

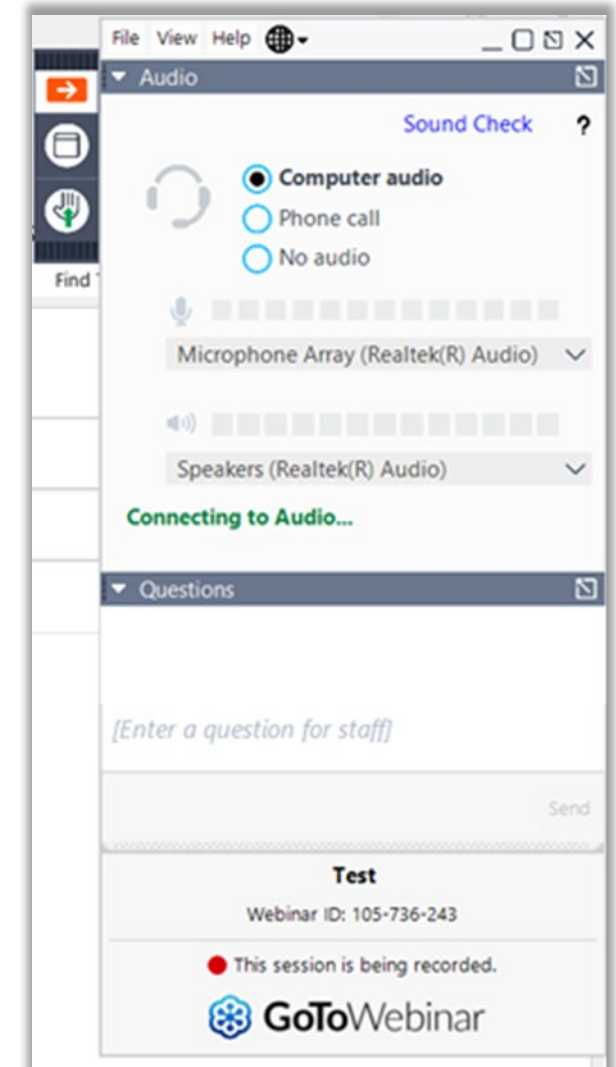
Q3'23 ECONOMIC IMPACTS ON KANSAS MANUFACTURING WEBINAR



KANSAS
MANUFACTURING
SOLUTIONS

Webinar Housekeeping

- Everyone attending the webinar is muted. To ask a question, type your question in the Q/A text box on your GoToWebinar panel.
- We will ask as many questions as we can at the end of the presentation.
- This webinar is being recorded. The link to the recording will be included in a follow-up email being distributed tomorrow.
- Please check our website www.wearekms.com frequently for new webinars and events. (or register to receive our quarterly KMS newsletter)



Kansas Manufacturing Solutions

As an experienced consultant dedicated to the Kansas manufacturing industry, Kansas Manufacturing Solutions provides a suite of problem-solving services so manufacturers can compete and grow in the domestic and global marketplace

Problems We Solve



People



Processes



Operations



Kansas Manufacturing Solutions

KMS's results are directly tied to our clients' results, validated and published by an independent third party

“**This has been a business saving experience for a 23-year-old company. I have the confidence to take this company to the next level and maximize the potential.**”



Kari Wagner, CEO, Mid Star Lab





Dr. Chris Kuehl



**Managing Partner,
Armada Corporate Intelligence**

(Bluf) bottom line up front

- **Q2 GDP was still running at 2.3%, well above initial expectations for contraction of 0.9%. Q3 expectations between 3.0% and 4.0% at the moment. Recession threat much reduced.**
- **Global growth between 3.0% and 3.5%. Up slightly but still historically low. Europe at between 1.1% and 1.5%. China likely to miss 5.0% growth target.**
- **The Federal Reserve is likely to take another quarter-point interest rate increase before the end of the year, pushing the Fed Effective Funds Rate to 5.6%, the highest since the year 2000. ECB still talking rate hikes. BoE may be slowing. BoJ still low**
- **Positive economic activity is being propped up by strong nonresidential construction activity, automotive, aerospace, defense sector spending, and stable consumer spending.**
- **Global commodity inventories are still generally low, but there was some improvement in the last 30 days. Oil prices still in the 70s. US oil production hitting a record again.**

