



RECESSION INDICATORS: JAN 24, 2020 UPDATE



January 24, 2020

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❑ What's New Since Dec 20:

SUMMARY

Indicator changes were mixed over the past month. Positive news: jump in housing starts, in retail sales ex food, and in the S&P; and the largest expansion in ISM Non-Manufacturing PMI in four months. Mixed news: Nonfarm payrolls increased by 145K, yet it was the smallest rise since May. Negative news: continued weakness in industrial sectors; a drop in consumer expectations; and a further decline in the CB LEI.

IMPROVED

- ❑ Advance Retail Sales Ex Food Services[^] YoY (Ch. 21) rose from 3.15% in NOV to 5.96% in DEC; expectations beat.
- ❑ Housing Starts, New Private Units YoY (Ch. 28) rose from 173K in NOV to 466k in DEC; expectations beat.
- ❑ Philadelphia Fed Manf Index (Ch. 47) rose from 2.4 in DEC to 17 in JAN; expectations beat.
- ❑ ISM Non-Manufacturing PMI (Ch. 39) rose from 53.9 in NOV to 55.2 in DEC; expectations beat.
- ❑ Manufacturers' New Orders for Consumer Goods[^] YoY (Ch. 23) rose from -2.06% in OCT to 0.60% in NOV; expectations beat.
- ❑ S&P 500 Index YoY (Ch. 97) rose from 13.8% in NOV to 28.8% in DEC.

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MIXED

- ❑ Nonfarm Payroll (Ch. 57) increased by 145 thousand in DEC, smallest rise since May; expectations fail.

WORSENERD

- ❑ Industrial Production Index^{^+} YoY (Ch14) fell from -0.68% in NOV to -1.01% in DEC.
- ❑ Manufacturers' New Orders: Durable Goods⁺ YoY (Ch. 26) fell from -1.24% in OCT to -3.84% in NOV; expectations fail.
- ❑ Housing Permits, New Authorized⁺ YoY (Ch. 29) fell from 140K in Nov to 77K in Dec.
- ❑ Chicago Fed Midwest Economy Index⁺ (Ch. 52) fell from -0.31 in OCT to -0.39 in NOV.
- ❑ ISM Manf PMI (Ch. 40) fell from 48.1 in NOV to 47.2 in DEC, expectations fail.
- ❑ CB Consumer Confidence Index: Expectations⁺ (Ch. 83) dropped from 100.3 in NOV to 97.4 in DEC.
- ❑ CB US Leading Economic Indicators Index⁺ YoY (Ch.94) dropped from 0.2 in OCT to 0.1 in NOV.

FAVORITE INDICATORS: STATUS CHANGE (Ch. 117):

- ❑ Industrial Production Manufacturing^{^+} YoY (Ch. 15): Medium-Term, change from "All Clear" to "Close To Triggering."

A “CRASH” COURSE IN RECESSION INDICATORS

☐ What Is a Recession?

☐ Properties of Good Recession Indicators

☐ INDICATORS

1. *Production, Consumption, & Income*
2. *Housing, Autos, & Transportation*
3. *Real-Time Diffusion Indexes*
4. *Employment*
5. *Inflation & Wages*
6. *Sentiment*
7. *Financial & Other “Leading” Indicators*

☐ Lessons: What are the Best Indicators?

☐ Lessons: What is the Current Recession Outlook?

WHAT IS A RECESSION?

- ❑ The periodic occurrence of “recessions” in industrial economies (originally known as “crashes,” “panics,” or “depressions”) was first widely noticed in the early 1800s.
- ❑ Recessions were first defined and studied as a regular phase of the business cycle in the 1910s, 1920s, & 1930s, esp by Wesley Mitchell and other founders of the NBER.
- ❑ So what is it?
 - A recession is the peak-to-trough phase of the business cycle.
 - A recession is “a significant decline in economic activity spread across the market, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales.” (per the NBER)
- ❑ Thus, recessions are defined by a broad variety of (usually monthly) indicators that are all pointing to contraction. A recession does not require 2 consecutive quarters of negative GDP growth.
- ❑ Who decides when recessions occur? The NBER—and often long after the fact.

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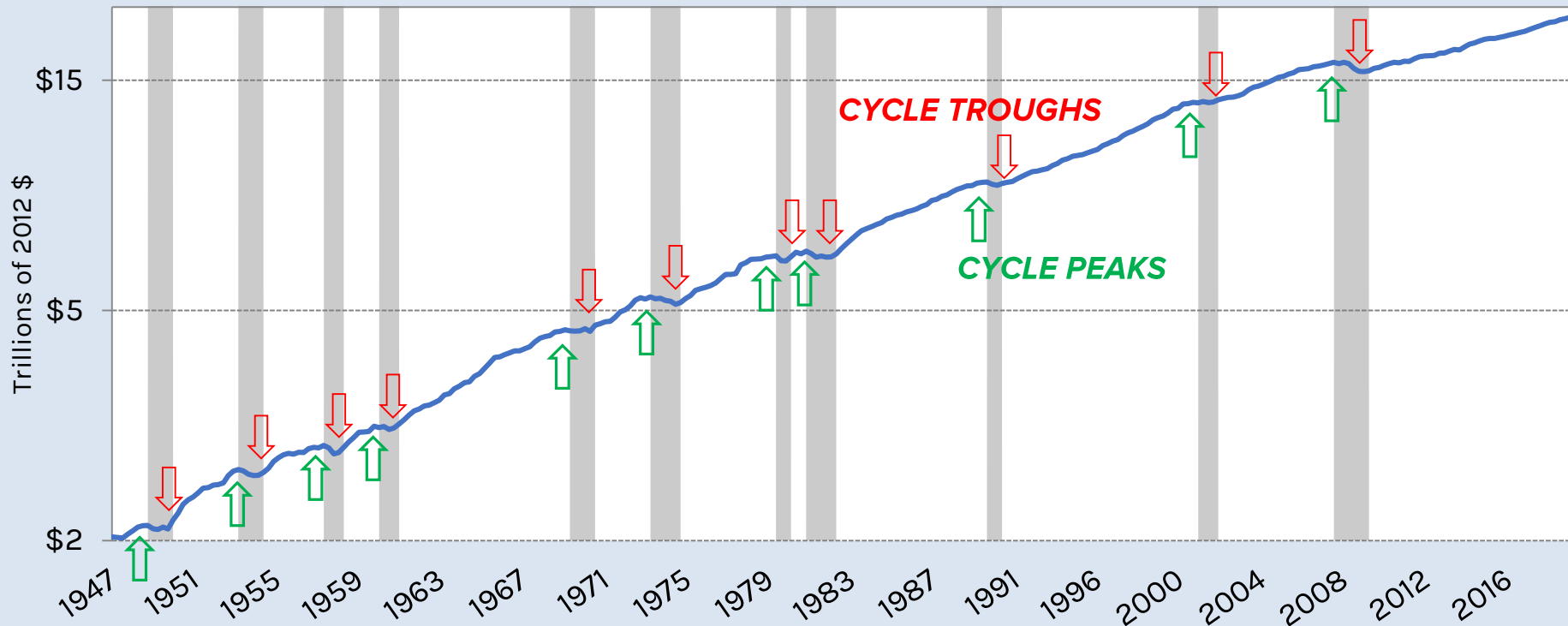
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IT'S THE PEAK-TO-TROUGH PHASE OF THE BUSINESS CYCLE

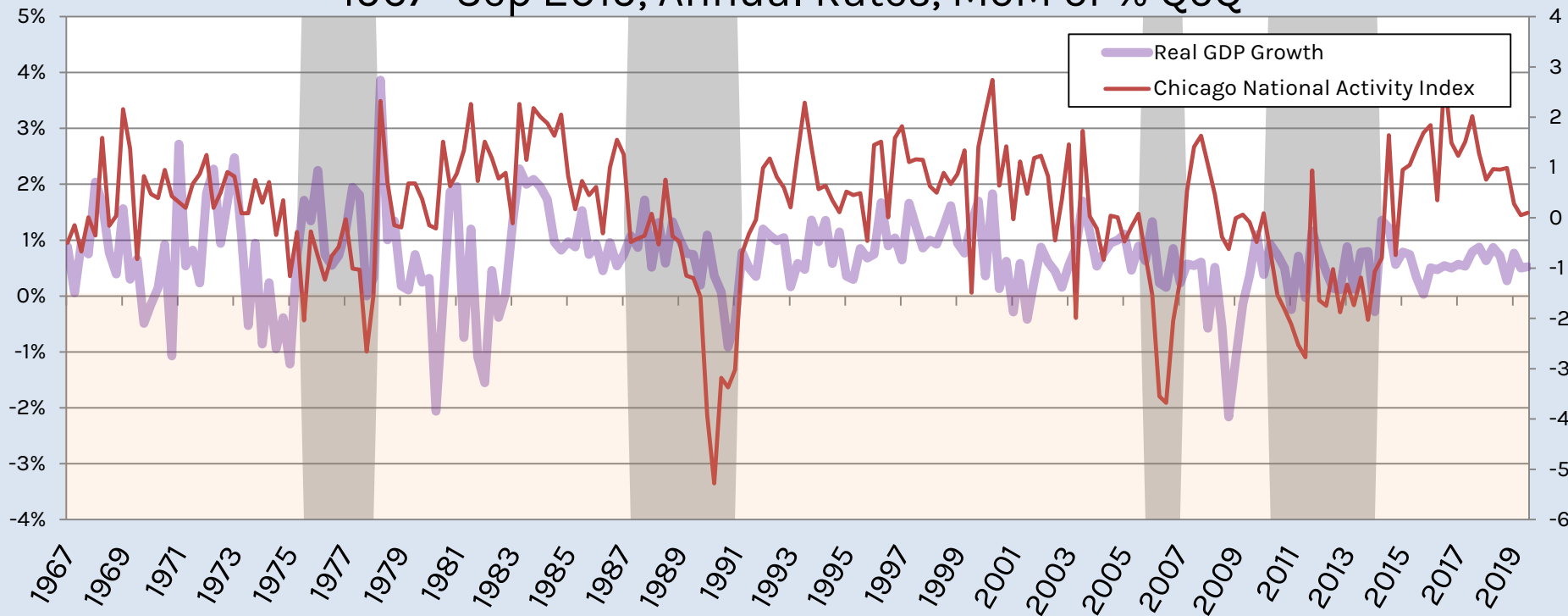
Real Gross Domestic Product
(2012 \$), SA, 1948-Q3 2019, Quarterly, Log Scale



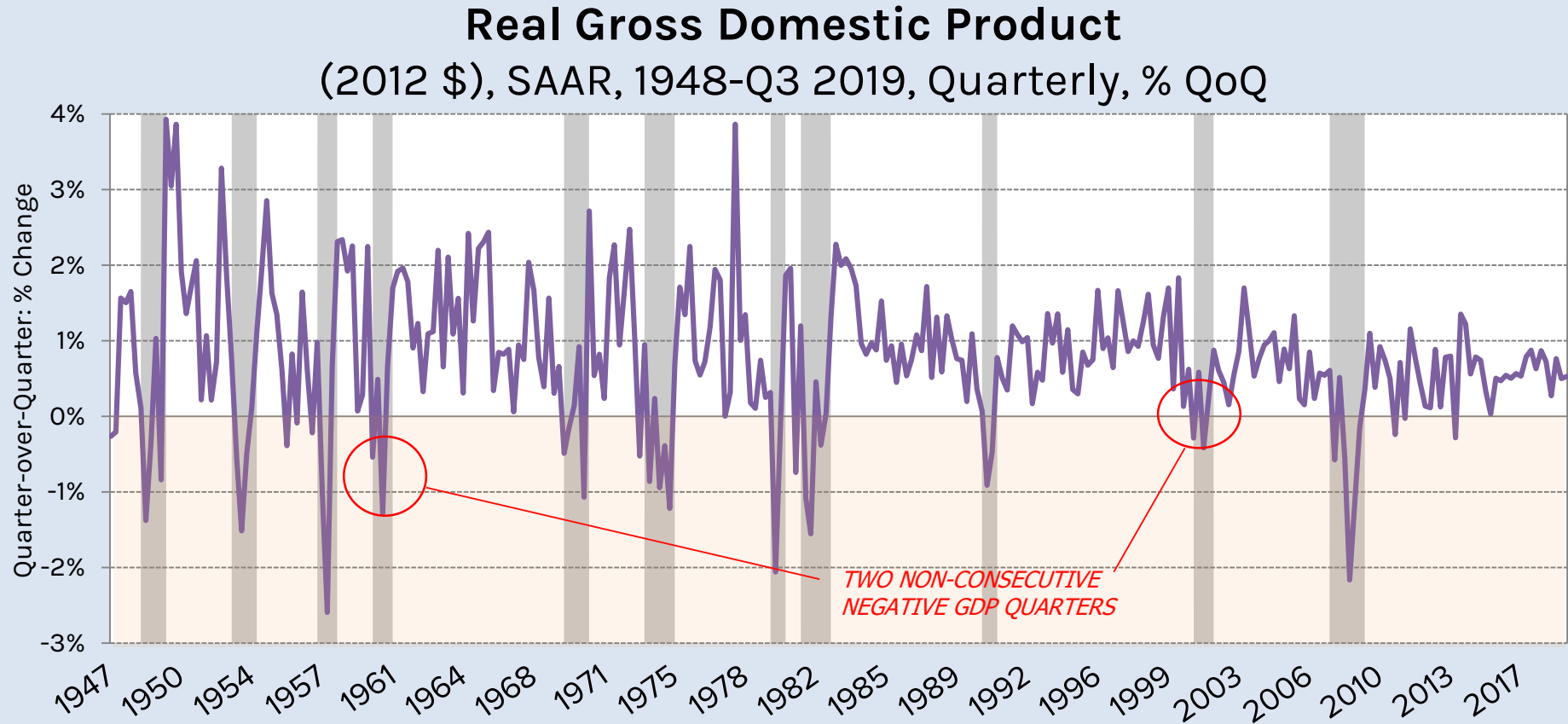
IT REFLECTS A MULTITUDE OF MONTHLY ACTIVITY SIGNALS

Growth in Real GDP & Chicago Fed National Activity Index

1967- Sep 2019, Annual Rates, MoM or % QoQ



NO, IT DOESN'T REQUIRE 2 CONSECUTIVE GDP QUARTERS

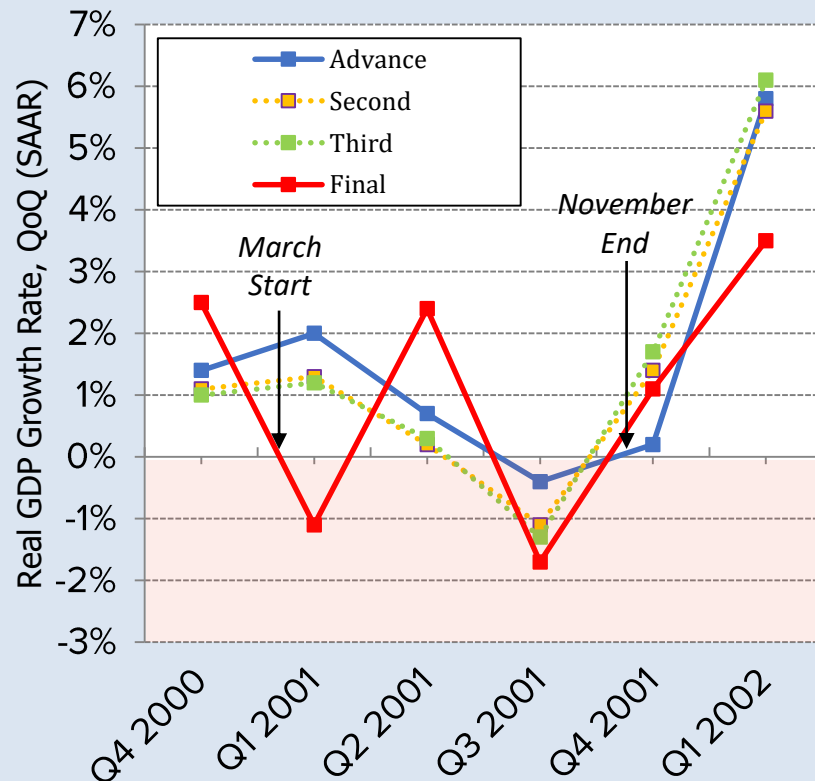


“FINAL GDP” IS THE VERY LAST THING WE KNOW

Schedule of GDP Release Dates*

Date:	Advance Second	Time Elapsed Since Start of Quarter
Start, Month 1	Beginning of Quarter	--
End, Month 3	End of Quarter	3 months
End, Month 4	Advance Estimate	4 months
End, Month 3	Second Estimate	5 months
End, Month 4	Third Estimate	6 months
End, Every July	Annual Revision (for all years)	indefinite
Every Few Years	Benchmark Revision (for all years)	indefinite

Example: Recession of 2001



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PROPERTIES OF GOOD RECESSION INDICATORS

CERTAINTY: The indicator is a sufficient condition for a recession: When it happens, recession always follows. But it may not precede every recession. (No false positive or type one error.) *These are often coincident indicators of overall economic activity. E.g., national activity index, industrial production, employment, inflation.*

SENSITIVITY: The indicator is a necessary condition for a recession: Unless it happens, a recession cannot follow. But it a recession may not always follow it. (No false negative or type two error.) *These are often leading indicators of forward-looking sectors or activities. E.g., manf PMIs, new orders, initial unemployment claims, heavy truck sales*

HISTORY: The indicator has a good track record. It has a large n-size and has been demonstrated over many prior recessions. *Indicators with best history are either prices or quantities/indexes tracked by Depts of Commerce or Labor since WWII or before. E.g., CPI, PPI, interest rates, GDP, industrial production, employment.*

FORESIGHT: The indicator reliably signals the recession well before it happens. This means both quick date of release and long duration forward between release and recession. *Indicators with most foresight tend to be financial or structural (that is, offering "perspective"). E.g., term spreads, credit spreads, corporate earnings trends, GDP gaps.*

PERSPECTIVE: The indicator reliably signals where we are in the business cycle. It informs us on cycle longevity. *Indicators with great perspective tend to track "cumulative" processes that have a known trough-to-peak dynamic. E.g., potential GDP, inflation, labor-market tightness, sentiment (esp. expectations).*

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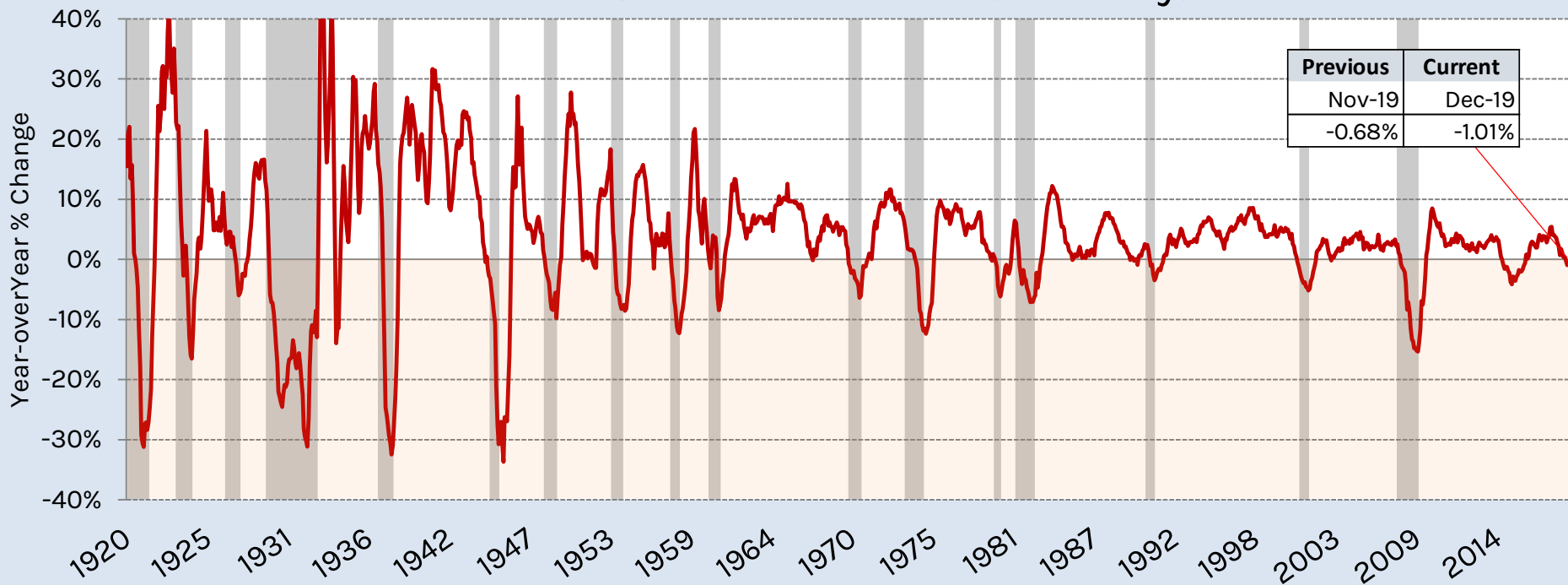
❑ Lessons: What are the Best Indicators?

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INDUSTRIAL PRODUCTION: THE OLDEST INDICATOR

Industrial Production Index

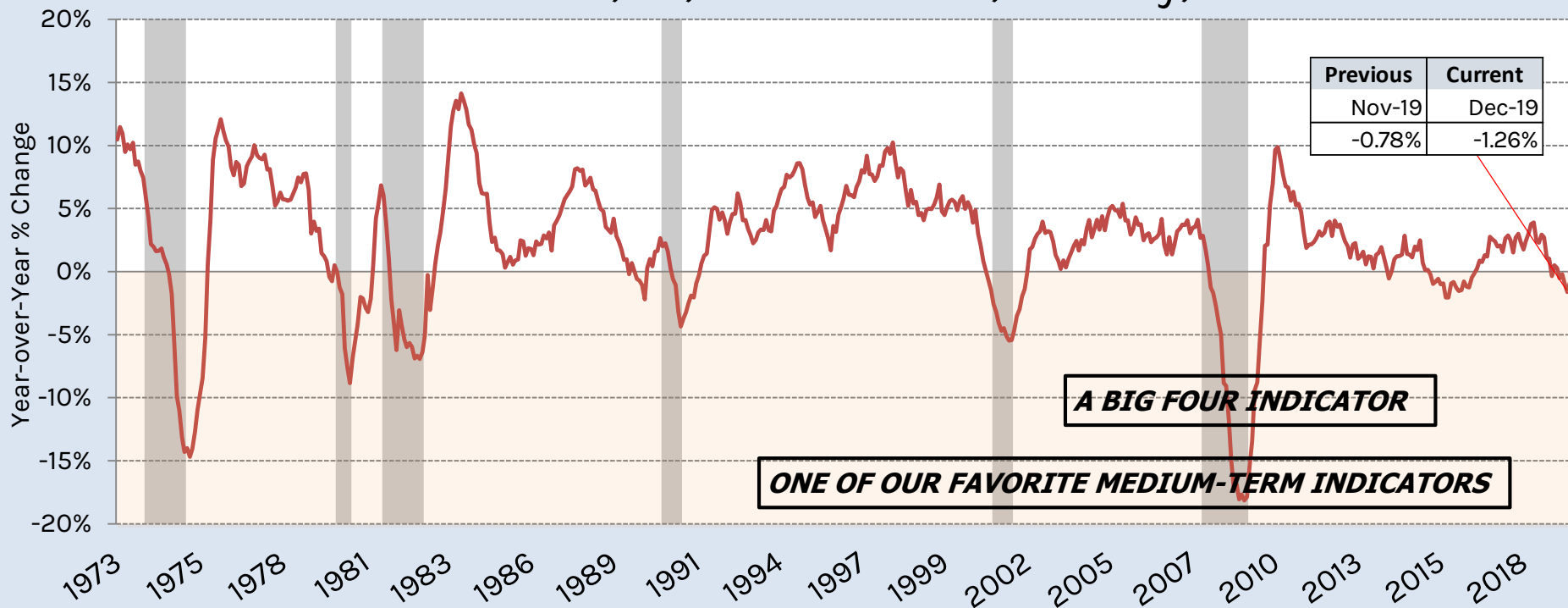
Index: 2012=100, SA, 1919-Dec 2019, Monthly, % YoY



NUMBER ONE OF “BIG FOUR” COINCIDENT SIGNALS

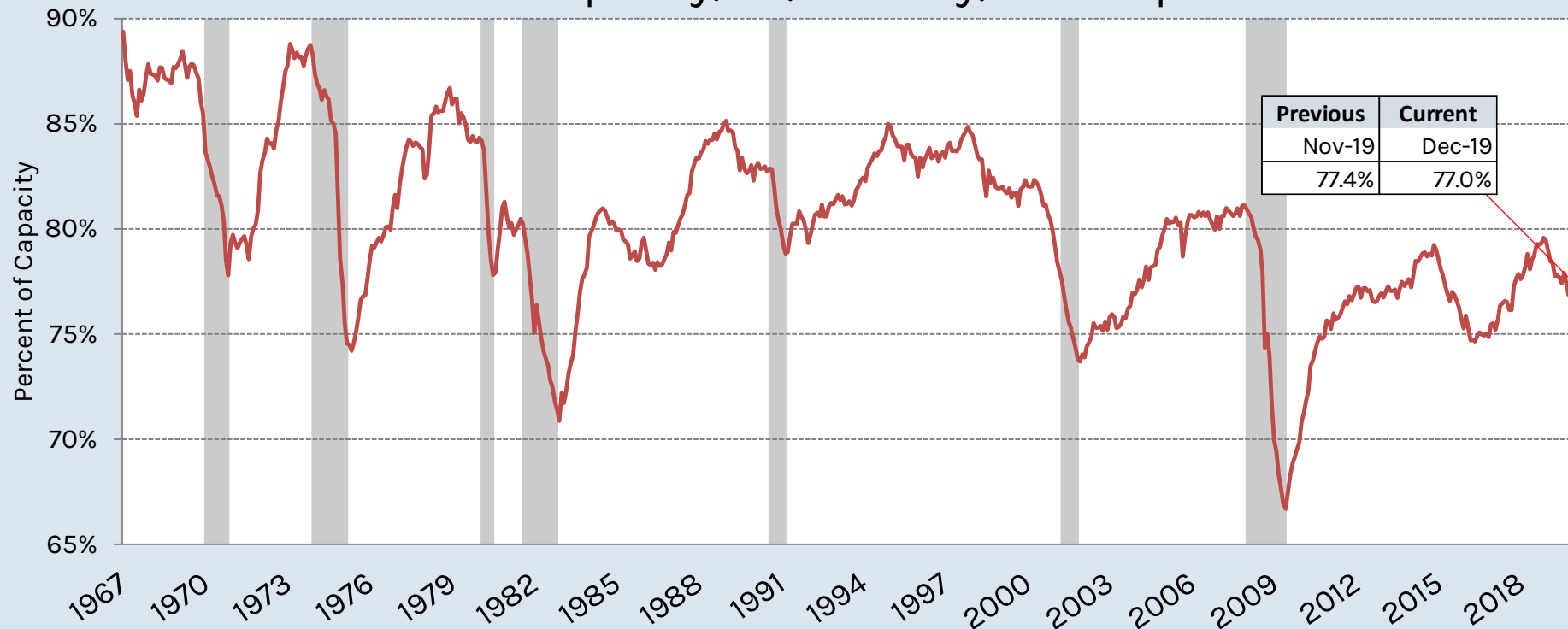
Industrial Production: Manufacturing

Index: 2012=100, SA, 1972-Dec 2019, Monthly, % YoY



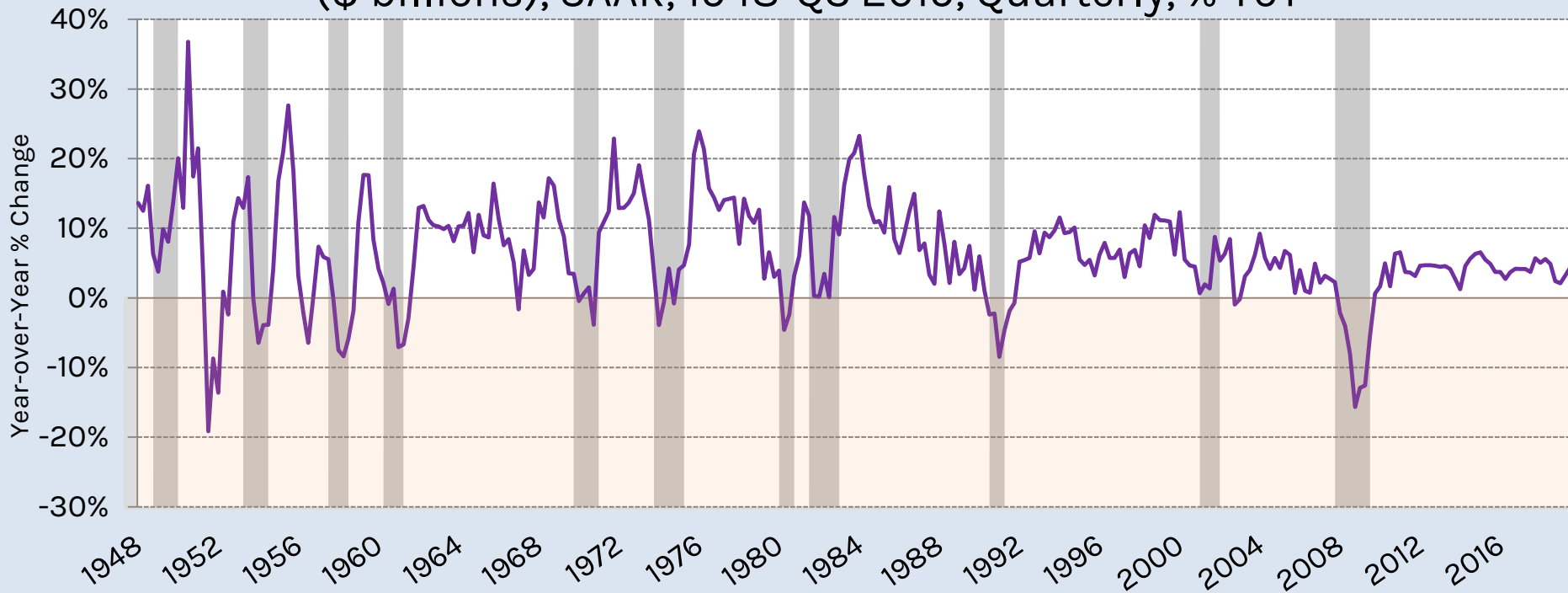
UTILIZATION OFFERS MORE PERSPECTIVE

Capacity Utilization: Total Industry Percent of Capacity, SA, Monthly, 1967-Sep 2019



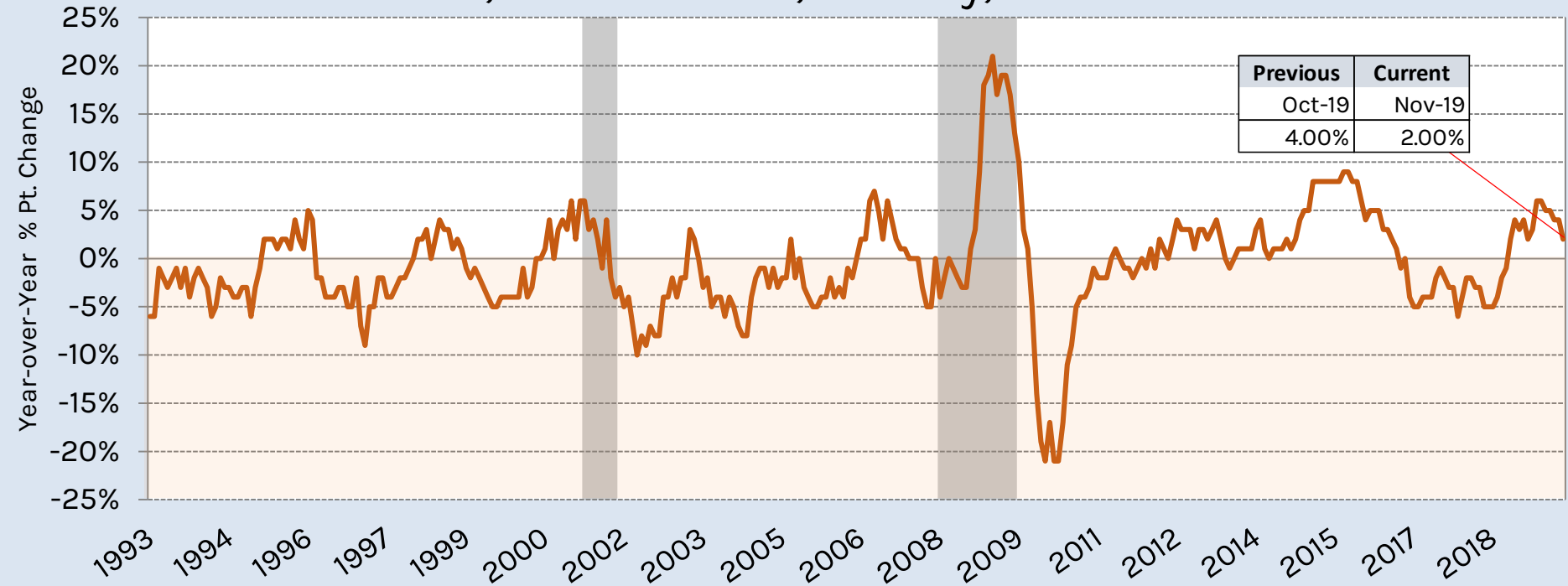
FORWARD-LOOKING PCE... BUT QTLY

Personal Consumption Expenditures (PCE): Durable Goods (\$ billions), SAAR, 1948-Q3 2019, Quarterly, % YoY



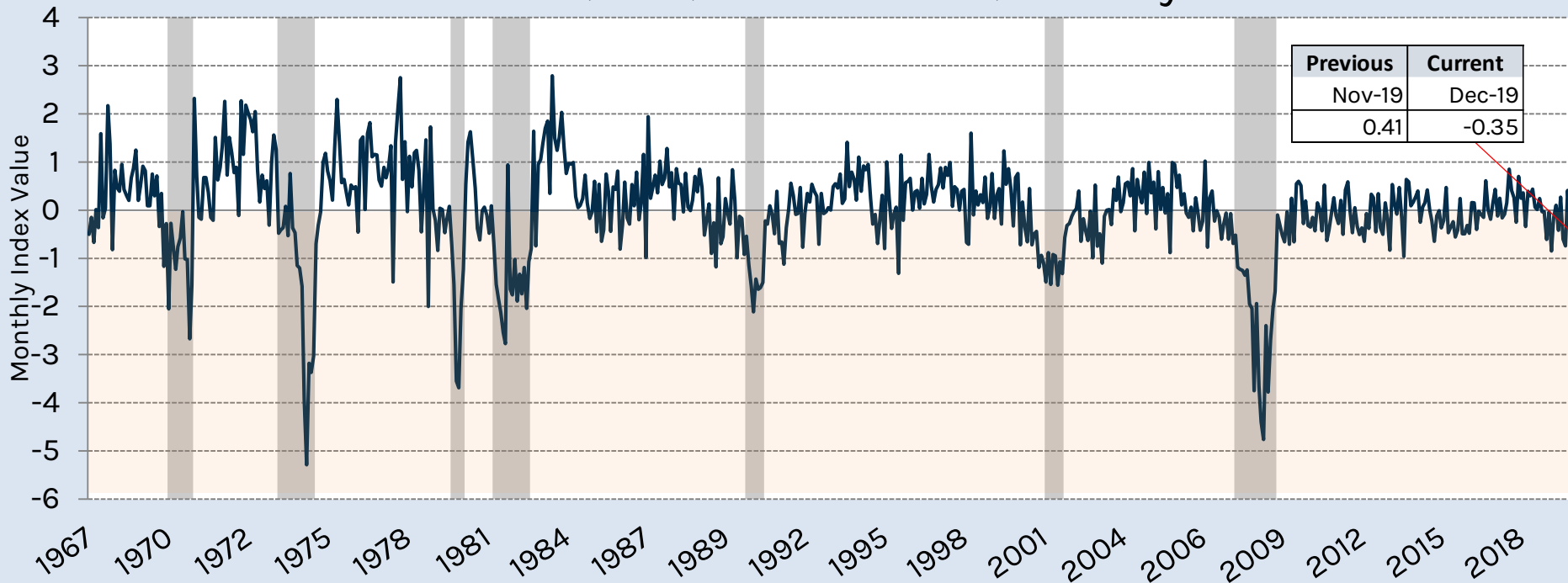
INVENTORY/SALES: AN “OLD ECONOMY” FAVORITE

Inventory to Sales Ratio: Total Business SA, 1993-Nov 2019, Monthly, % Pt. YoY



VERY DEFINITION OF COINCIDENT INDICATOR

Chicago Fed National Activity Index* Index**, NSA, 1967-Dec 2019, Monthly

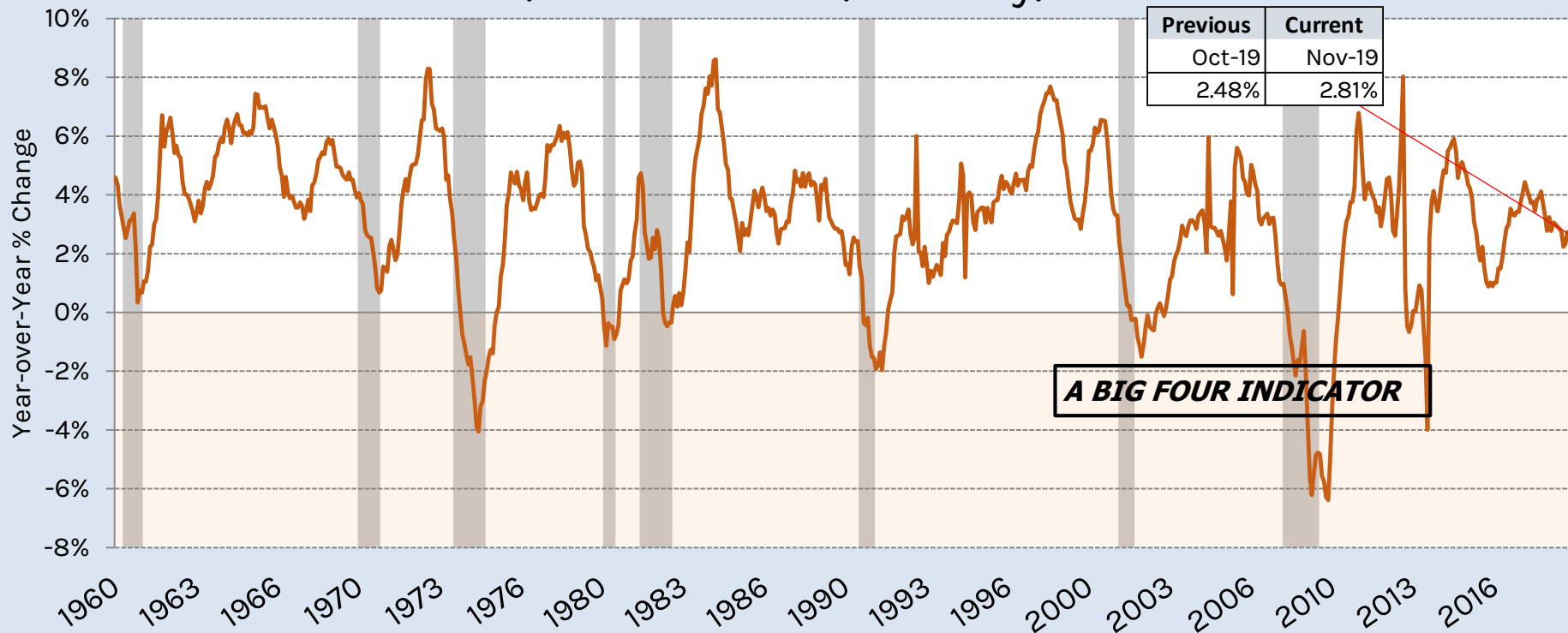


* Monthly change in a principal-component index of change in 85 monthly indicators of national economic activity.

