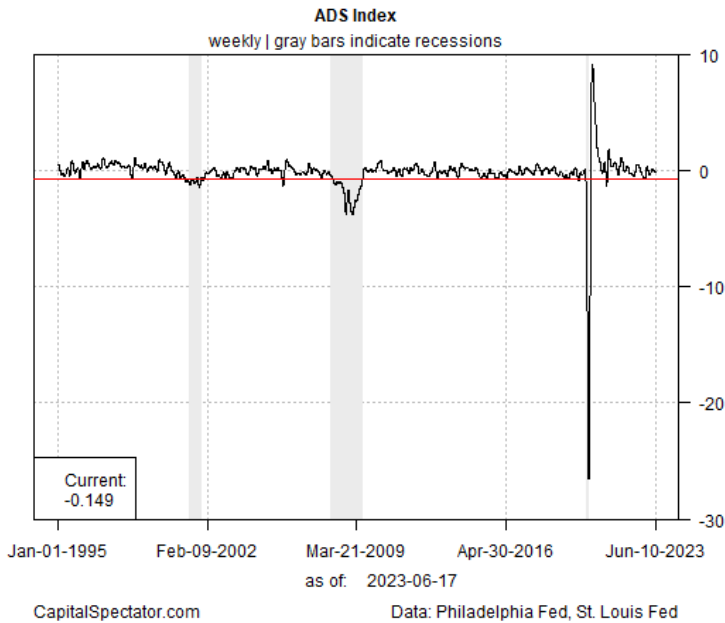
For additional information, see the Chicago Federal Reserve's web site: www.chicagofed.org

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

Recession Probability: Chicago Fed Nat'l Activity Index-Based Probit Model
monthly data | gray bars indicate recessions

Current:
12.4%

Jan-1968   Oct-1981   Aug-1995   Jun-2009   Apr-2023

as of: 2023-06-17

CapitalSpectator.com   Data: Chicago Fed, St. Louis Fed

ADS Business Conditions Index

ADS Index
weekly | gray bars indicate recessions

Current: -0.149

Jan-01-1995   Feb-09-2002   Mar-21-2009   Apr-30-2016   Jun-10-2023

as of: 2023-06-17

CapitalSpectator.com   Data: Philadelphia Fed, St. Louis Fed

Recession risk probability: ADS Business Conditions Index

Recession Probability: ADS Index-Based Probit Model
weekly probit model estimates

Current: 2.5%

Jan-01-1995   Feb-09-2002   Mar-21-2009   Apr-30-2016   Jun-10-2023

gray bars indicate NBER-defined recessions   as of: 2023-06-17

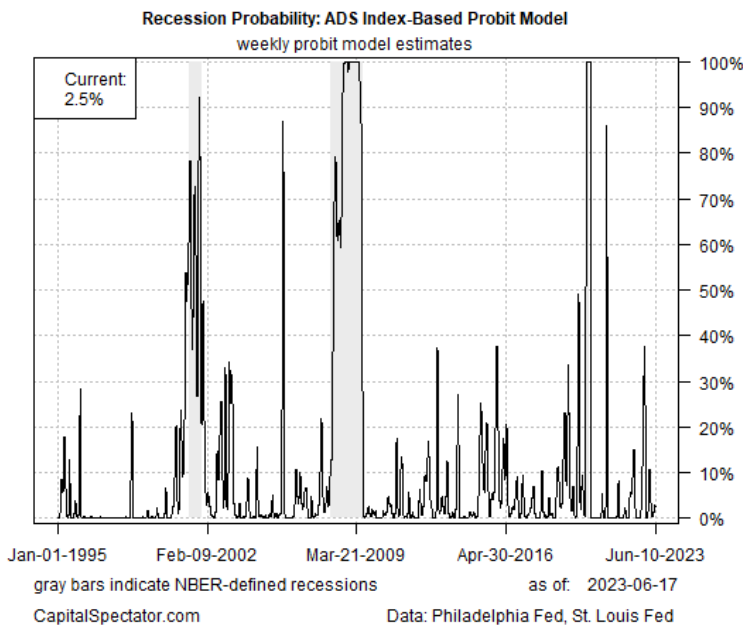CapitalSpectator.com   Data: Philadelphia Fed, St. Louis Fed