Macroeconomic Outlook – Has Managed to Miss for Four Quarters

3. Back to sub-2% growth through '25

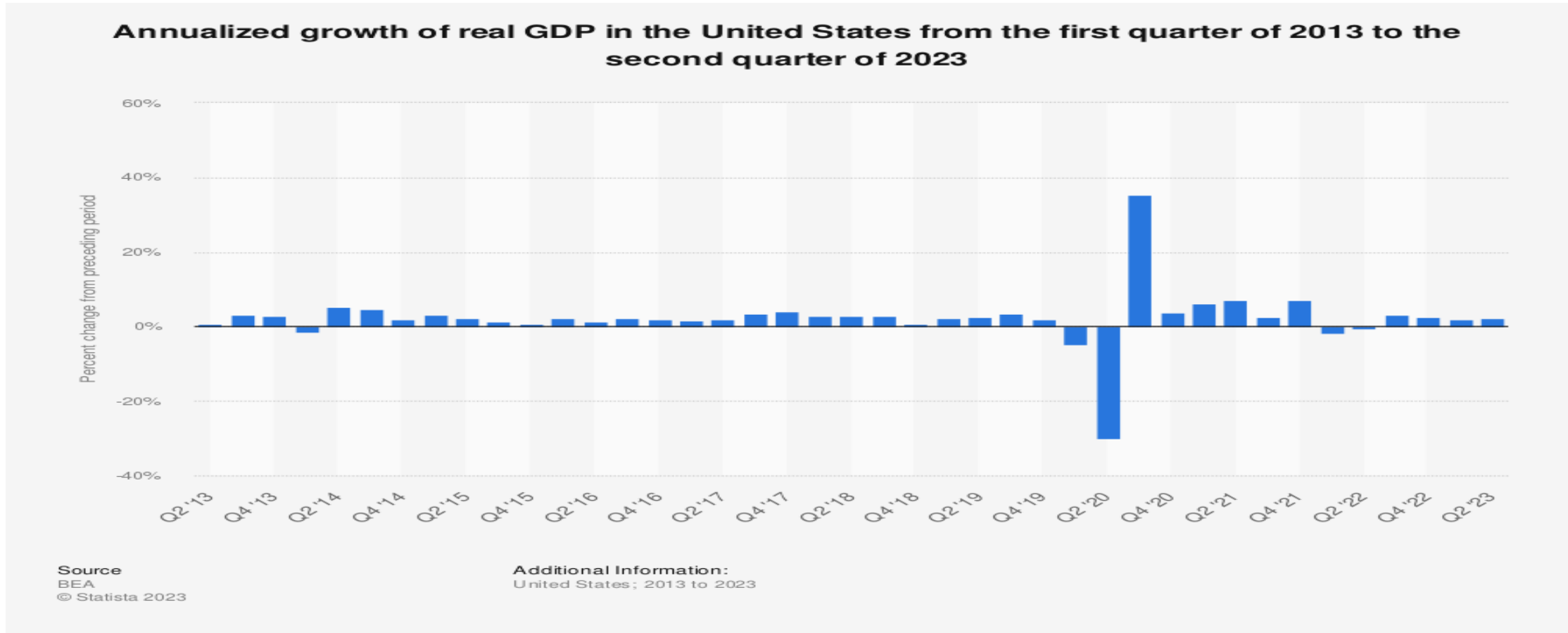
	2023				2024				2019	2020	2021	2022	2023	2024	2025
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4							
Real GDP	1.1	2.4	1.0	-1.9	-0.5	1.0	2.2	2.3	2.3	-2.8	5.9	2.1	1.9	0.7	1.8
Unemployment rate (%)	3.5	3.6	3.8	4.0	4.5	4.5	4.4	4.3	3.7	8.1	5.4	3.6	3.8	4.3	4.5
PCE Inflation (%Y/Y)	4.6	3.6	3.1	3.1	3.1	2.5	2.1	2.0	1.5	1.1	4.0	5.6	3.1	2.2	2.0
Core PCE Inflation (%Y/Y)	4.7	4.3	3.8	3.5	3.1	2.5	2.1	2.0	1.7	1.3	3.5	4.8	3.5	2.2	2.0
Fed Funds Rate	4.9	5.1	5.3	5.5	5.5	5.2	4.7	4.0	1.6	0.1	0.1	4.4	5.5	4.0	3.1
Canada Real GDP	-	-	-	-	-	-	-	-	1.8	-5.2	4.5	3.4	1.3	1.5	-
Unemployment rate (%)	-	-	-	-	-	-	-	-	5.8	9.5	7.4	5.3	5.7	6.0	-
Mexico Real GDP	-	-	-	-	-	-	-	-	-1.8	-8.2	5.0	2.7	1.6	2.1	-
Unemployment rate (%)	-	-	-	-	-	-	-	-	3.6	4.4	4.1	3.3	3.4	3.3	-