** Index: 0.0 = economic growth at long-term historical trend.

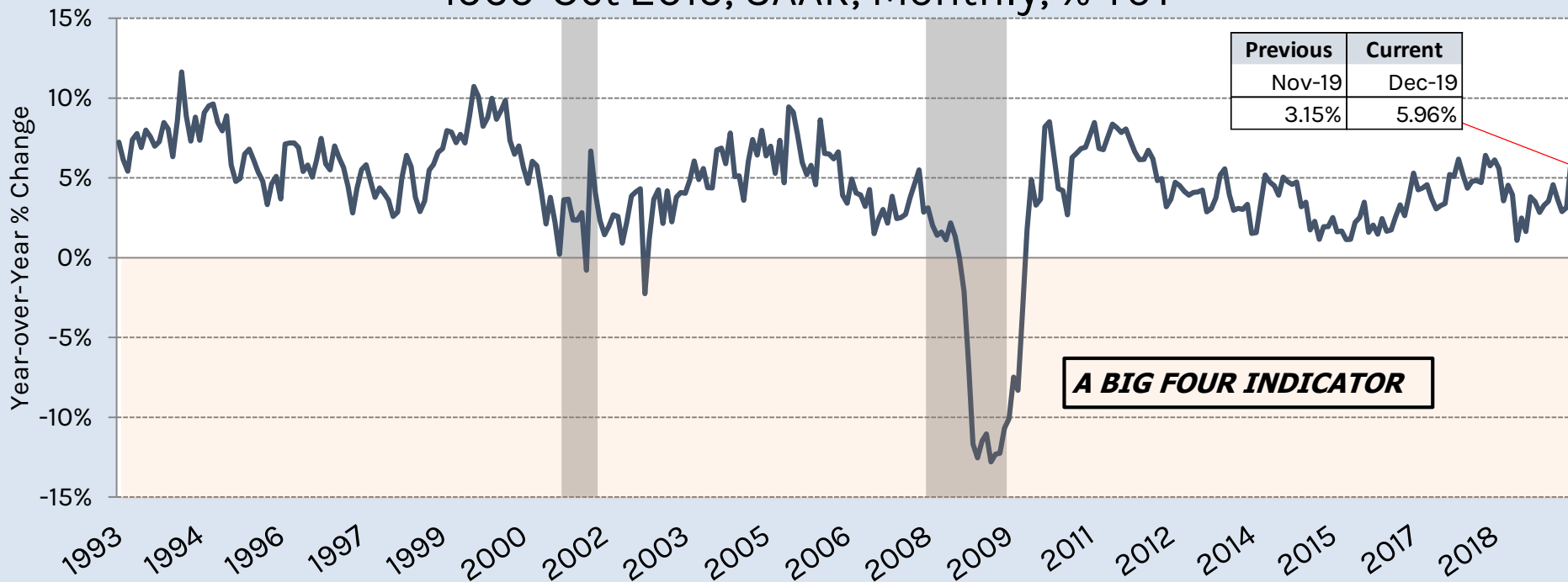
NUMBER TWO OF THE “BIG FOUR”...

Real Personal Income Ex Current Transfer Receipts SAAR, 1960-Nov 2019, Monthly, % YoY



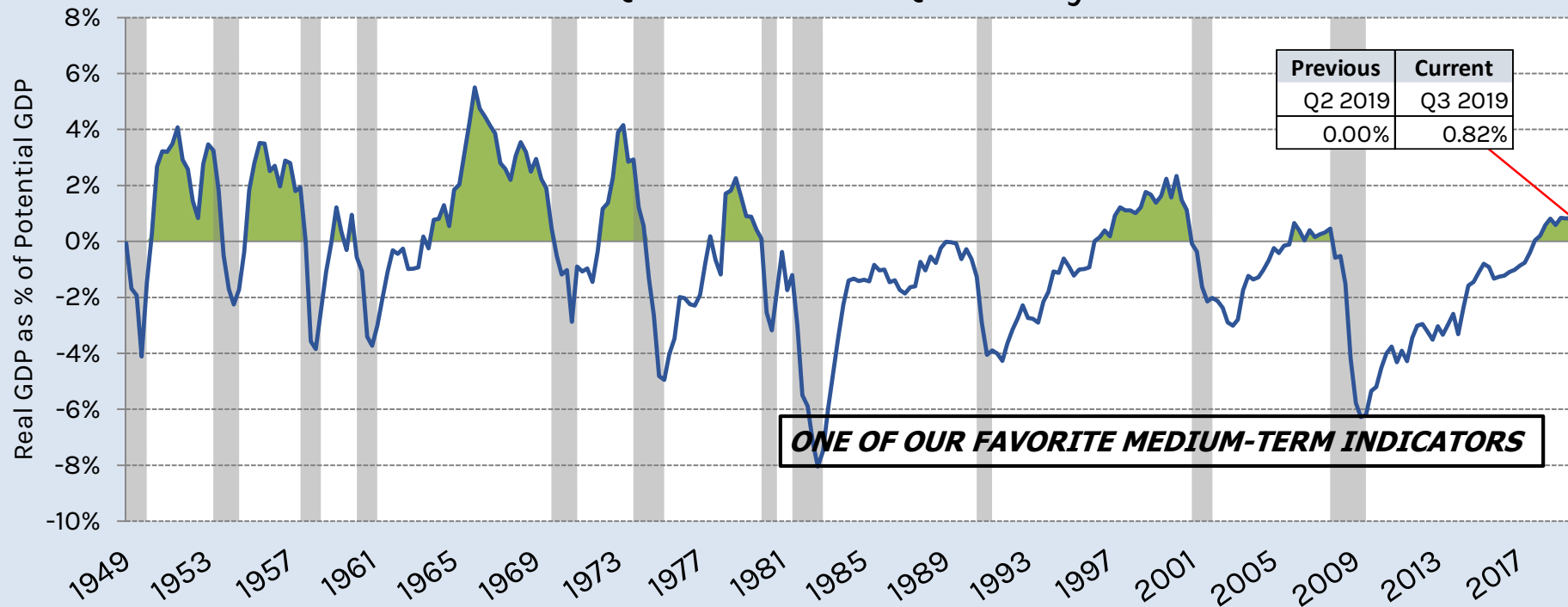
AND HERE'S NUMBER THREE

Advance Retail Sales Ex Food Services 1960-Oct 2019, SAAR, Monthly, % YoY



CHECK OUT “GDP GAP” FOR PERSPECTIVE

Real GDP Gap* as % of Real Potential GDP** 1949-Q3 2019, NSA, Quarterly



* Real GDP “Gap” = (Real GDP-Potential GDP)/Potential GDP

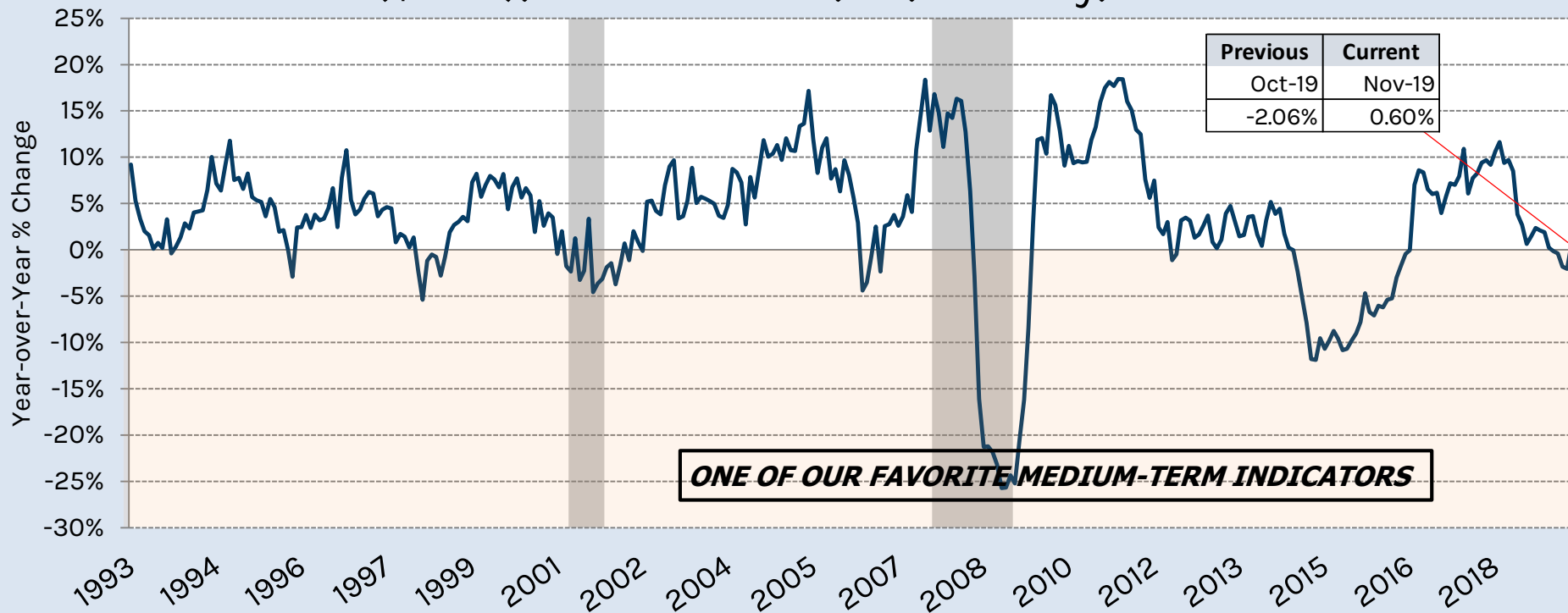
** Potential GDP is the CBO’s estimate of the output the economy would produce at the maximum sustainable use of its capital and labor resources.

SOURCE: BEA, Congressional Budget Office (2019)

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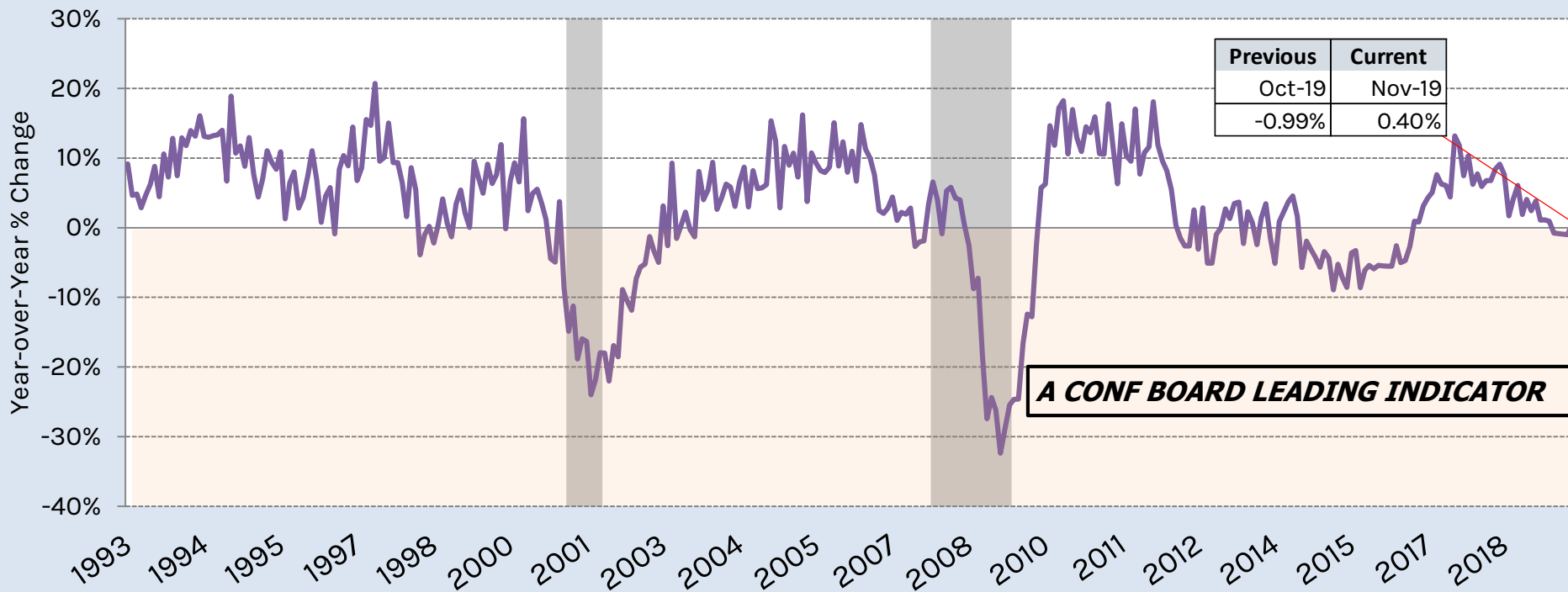
FACTORY ORDERS: A SIMPLE OLD CLASSIC

Manufacturers' New Orders for Consumer Goods (\$ mil.), 1992-Nov 2019, SA, Monthly, % YoY



FACTORY ORDERS: CONF BOARD FAVORITE #ONE

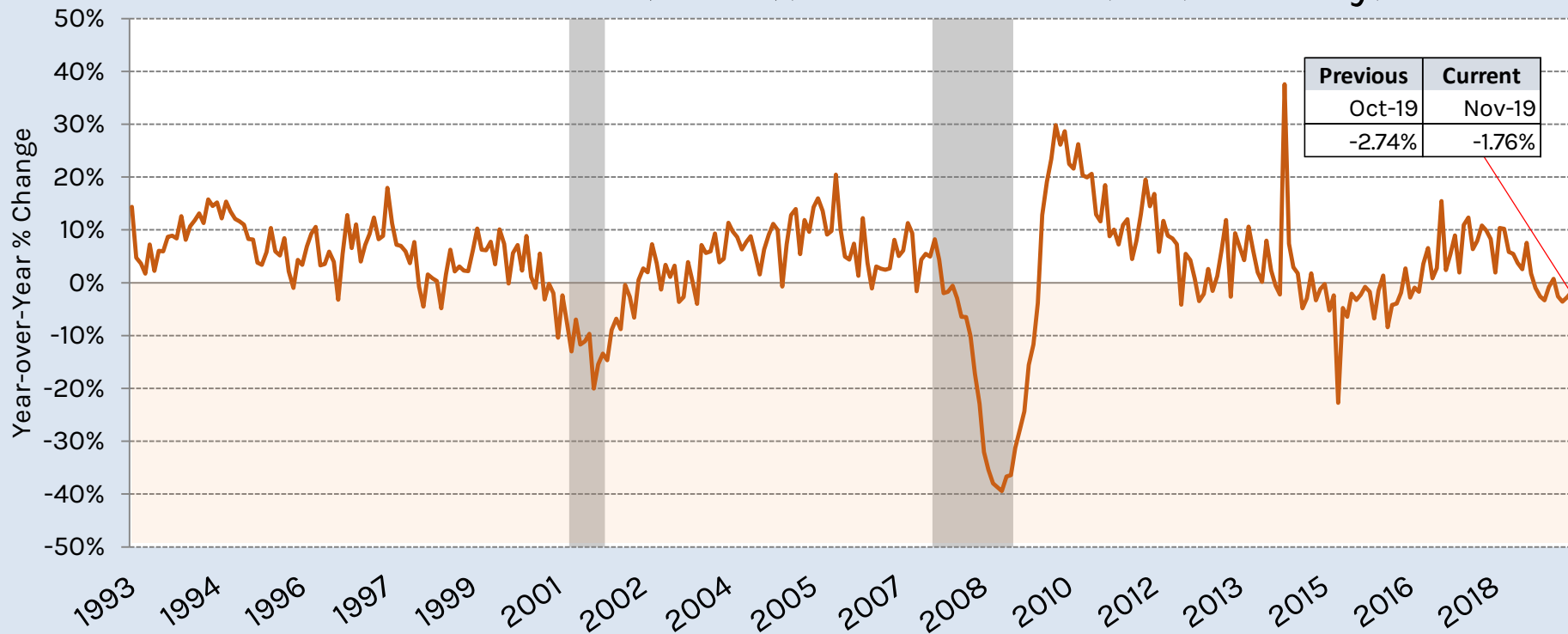
Manufacturers' New Orders: Nondefense Capital Goods Excluding Aircraft (\$ mil.), 1992-Nov 2019, SA, Monthly, % YoY



FACTORY ORDERS: CONF BOARD FAVORITE #2

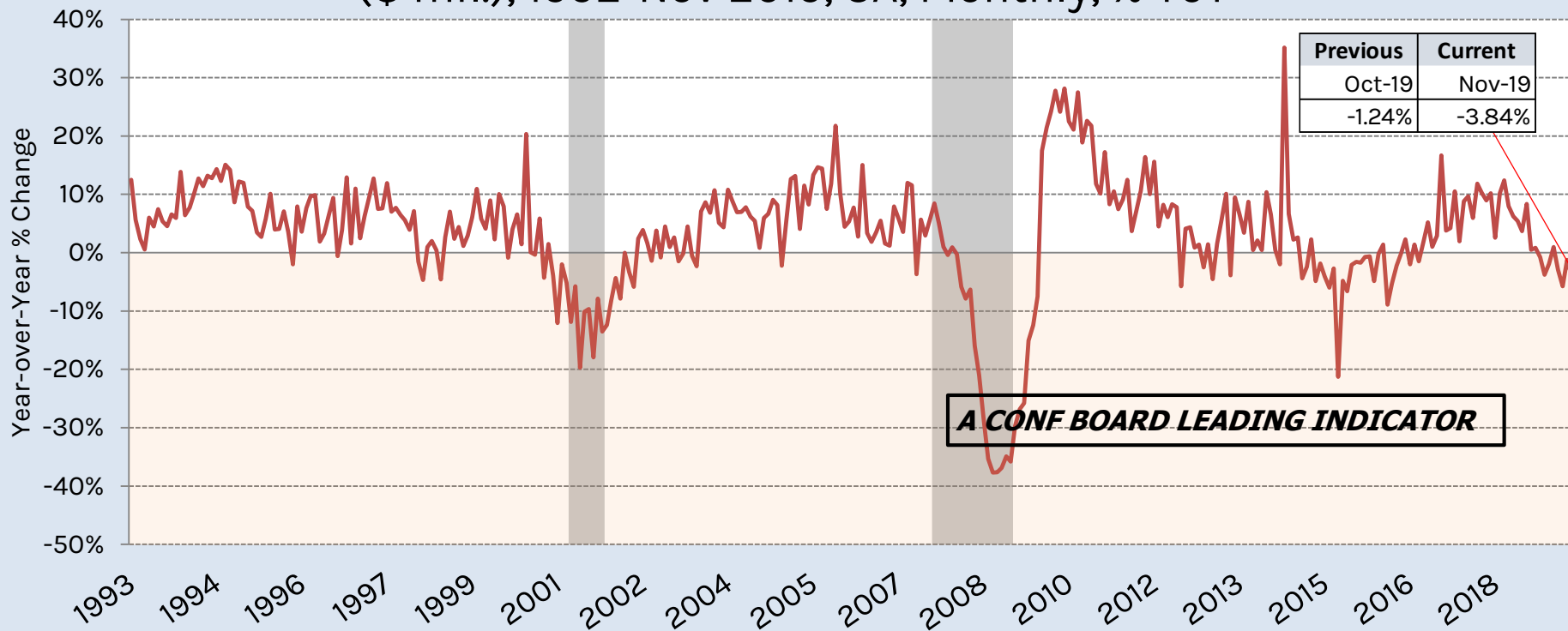
Manufacturers' New Orders for Durable Goods:

Durable Goods Ex. Defense (\$ mil.), 1992-Nov 2019, SA, Monthly, % YoY



FACTORY ORDERS: OUR OWN FAVORITE

Manufacturers' New Orders: Durable Goods (\$ mil.), 1992-Nov 2019, SA, Monthly, % YoY



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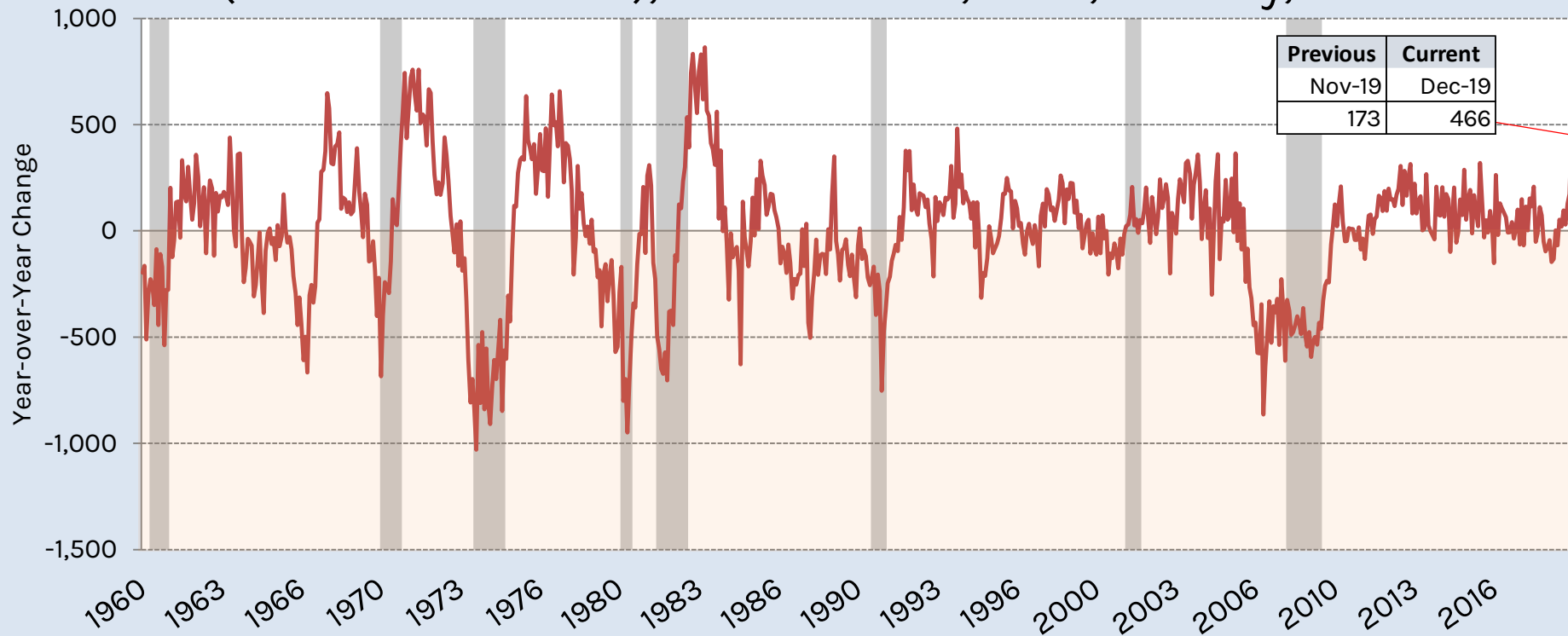
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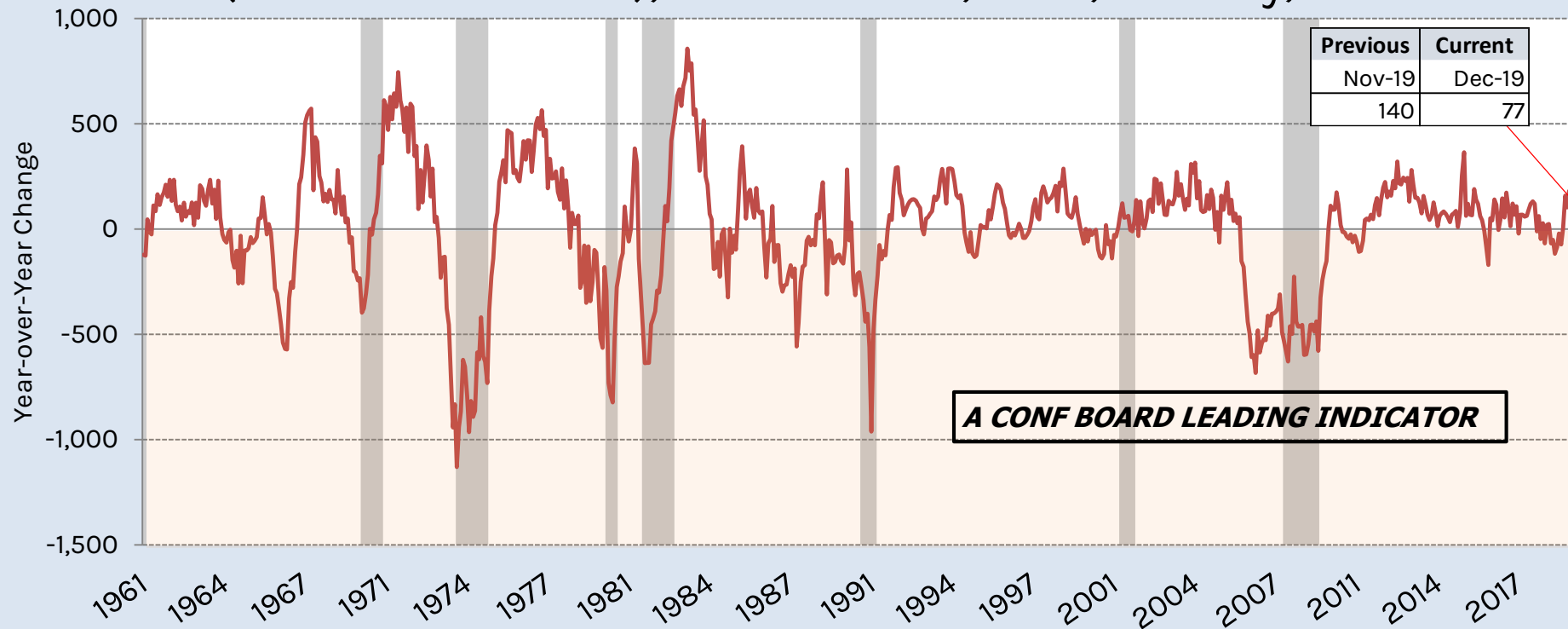
HOUSING STARTS: WEAK BUT STILL POSITIVE DELTA

Housing Starts, New Private Units
(thousands of units), 1959-Dec 2019, SAAR, monthly, YoY



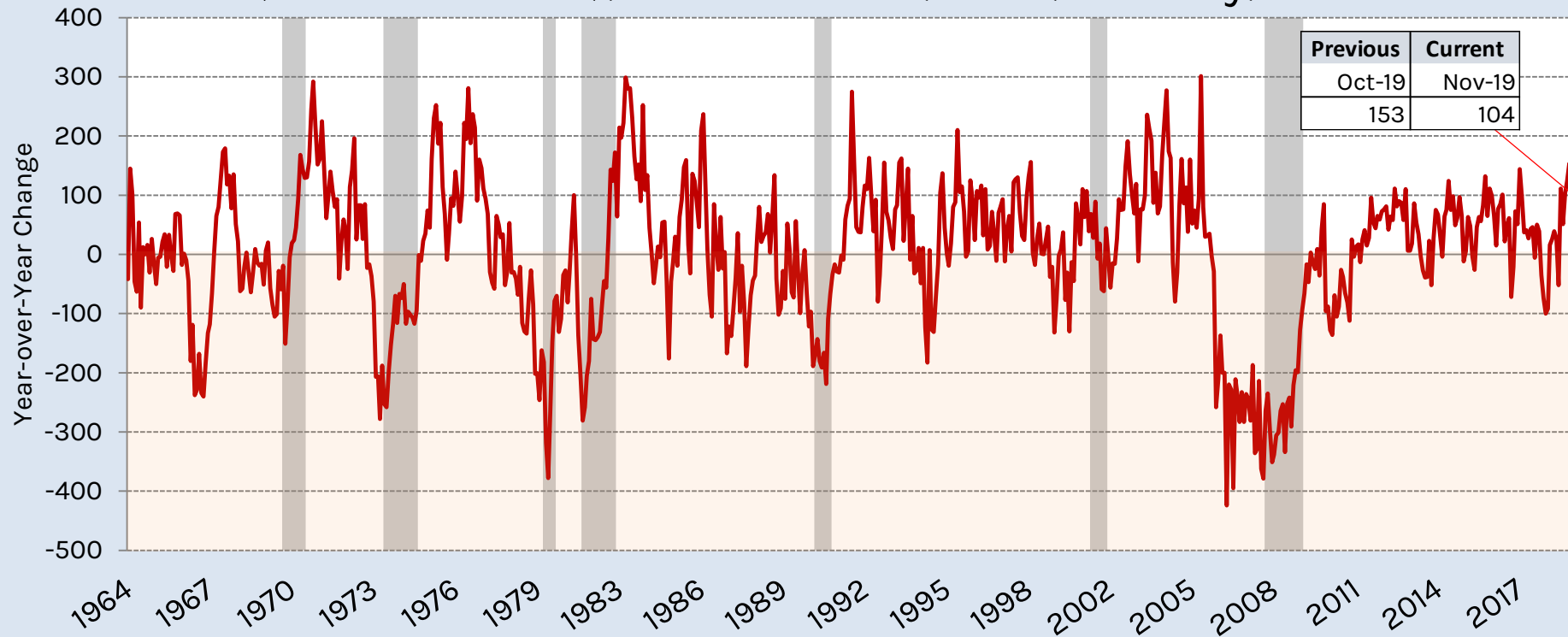
HOUSING PERMITS: RECENT SURGE

Housing Permits, New Authorized
(thousands of units), 1960-Dec 2019, SAAR, monthly, YoY



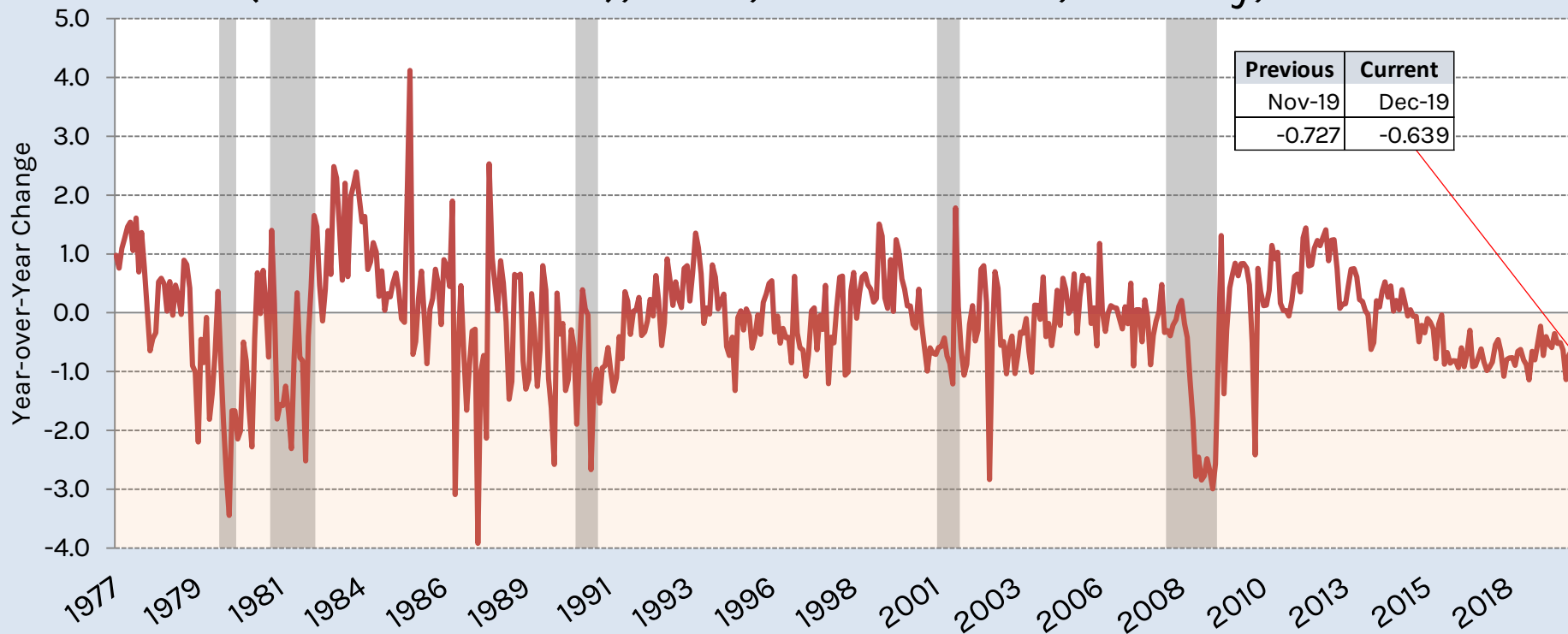
HOUSING SALES: RECENT SURGE

New One Family Houses Sold (thousand units), 1963-Nov 2019, SAAR, monthly, YoY



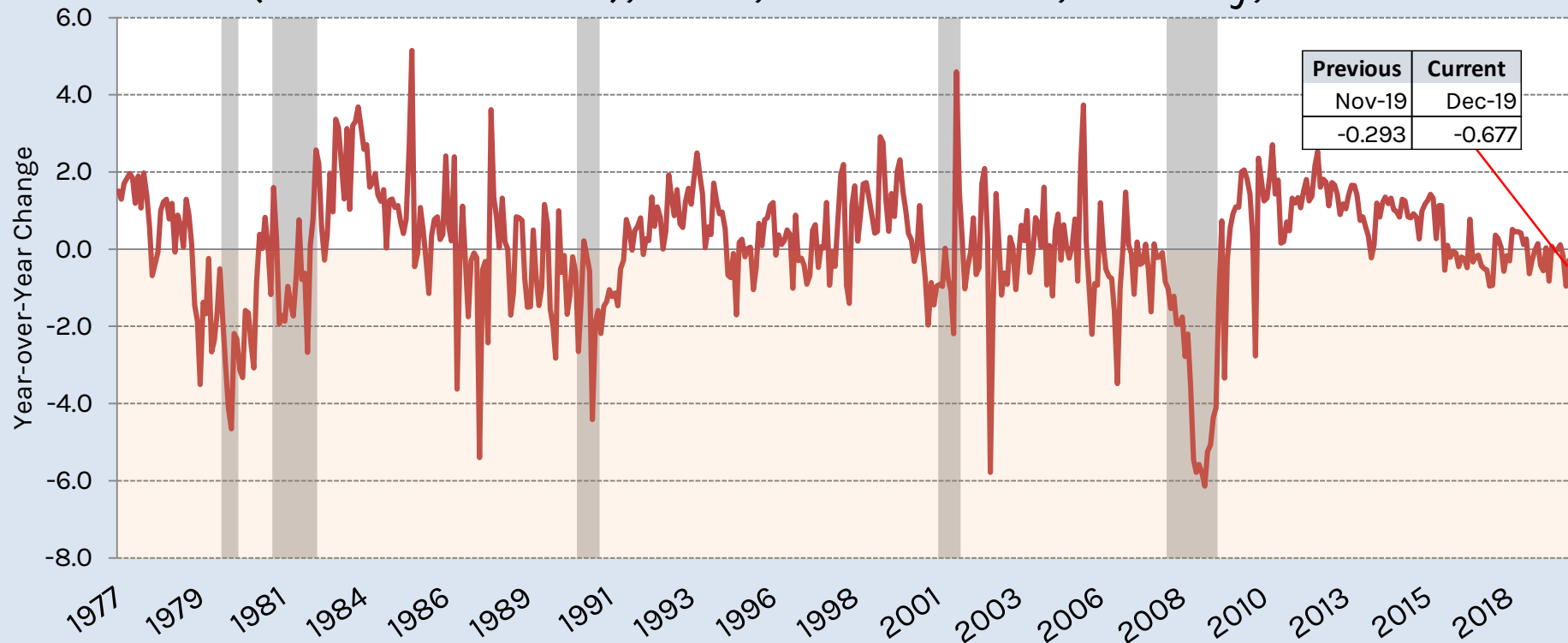
AUTOS: CONTINUOUS NEGATIVE DELTAS...