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

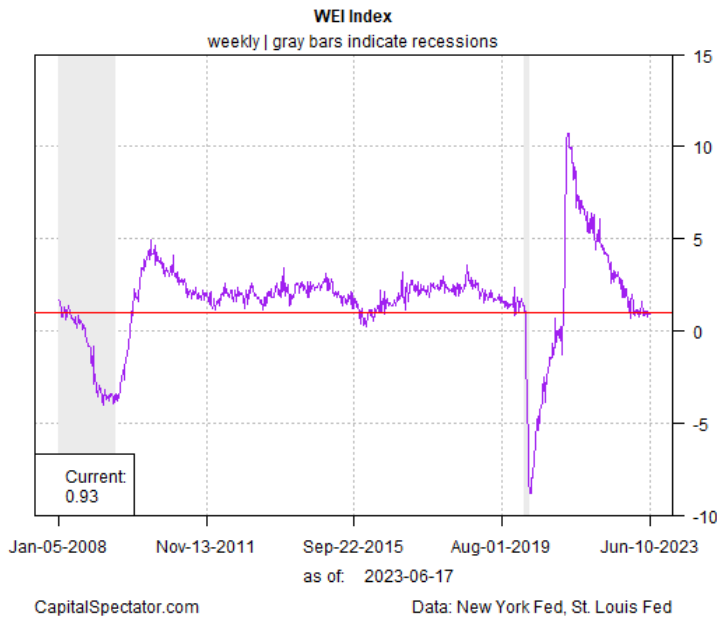*For additional information about the ADS Index, see the Philadelphia Federal Reserve's web site: www.philadelphiafed.org*

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.

Weekly Economic Index

WEI Index
weekly | gray bars indicate recessions

Current:
0.93

Jan-05-2008   Nov-13-2011   Sep-22-2015   Aug-01-2019   Jun-10-2023

as of: 2023-06-17

CapitalSpectator.com   Data: New York Fed, St. Louis Fed

Recession risk probability: WEI Index

Recession Probability: WEI Index-Based Probit Model
weekly probit model estimates

Current:
9.2%

Jan-05-2008   Nov-13-2011   Sep-22-2015   Aug-01-2019   Jun-10-2023

gray bars indicate NBER-defined recessions   as of: 2023-06-17

CapitalSpectator.com   Data: New York Fed, St. Louis Fed

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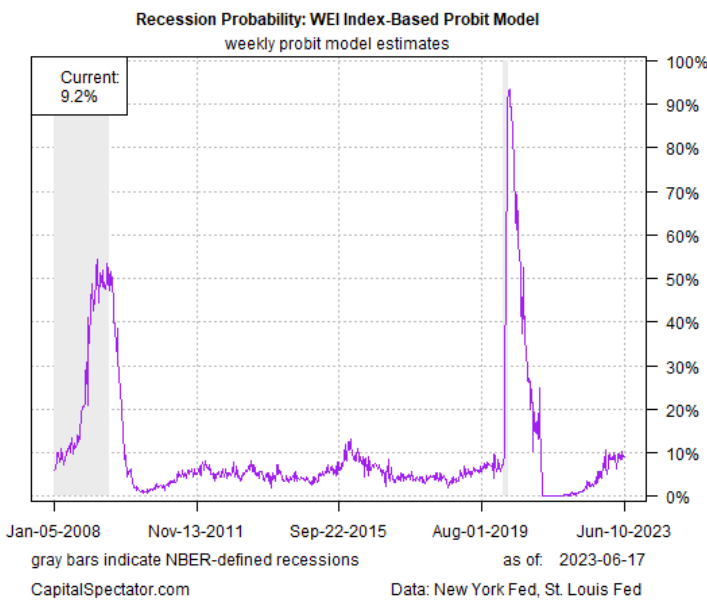
By that standard, WEI values below 1 (red line in top chart) suggest that a recession has started, based on reviewing the benchmark's history since 2008.