1. Greatest recession risk is being pushed further out, but it appears greatest between Q3 and Q1 of 2024.

2. Some estimates suggest that this could still easily get pushed out, depending on how quickly the unemployment rate rises (which will have a disinflation effect and reduce inflation risk).

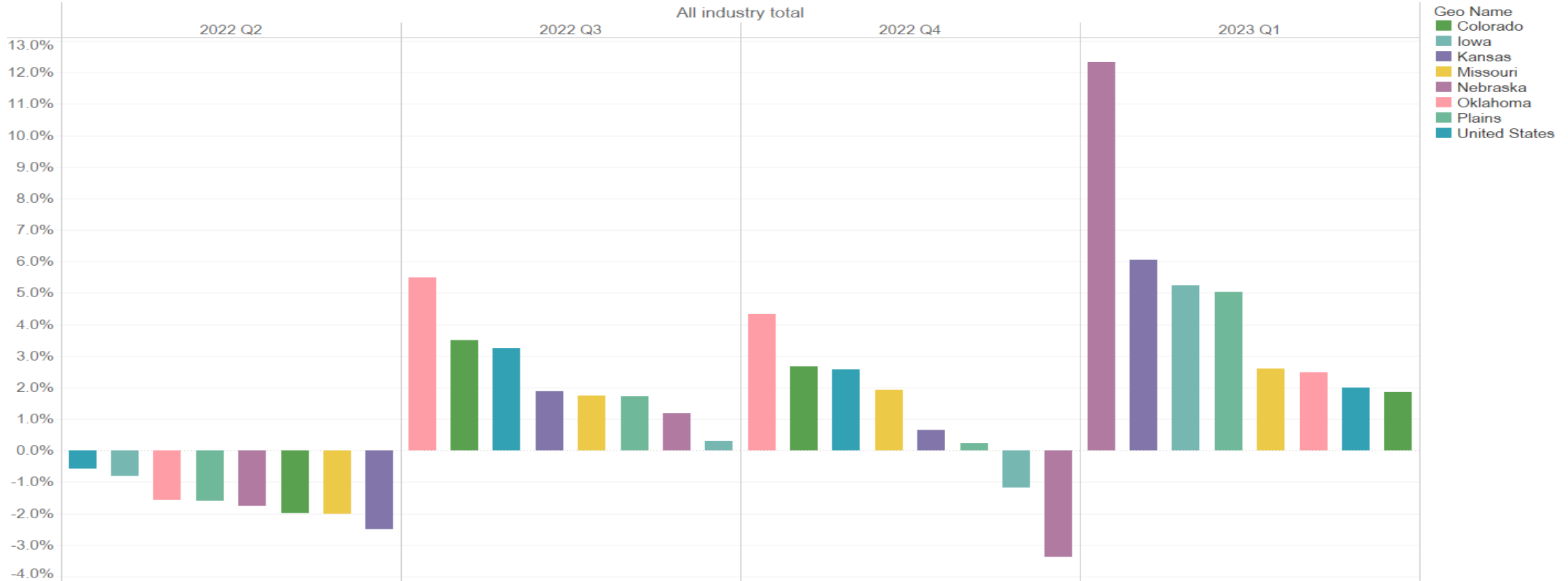
4. To hit 2% inflation target, estimates suggest the Fed will have to hit a peak Effective Funds Rate of 5.1% to 5.5% and unemployment will likely still approach 4.5%.