Motor Vehicle Retail Sales: Domestic and Foreign Autos (millions of units), SAAR, 1976-Dec 2019, monthly, YoY



EVEN INCLUDING PICKUPS

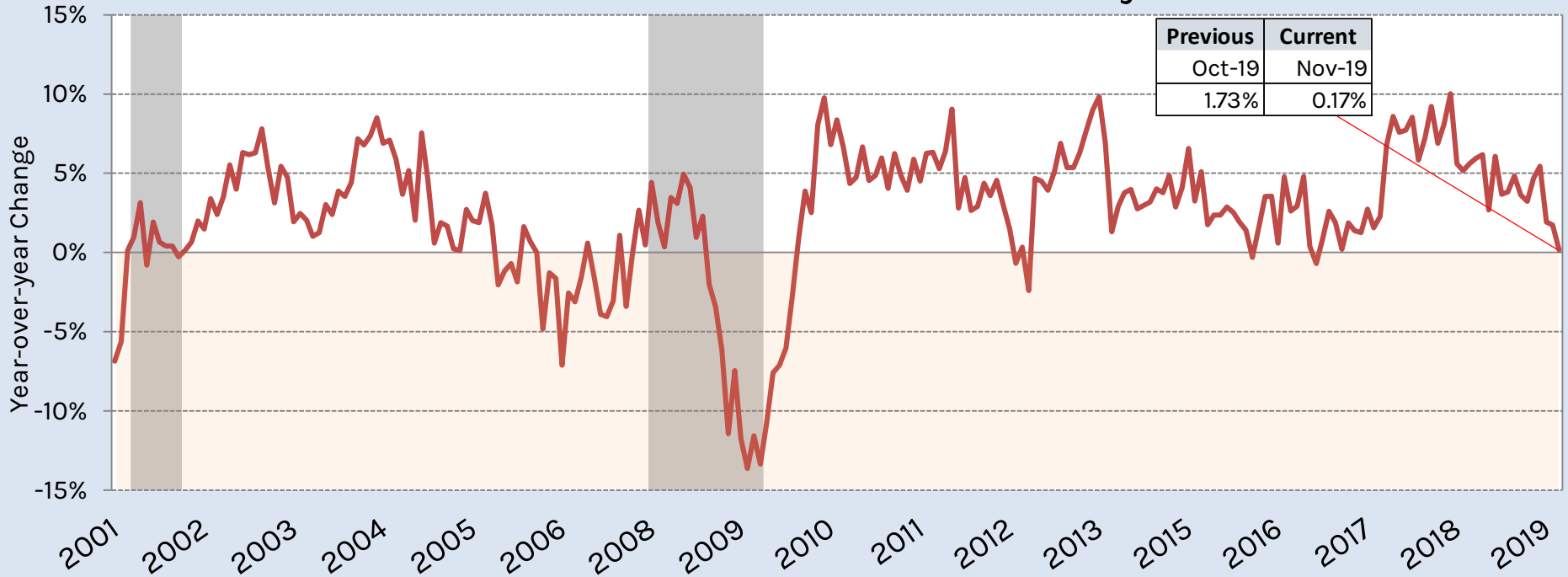
Light-Weight Vehicle Sales: Autos and Light Trucks (millions of units), SAAR, 1977-Dec 2019, monthly, YoY



TRANSPORT: TRUCK TRAFFIC NOW FALLING

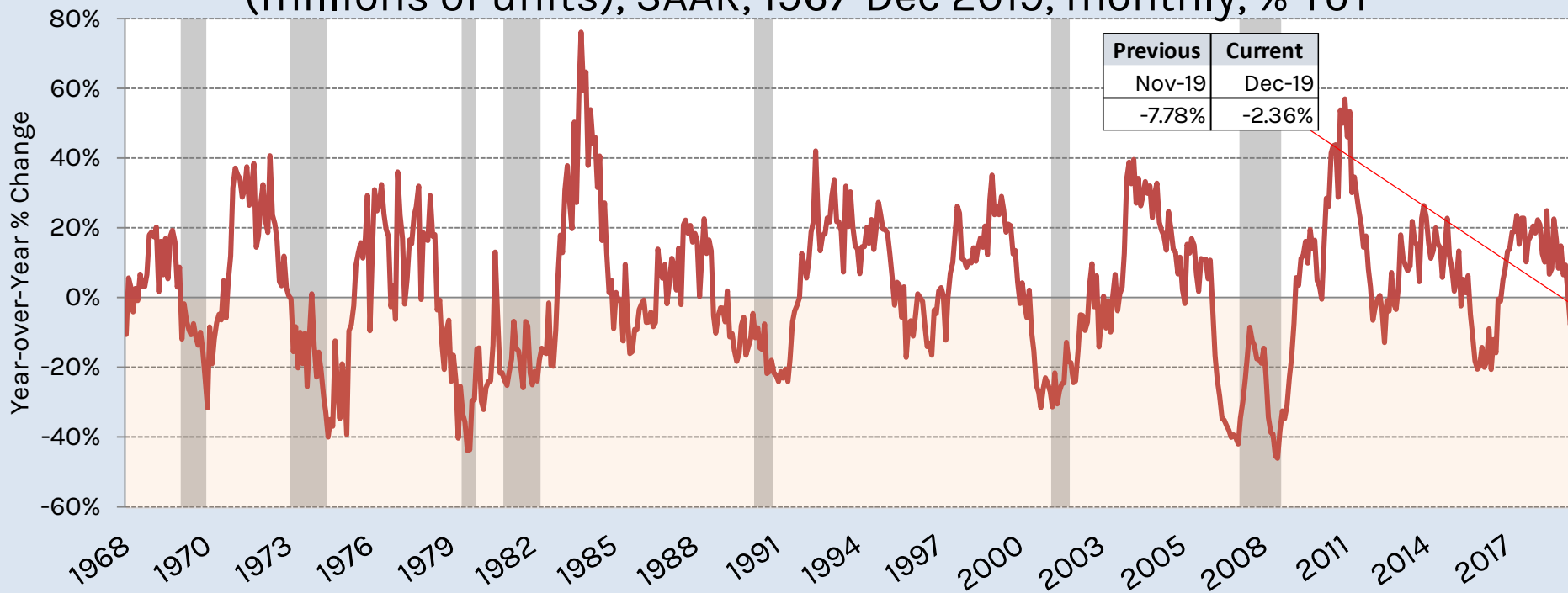
Truck Tonnage Index

2015=100, SAAR, 2000-Nov 2019, monthly, % YoY



TRANSPORT: BIG TRUCK SALES FALLING BACK DOWN

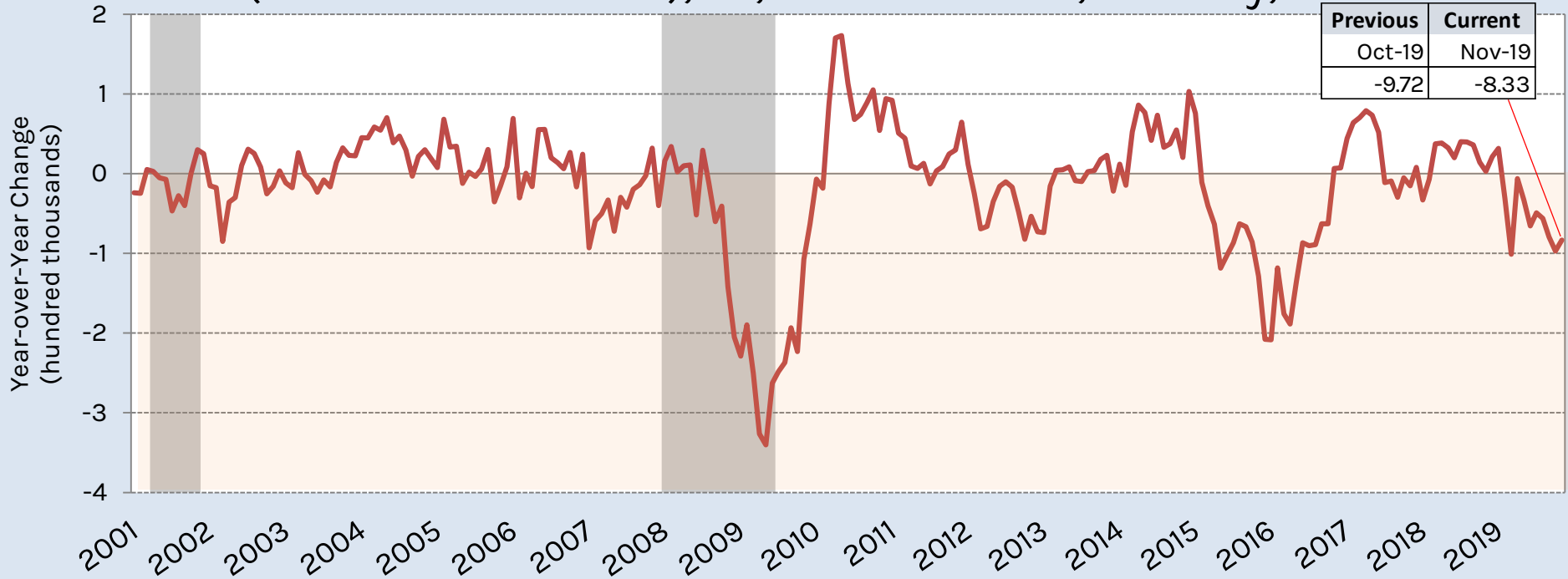
Motor Vehicle Retail Sales: Heavy Weight Trucks (millions of units), SAAR, 1967-Dec 2019, monthly, % YoY



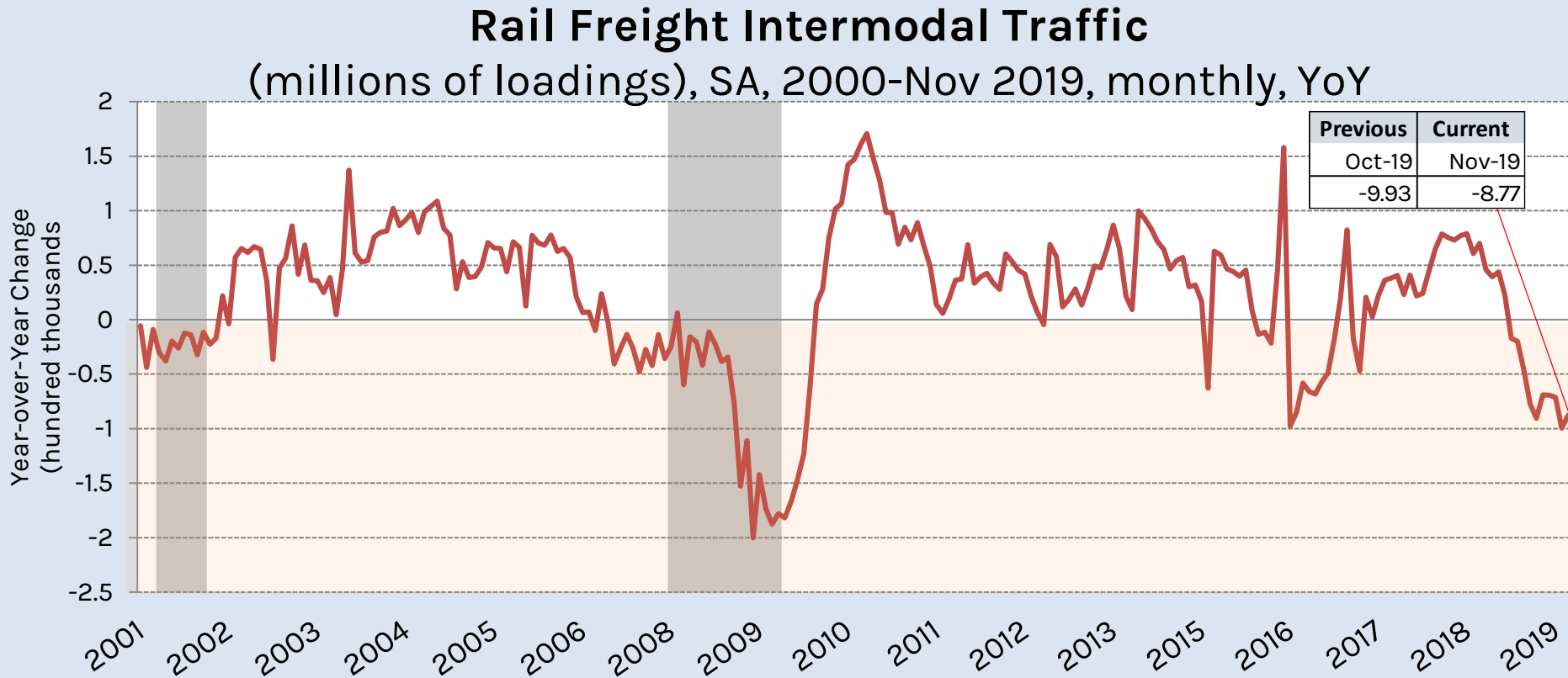
TRANSPORT: RAIL NOW DECLINING...

Rail Freight Carloads

(millions of carloads), SA, 2000-Nov 2019, monthly, YoY

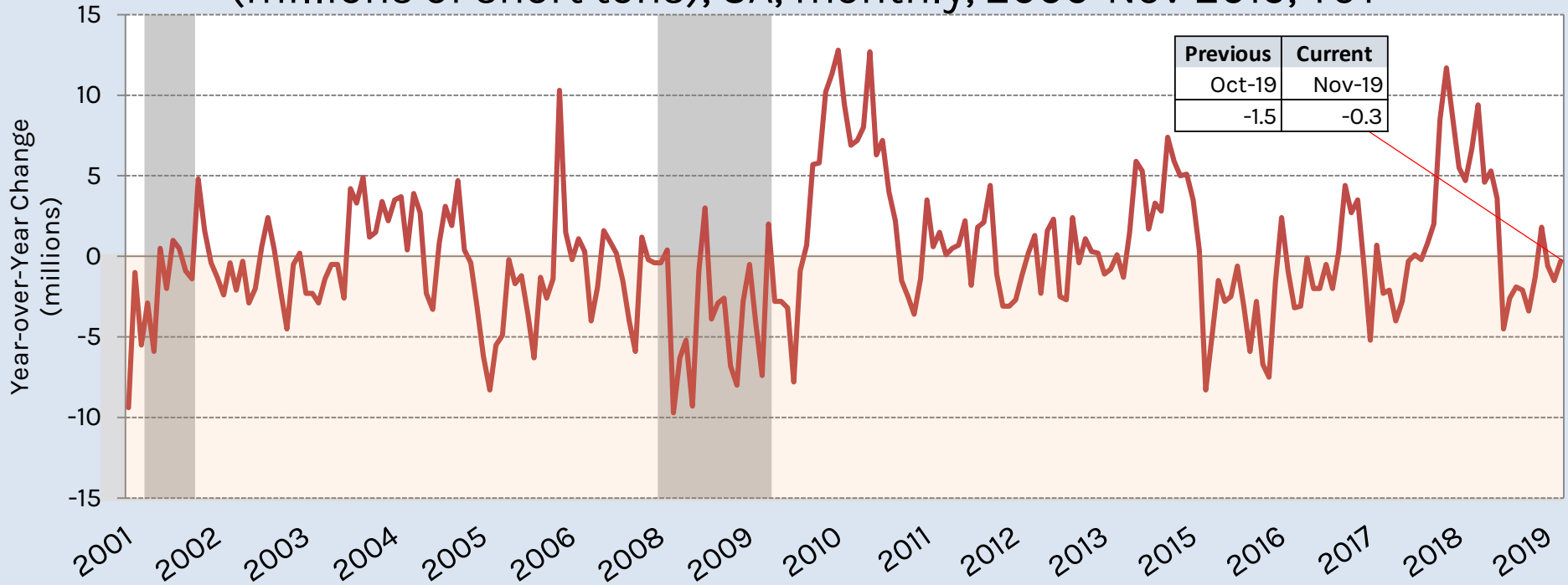


... INTERMODAL “PARTS” DELIVERY, ESPECIALLY



TRANSPORT: BARGES, SAME STORY (DOWN AFTER 2018)

Tonnage for Internal U.S. Waterways
(millions of short tons), SA, monthly, 2000-Nov 2019, YoY



A “CRASH” COURSE IN RECESSION INDICATORS

❑ What Is a Recession?

❑ Properties of Good Recession Indicators

❑ INDICATORS

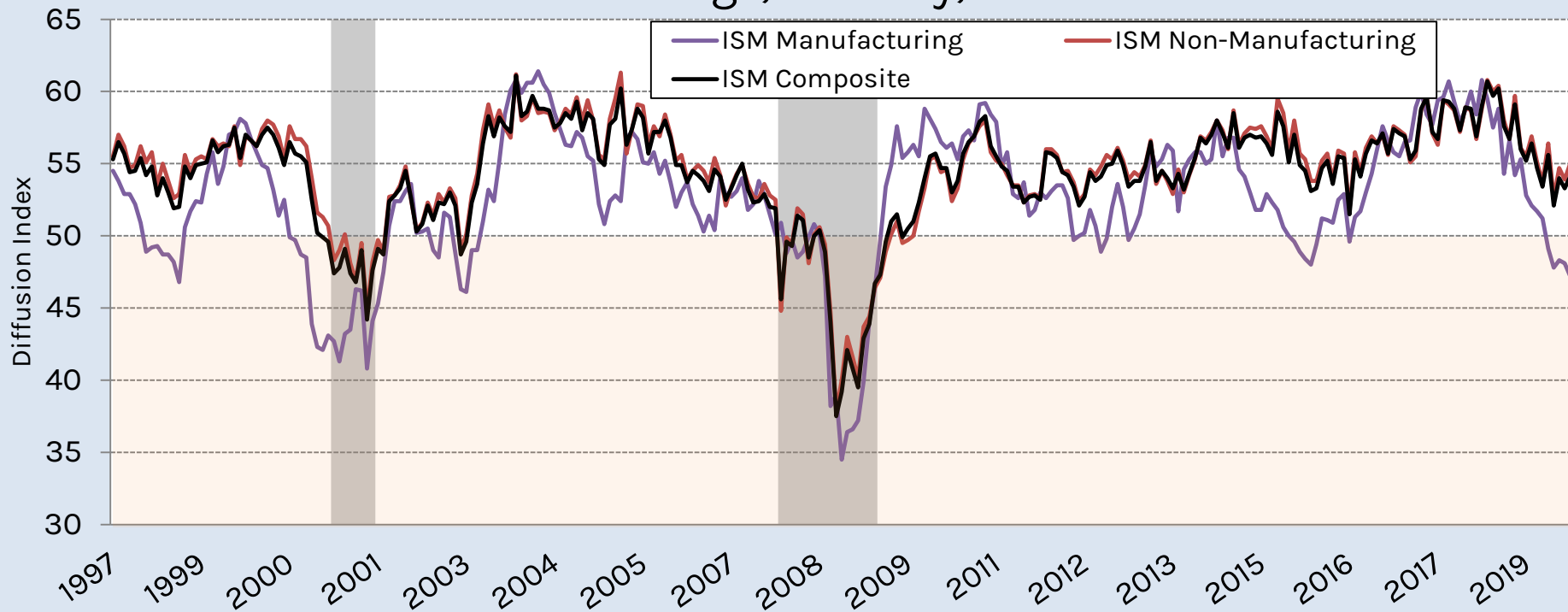
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ISM NOW DOES “COMPOSITE” INDEX

ISM PMIs*: Composite, Manf, & Non-Manf Index: 50=no change, monthly, 1997-Dec 2019

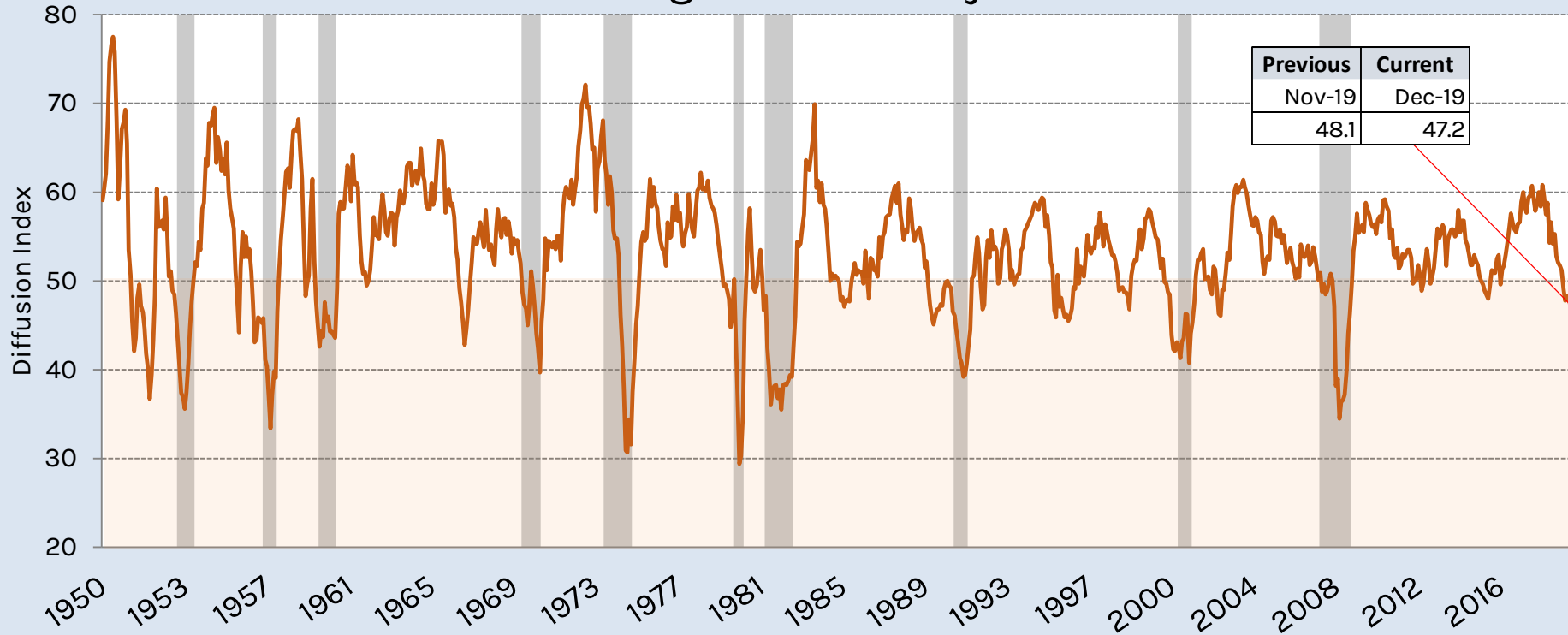


* PMI = Purchasing Managers Index. Manf PMI is SA. Non-Manf PMI is NSA.

BUT ISM'S GOLDEN-OLDIE IS ITS MANF PMI

ISM Manufacturing PMI

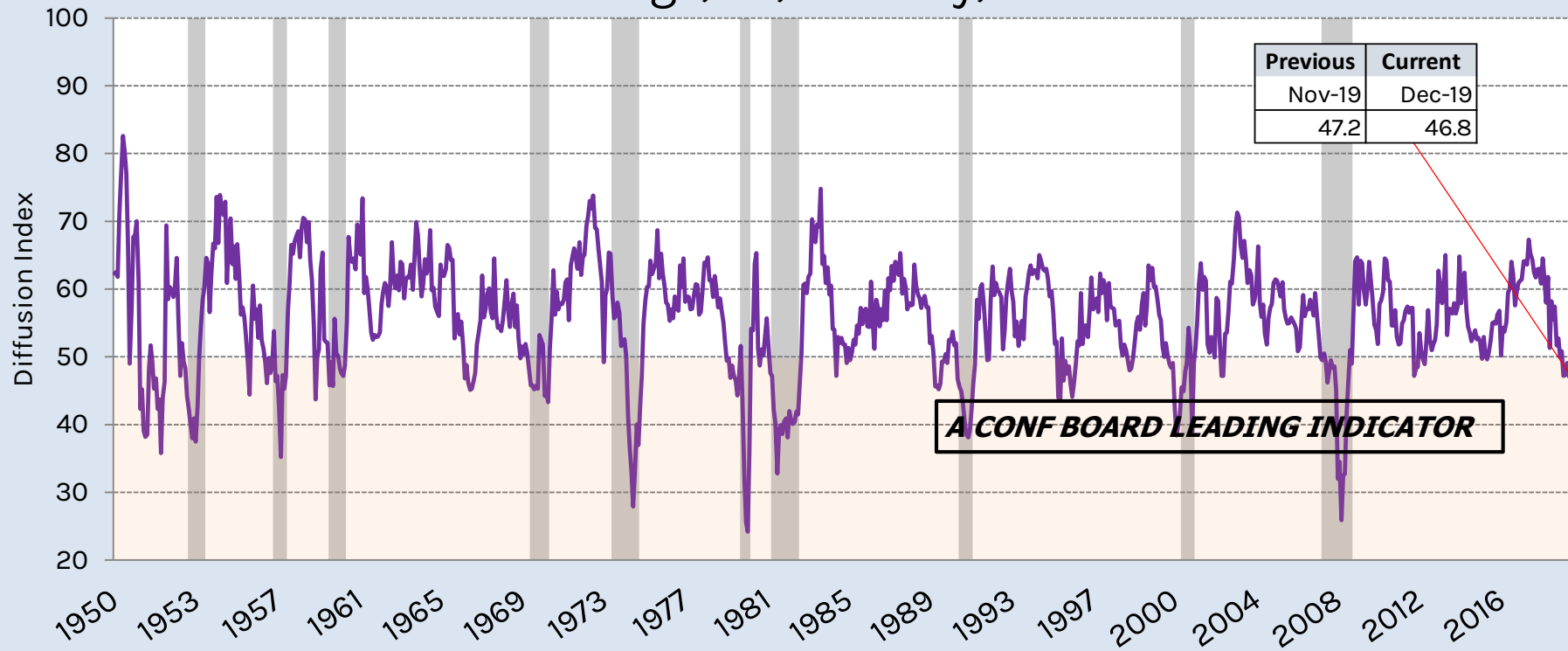
Index: 50=no change, SA, monthly, 1950-Dec 2019



ISM PMI, FORWARD-LOOKING SUBINDEXES: NEW ORDERS...

ISM Manufacturing PMI: Subindex, New Orders

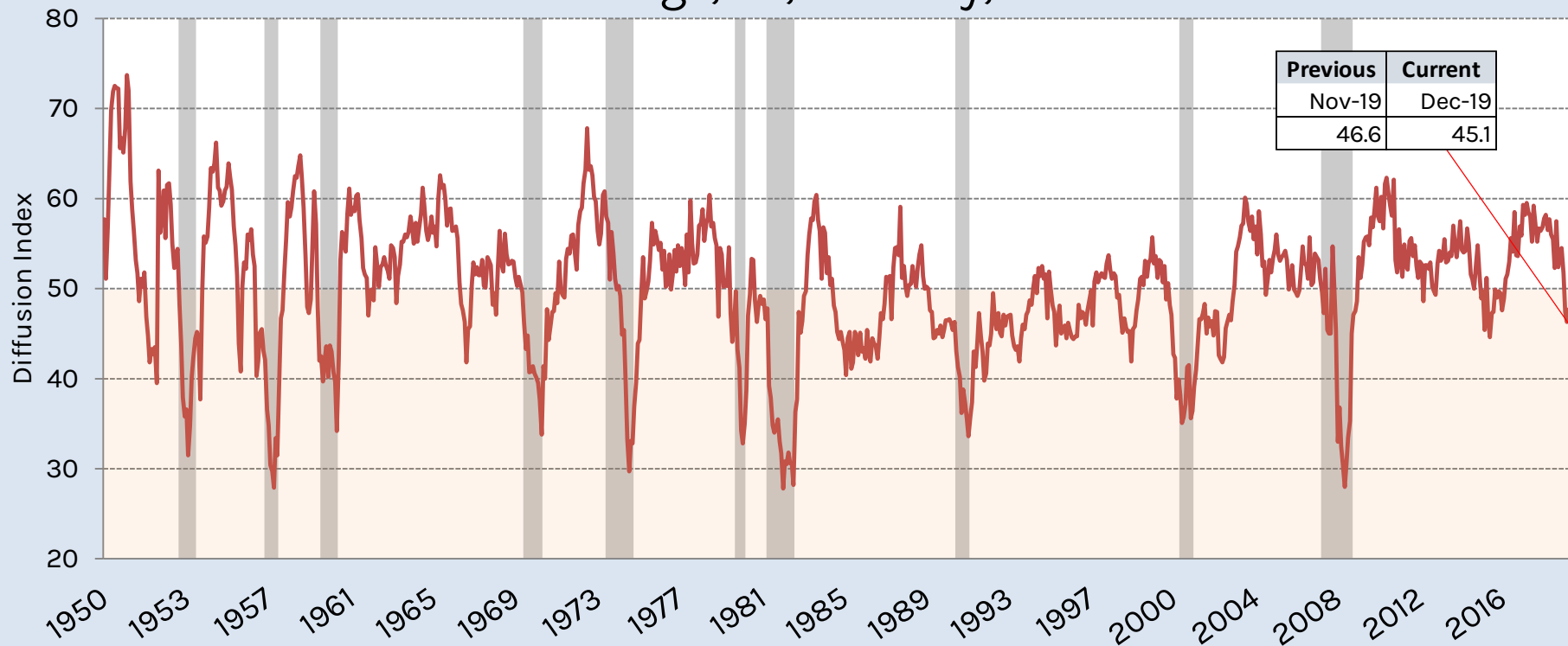
Index: 50=no change, SA, monthly, 1950-Dec 2019



& EMPLOYMENT...

ISM Manufacturing PMI: Subindex, Employment

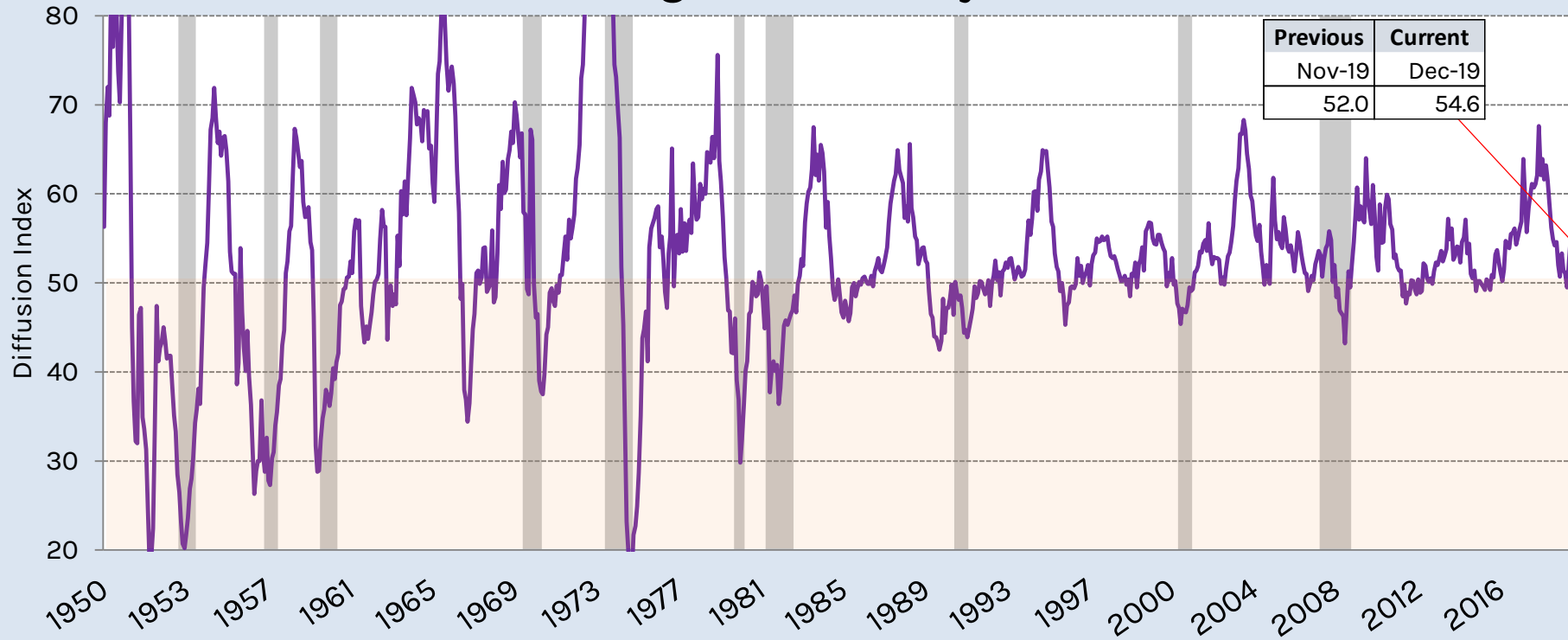
Index: 50=no change, SA, monthly, 1950-Dec 2019



& DELIVERY TIME (SLOW IN POSITIVE!)

ISM Manufacturing PMI: Subindex, Delivery Time

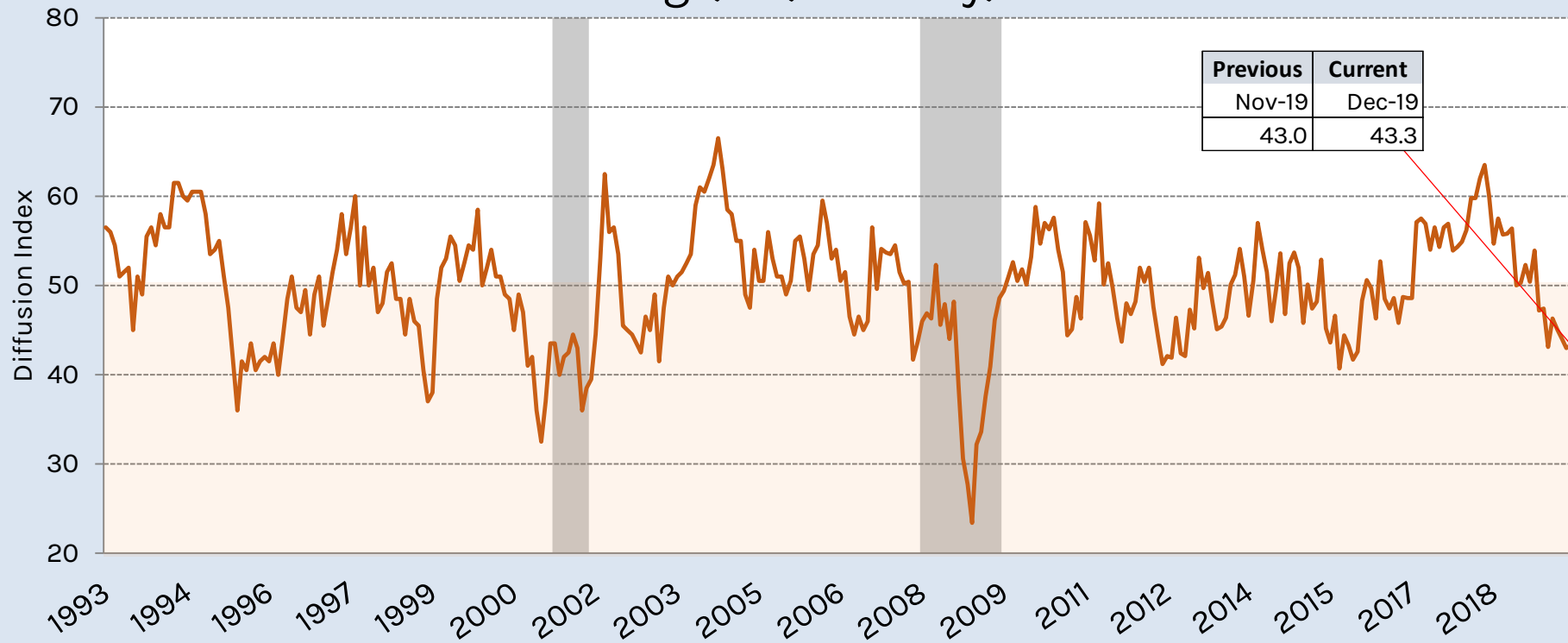
Index: 50=no change, SA, monthly, 1950-Dec 2019



& ORDER BACKLOG (BIG IS GOOD!)

ISM Manufacturing PMI: Subindex, Order Backlog

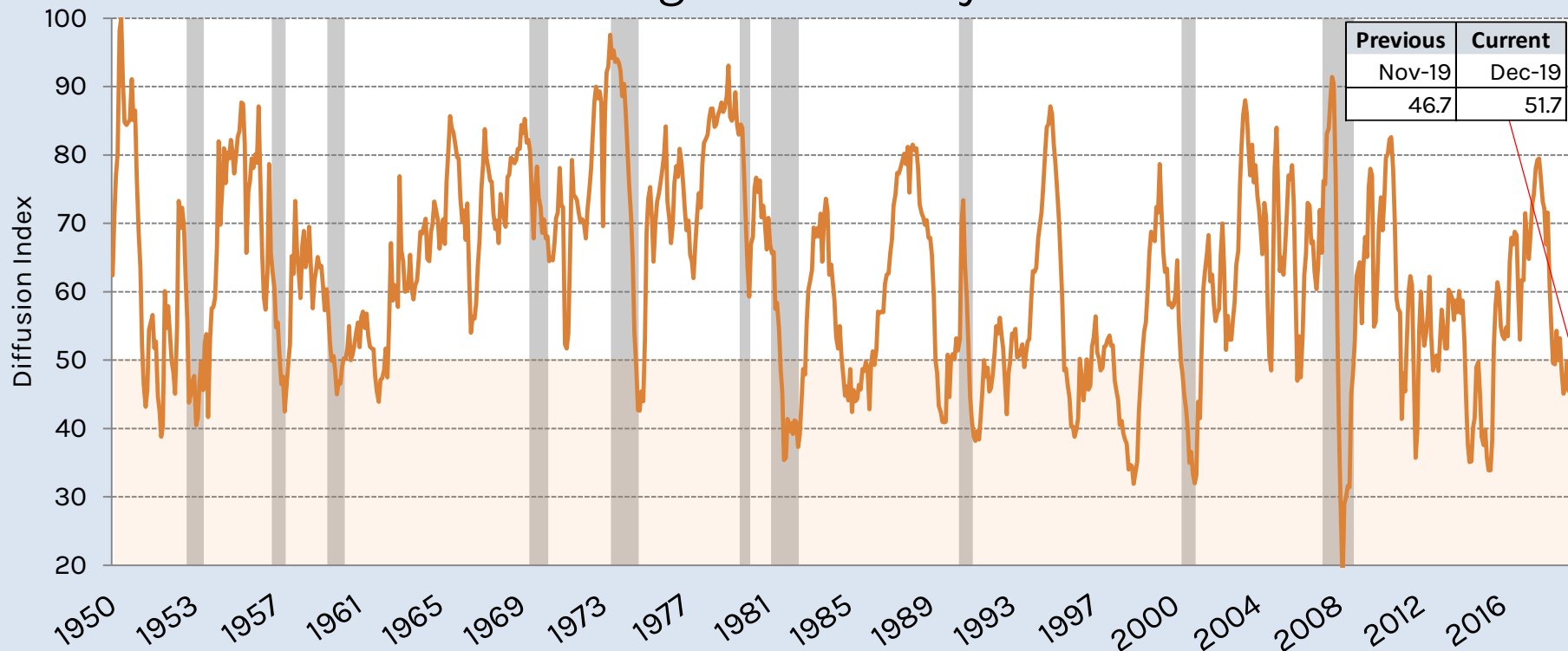
Index: 50=no change, SA, monthly, 1950-Dec 2019



& PRICES

ISM Manufacturing PMI: Subindex, Prices

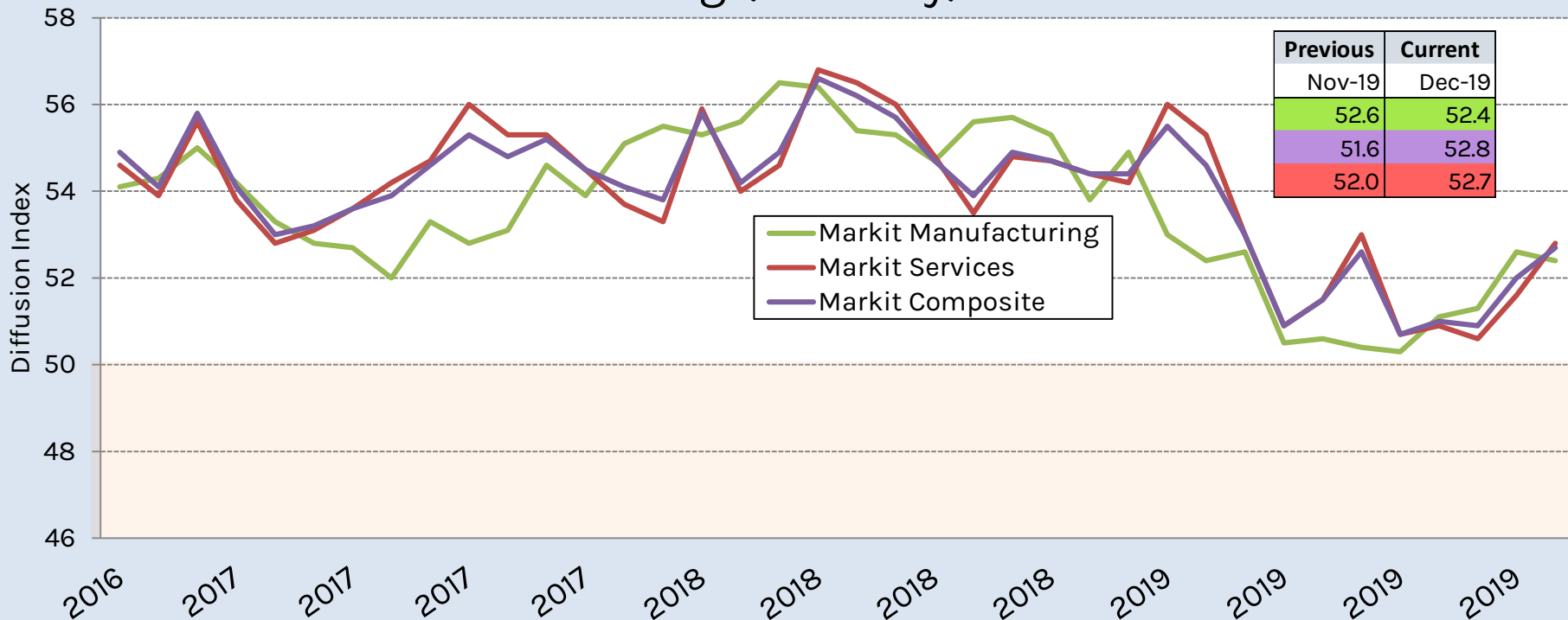
Index: 50=no change, SA, monthly, 1950-Dec 2019



MARKIT ALSO NOW HAS A U.S. PMI

Markit PMIs: Composite, Manf, & Services

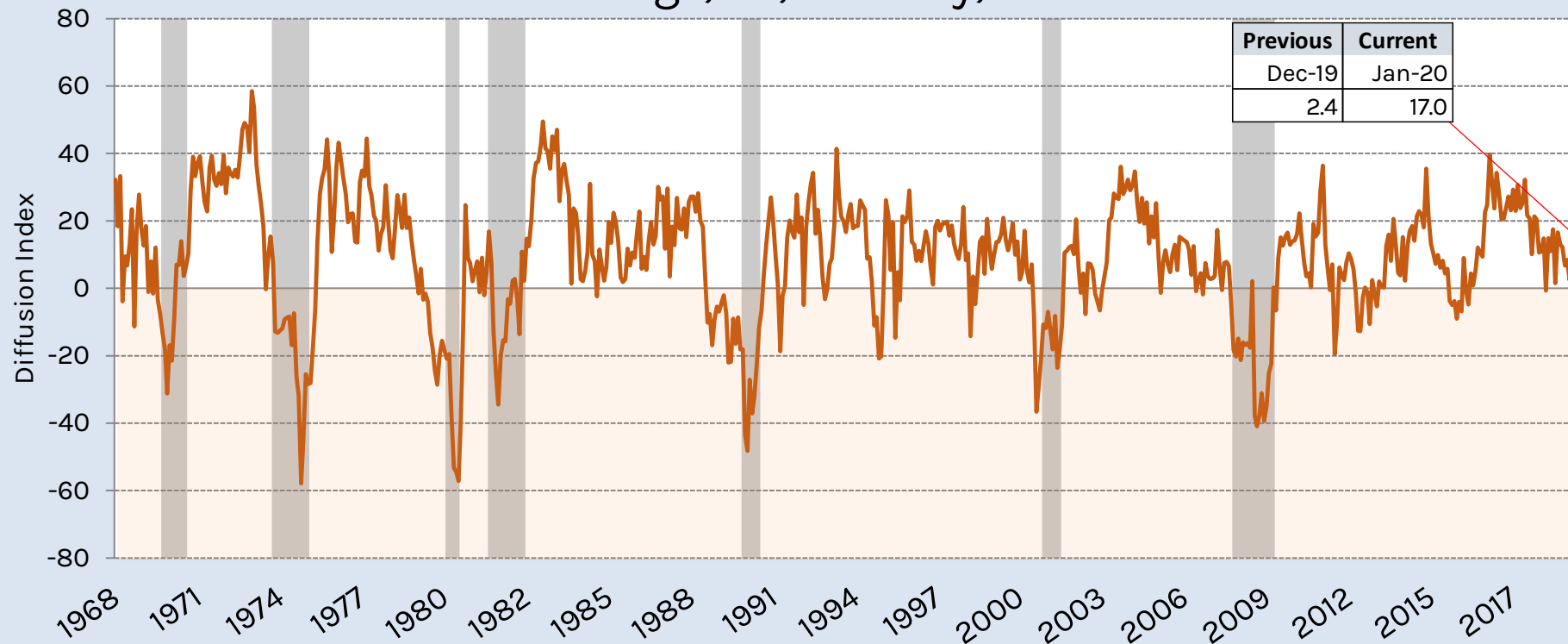
Index: 50=no change, monthly, 2016-Dec 2019



FIVE REGIONAL FED MANF DIFFUSION INDEXES: PHILLY...