For additional information about the ADS Index, see the New York Reserve's web site:
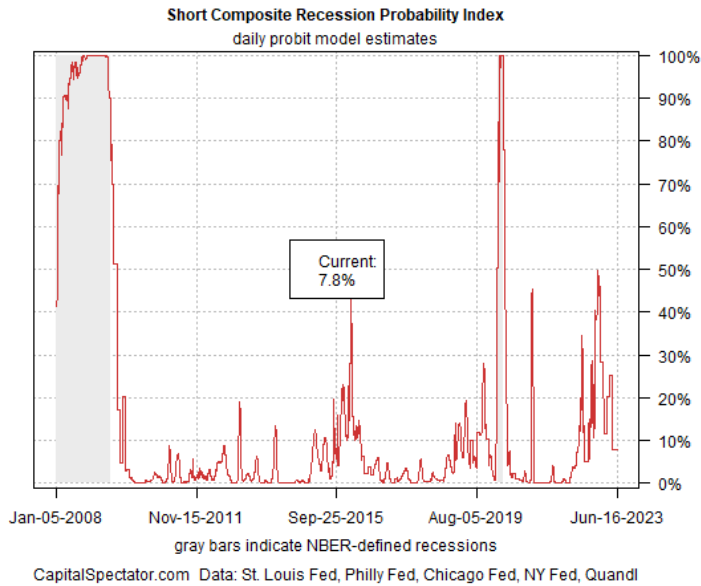
nyfed.org/35gnbO1

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: Short CRPI

Short Composite Recession Probability Index
daily probit model estimates

Current:
7.8%

Jan-05-2008   Nov-15-2011   Sep-25-2015   Aug-05-2019   Jun-16-2023

gray bars indicate NBER-defined recessions

CapitalSpectator.com Data: St. Louis Fed, Philly Fed, Chicago Fed, NY Fed, Quandl

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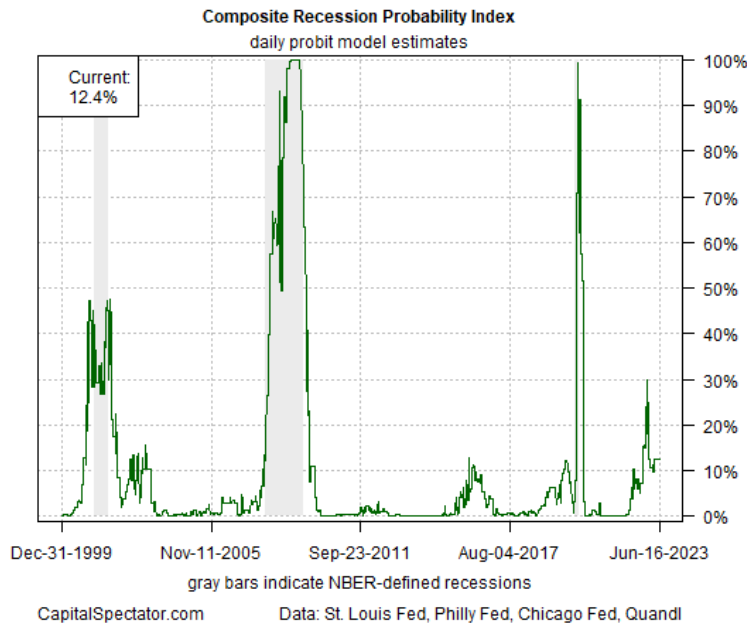
In contrast with the standard CRPI (p. 9), which is designed to estimate recession risk probability during the onset of a "normal" business cycle (in contrast with the sharp, sudden arrival of the Covid-19 triggered recession of 2020), the Short CRPI react quickly to shifting economic conditions.