Back to Normal



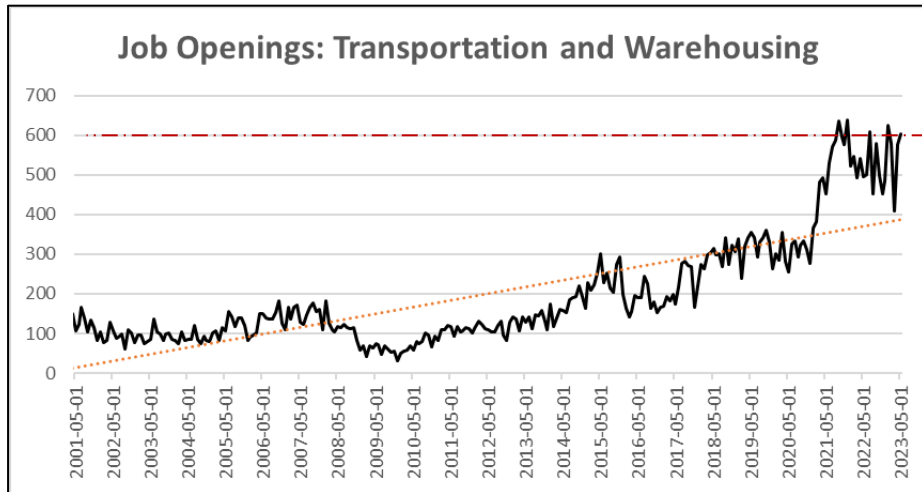
Kansas and Nebraska Lead

Chart 6b. Real Gross Domestic Product by State and Industry
Change from previous quarter at annual rate. Millions of chained 2012 dollars.