Philadelphia Fed Regional Manf General Activity

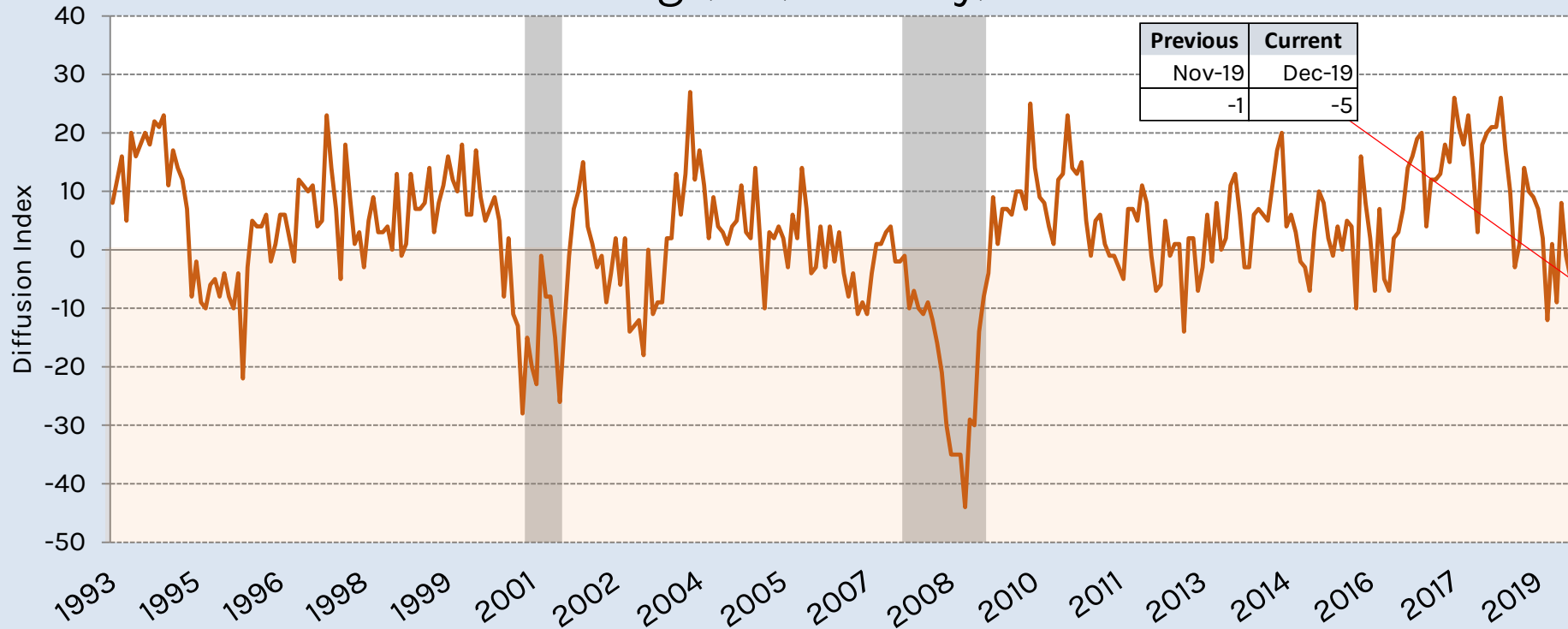
Index: 0=no change, SA, monthly, 1968-Jan 2019



& RICHMOND...

Richmond Fed Regional Manf General Conditions

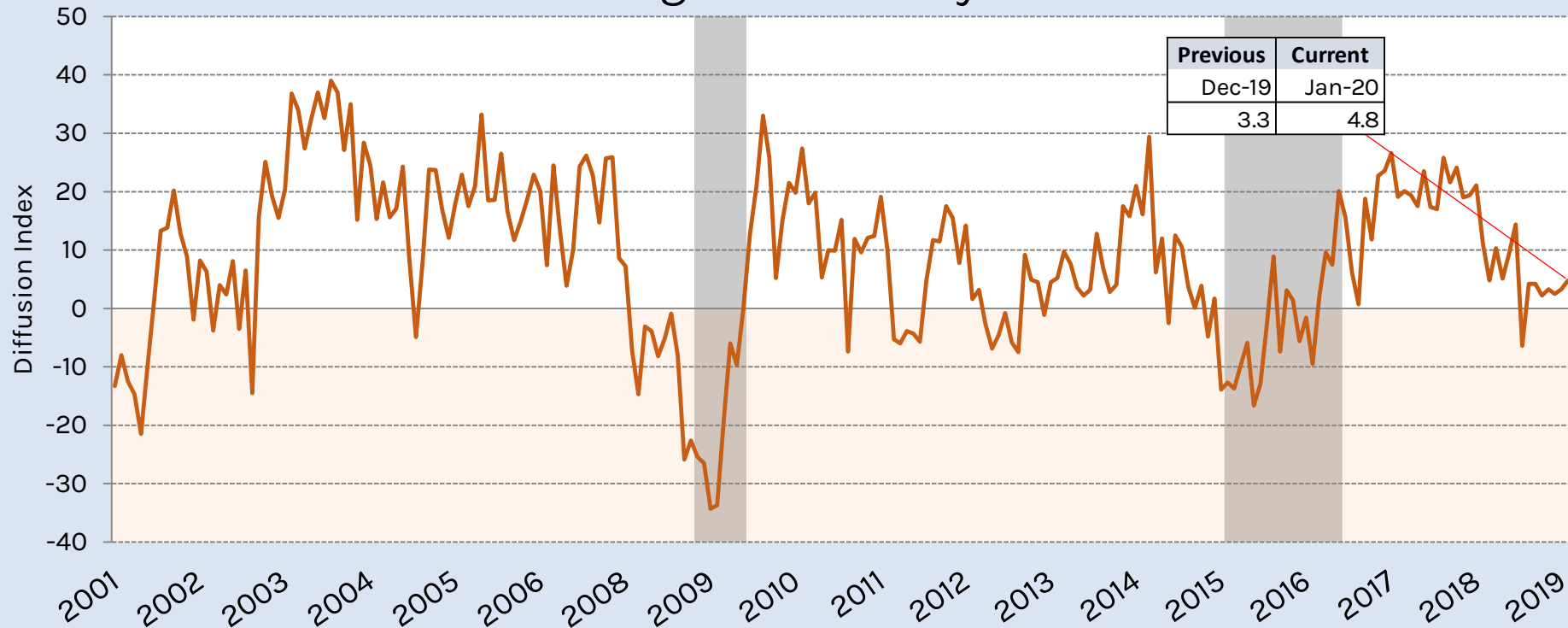
Index: 0=no change, SA, monthly, 1950-Dec 2019



& NEW YORK (“EMPIRE STATE”)...

New York Fed Regional Manf General Conditions

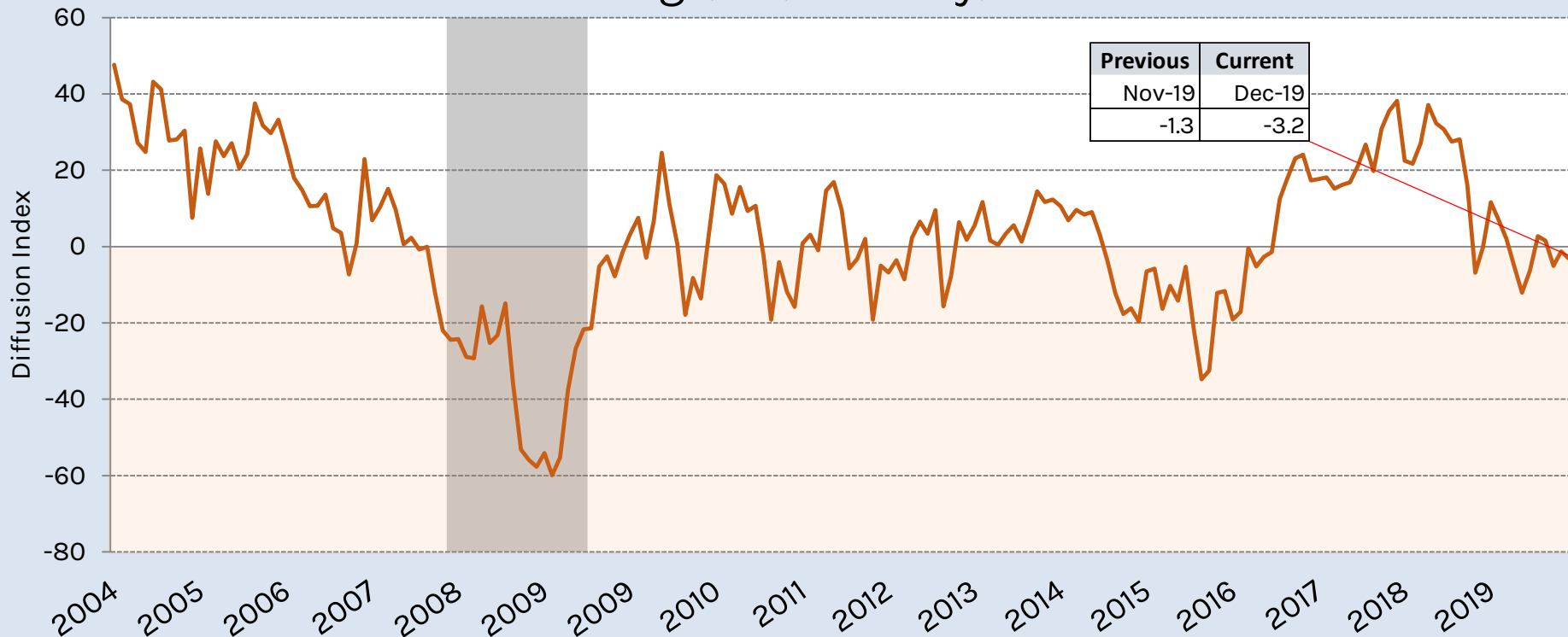
Index: 0=no change, SA, monthly, 1950-Jan 2019



& DALLAS...

Dallas Fed Regional Manf General Conditions

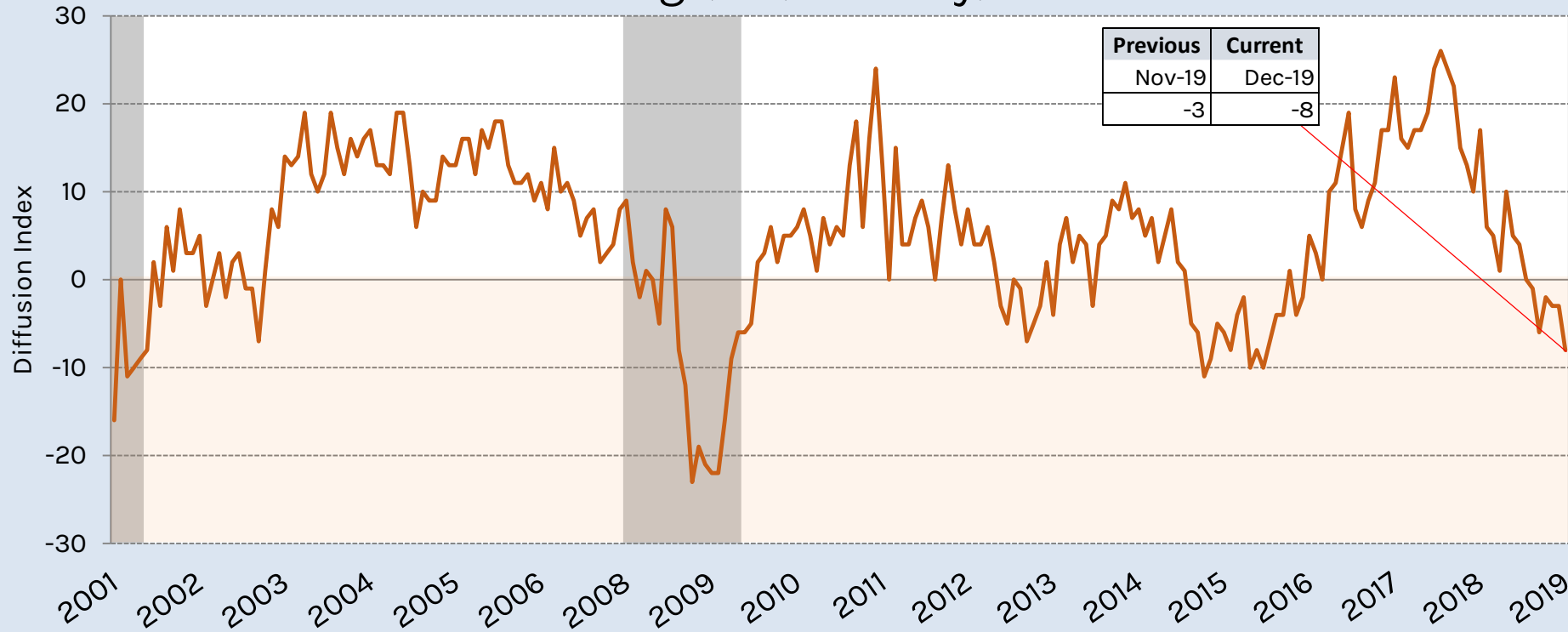
Index: 0=no change, SA, monthly, 1950-Dec 2019



& KANSAS CITY

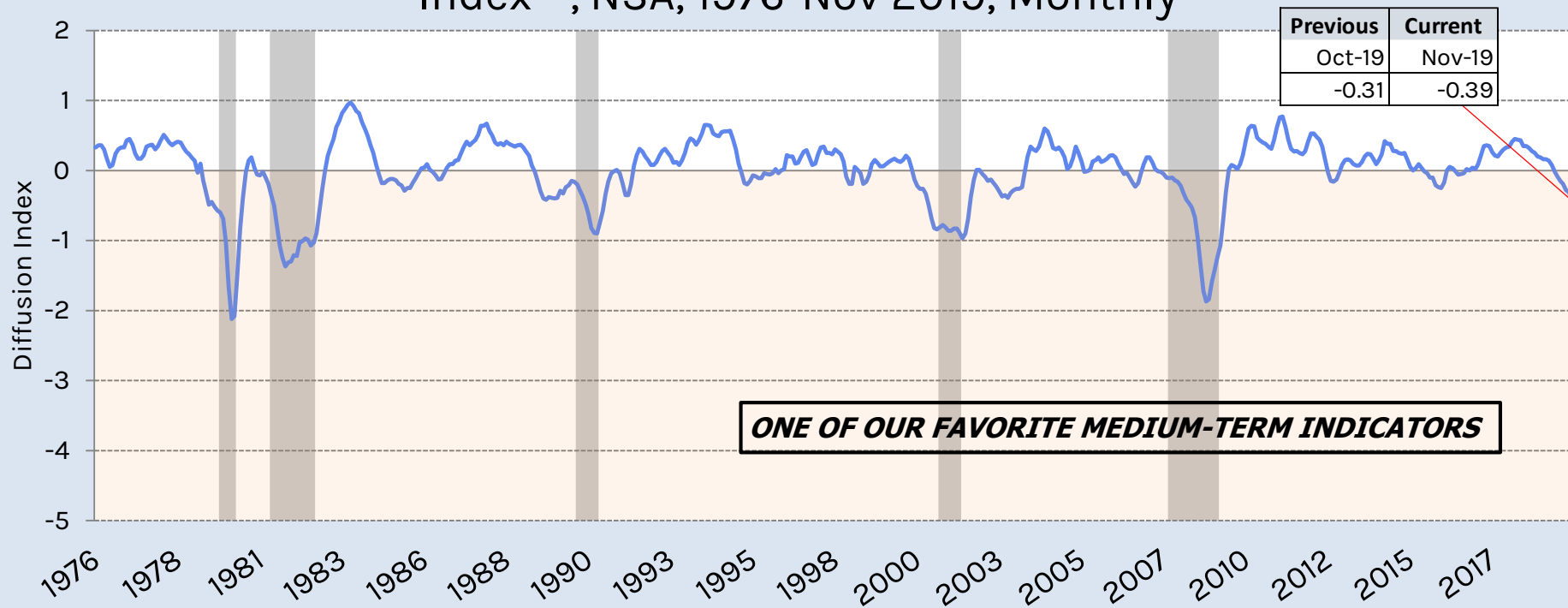
Kansas City Fed Regional Manf General Conditions

Index: 0=no change, SA, monthly, 1950-Dec 2019



CHICAGO FED HAS A BROADER REGIONAL INDEX

Chicago Fed Midwest Economy Index* Index**, NSA, 1976-Nov 2019, Monthly



* Monthly change in a principal-component index of change in 129 state and regional indicators of nonfarm economic activity in the five 7th District states.

** Index: 0.0 = economic growth at long-term historical trend.

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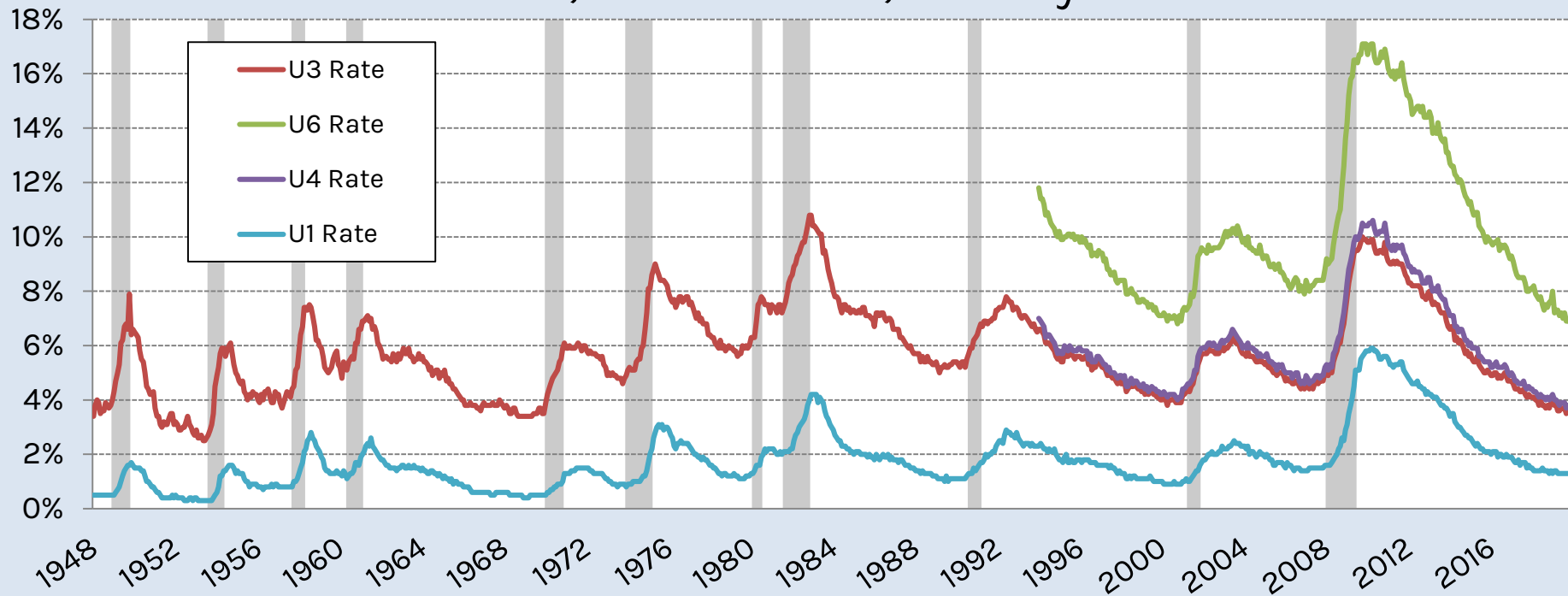
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UNEMPLOYMENT: LAGGING, BUT GREAT PERSPECTIVE

Unemployment Rate (Various Measures*)

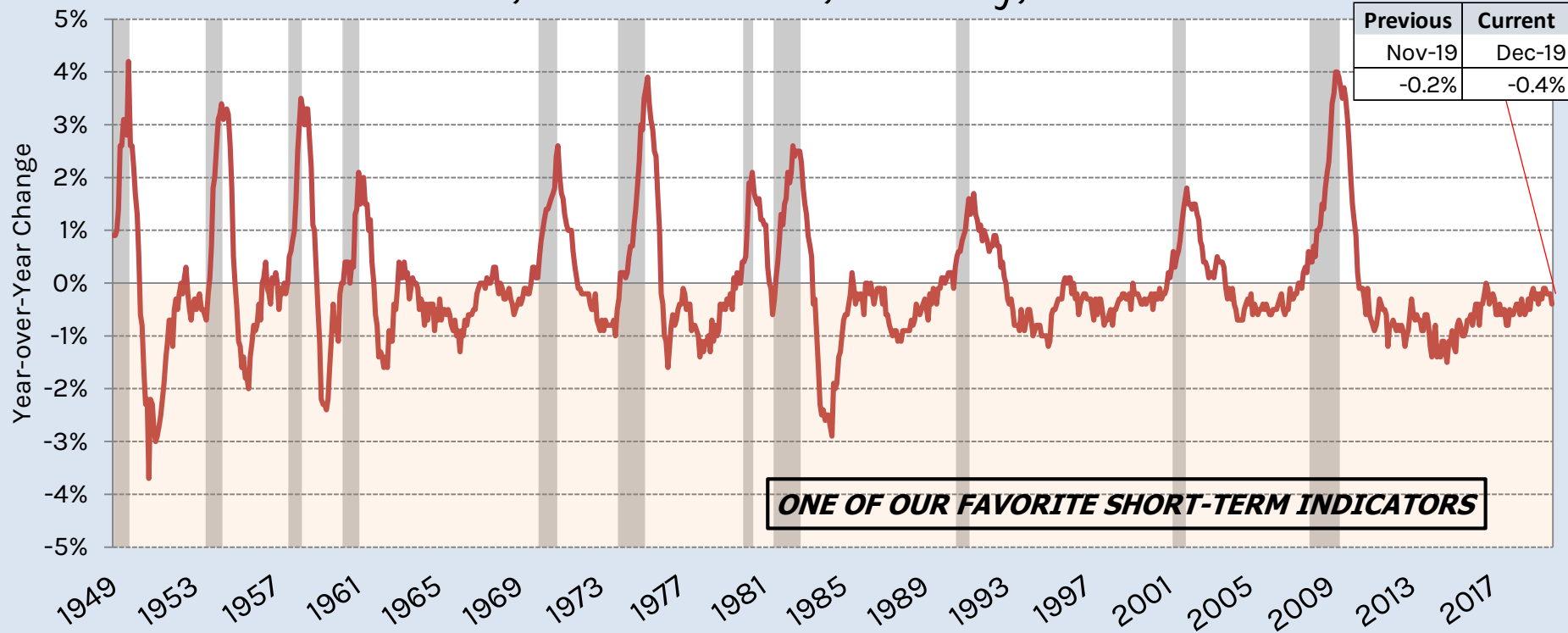
SA, 1948-Dec 2019, monthly



* U3 = Conventional UR. U1 = U3 minus unemployed < 15 weeks. U4 = U3 + marginally attached workers. U6 = U4 + discouraged workers + employed part-time for economic reasons.

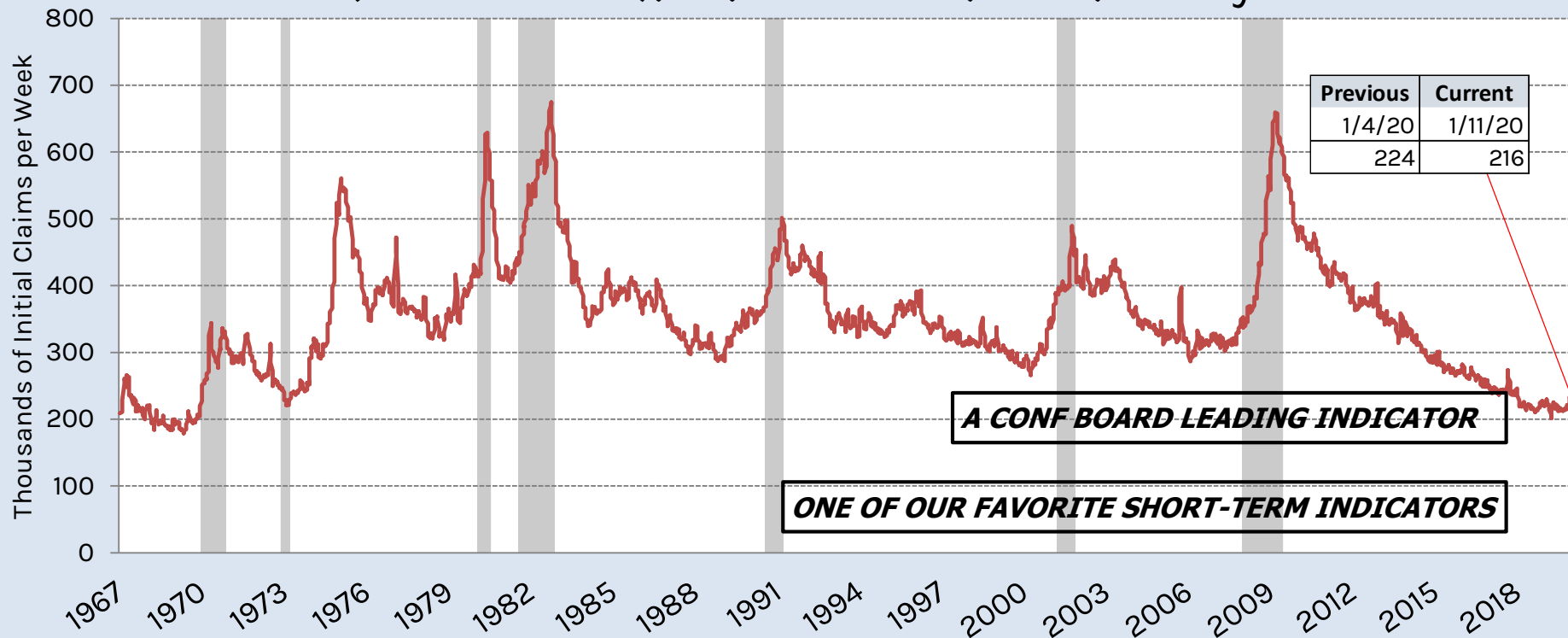
UNEMP DELTA OFFERS BOTH PERSPECTIVE & FORESIGHT

Unemployment Rate (U3) SA, 1948-Dec 2019, monthly, YoY



UNEMP CLAIMS: POPULAR RECESSION TRIPWIRE

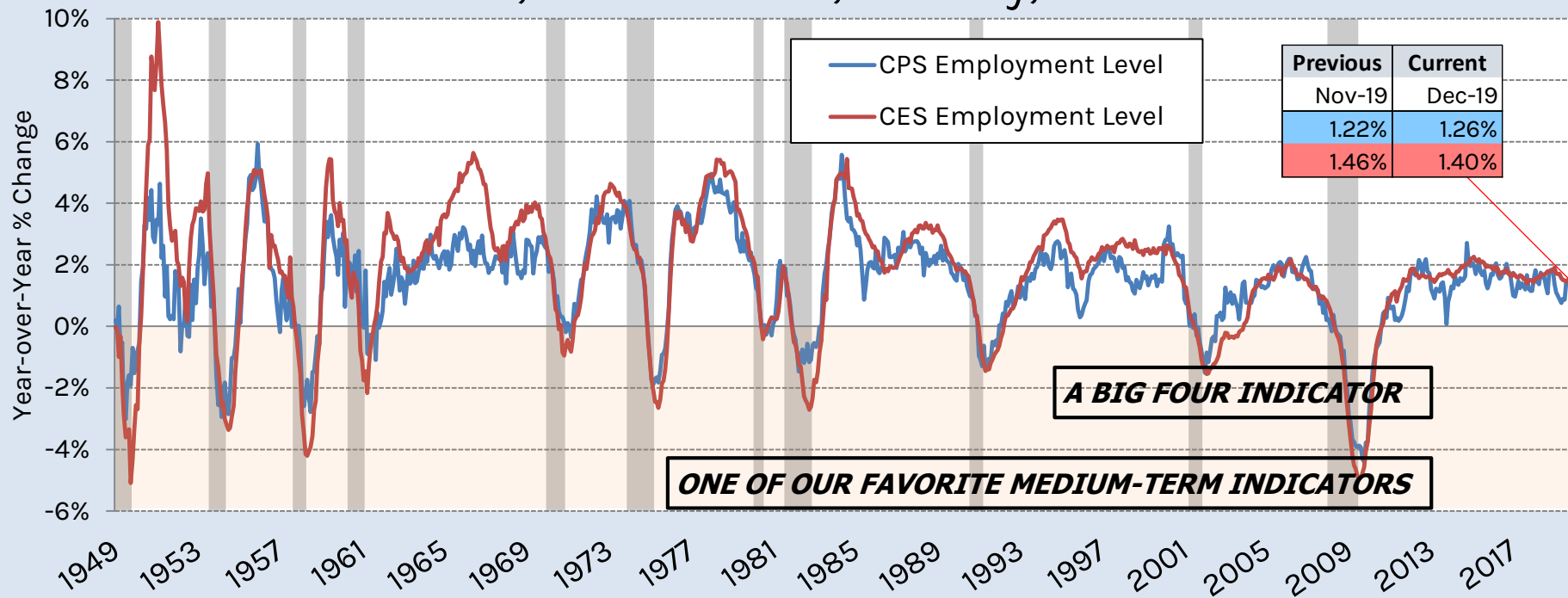
Initial Unemployment Claims, 4-Week Moving Average (in thousands), SA, 1967-Jan 11, 2020, weekly



YOY EMP GROWTH: WHAT HAPPENS WHEN IT FALLS < 1.5%?

Total Employment, CPS* and CES**

SA, 1949-Dec 2019, monthly, YoY



*CES = Current Employment Statistics; refers to total nonfarm payroll in BLS establishment survey.

** CPS = Current Population Survey; refers to Census household survey.

SOURCE: Bureau of Labor Statistics (2019), US Census Bureau (2019)

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A MEASURE OF HOW LONG EMP CAN KEEP RISING...

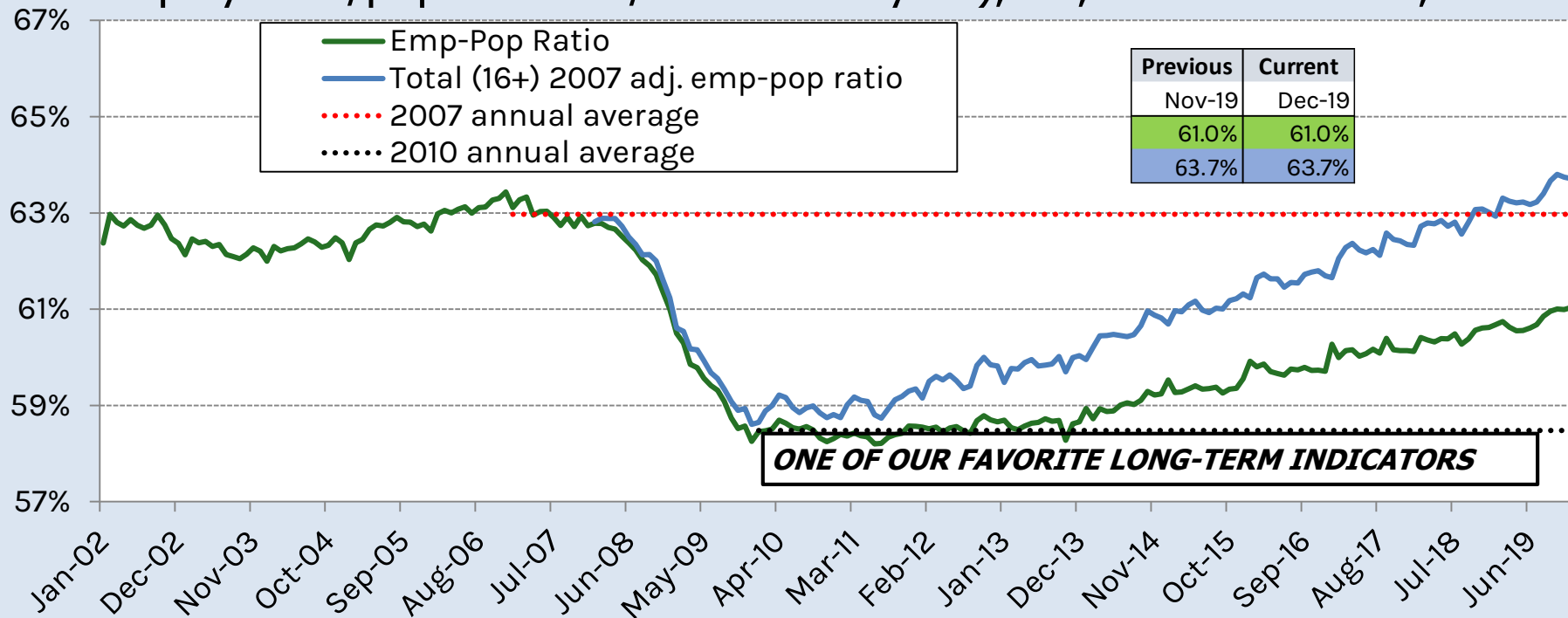
Employment to Population Ratio (CPS employment/population), SA, 1948-Dec 2019, monthly



THOUGH IT NEEDS TO BE AGE-ADJUSTED

Age-Adjusted Employment to Population Ratio*

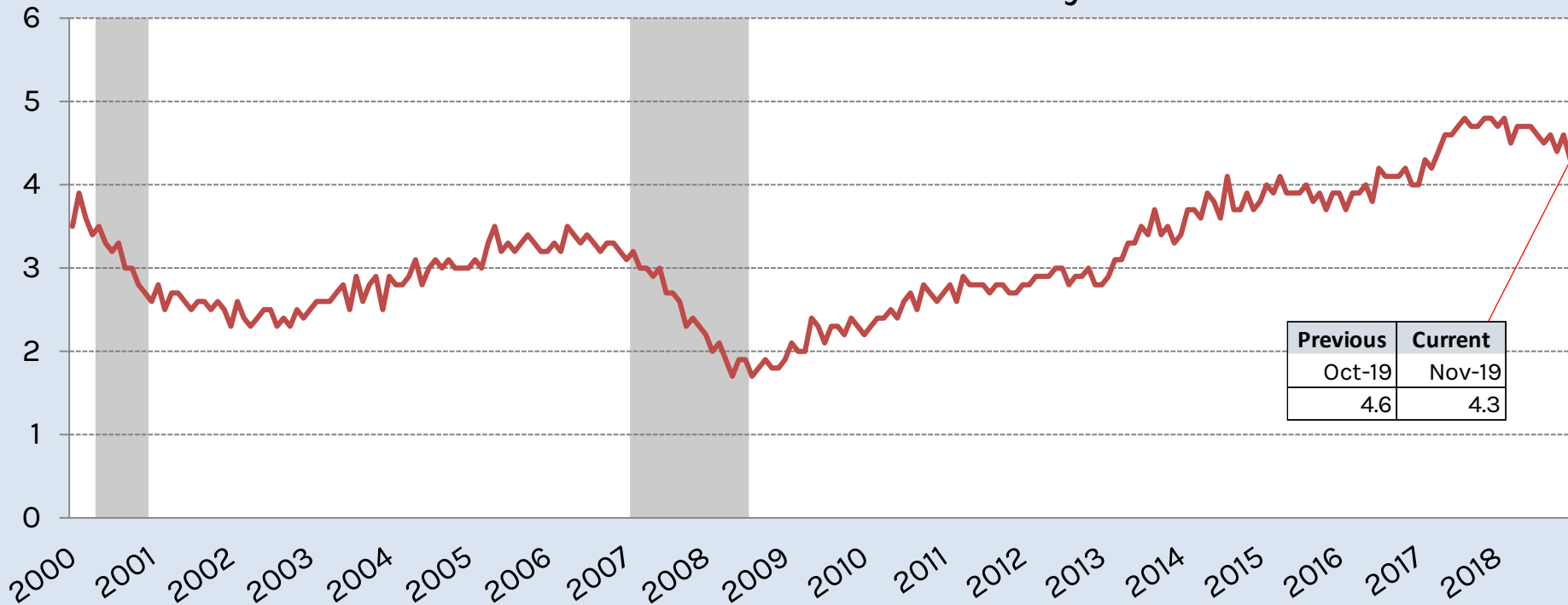
(CPS employment/population w/ 2007 base year), SA, 1948-Dec 2019, monthly



* Ratio adjusted by averaging ratios of age brackets holding the population weight of each bracket at its 2007 value.

RECENT JOLTS SERIES: JOB OPENINGS RATE...

Job Openings Rate*
SA, 2000-Nov 2019, monthly



*JOLTS data. Job Openings Rate = Job Openings / Total Nonfarm Employment

SOURCE: U.S. Bureau of Labor Statistics (2019), JOLTS (2019)

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& UNEMPLOYED PERSONS PER JOB OPENING...