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

Composite Recession Probability Index
daily probit model estimates

Current: 12.4%

Dec-31-1999   Nov-11-2005   Sep-23-2011   Aug-04-2017   Jun-16-2023

gray bars indicate NBER-defined recessions

CapitalSpectator.com   Data: St. Louis Fed, Philly Fed, Chicago Fed, Quandl

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)*
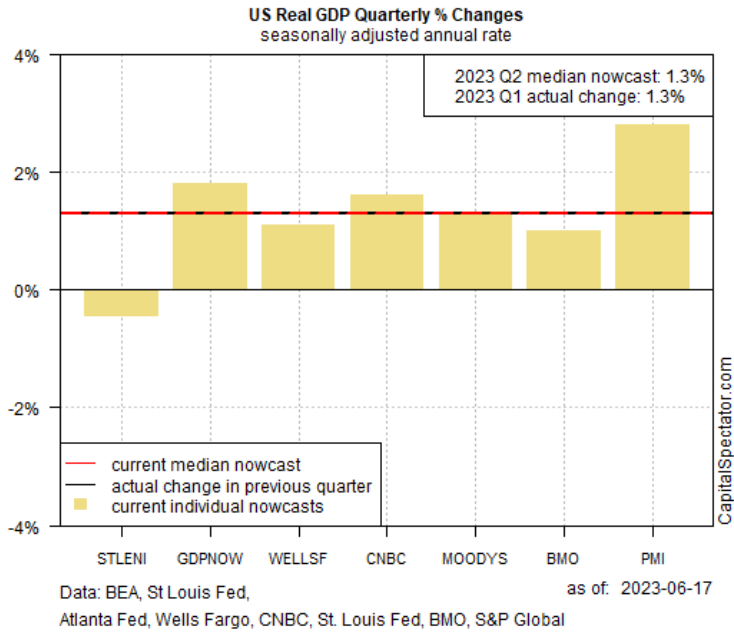> *4. CFNAI (p. 5)*
> *5. ADS Index (p. 6)*

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.

*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).*

Gross Domestic Product Nowcasts

US Real GDP Quarterly % Changes
seasonally adjusted annual rate

2023 Q2 median nowcast: 1.3%
2023 Q1 actual change: 1.3%

- current median nowcast
- actual change in previous quarter
- current individual nowcasts

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STLENI   GDPNOW   WELLSF   CNBC   MOODYS   BMO   PMI

Data: BEA, St Louis Fed,   as of: 2023-06-17
Atlanta Fed, Wells Fargo, CNBC, St. Louis Fed, BMO, S&P Global

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/
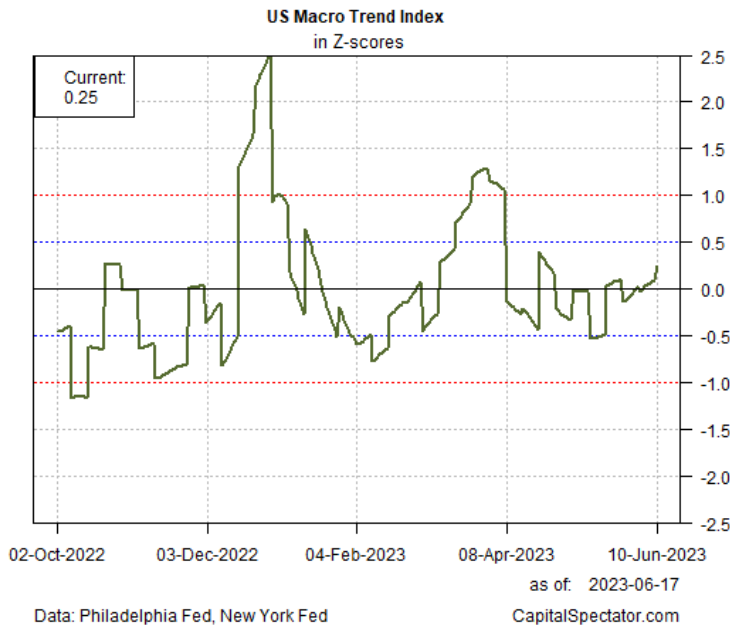
CNBC: The median estimate of Wall Street analysts via CNBC. For details, see: cnbc.com