Total Job Openings Fell to 9.8 million from 10.3 million last month

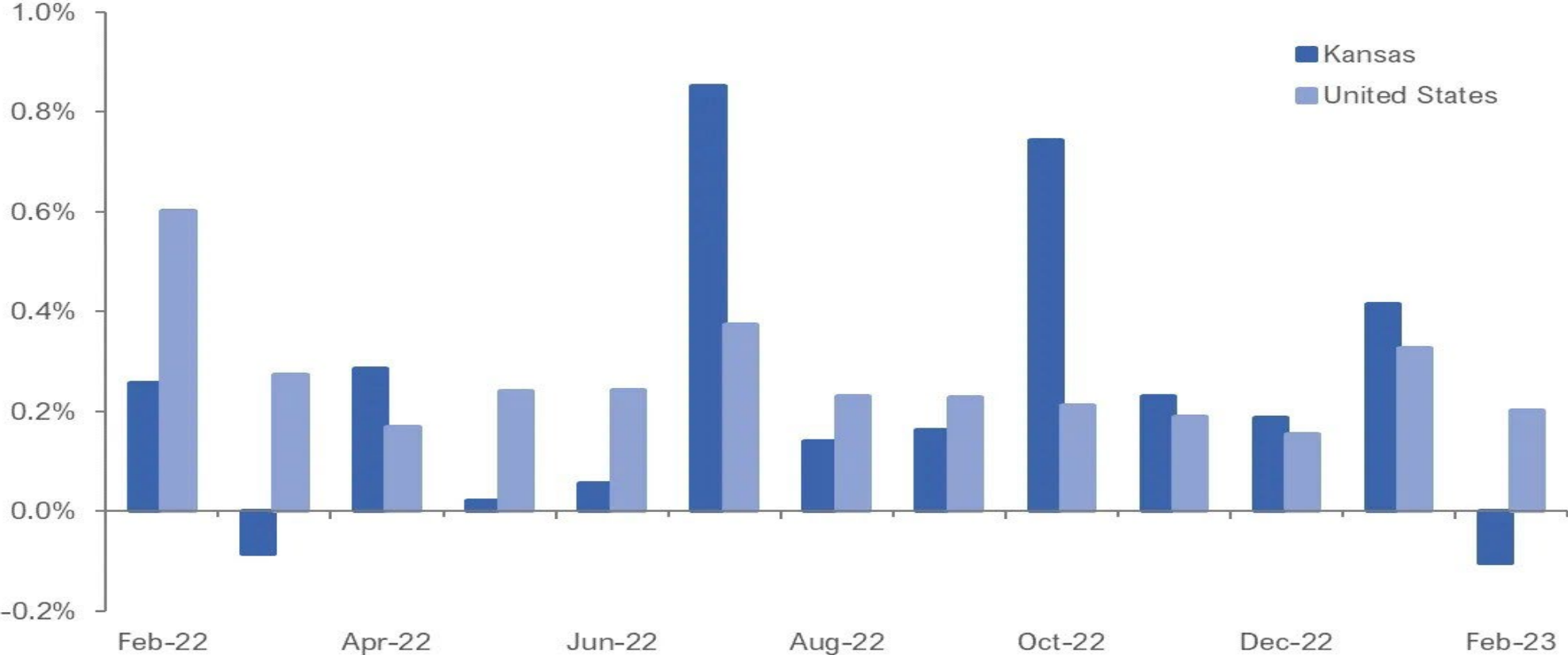
- Openings are down from where they were last year at this time by 14.1%.
- This is still well ahead of the “normal” levels of job openings of 6 million (what is a “balanced market”).



Name	May-23	Apr-23	May-22	M/M	Y/Y
Total Nonfarm	9,824	10,320	11,443	-4.8%	-14.1%
Total Private	8,693	9,291	10,379	-6.4%	-16.2%
Construction	366	347	392	5.5%	-6.6%
Manufacturing	604	668	837	-9.6%	-27.8%
Durable Goods	377	395	525	-4.6%	-28.2%
Non-durable goods	227	273	312	-16.8%	-27.2%
Trade, Transportation and Utilities	1,675	1,774	2,047	-5.6%	-18.2%
Retail Trade	829	954	1,165	-13.1%	-28.8%
Professional and Business Service	1,812	1,718	2,128	5.5%	-14.8%
Education and Health Services	1,938	2,179	2,158	-11.1%	-10.2%
Health Care and Social Assistance	1,725	2,010	1,987	-14.2%	-13.2%
Leisure and Hospitality	1,355	1,463	1,567	-7.4%	-13.5%
Arts, Entertainment and Recreation	172	241	161	-28.6%	6.8%
Accommodation and Food Services	1,183	1,222	1,406	-3.2%	-15.9%
Government	1,132	1,029	1,064	10.0%	6.4%
State and Local	959	881	928	8.9%	3.3%
Census Region					
Northeast	1,473	1,629	1,885	-9.6%	-21.9%
South	4,031	4,088	4,379	-1.4%	-7.9%
Midwest	2,130	2,239	2,464	-4.9%	-13.6%
West	2,191	2,364	2,715	-7.3%	-19.3%