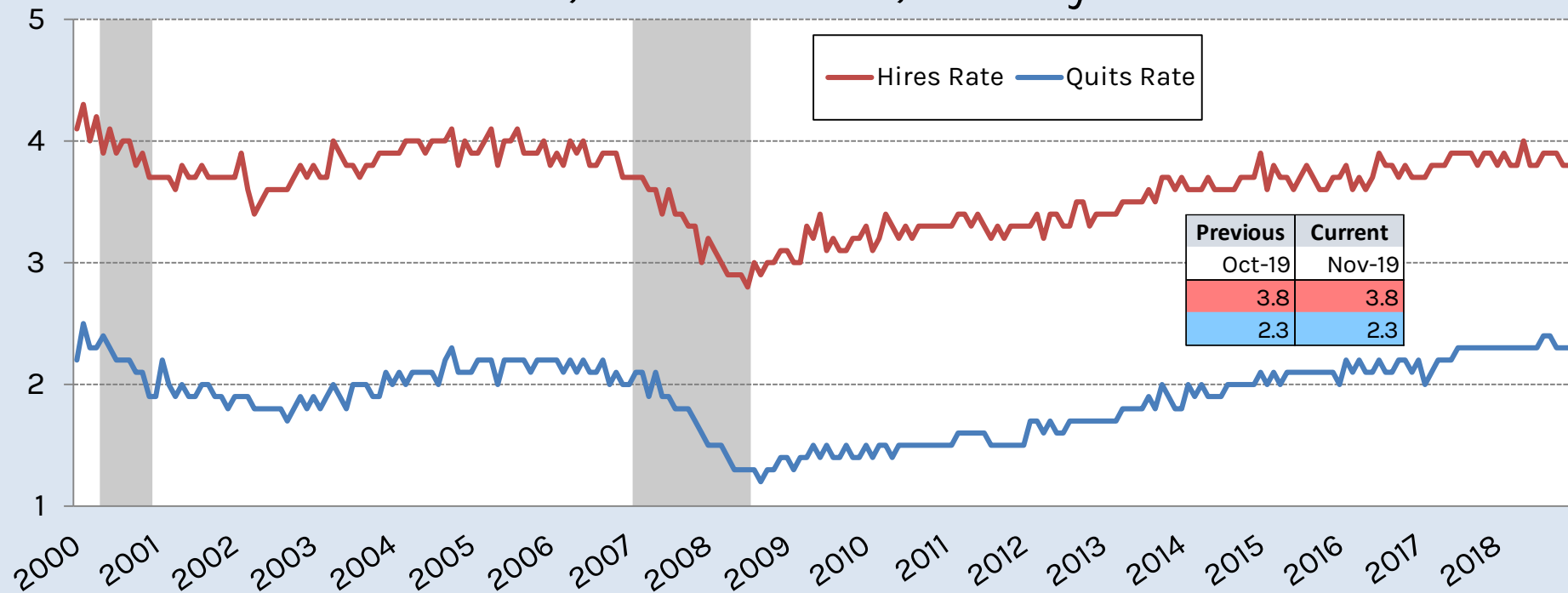
Unemployed Persons per Job Opening SA, 2000-Nov 2019, monthly



*JOLTS data. Unemployed Persons / Job Opening

& HIRES AND QUILTS RATES

Hires Rate* and Quits Rate** SA, 2000-Nov 2019, monthly

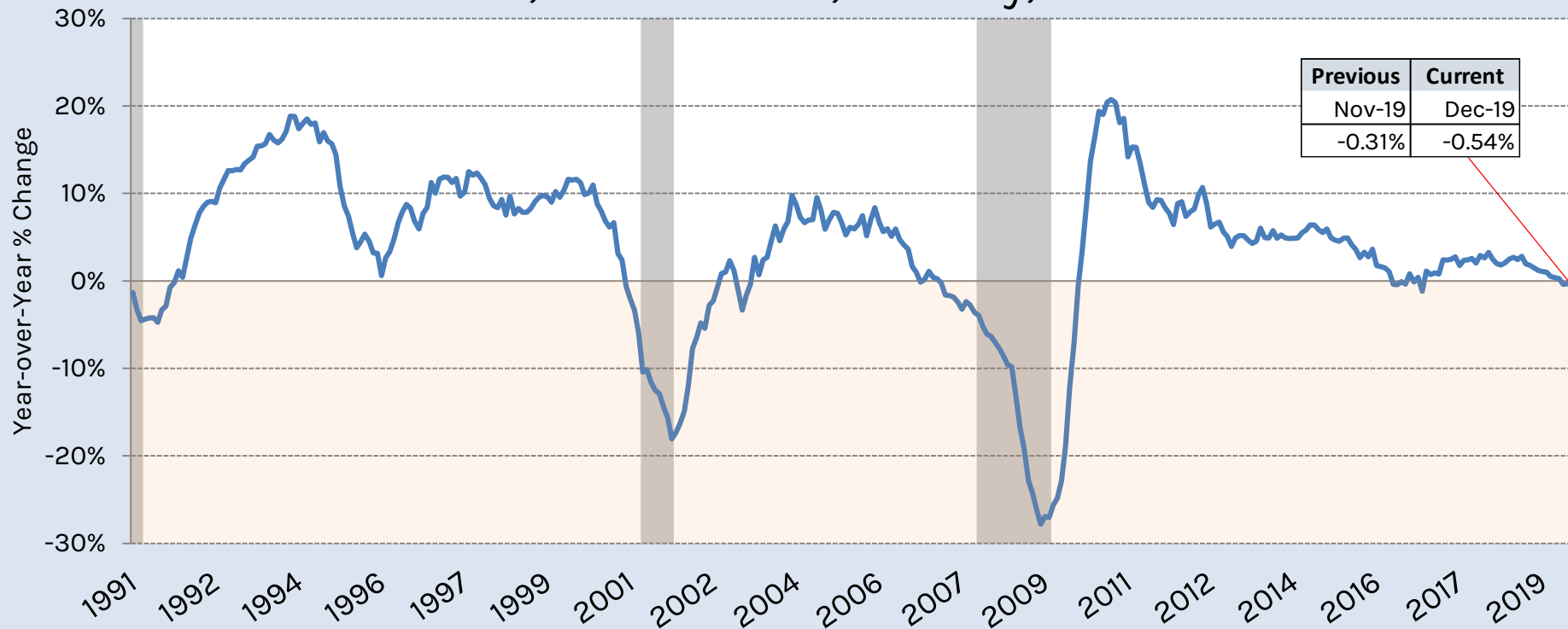


*JOLTS data. Hires / Total Nonfarm Employment

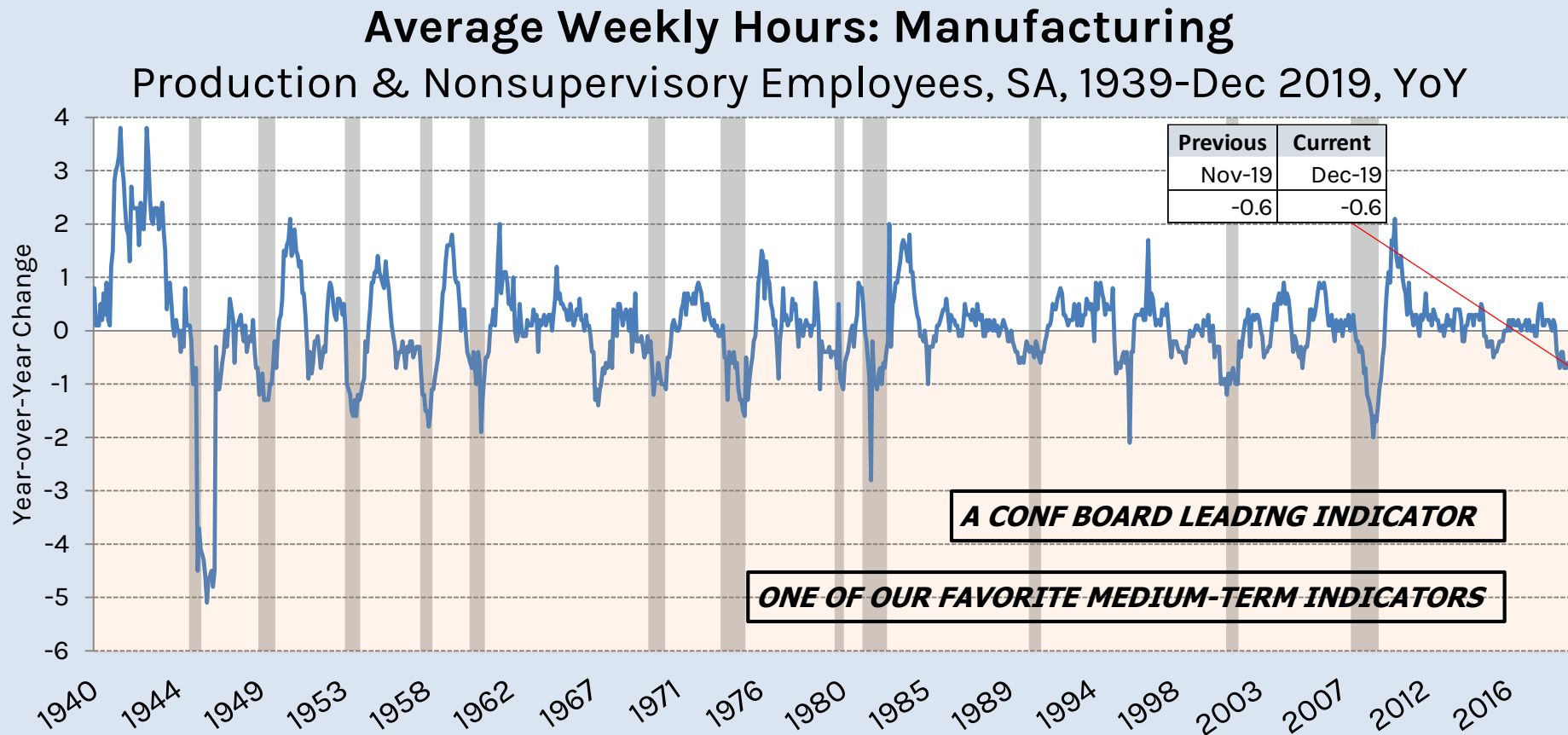
** JOLTS data. Quits / Total Nonfarm Employment

“TEMP” WORKERS: LAST HIRED & FIRST FIRED

Temp Help Services Employees SA, 1991-Dec 2019, monthly, YoY



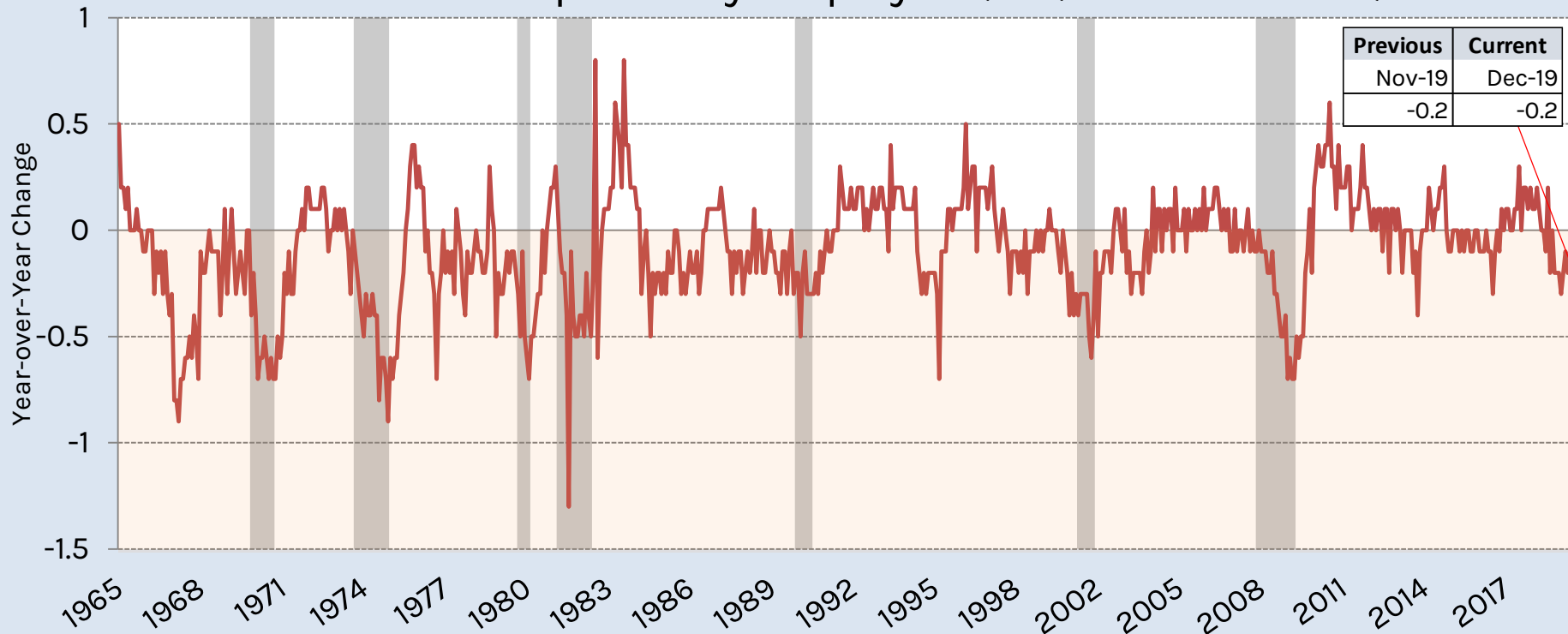
AVG WEEKLY HOURS: “SENSITIVE” INDICATOR: IN MANF...



& IN TOTAL PRIVATE

Average Weekly Hours: Total Private

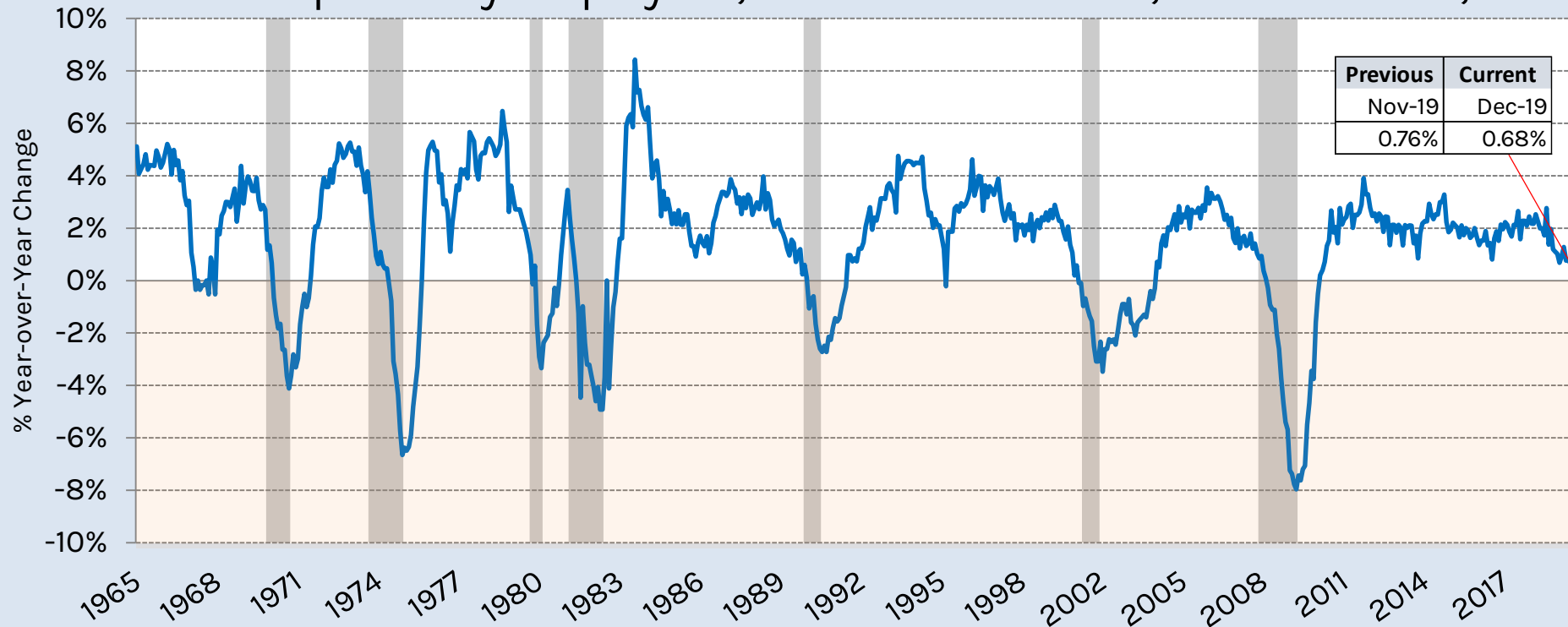
Production & Nonsupervisory Employees, SA, 1939-Dec 2019, YoY



INDEX IN TOTAL PRIVATE HOURS

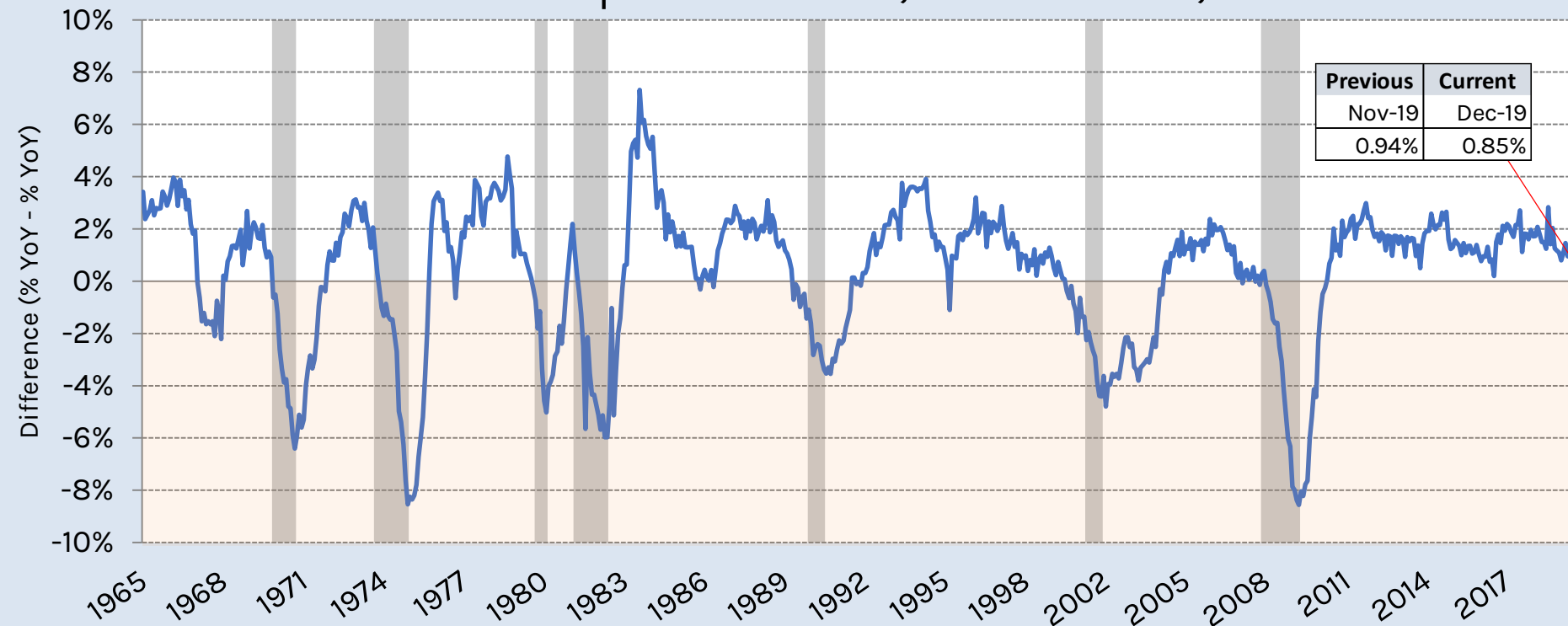
Index of Average Weekly Hours: Total Private

Prod. & Nonsupervisory Employees, Index: 2002=100 SA, 1965-Dec 2019, % YoY



Index Average Weekly Hours Less Working Age Pop. Growth

Index % YoY - 16-64 Population % YoY, 1965-Dec 2019, % YoY-% YoY



A “CRASH” COURSE IN RECESSION INDICATORS

❑ What Is a Recession?

❑ Properties of Good Recession Indicators

❑ INDICATORS

1. *Production, Consumption, & Income*
2. *Housing, Autos, & Transportation*
3. *Real-Time Diffusion Indexes*
4. *Employment*
5. *Inflation & Wages*
6. *Sentiment*
7. *Financial & Other “Leading” Indicators*

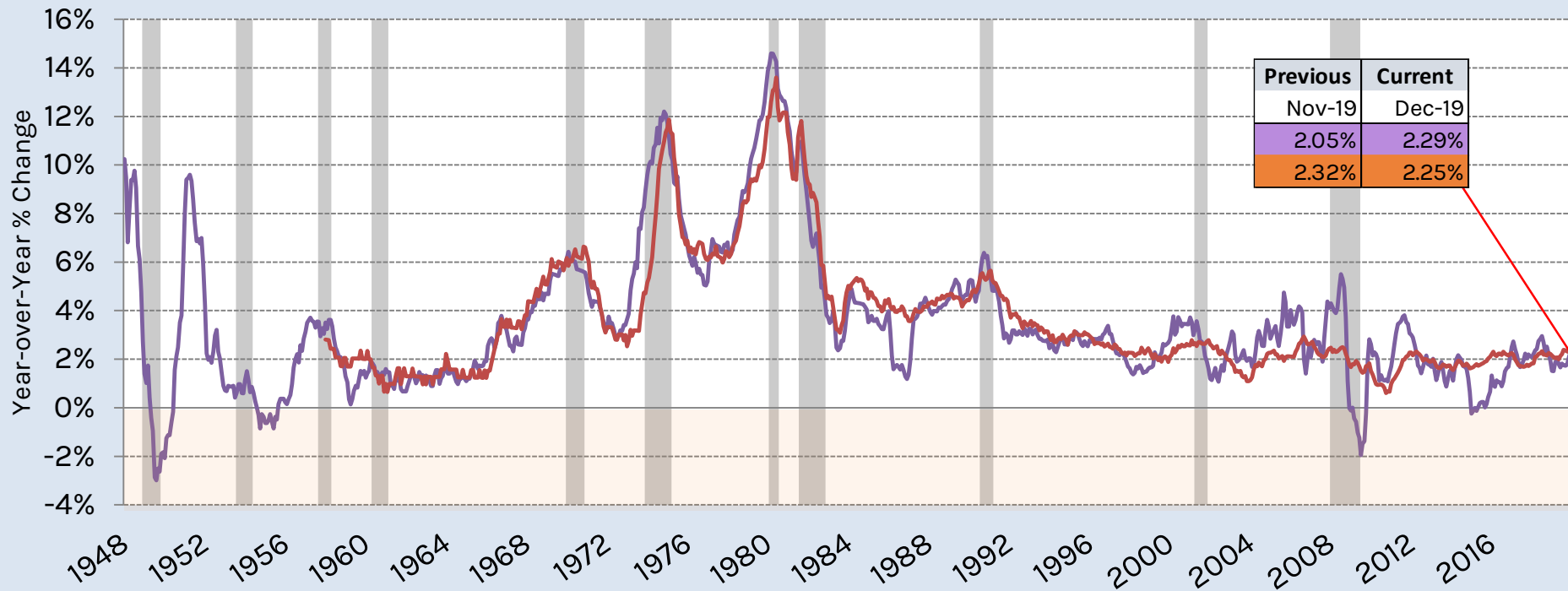
❑ Lessons: What are the Best Indicators?

❑ Lessons: What is the Current Recession Outlook?

3 WAYS TO VIEW INFLATION CYCLE: CPI...

Consumer Price Index (CPI)

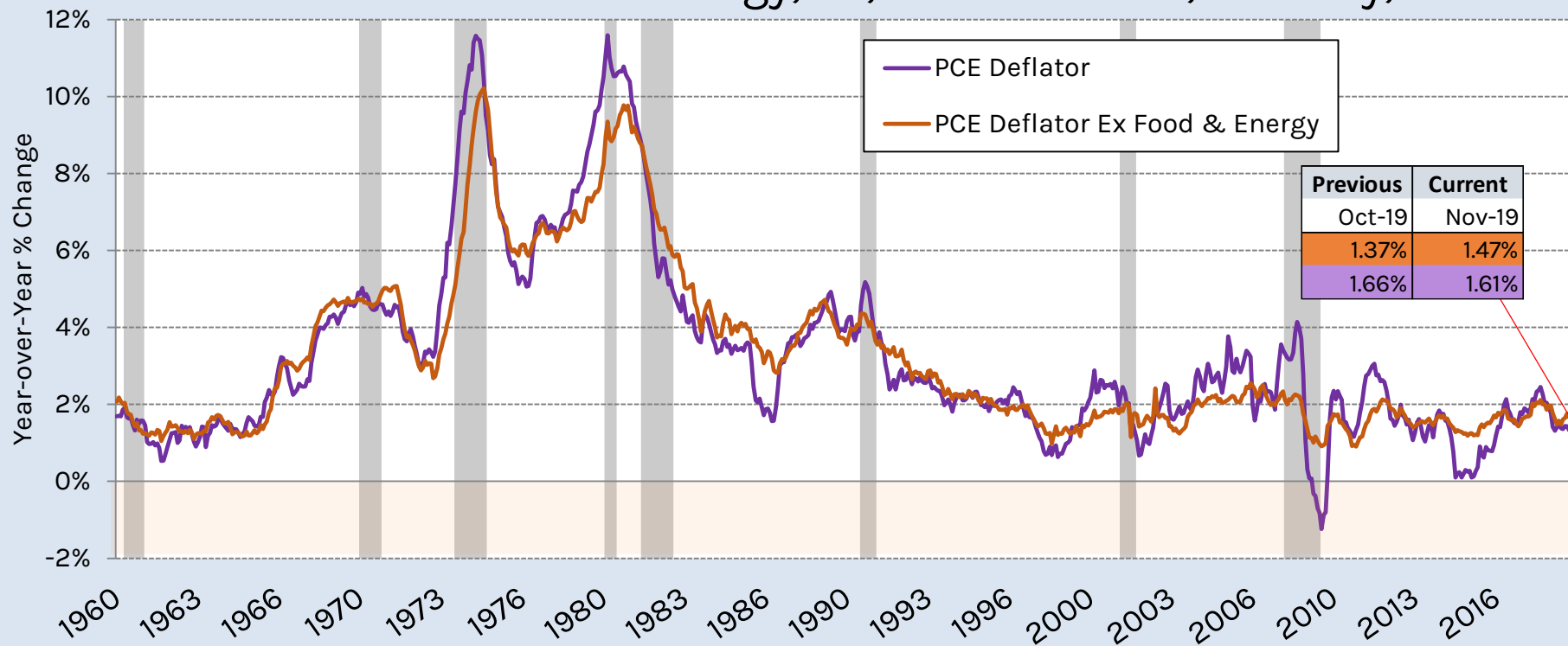
Total and Total Ex Food & Energy, SA, 1948-Dec 2019, monthly, % YoY



& PCE DEFLATOR...

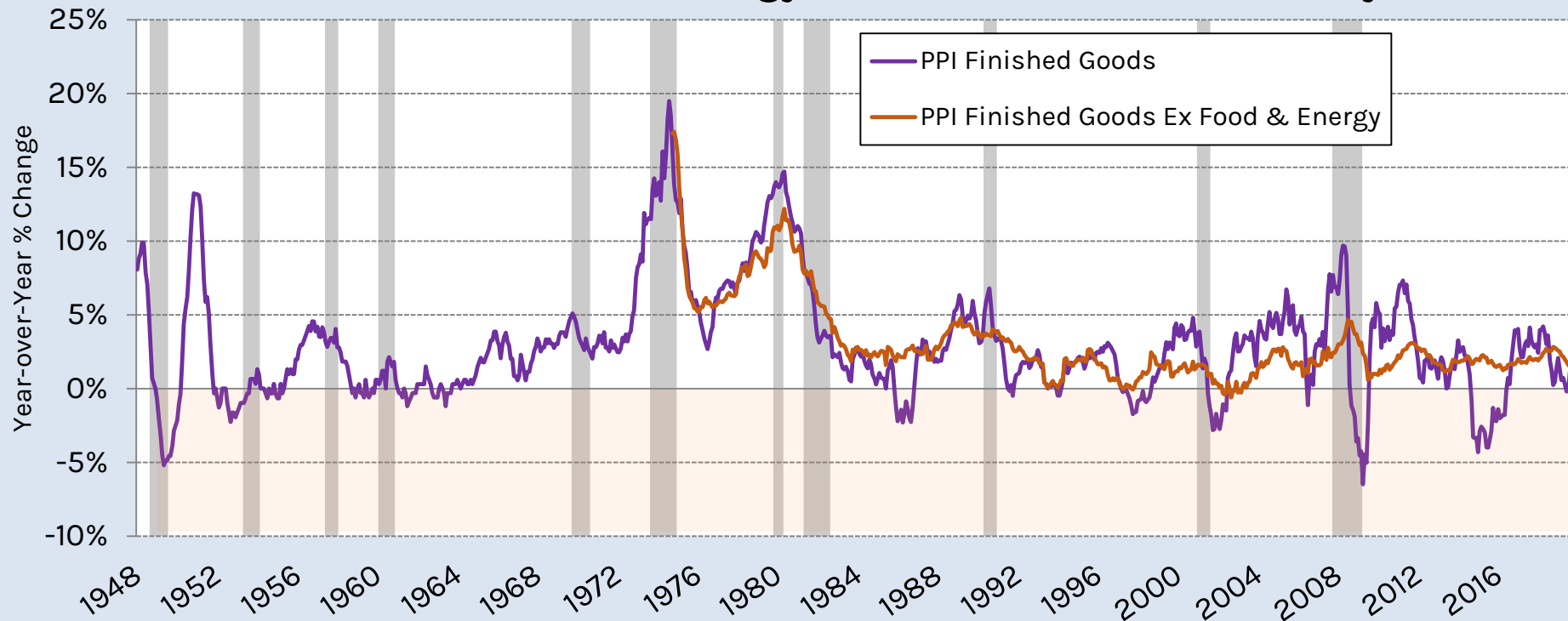
Personal Consumption Expenditure (PCE) Deflator

Total and Total Ex Food & Energy, SA, 1960-Nov 2019, monthly, YoY



Producer Price Index (PPI): Finished Goods

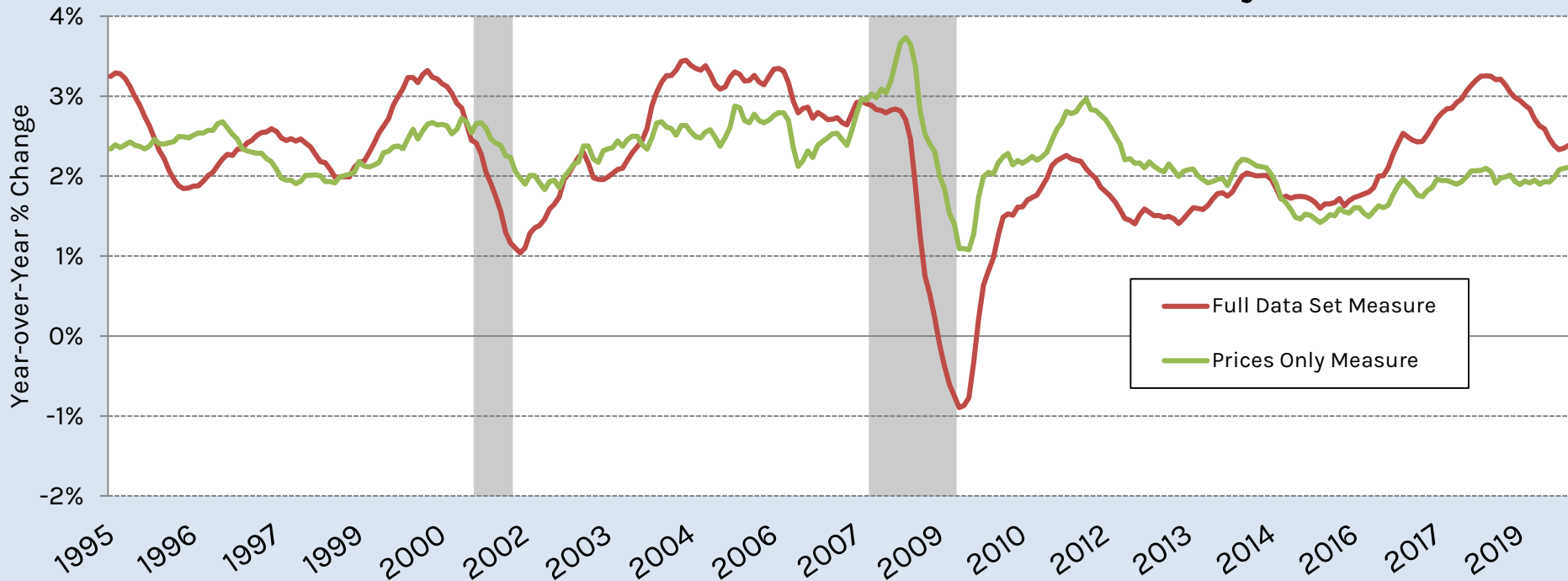
Total and Total Ex Food & Energy, SA, 1960-Dec 2019, monthly, YoY



UIG: BUILT ON AN INFLATION FORECASTING MODEL

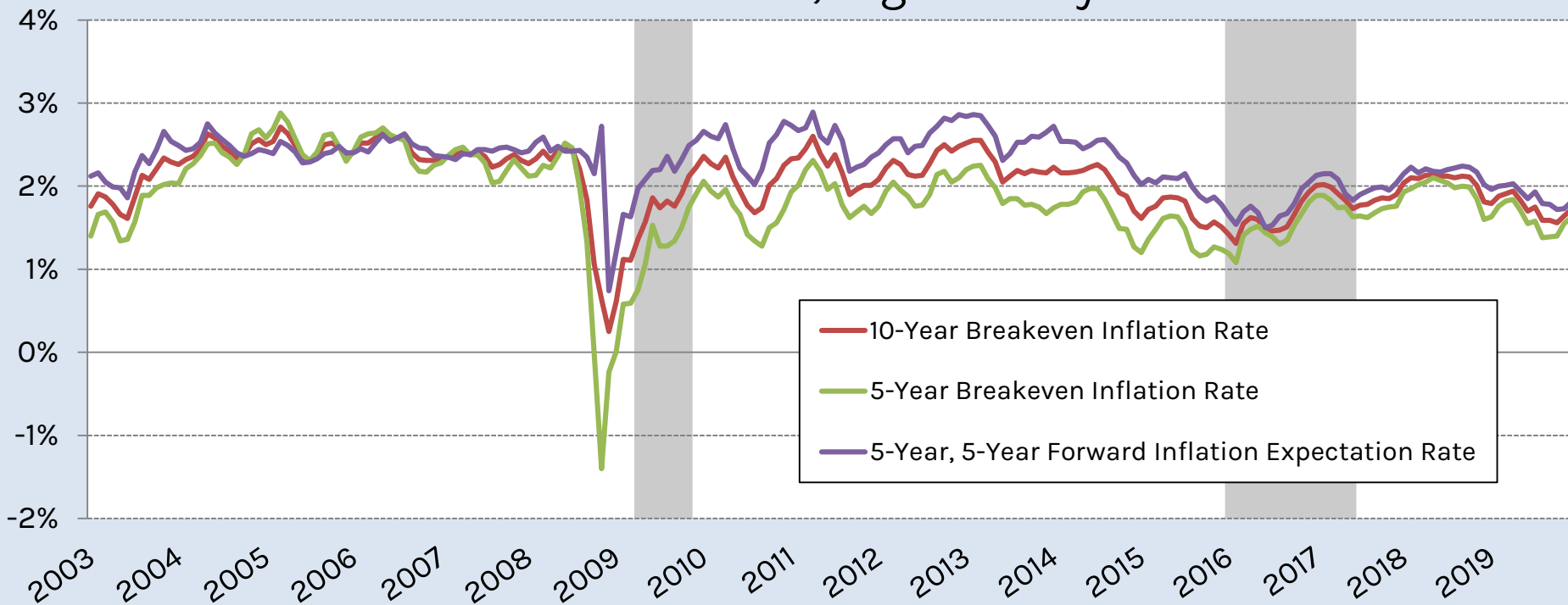
New York Fed Underlying Inflation Gauge (UIG)

Index: YoY Growth %, 1995-Dec 2019, monthly



INFLATION FORECASTS FOR THOSE WHO TRUST MARKETS

Breakeven Inflation Rate Expectations* 2003-Dec 2019, avg. monthly

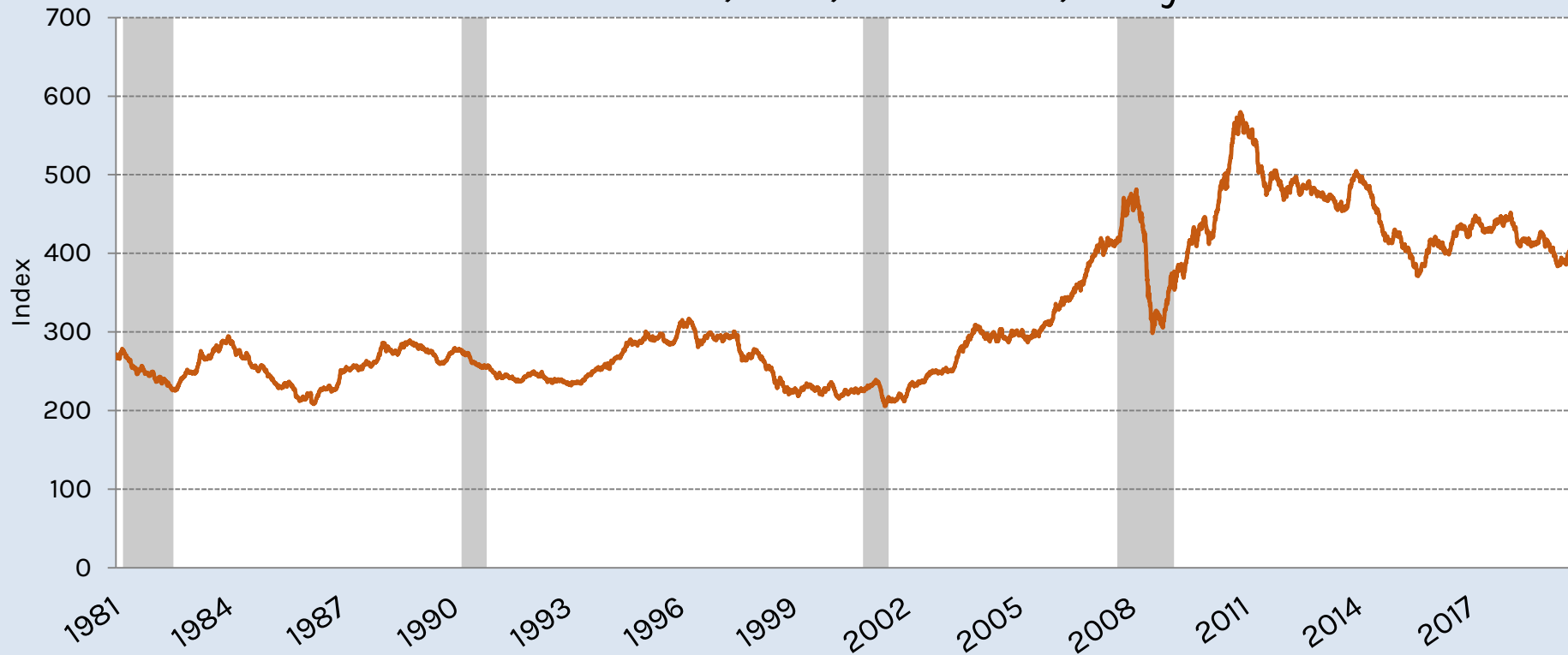


*Break-even inflation rate expectations are derived by comparing constant-maturity nominal and inflation-adjusted Treasury yields.

COMMODITY PRICES, ANYONE?