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

US Macro Trend Index
in Z-scores

Current: 0.25

Data: Philadelphia Fed, New York Fed

as of: 2023-06-17

CapitalSpectator.com

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

ETI and EMI Component Indicators

US Economic Profile
June 18, 2023

	Indicator	Transformation	Mar-23	Apr-23	May-23	Jun-23
1	Labor Market Index [1]	1 yr % change	-0.6%	0.5%	-1.1%	NA
1a	*Private non-farm payrolls*	*1 yr % change*	2.7%	2.8%	2.7%	NA
1b	*Initial Jobless Claims [2]*	*1 yr % chg (inverted)*	-11.0%	-9.9%	-8.2%	-20.9%
1c	*Employ.-to-Unemploy. Ratio*	*1 yr % change*	3.9%	7.5%	-0.4%	NA
1d	*Index of Agg. Weekly Hours [3]*	*1 yr % change*	2.1%	1.7%	1.7%	NA
2	US Stock Market (S&P 500) [2]	1 yr % change	-9.6%	-6.1%	2.6%	10.8%
3	Real personal income ex current transfer receipts	1 yr % change	1.1%	1.2%	NA	NA
4	ISM Manufacturing Index	% +/- neutral: 50 [5]	-7.4%	-5.8%	-6.2%	NA
5	Spot Oil (W. Tex. Intermed.) [2]	1 yr % chg (inverted)	32.5%	21.9%	34.7%	38.3%
6	Consumer Spending Index [6]	1 yr % change	-0.4%	-0.6%	-2.4%	NA
6a	*Real Pers. Cons. Expend.*	*1 yr % change*	2.0%	2.3%	NA	NA
6b	*Real Retail Sales*	*1 yr % change*	-2.7%	-3.6%	-2.4%	NA
7	Treasury Yield Curve (10 yr Note less 3 mo T-bill) [2]	current monthly spread [7]	-10.3%	-14.6%	-15.7%	NA
8	High-Yield Bond Spread (BofA ML US HY Option-Adjusted Spread) [9]	1 yr % chg (inverted)	-23.8%	-25.0%	-4.5%	10.9%
9	Real Monetary Base (M0)	1 yr % change	-13.5%	-9.5%	NA	NA
10	University of Michigan Consumer Sentiment Index	1 yr % change	4.4%	-2.6%	1.4%	27.8%
11	Industrial Production	1 yr % change	0.2%	0.4%	0.2%	NA
12	New Residential Bldg. Permits	1 yr % change	-23.4%	-21.1%	NA	NA
13	Real Mfg. & Trade Sales [8]	1 yr % change	0.4%	NA	NA	NA
14	ISM Non-Mfg. Index [4]	% +/- neutral: 50 [5]	10.8%	4.0%	3.0%	NA

1. Average 1-year % changes of payrolls, jobless claims, employed-to-unemployed ratio, 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

CapitalSpectator.com

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:

		ETI	EMI	MMRI	CFNAI	ADS	GDP Nowcast
		Business Cycle Index Values					
🟩	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%

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

Short-Focus Methodology Parameter Rules for Summary Table on Page 1:

		WEI weekly	ETI monthly	EMI monthly	MMRI	CFNAI monthly	ADS
		Business Cycle Index Values					
🟩	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:+0.2
🟧	medium-high risk	1:2	45%: < 55%	-1%: < 1%	-5%: < 0%	-0.7: < -0.2	-0.8: < -0.2
🟥	high risk	<1	< 45%	< -1%	< -5%	< -0.7	< -0.8

		WEI weekly	ETI	EMI	MMRI	CFNAI	ADS	CRPI
		Recession Risk Probability Estimates						
🟩	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