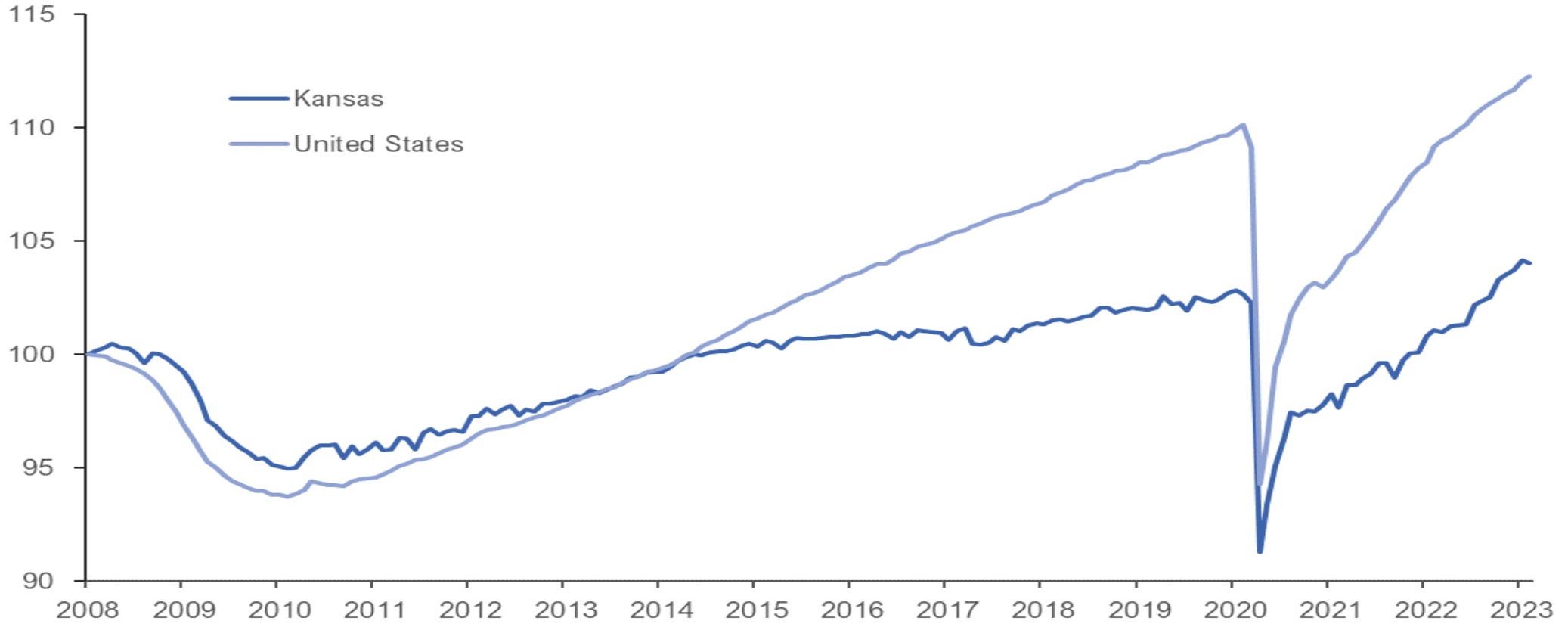
Jobs Boom Fading Somewhat

Chart 3. Kansas and National Nonfarm Employment
Change from previous month. Seasonally adjusted data from employer survey.