Commodity Research Bureau All Commodities Price Index

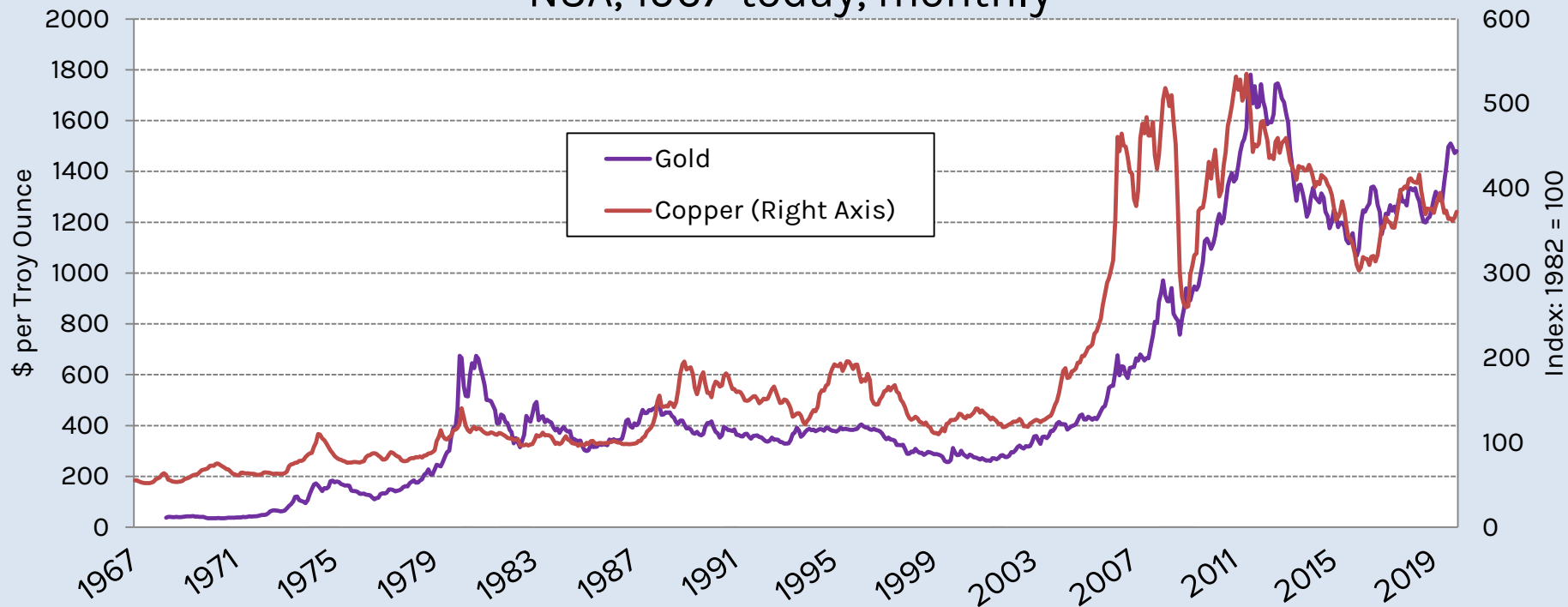
Index: 1967=100, NSA, 1981-2020, Daily



OR WHAT ABOUT DR. COPPER OR MR. SAFE HAVEN?

Price of Gold* and Copper**

NSA, 1967-today, monthly

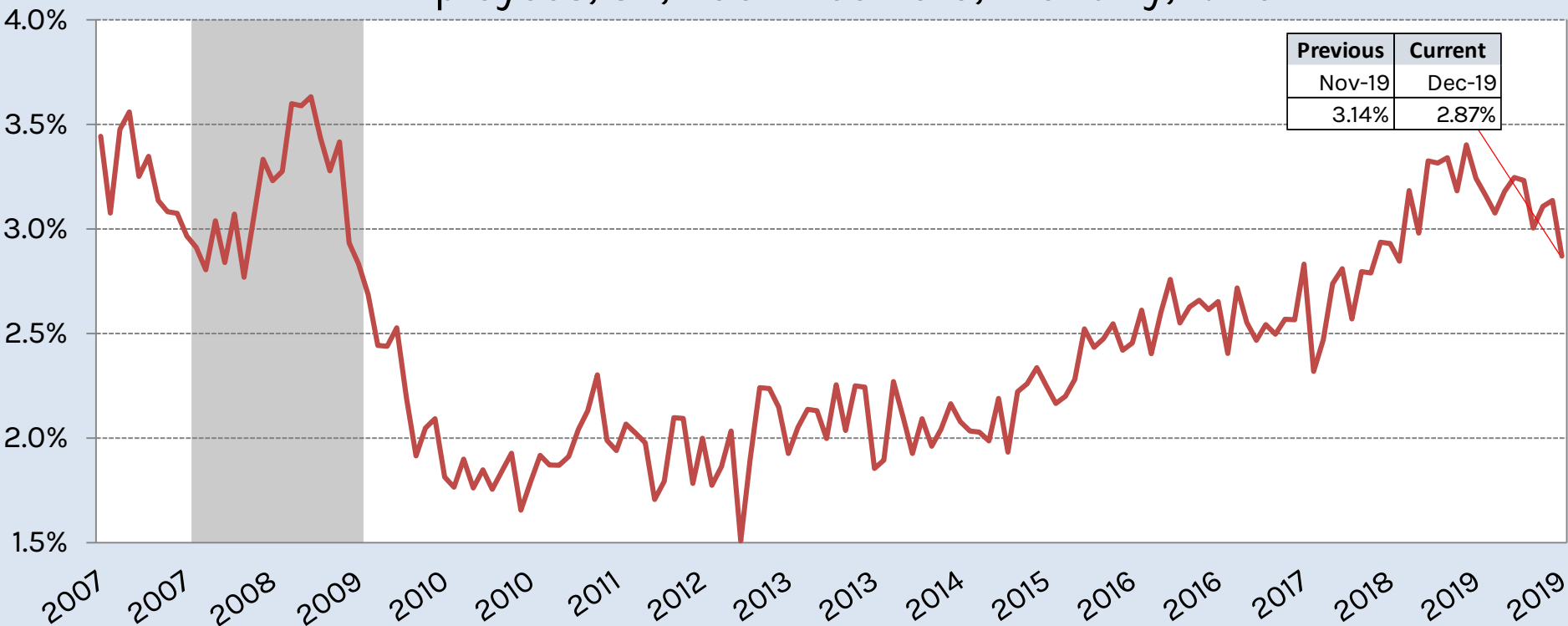


* London Bullion Market, \$ per troy ounce, NSA

** Producer Price Index by Commodity for Special Indexes: Copper and Copper Based Products, 1982=100, NSA

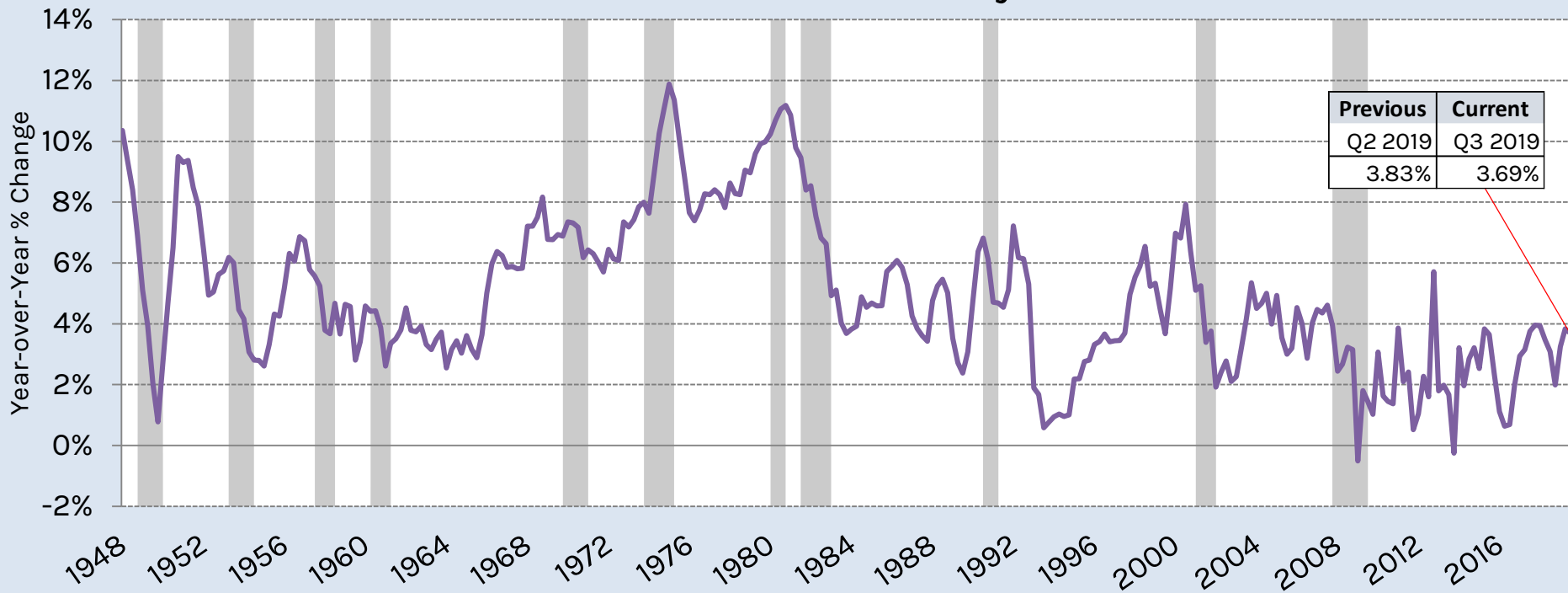
WAGE INFLATION: NOT IN TOTAL PRIVATE EARNINGS...

Average Hourly Earnings: Total Private All Employees, SA, 2007-Dec 2019, monthly, % YoY



BUT MAYBE IN TOTAL COMPENSATION...

Compensation Per Hour*, Nonfarm Business SA, 1948-Q3 2019, Quarterly, % YoY



*Compensation includes accrued wages & salaries, supplements, employer contributions to benefit plans, and taxes.

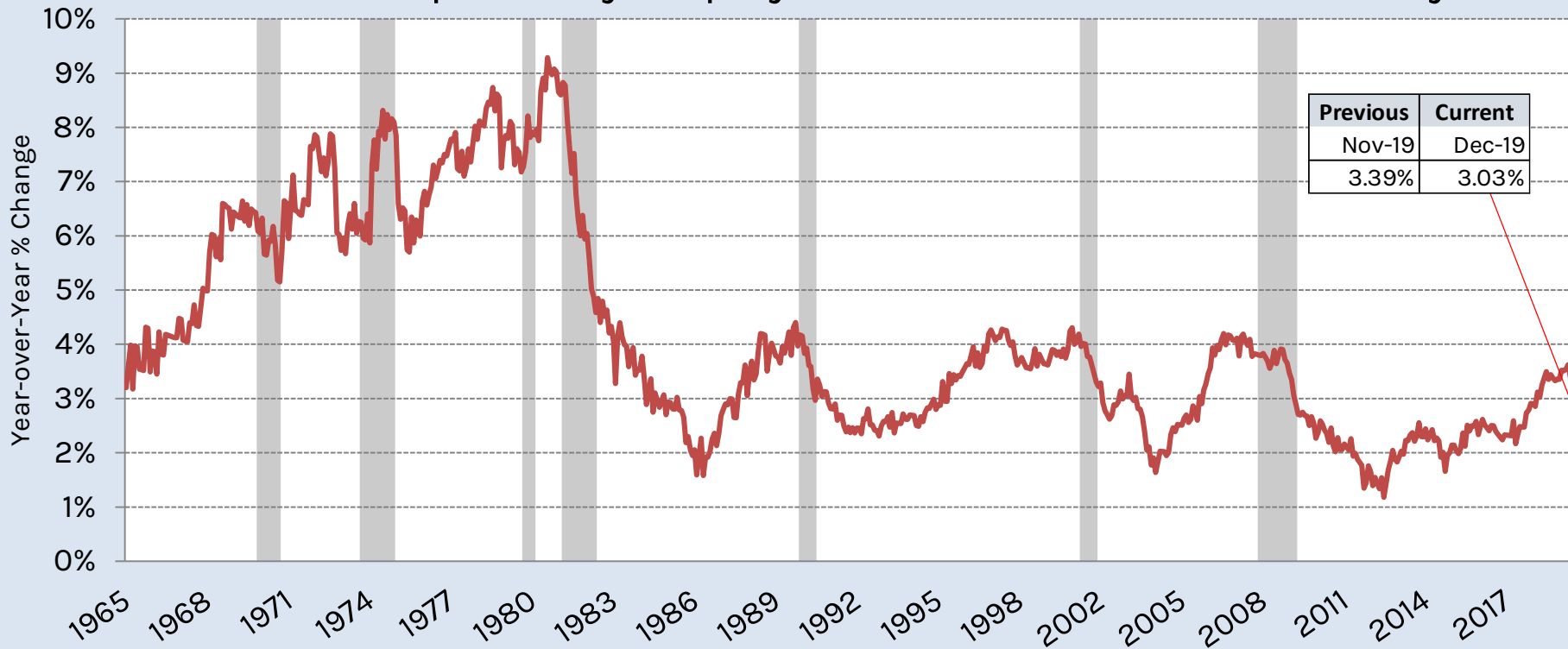
SOURCE: U.S. Bureau of Labor Statistics (2020)

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OR IN LOWER SKILL/PAY JOBS.

Average Hourly Earnings: Total Private

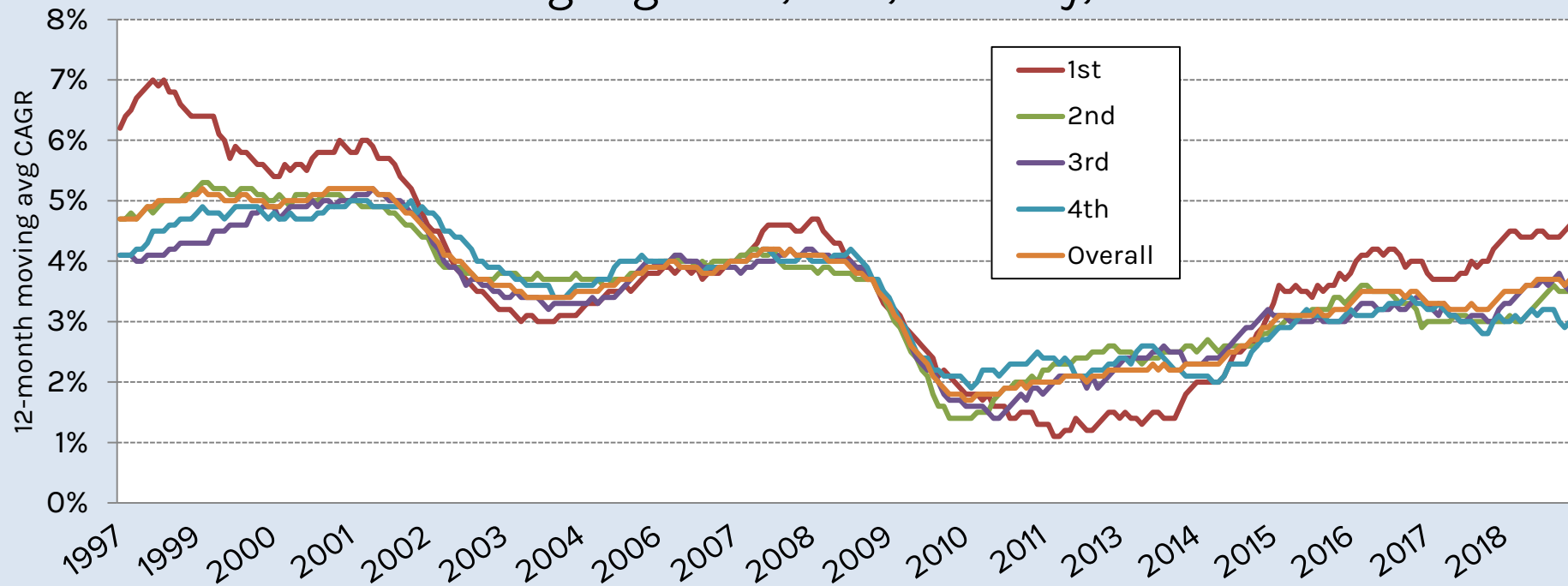
Production & Nonsupervisory Employees, SA, 1965-Dec 2019, monthly, %YoY



LOWER-PAID **WORKER** ARE GAINING ON HIGHER-PAID...

Wage Growth by Income Quartile*

12-month moving avg CAGR, NSA, monthly, 1998-Dec 2019

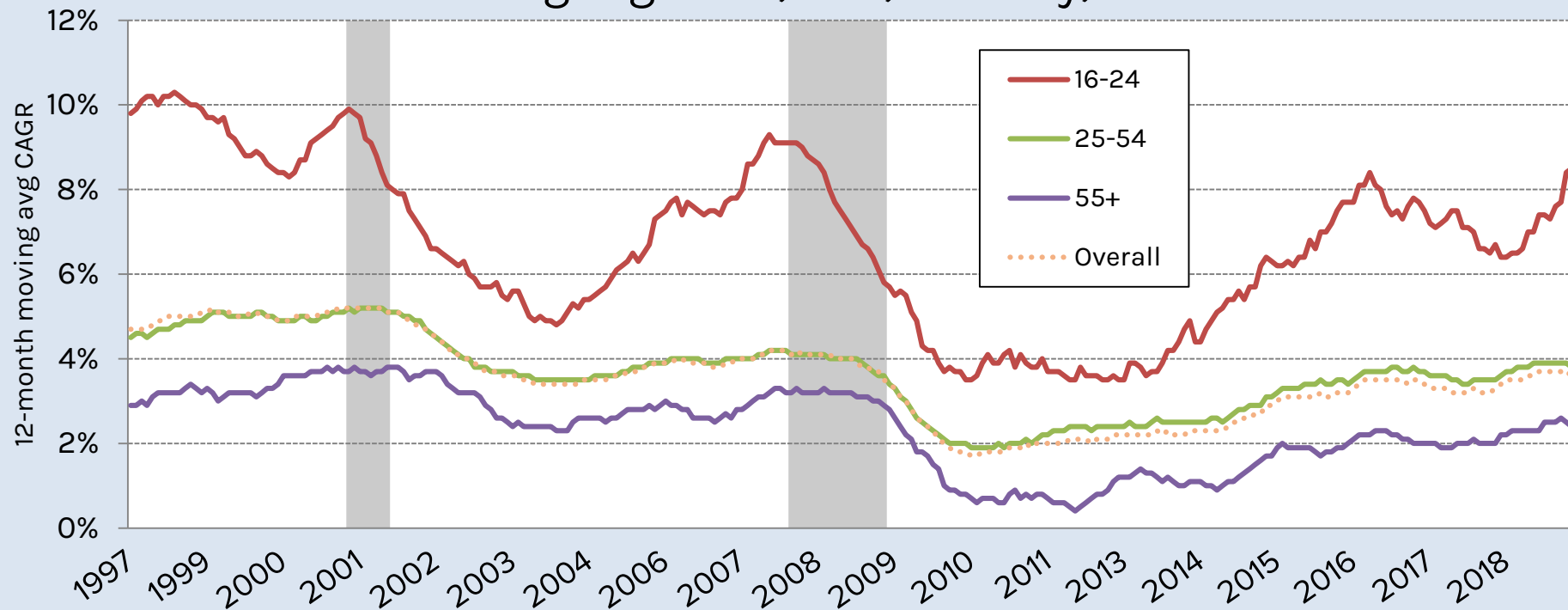


* From Atlanta Fed's Wage Growth Tracker. Ranking based on the distribution of average hourly wages in month t and month t-12. Those in the lowest 25 percent of average wages are in the 1st quartile; those in the highest 25 percent of average wages are in the 4th quartile.

& THE YOUNG ARE GAINING ON THE OLD

Wage Growth by Age Bracket*

12-month moving avg CAGR, NSA, monthly, 1998-Dec 2019



* From Atlanta Fed's Wage Growth Tracker.

A “CRASH” COURSE IN RECESSION INDICATORS

❑ What Is a Recession?

❑ Properties of Good Recession Indicators

❑ INDICATORS

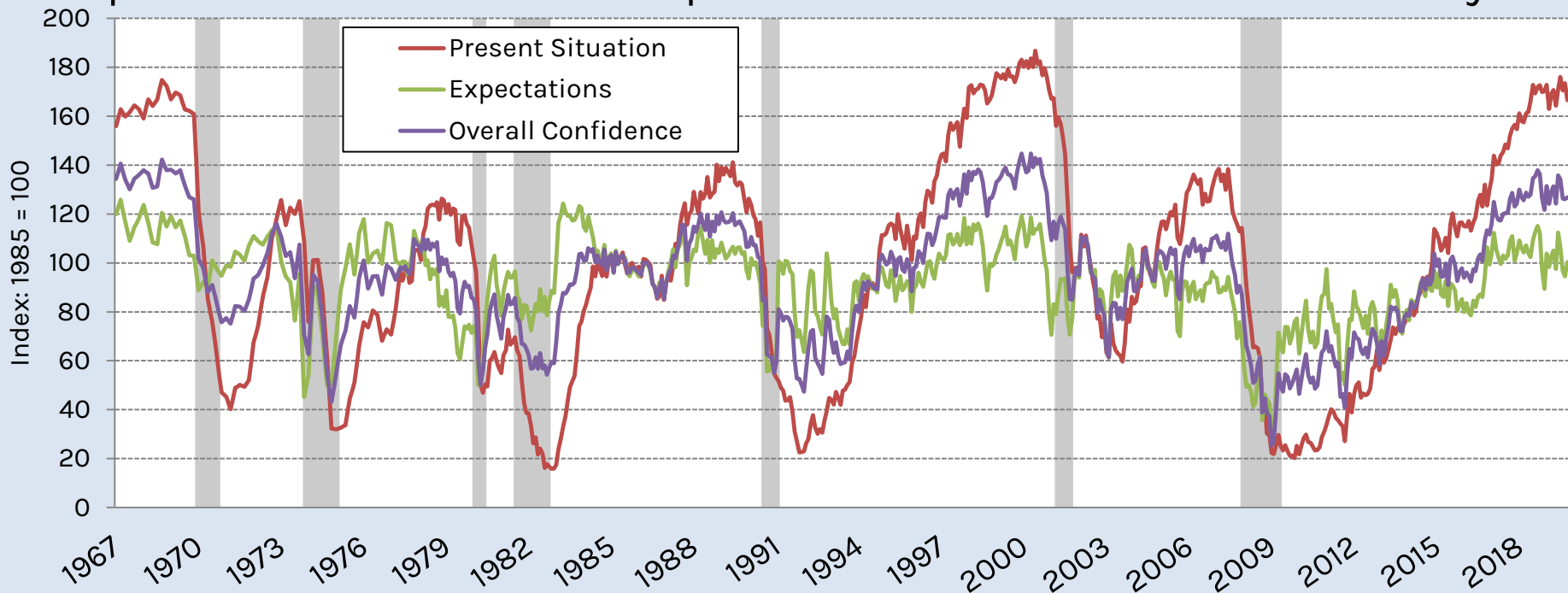
1. *Production, Consumption, & Income*
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7. *Financial & Other “Leading” Indicators*

❑ Lessons: What are the Best Indicators?

❑ Lessons: What is the Current Recession Outlook?

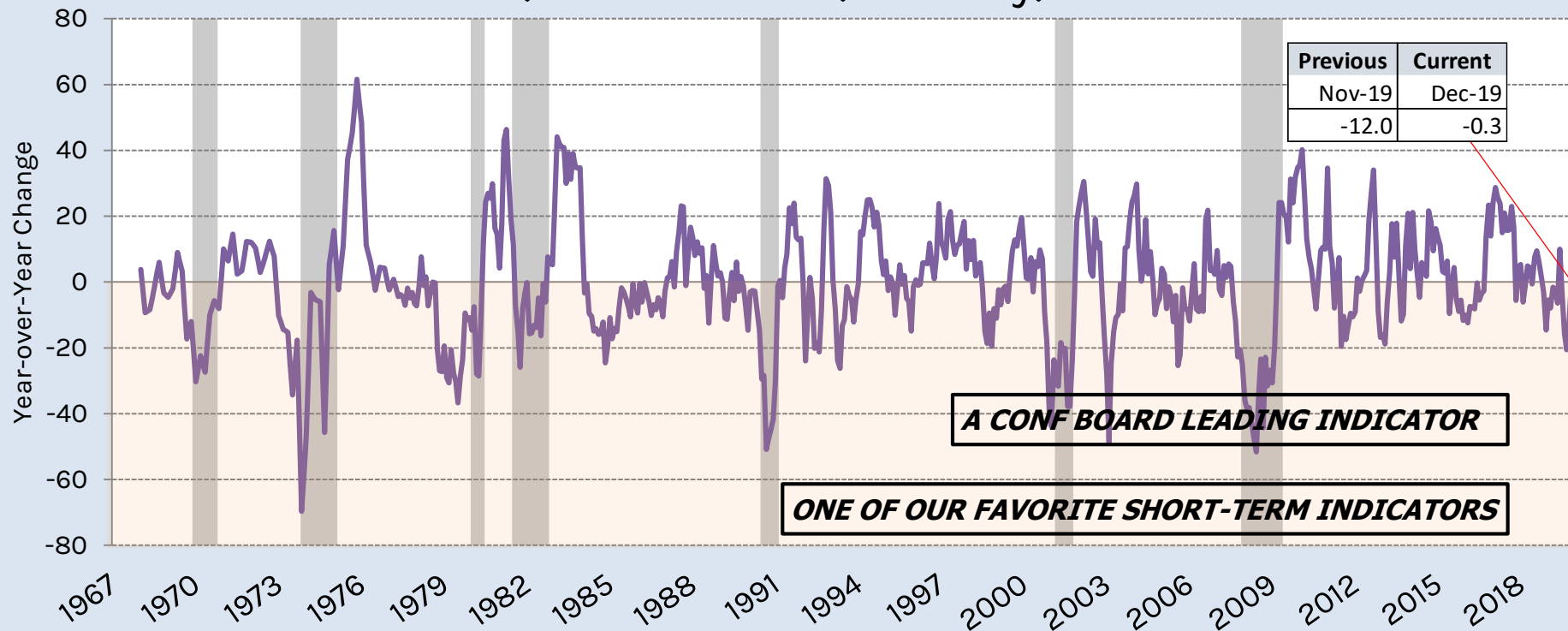
CONF BOARD CCI: NOTE PRESENT-TO-FUTURE “SPREAD”

Conference Board Consumer Confidence Index*: Overall
plus Present Situation & Expectations; SA, 1967-Dec 2019, monthly



CONF BOARD CCI: YOY EXPECTATIONS IS “SENSITIVE”

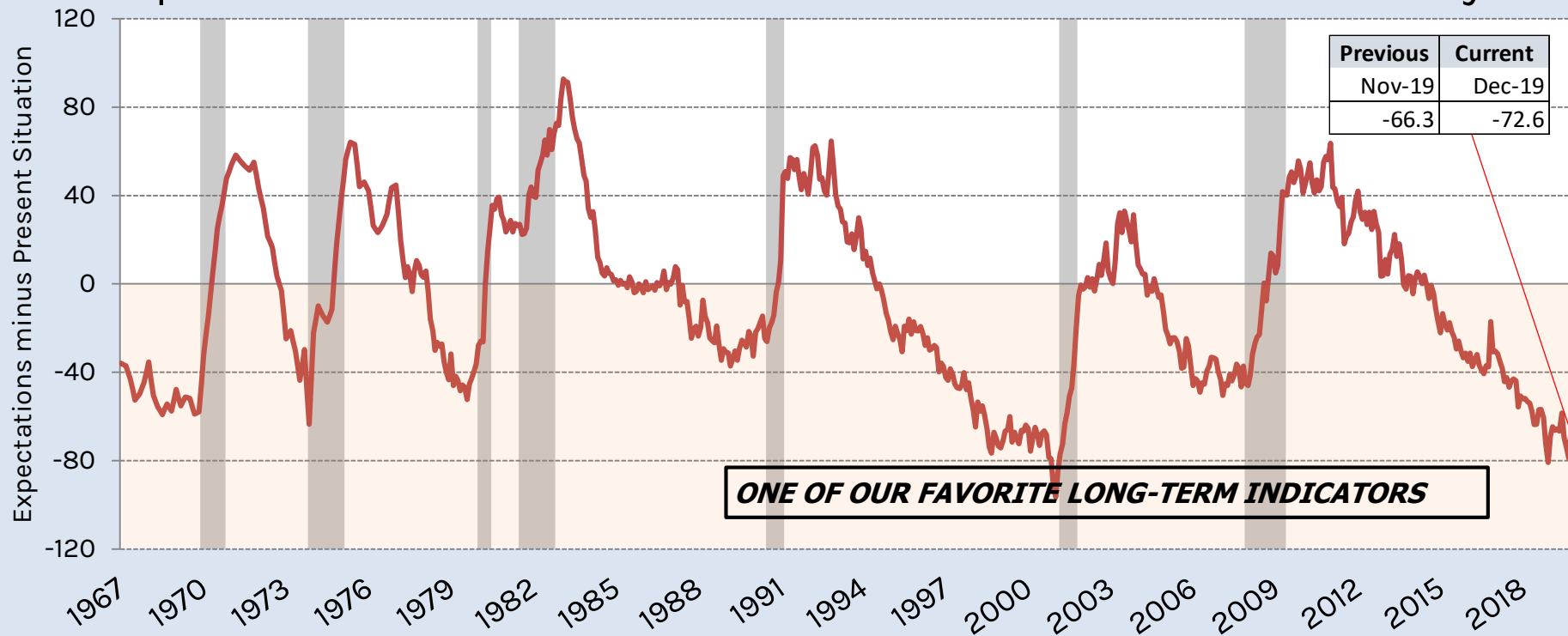
Conference Board Consumer Confidence Index: Expectations SA, 1968-Dec 2019, monthly, YoY



CONF BOARD CCI: “SPREAD” SHOWS PERSPECTIVE

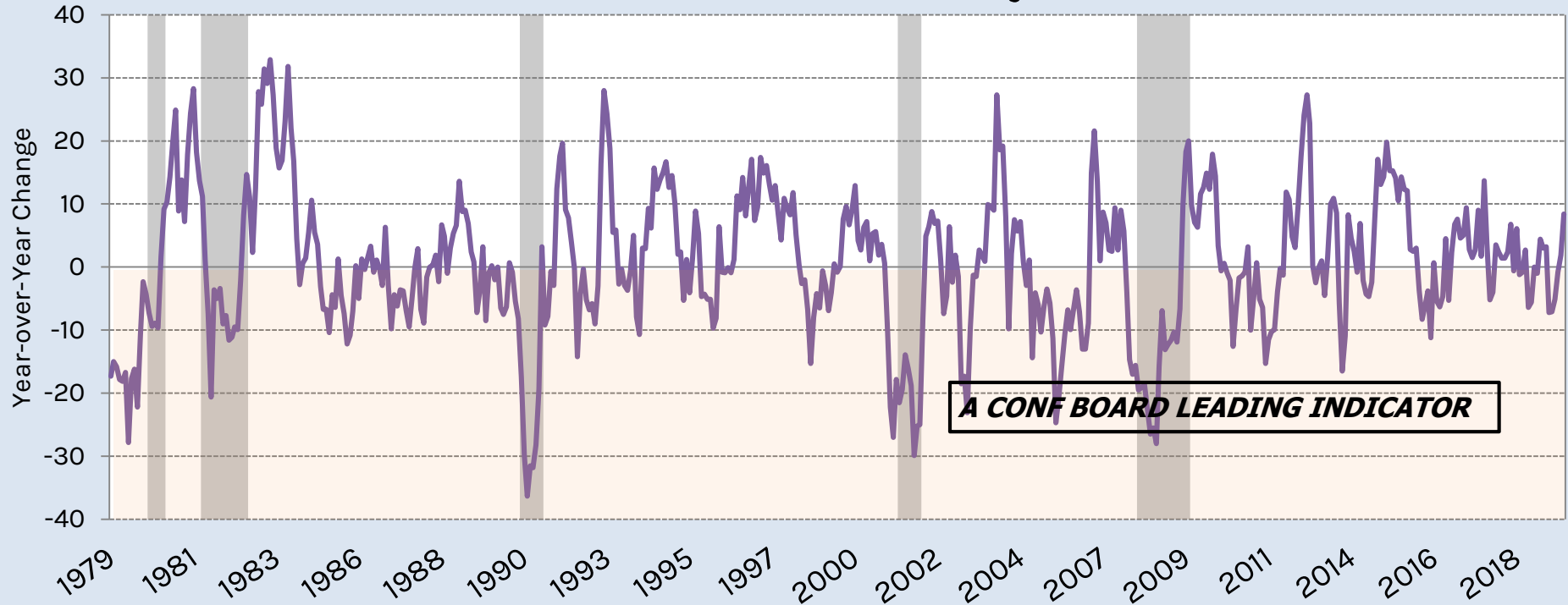
Conference Board Consumer Confidence Index*: Overall

Expectations minus Present Situation; SA, 1967-Dec 2019, monthly



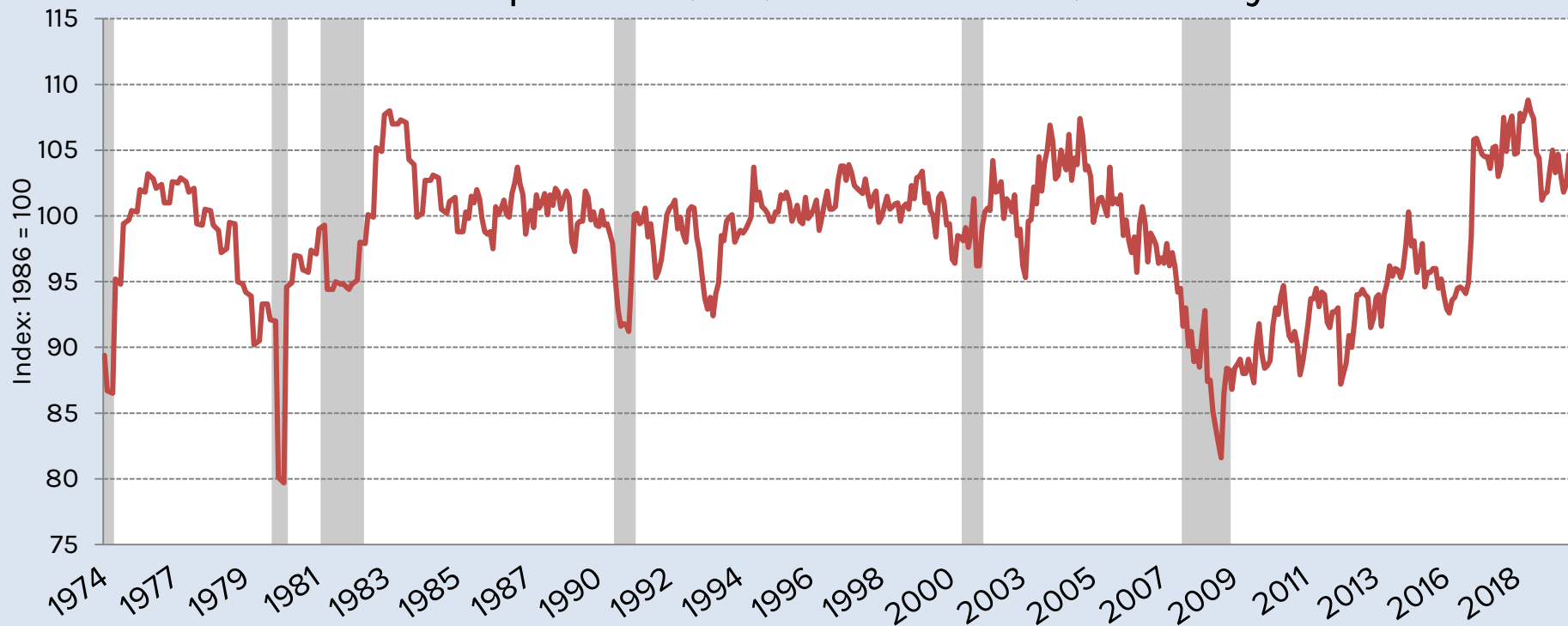
U MICH CEI: DELTA GENERALLY TRACKS SAME WAY

University of Michigan Consumer Expectations Index: SA, 1979-Jan 2020, monthly, YoY



DON'T FORGET SMALL BUSINESS: OVERALL OPTIMISM...

NFIB Small Business Optimism Index* Overall Optimism, SA, 1975-Dec 2019, monthly

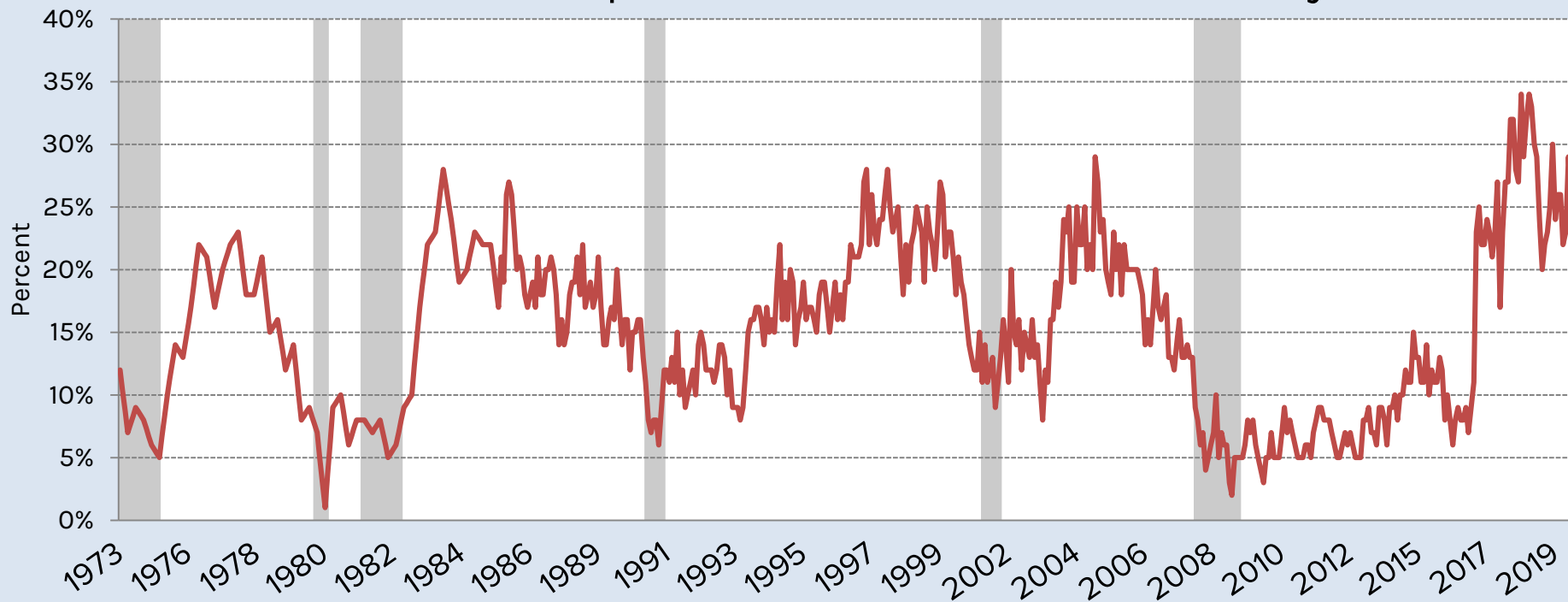


* Index: 1986 = 100.

& INCLINATION TO EXPAND...

NFIB Small Business Optimism Index

“Good Time to Expand,”* SA, 1975-Dec 2019, monthly

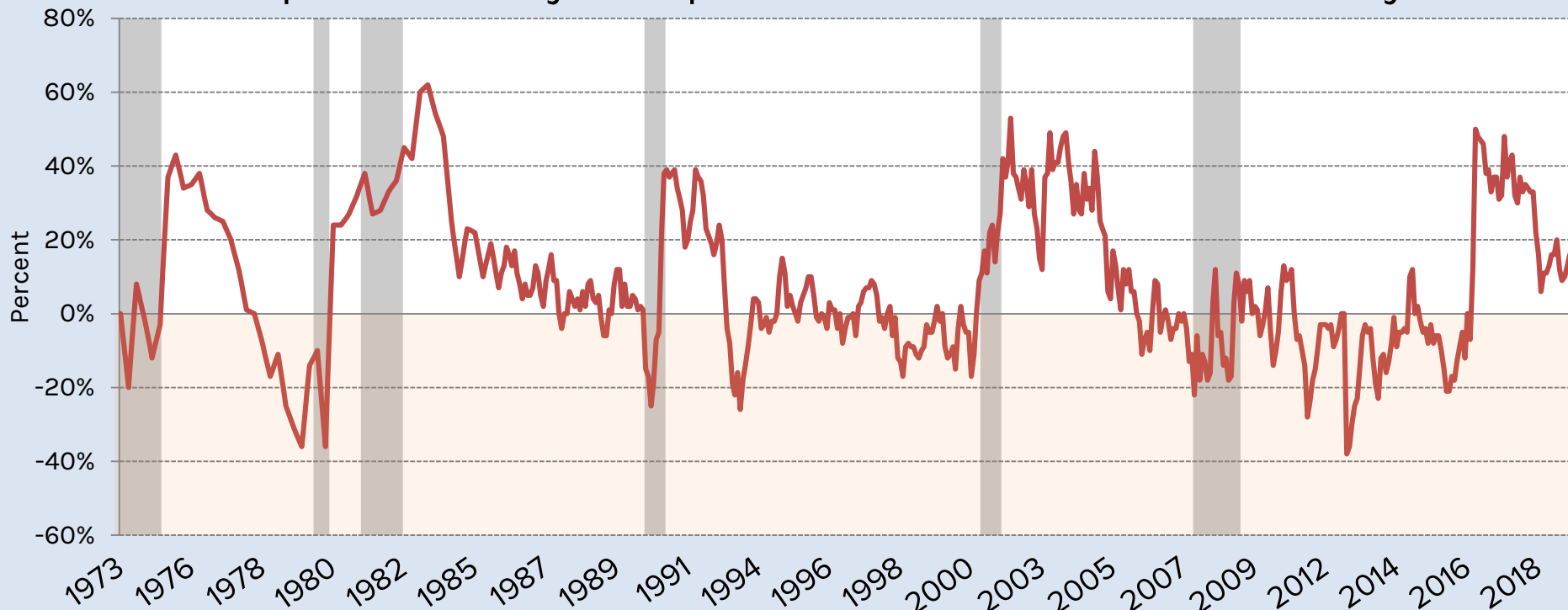


* Percent of NFIB members who say the next 3 months are a “good time to expand.”