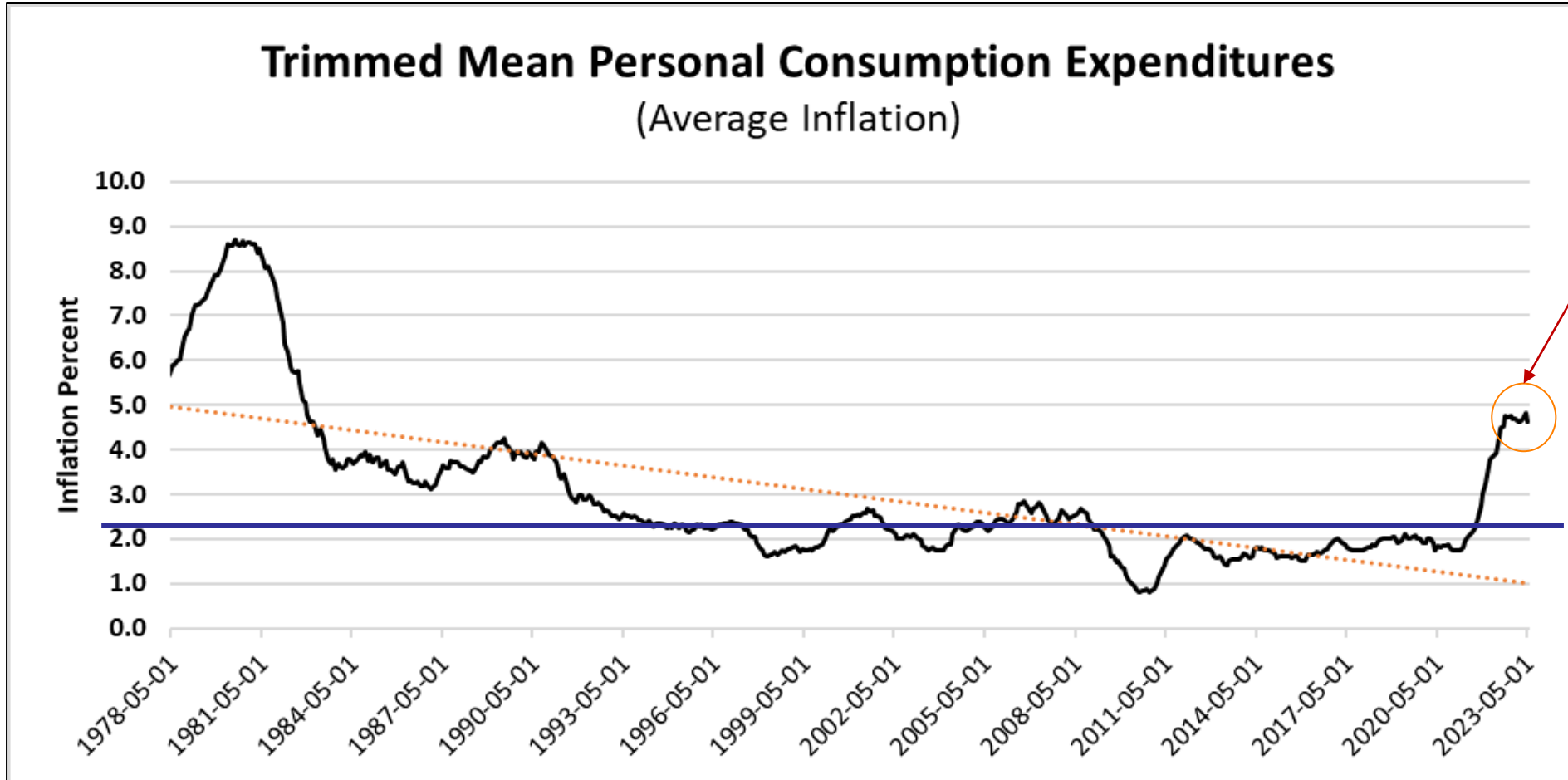


Overall Still Positive

Chart 1b. Kansas and National Nonfarm Employment Indexed, January 2008 = 100. Seasonally adjusted data from employer survey.