& POSITIVE EXPECTATIONS ABOUT FUTURE

NFIB Small Business Optimism Index*

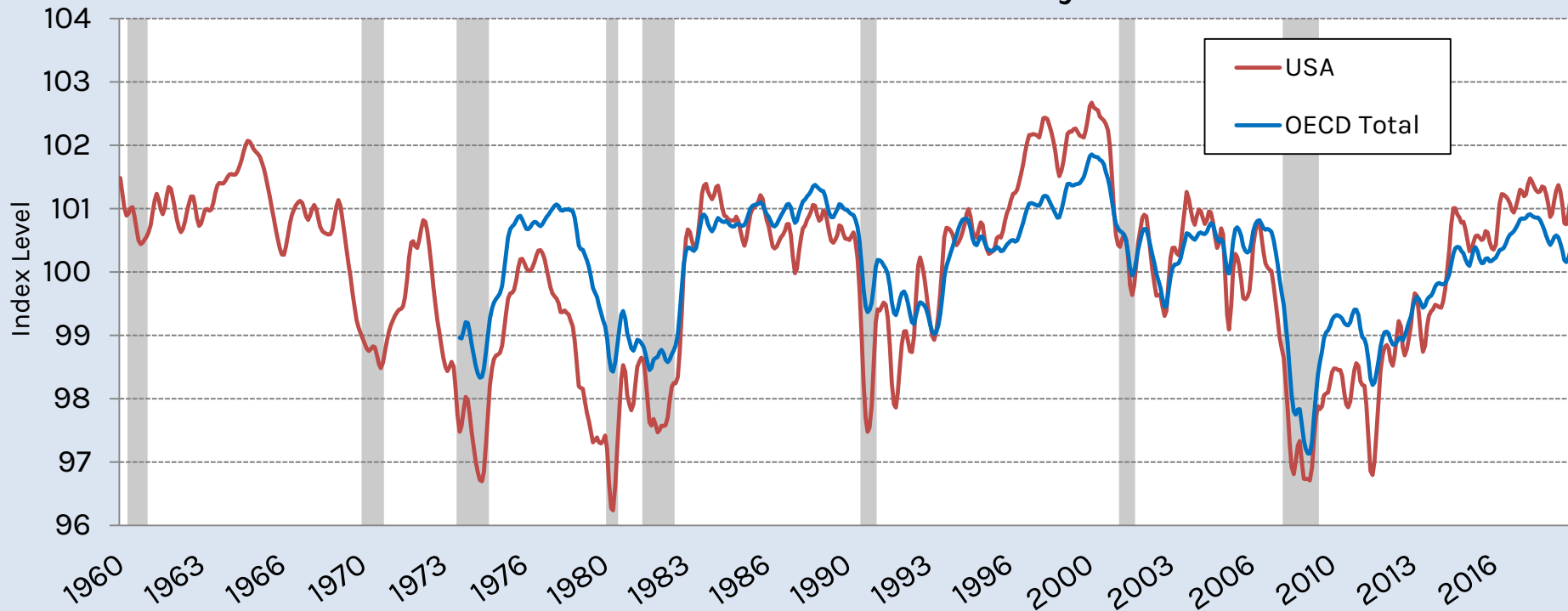
“Expect Economy to Improve,”* SA, 1975-Dec 2019, monthly



* Net percent of NFIB members who say they expect better business conditions in the next 6 months—minus those who say they expect worse.

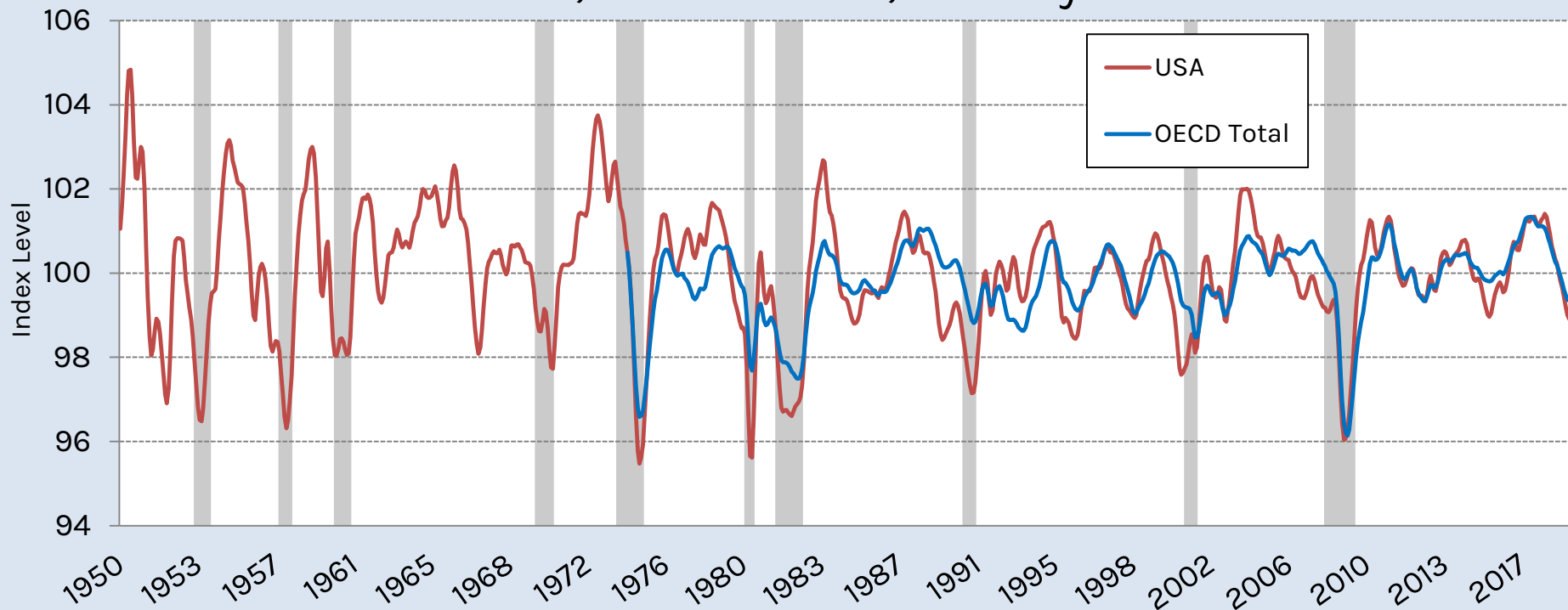
IN 35 NATIONS, OECD TRACKS CONSUMER CONFIDENCE...

OECD Consumer Confidence Index: U.S. & All OECD SA, 1950-Dec 2019, monthly



& BUSINESS CONFIDENCE

OECD Business Confidence Index: U.S. & All OECD SA, 1950-Dec 2019, monthly



A “CRASH” COURSE IN RECESSION INDICATORS

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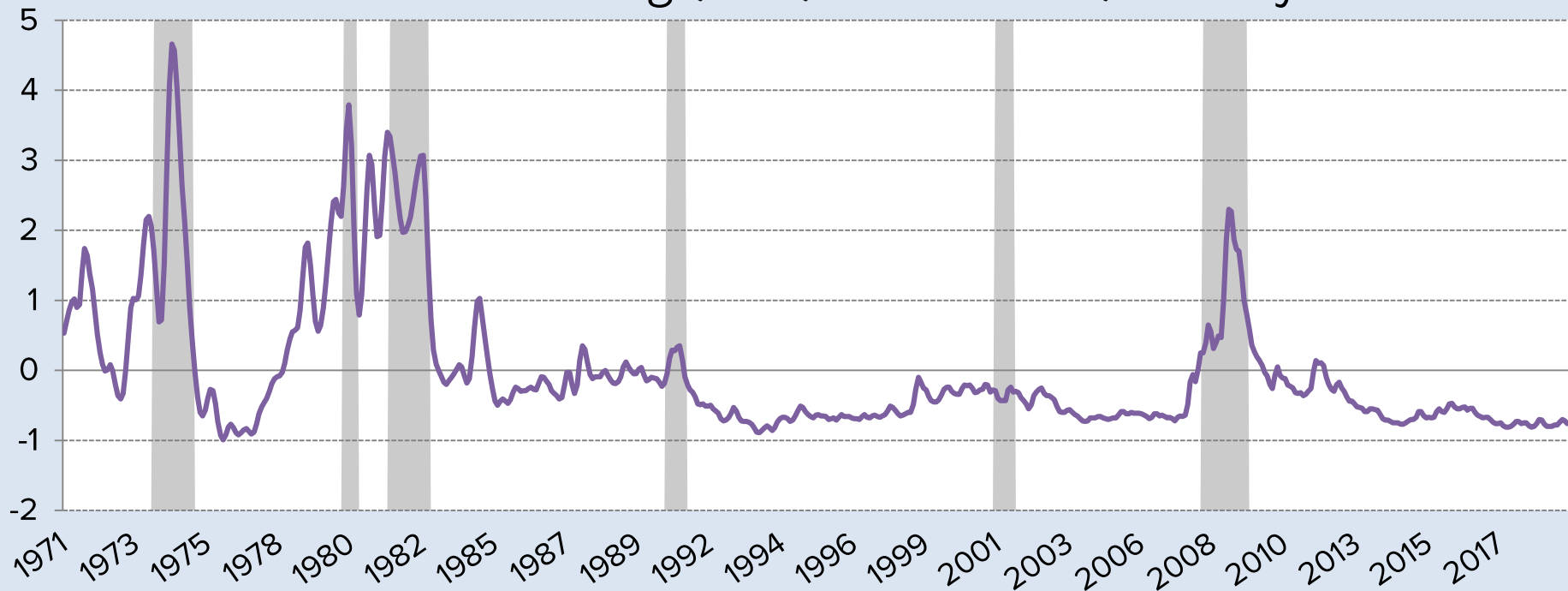
❑ Lessons: What are the Best Indicators?

❑ Lessons: What is the Current Recession Outlook?

THE FED'S LONGEST-RUNNING FINANCIAL “STRESS” INDEX

Chicago Fed National Financial Conditions Index*

Index: 0=no change, NSA, 1971-Nov 2019, monthly



* Chicago Fed NFCI combines 105 financial market indicators, which belong to three basic groups: risk, credit, and leverage. Positive is more risk; zero is neutral. Scale is calibrated by std. dev. sigma.

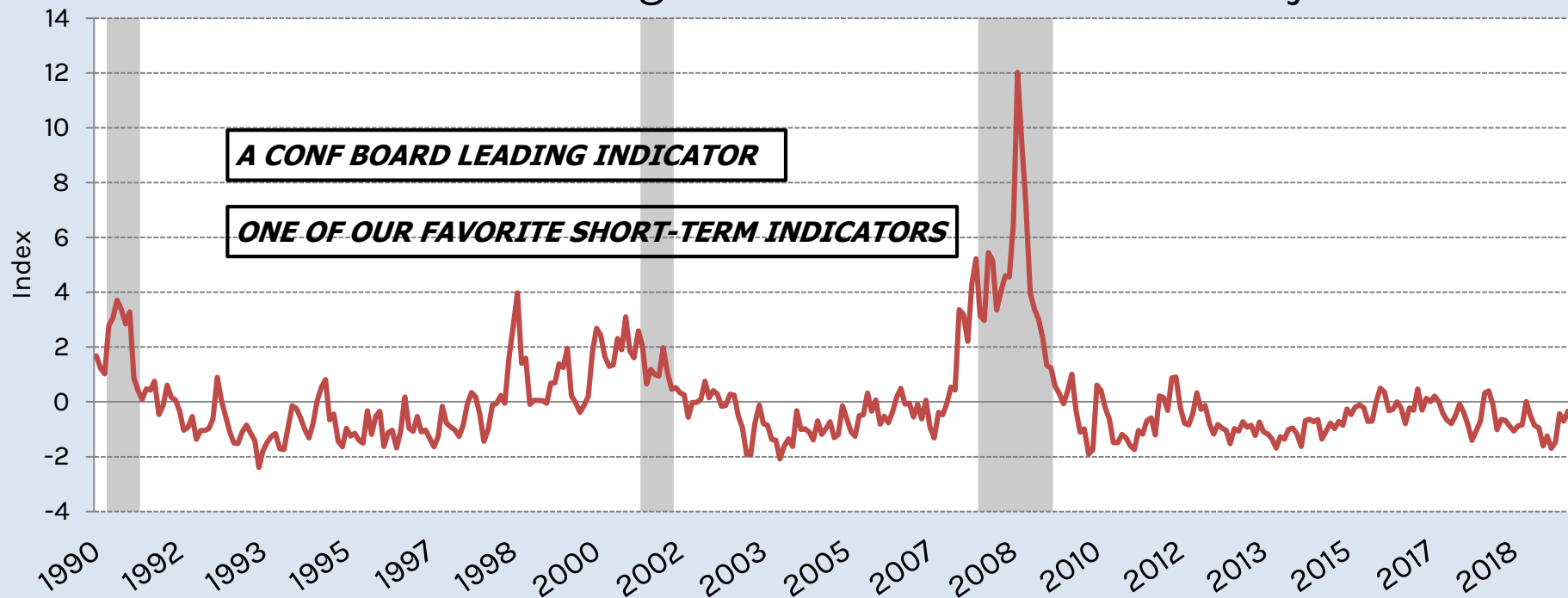
SOURCE: Federal Reserve Bank of Chicago

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CONF BOARD HAS ITS OWN “LCI”

Conference Board Leading Credit Index

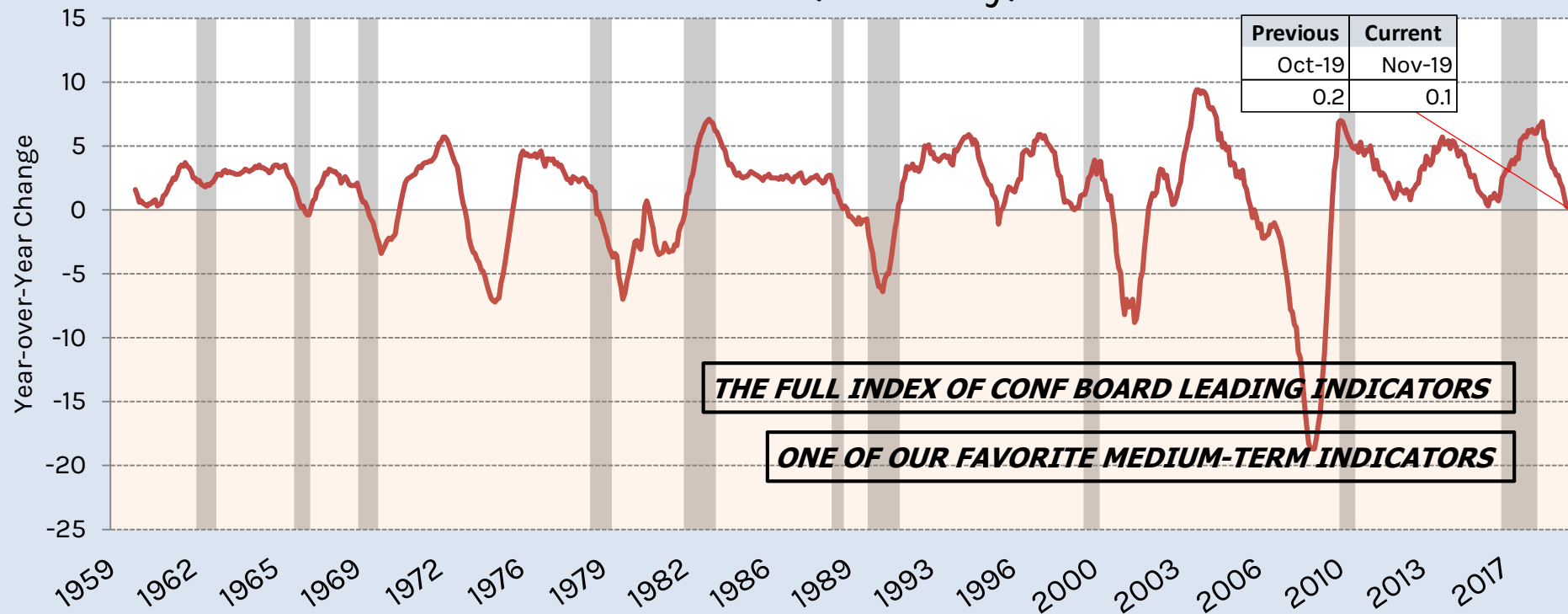
Index: 0=no change, NSA, 1990-Nov 2019, monthly



* LCI combines 6 indicators: TED spread; 2-year interest-rate swap; broker margin accounts; AAI bullishness; credit tightness surveys; and Fed repo activity. Positive is more risk; zero is neutral. Scale is calibrated by std. dev. sigma.

CONF BOARD TOTAL LEI: A RESPECTABLE TRACK RECORD

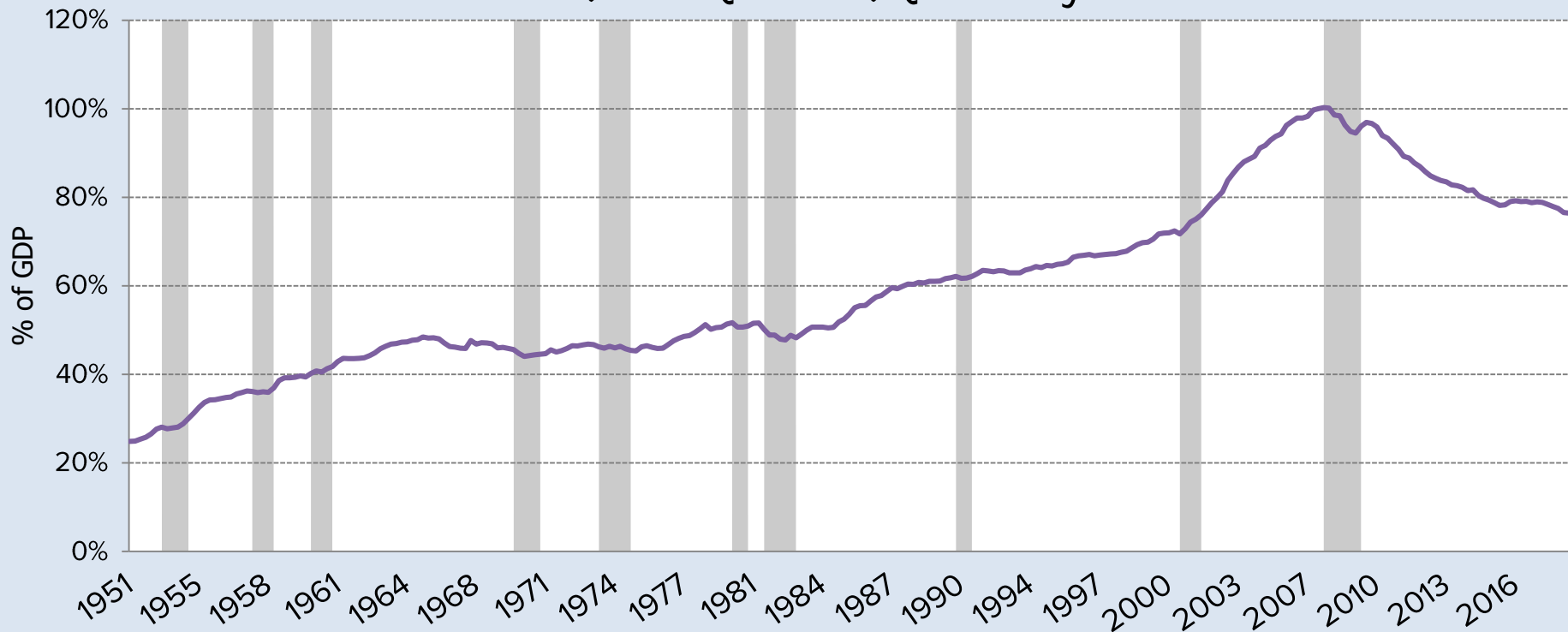
Conference Board US Leading Economic Indicators Index 1960-Nov 2019, monthly, YoY



BALANCE SHEET TRIGGERS: HOUSEHOLDS LOOK GOOD...

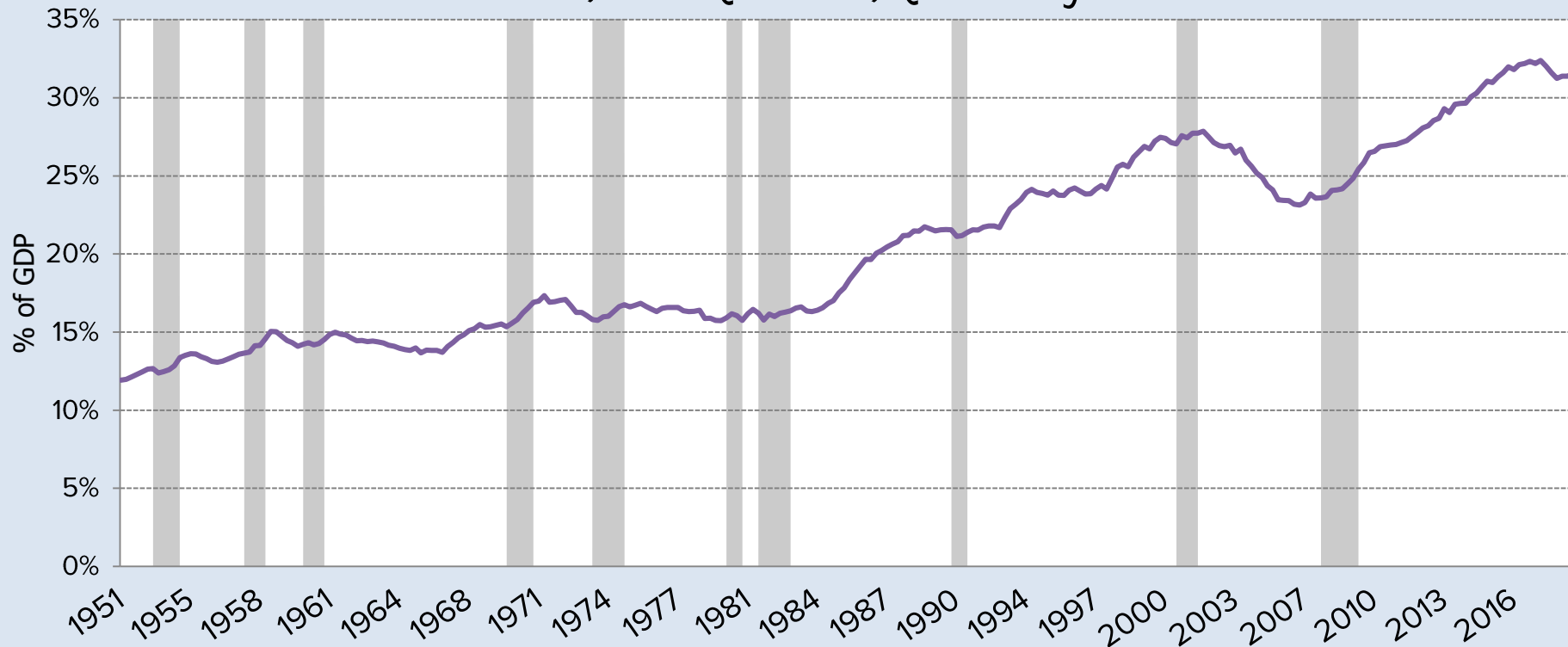
Household & Nonprofit Debt as a % of GDP

NSA, 1951-Q3 2019, Quarterly

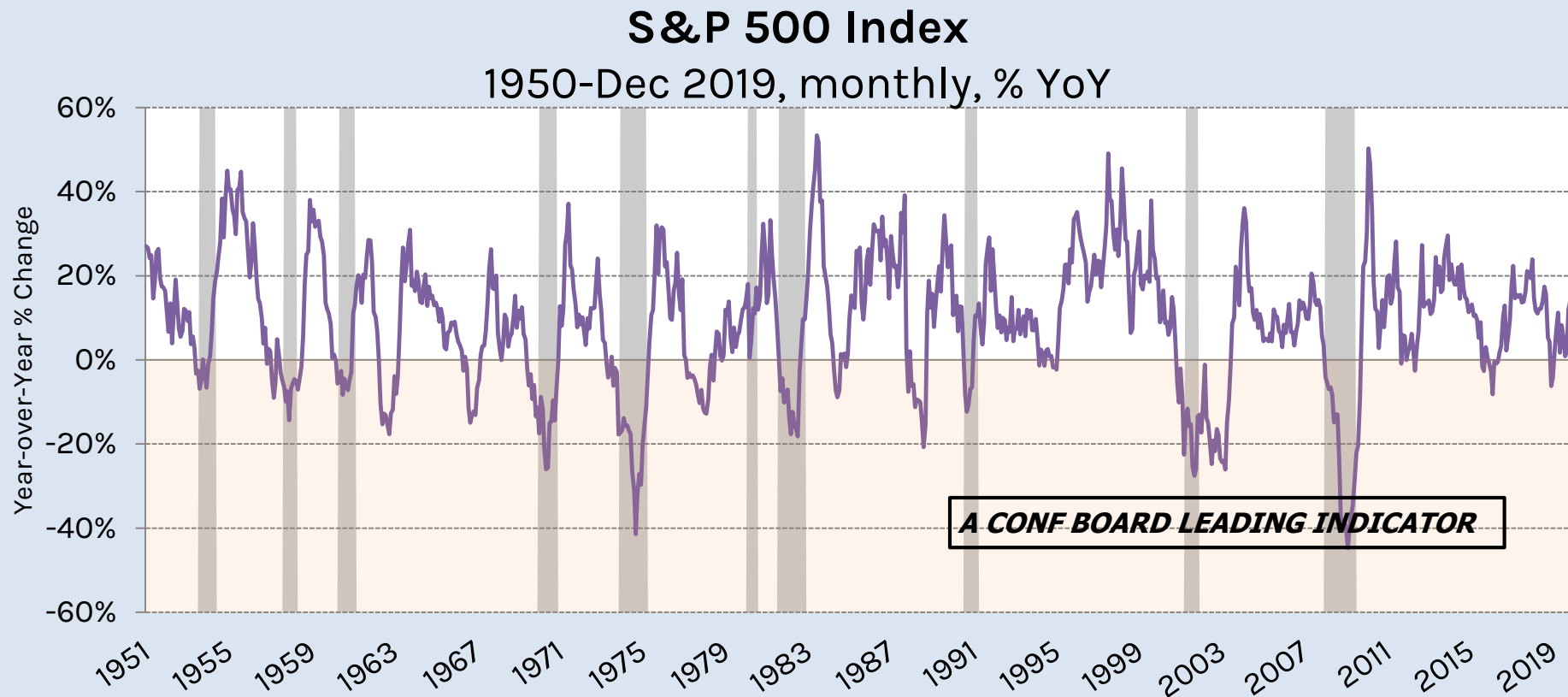


BUT CORPORATE SECTOR COULD BE AT RISK

Nonfinancial Corporate Debt as a % of GDP NSA, 1951-Q3 2019, Quarterly

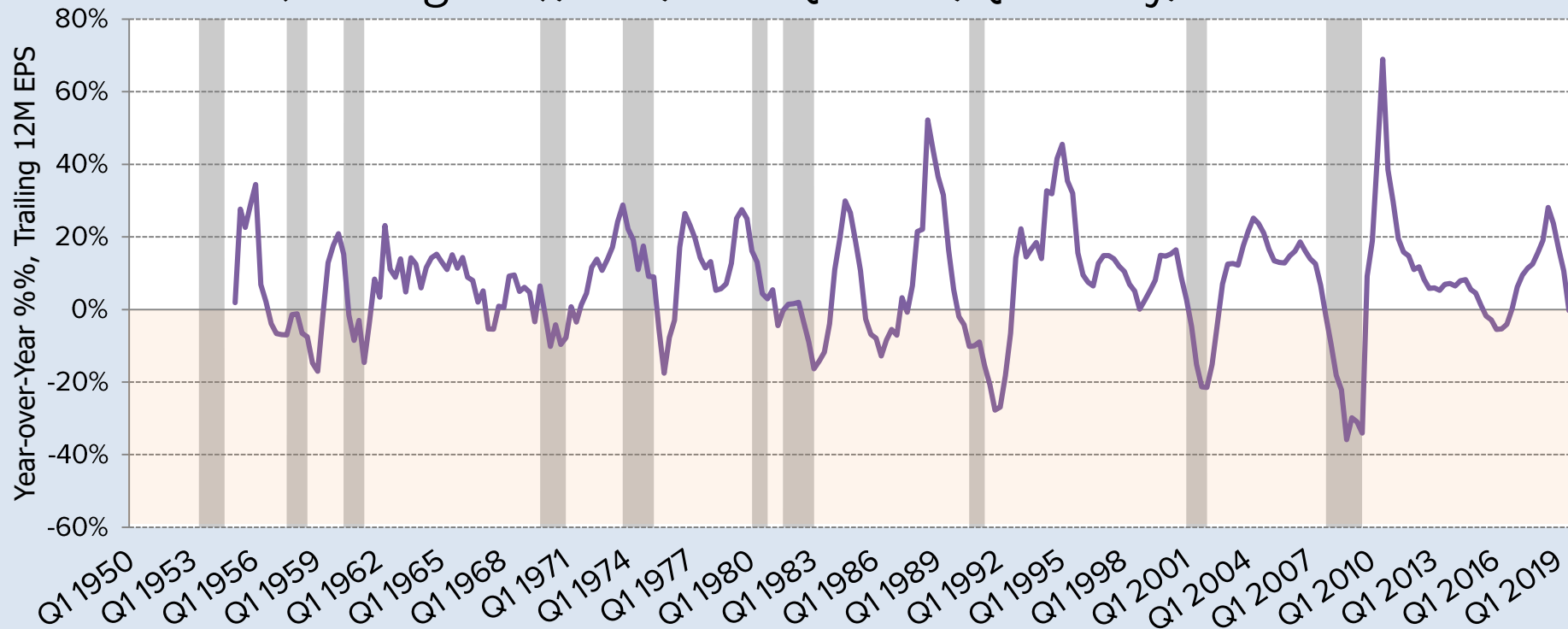


S&P 500 OFTEN “SLOWS DOWN” BEFORE DOWNTURNS



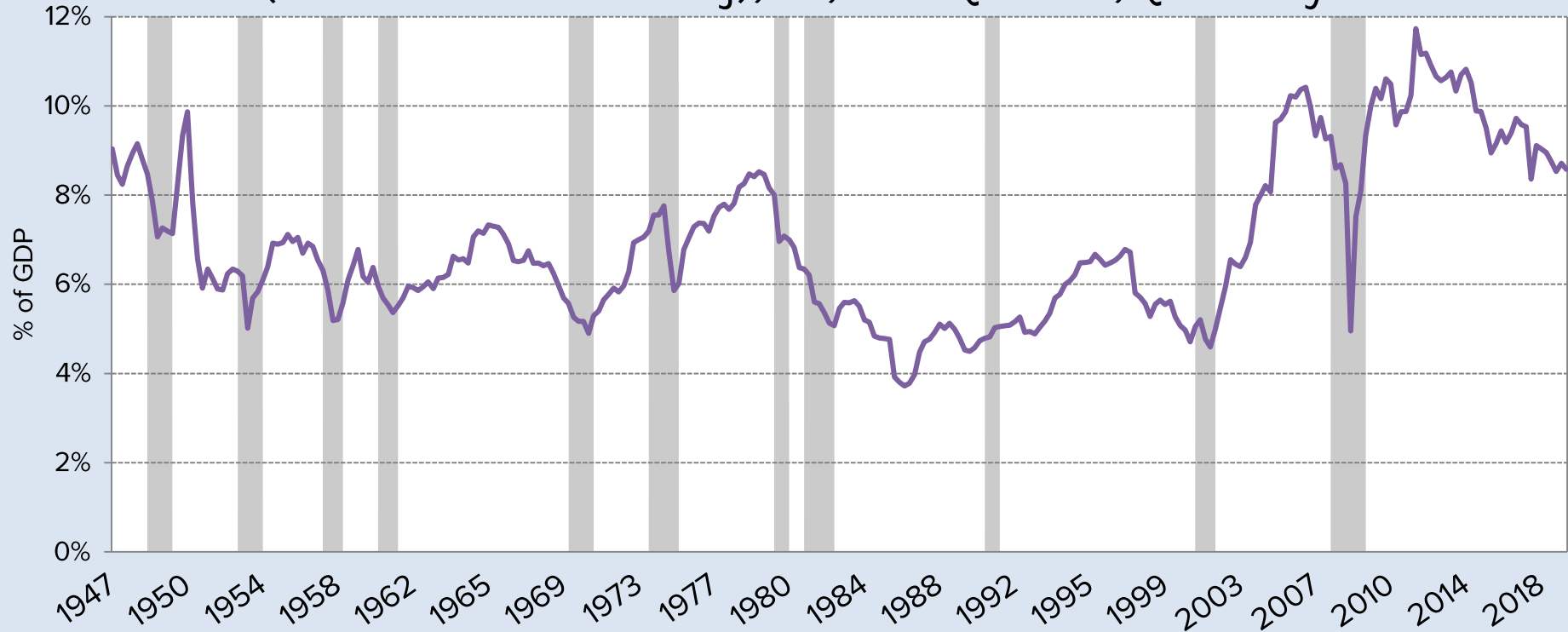
“EARNINGS RECESSIONS” OFTEN PRECEDE DOWNTURNS...

S&P 500 EPS Growth
(Trailing 12M), NSA, 1955-Q3 2019, Quarterly, % YoY

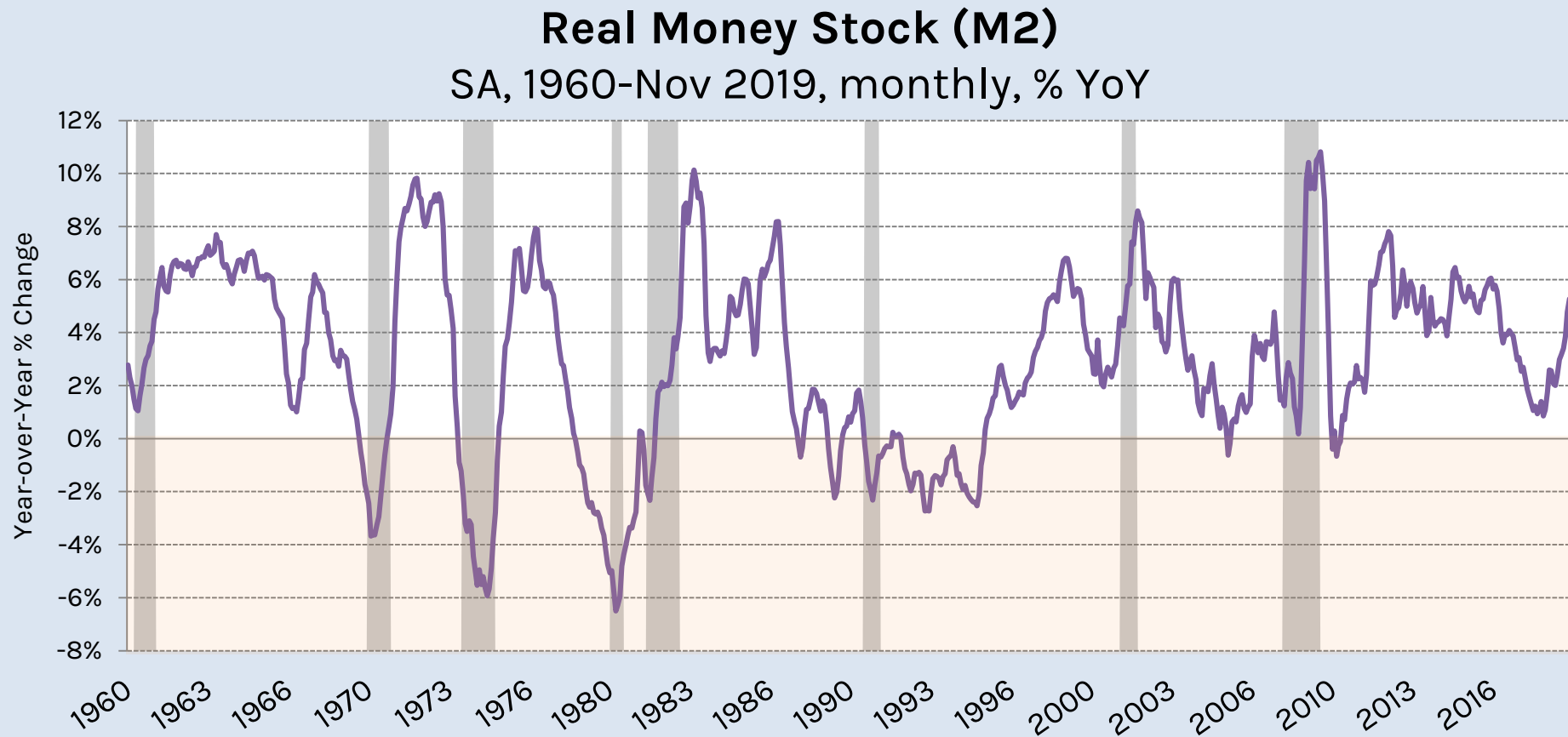


AS DO DECLINING PROFIT MARGINS

Corporate Profits After Tax as a % of GDP
(without IVA and CCAdj), SA, 1947-Q3 2019, Quarterly



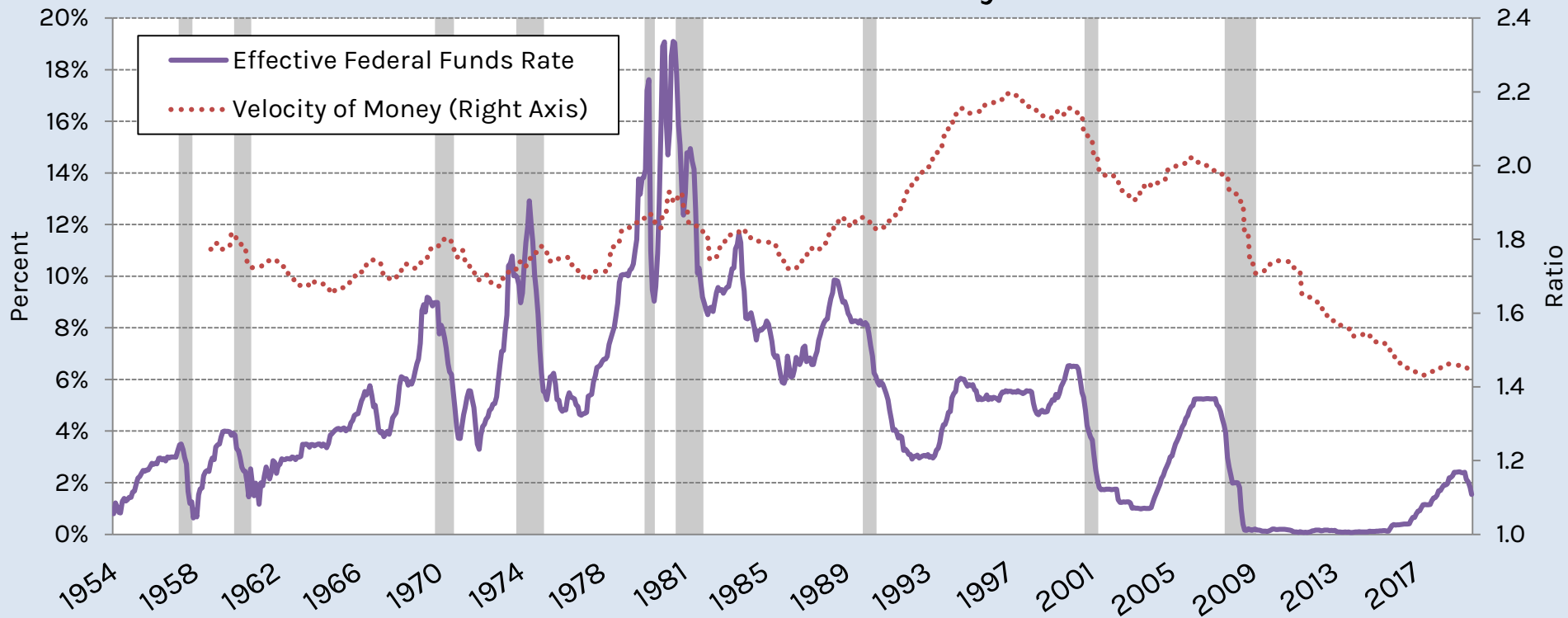
MONETARISTS CAN TRY THEIR HAND AT THIS ONE



DOES THE FED KILL RECOVERIES? TAKE A LOOK HERE

Effective Federal Funds Rate and Velocity of Money

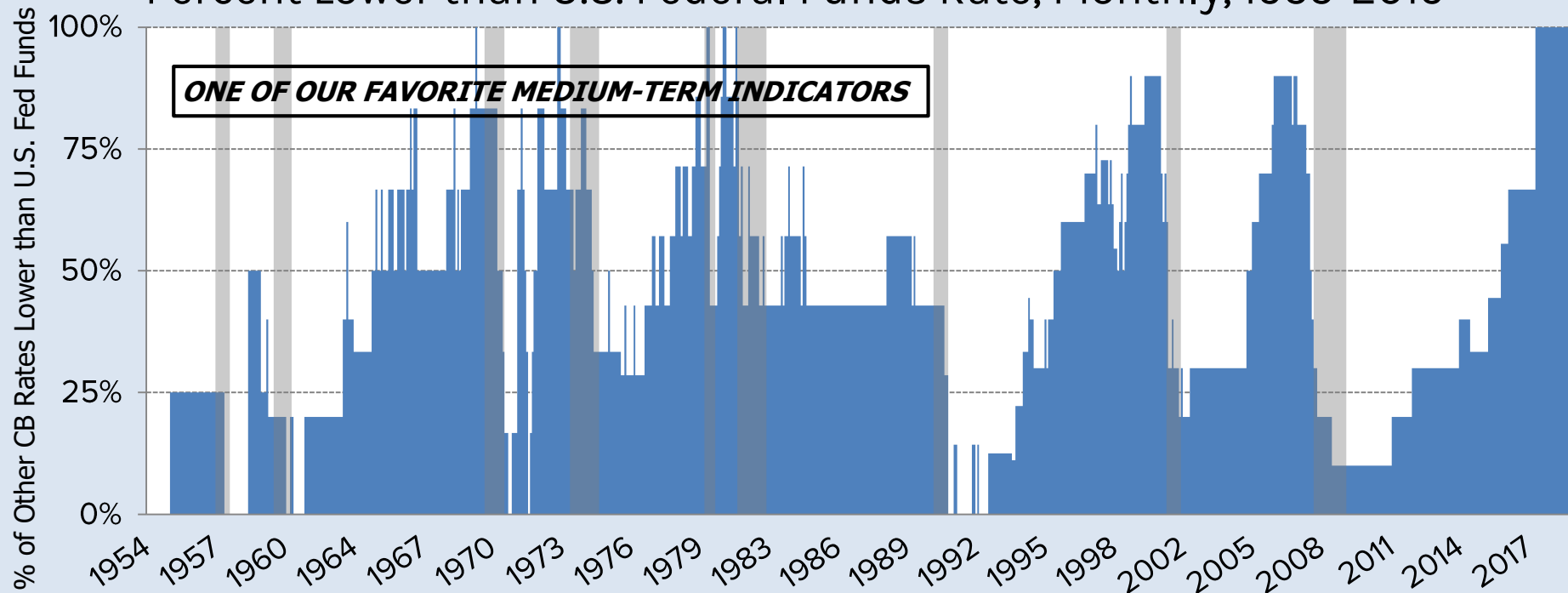
1954-Nov 2019, monthly, %



HOW ABOUT FED TIGHTNESS RELATIVE TO WORLD?

Central Bank Interest Rate in Major Countries*

Percent Lower than U.S. Federal Funds Rate, Monthly, 1955-2019



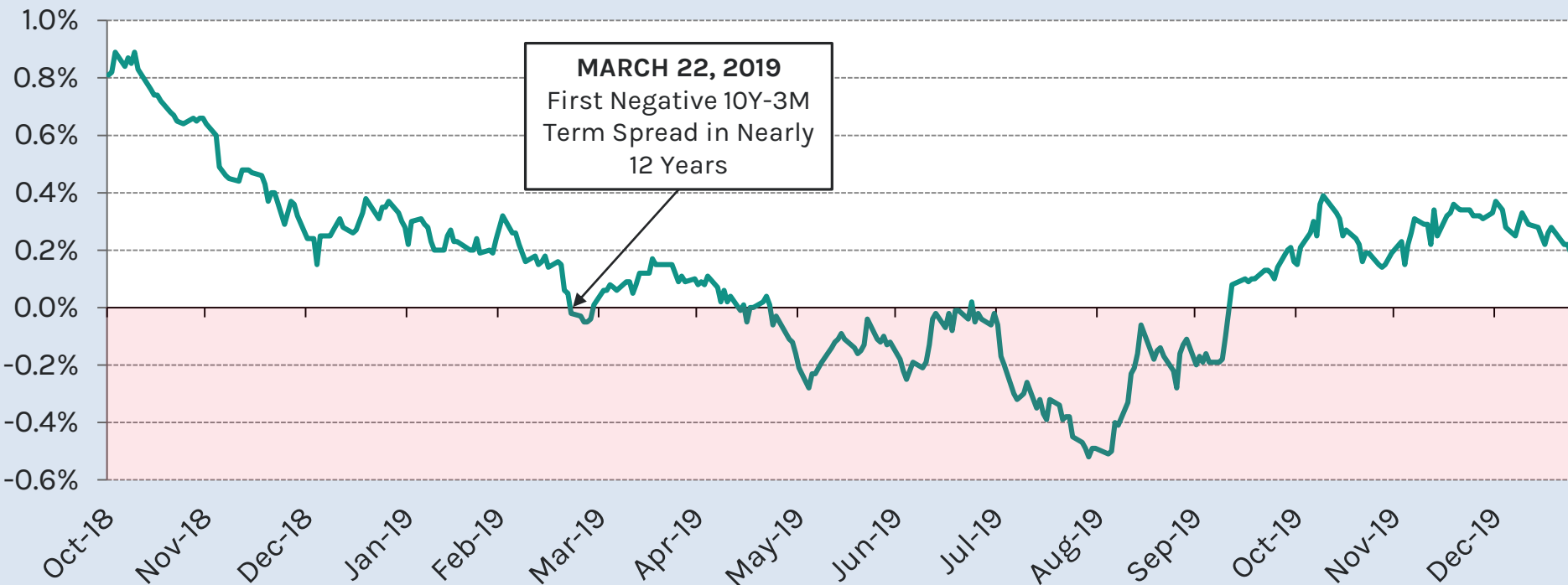
*Notes: Countries included exceed \$500 billion nominal GDP per IMF 2019 estimates. These countries are the UK, Australia, Canada, France, Italy, South Korea, Japan, Germany, Switzerland, Poland, Sweden, France, and Italy. In 1998, the ECB replaces France, Italy, and Germany.

SOURCE: Bloomberg (2019), IMF (2019), Federal Reserve Board of Governors (2019)

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TERM SPREAD: RECENT VIEW

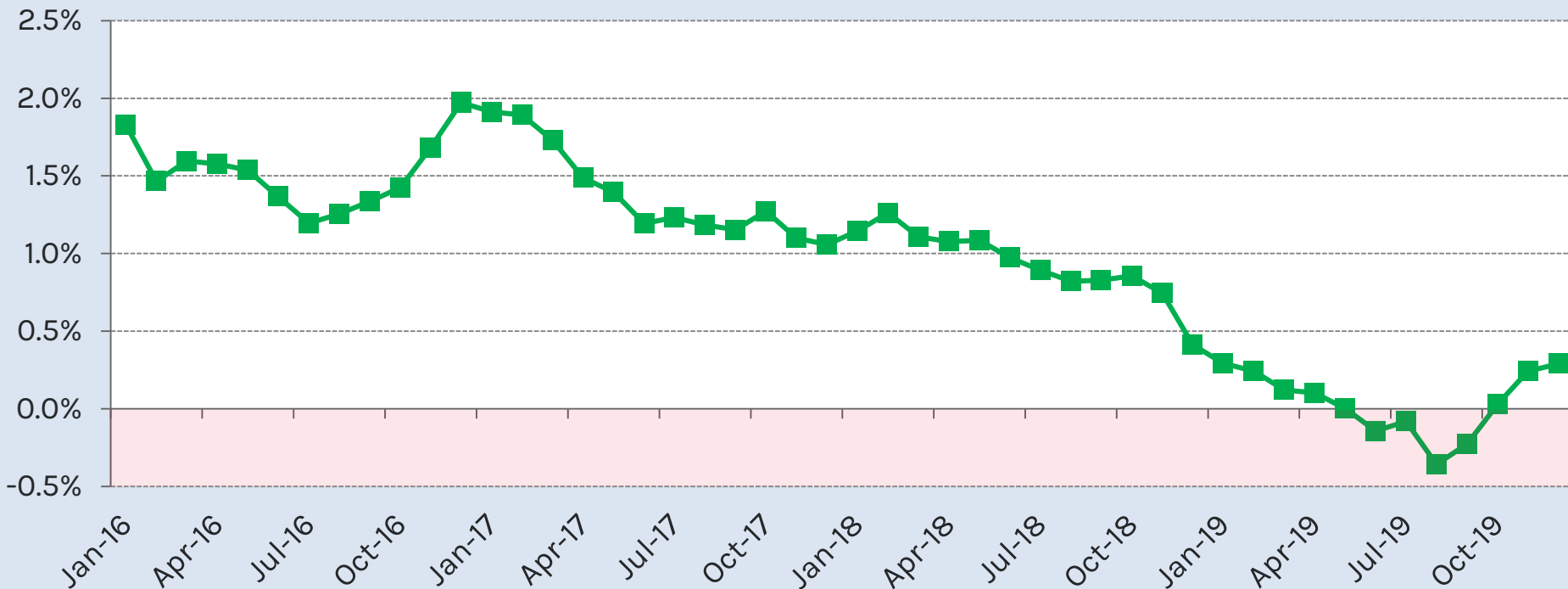
10Y-3M Term Spread* (Oct 31, 2018 to January 23, 2020)



*Difference between 10Y Treasury yield (constant maturity) and 3M Treasury yield (constant maturity) at market close.

TERM SPREAD: LONGER-TERM VIEW

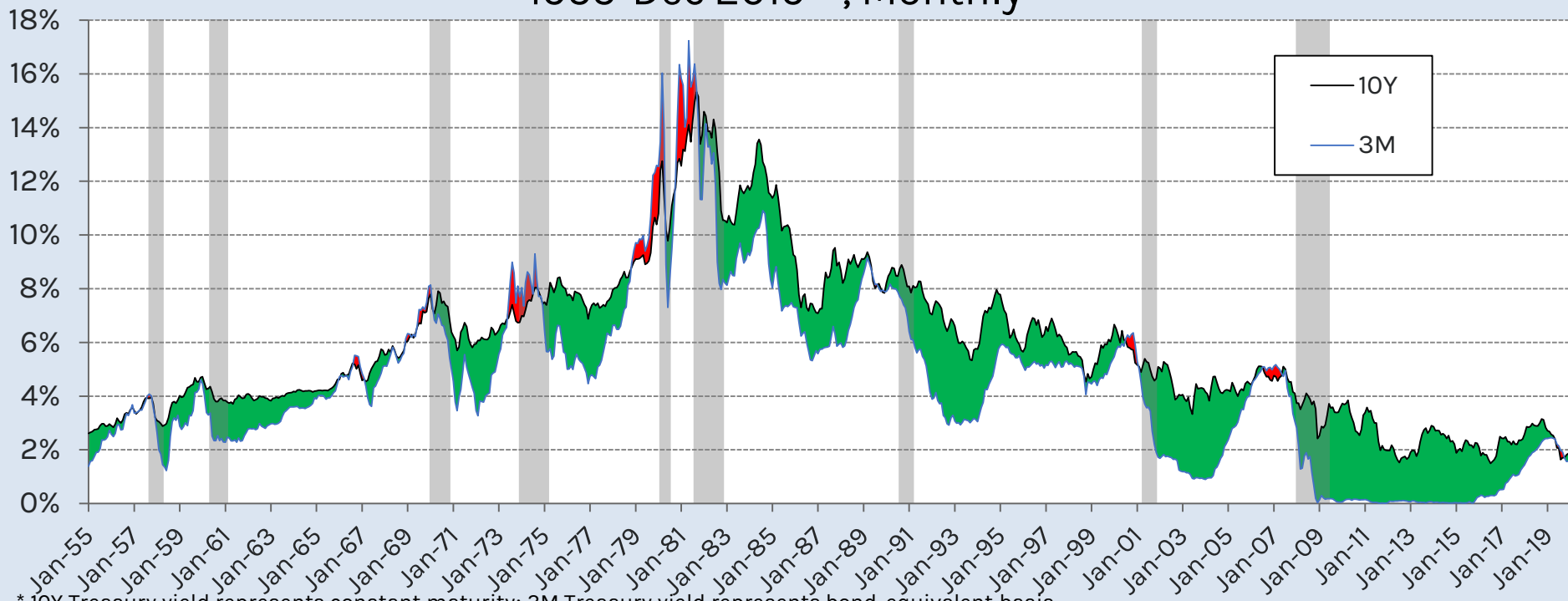
10Y-3M* Term Spread, Monthly* (Jan 2016 to Dec 2019)



* Average monthly percentage-point difference between 10Y Treasury yield (constant maturity) and 3M Treasury yield (bond-equivalent basis)

TERM SPREAD: POSTWAR RECORD

10Y & 3M Treasury Yields* 1955-Dec 2019**, Monthly***



* 10Y Treasury yield represents constant maturity; 3M Treasury yield represents bond-equivalent basis.

** Before Jan 1963, 1Y used instead to 3M.

*** Green shaded areas indicate a positive 10Y-3M term spread; red areas indicate a negative spread.

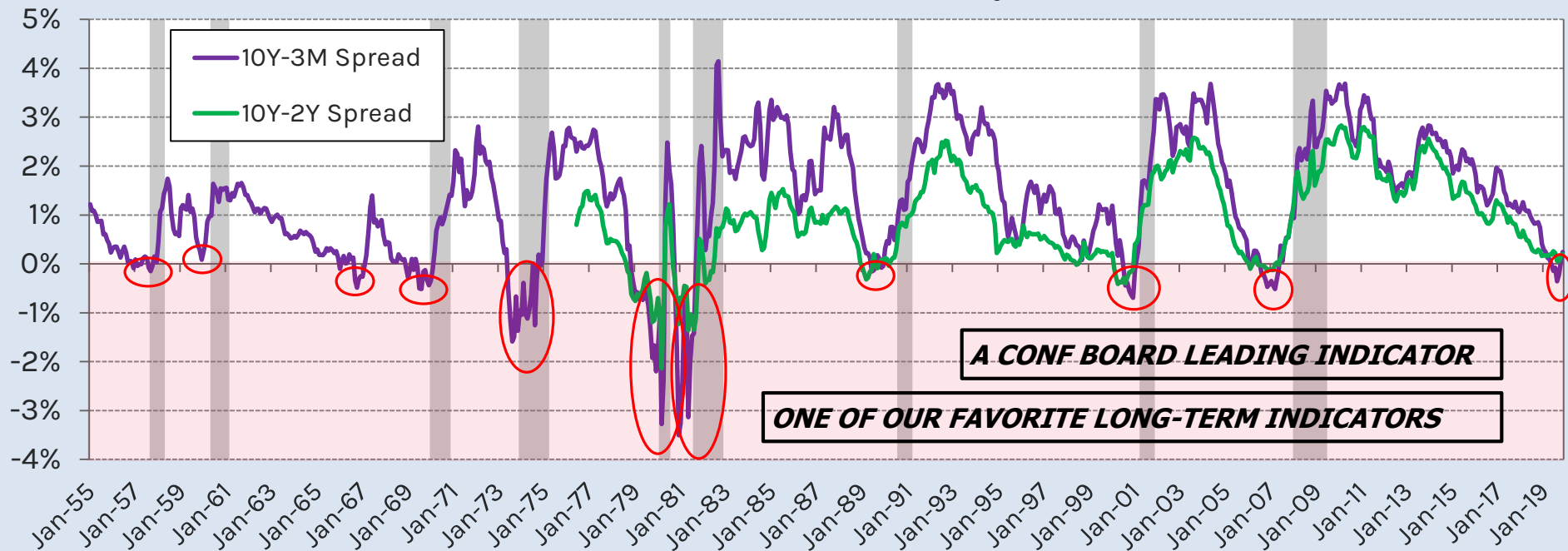
SOURCE: US Treasury (2019)

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TERM SPREAD: POSTWAR RECORD

10Y-3M* & 10Y-2Y** Term Spreads

1955-Nov 2019, Monthly***



* Avg pp difference between 10Y Treasury yield (constant maturity) and 3M Treasury yield (bond-equivalent basis) in a given month.

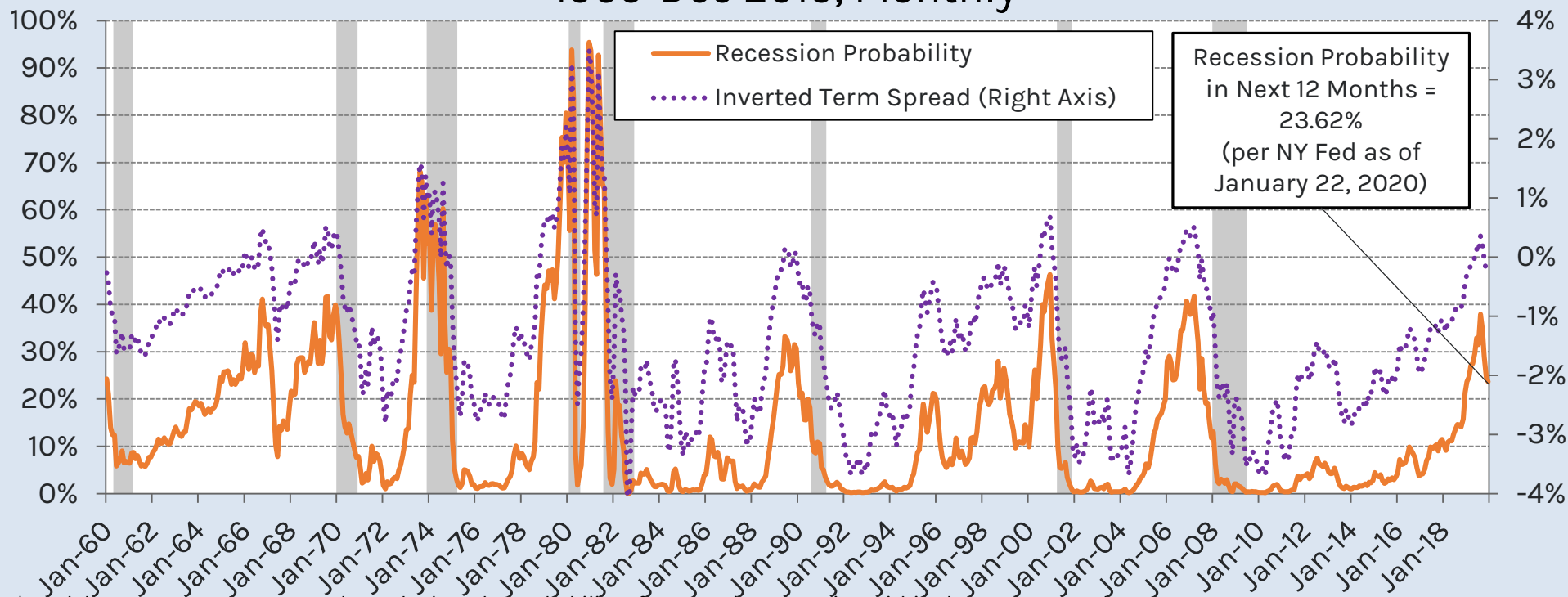
** Avg pp difference between 10Y Treasury yield (constant maturity) and 2Y Treasury yield (constant maturity) in a given month.

*** Before Jan 1963, 1Y used instead of 3M.

NEW YORK FED'S "RECESSION PROBABILITY INDICATOR"

Recession Probability* and Inverted 10Y-3M Term Spread**

1960-Dec 2019, Monthly

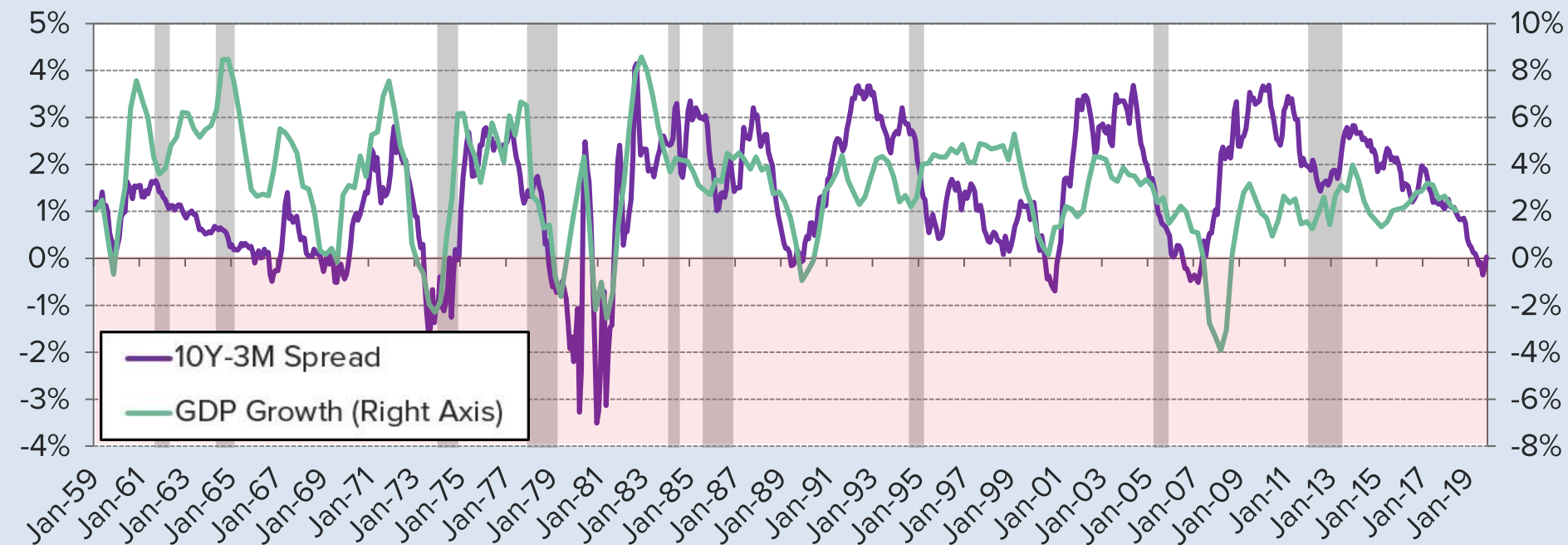


* Model uses 10Y-3M term spread to calculate the probability of a recession occurring within the next 12 months.

** Average monthly percentage-point difference between 10Y Treasury yield (constant maturity) and 3M Treasury yield (bond-equivalent basis), inverted.

TERM SPREAD: PLAUSIBLE FORECASTER OF GDP GROWTH

10Y-3M Term Spread* and 6Q-Forward YoY GDP Growth** 1959-Q2 2019, Quarterly

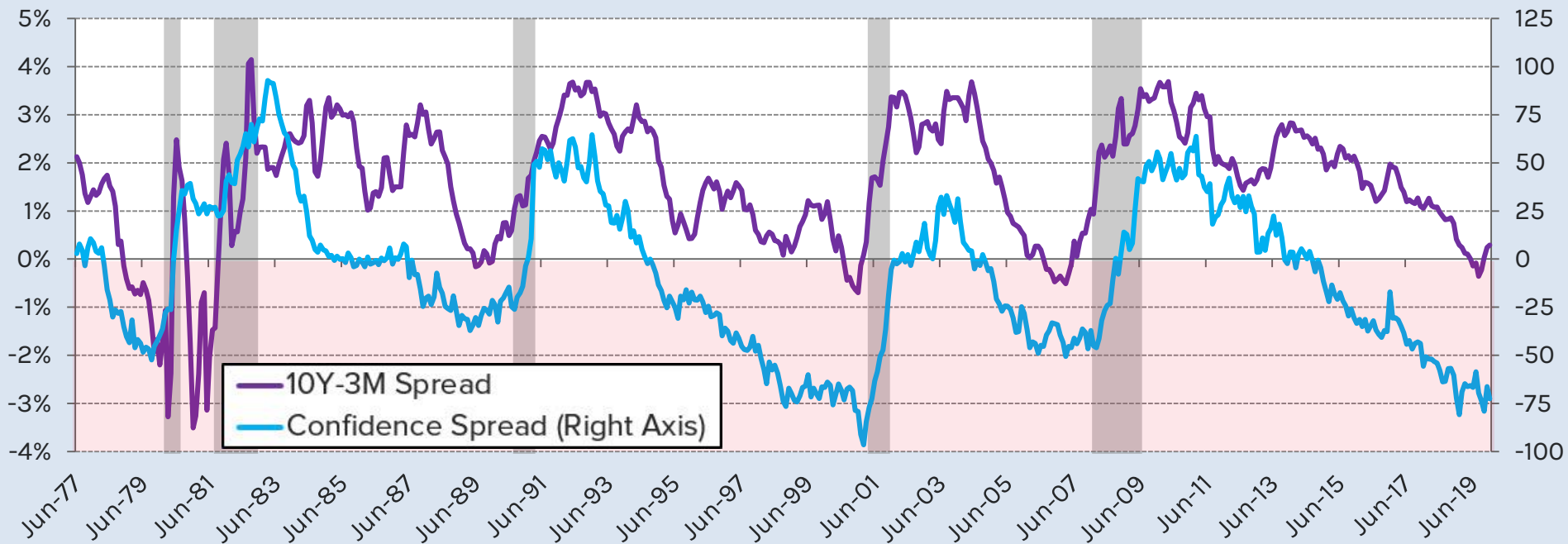


* Average monthly percentage-point difference between 10Y Treasury yield (constant maturity) and 3M Treasury yield (bond-equivalent basis).

** YoY change in quarterly real GDP, plotted six quarters ahead.

TERM SPREAD AND CCI “SPREAD”: VERY NICE FIT

10Y-3M Term Spread* and Consumer Confidence Spread** 1977-Dec 2019, Monthly



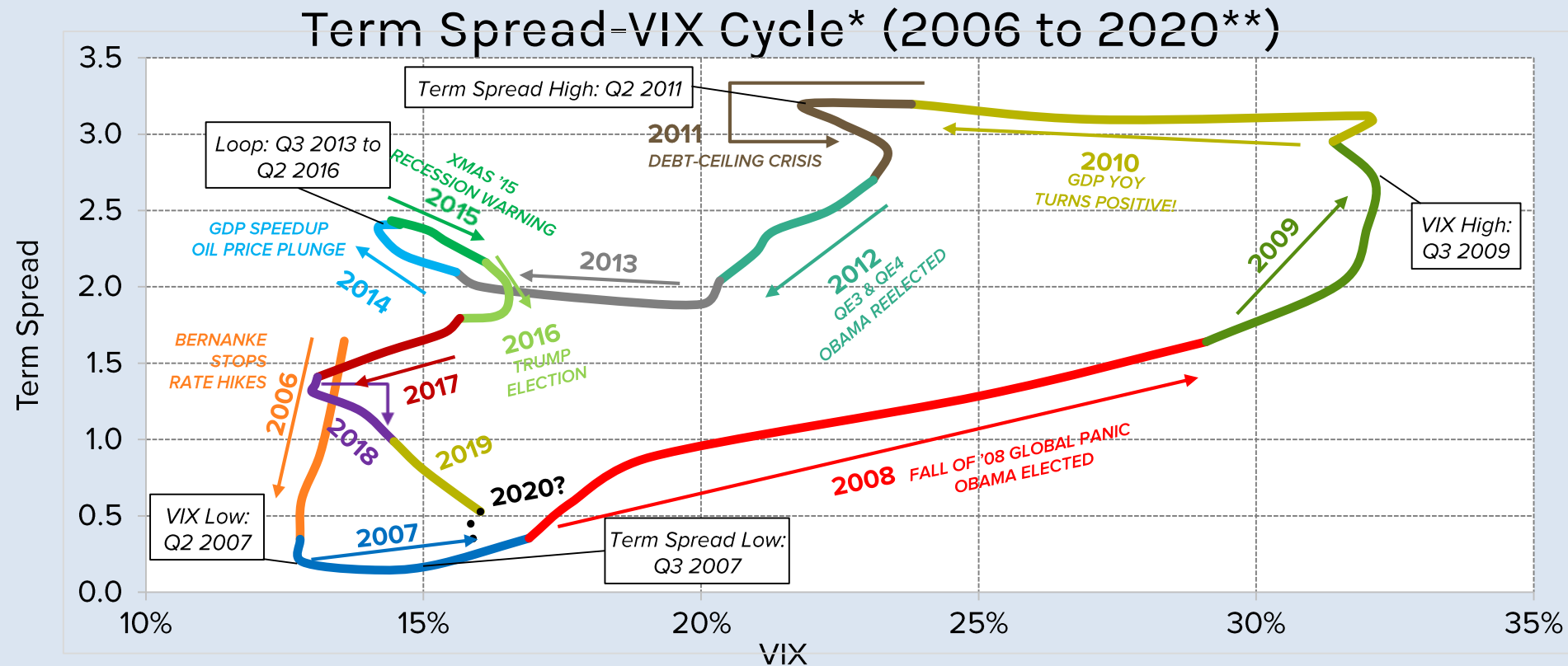
* Average monthly percentage-point difference between 10Y Treasury yield (constant maturity) and 3M Treasury yield (bond-equivalent basis).

** Difference between Conference Board's "Expectations Index" and "Present Situation Index" in a given month.

SOURCE: Federal Reserve Bank of New York (2019), Conference Board (2019)

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COMING FULL CIRCLE: TERM SPREAD & VIX



* Plots the 10Y-90D Treasury spread (two-year moving average) against the CBOE Volatility Index (two-year moving average) for every given quarter.

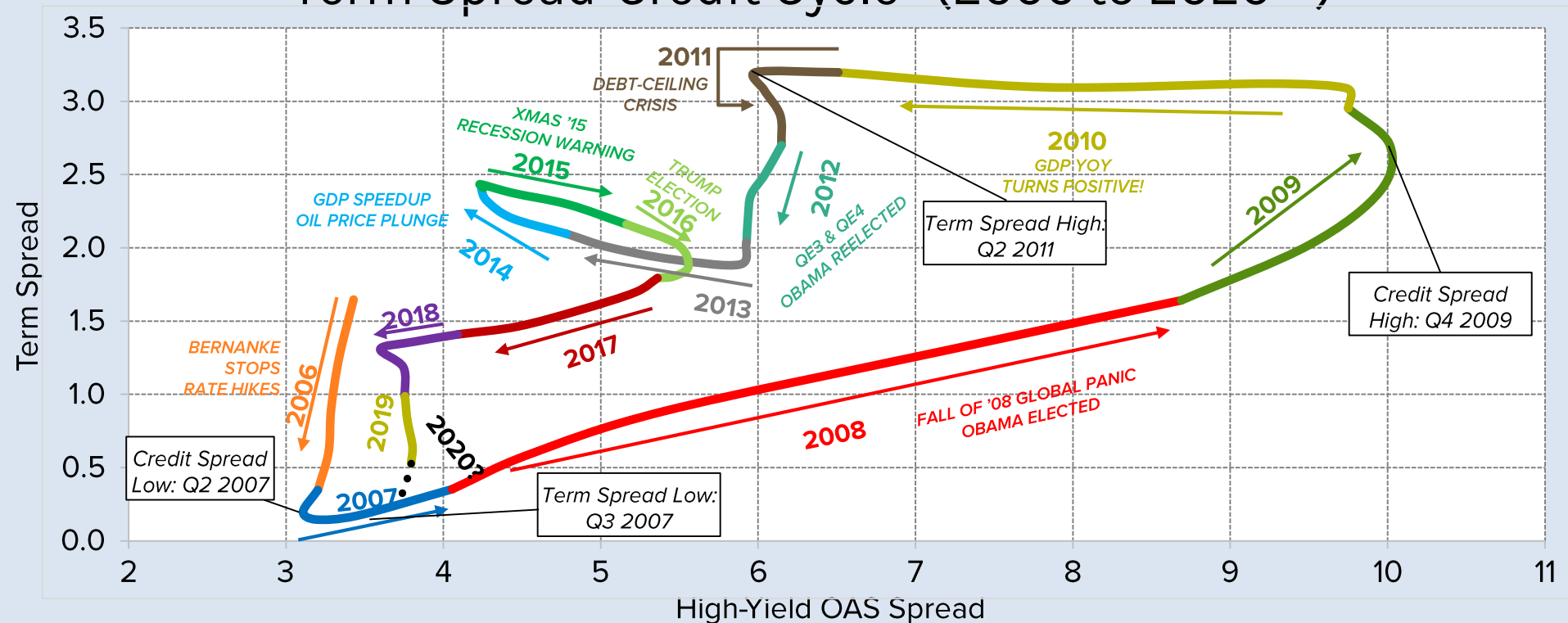
** Dotted line to 2020 assumes that term spread and credit spread stay at their current levels for the next two years.

SOURCE: Board of Governors of the Federal Reserve System (2019), Chicago Board Options Exchange (2019)

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COMING FULL CIRCLE: TERM SPREAD AND CREDIT SPREAD

Term Spread-Credit Cycle* (2006 to 2020**)



* Plots the 10Y-90D Treasury spread (two-year moving average) against the corporate high-yield OAS (two-year moving average) for every given quarter.

** Dotted line to 2020 assumes that term spread and credit spread stay at their current levels for the next two years.

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7. *Financial & Other “Leading” Indicators*

☐ Lessons: What are the Best Indicators?

☐ Lessons: What is the Current Recession Outlook?

WHAT ARE THE BEST INDICATORS? (IMO!)

□ **SHORT-TERM (0-2 MONTHS)**: Highly certain, but w/ little foresight or perspective:

- **Initial Unemployment Claims, Ch 56** [*YoY change > +50K*]
- **Unemployment Rate, Ch 55** [*YoY change > +0.3 pp*]
- **Conference Board Consumer “Expectations,” Ch 85** [*YoY change < -25 pp and below 0*]
- **Employment/Population Ratio, Ch 58** [*change from peak < -0.5 pp*]
- **Conference Board Leading Credit Index, Ch 93** [*index > 2*]

WHAT ARE THE BEST INDICATORS? (IMO!)

- ❑ **MEDIUM-TERM (2-6 MONTHS)**: Less certain (more “sensitive”), but w/ more foresight.
 - **Industrial Production, Manf, Ch 15** [YoY % < -2.5%]
 - **CES Total NFP Employment, Ch 57** [YoY change < 1.5%]
 - **Avg Weekly Hours, Manf, Ch 64** [sustained YoY change < -0.5]
 - **Chicago Fed Midwest Economy Index, Ch 52** [index < 0.3]
 - **Share of Central Bank Rates Below US, Ch 102** [sustained > 50%]
 - **Conference Board Leading Indicators Index, Ch 94** [YoY change < -1]
 - **Avg Weekly Hours Less Working Age Pop. Growth, Ch 67** [YoY % < 0]

WHAT ARE THE BEST INDICATORS? (IMO!)

❑ **LONG-TERM (6-12 MONTHS)**: Great on foresight & perspective, timing approximate.

- Inverted Term Spread, 10Y-3M, Ch 107
- GDP Above Potential, Ch 22
- Age Adjusted Employment/Population Ratio, Ch 59
- Conference Board Expectations Minus Present, Ch 84

A “CRASH” COURSE IN RECESSION INDICATORS

☐ What Is a Recession?

☐ Properties of Good Recession Indicators

☐ INDICATORS

1. *Production, Consumption, & Income*
2. *Housing, Autos, & Transportation*
3. *Real-Time Diffusion Indexes*
4. *Employment*
5. *Inflation & Wages*
6. *Sentiment*
7. *Financial & Other “Leading” Indicators*

☐ Lessons: What are the Best Indicators?

☐ Lessons: What is the Current Recession Outlook?

LET'S LOOK FIRST AT WHERE WE ARE

❑ Current Performance of the Economy

- **Summary of Strengths:**
 - **Domestic Demand**
 - **Consumption / Retail**
 - **Services**
 - **Consumer Confidence**
 - **Equity Market (rising to date)**

- **Summary of Weaknesses**
 - **Net Exports (Slowing Global Growth)**
 - **Investment / Capex**
 - **Energy & Manufacturing**
 - **Business Confidence / Policy Uncertainty**
 - **Profit Margins and Earnings (declining to date)**

THEN LET'S LOOK AHEAD

- Near-Term (0-2 months): LOW Likelihood
 - Most near-term (and “certain”) indicators are not close to triggering. These include financial stress, unemployment, retail, personal income, and any of the other “big four” indicators. The only cautionary near-term signal is consumer “expectations.”
- Medium-Term (2-6 months): MODERATE Likelihood
 - Medium-term (and “sensitive”) indicators are very mixed. Many indicators related to manufacturing, firm capex, durables demand, average hours, the yield curve, and corporate profit margins and earnings are either triggered or nearly so. Slowing global growth and the high fed funds rate (relative to rest of world) is further cause for concern.
- Long-Term (6-12 months): HIGH Likelihood
 - Long-term (and “perspectival”) indicators are nearly all pointing to high likelihood—the exception being inflation. These include potential GDP, full employment, and consumer expectations in addition to further pressure on the yield curve and profit margins (in case there is no medium-term recession). Political and policy uncertainty also seem certain to grow.

WHAT DO OUR FAVORITE INDICATORS NOW SAY? (JAN 24, 2020)

❑ SHORT-TERM (0-2 MONTHS):

- Initial Unemployment Claims
- Unemployment Rate
- Conference Board Consumer “Expectations”
- Employment/Population Ratio
- Conference Board Leading Credit Index

❑ MEDIUM-TERM (2-6 MONTHS):

- Industrial Production: Manf [DOWN from Clear on Dec 20]
- Manf New Orders for Durable Goods
- CES Total NFP Employment
- Avg Weekly Hours, Manf Production Workers
- Chicago Fed Midwest Economy Index
- Share of Central Bank Rates Below US
- Conference Board Leading Indicators
- Avg Weekly Hours Less Working Age Pop. Growth

❑ LONG-TERM (6-12 MONTHS):

- Inverted Term Spread, 10Y-3M
- GDP Above Potential
- Age Adjusted Employment/Population Ratio
- Conference Board Expectations Minus Current

All Clear

Close to Triggering

Indicator Triggered