The Fed is Still Fighting Inflation



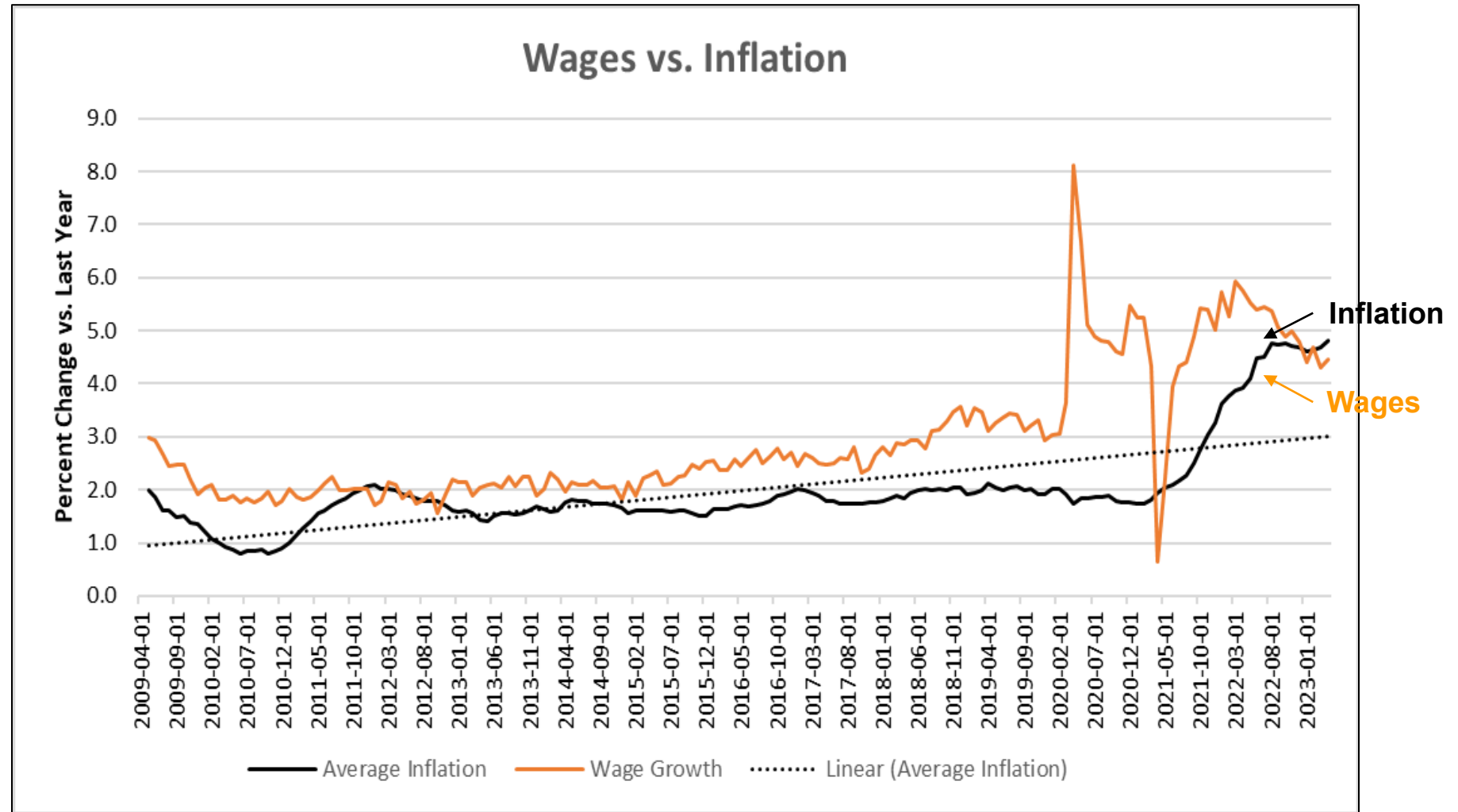
- 4.61% May
- 4.81% Apr
- 4.68% Mar
- 4.67% Feb
- 4.63% Jan
- 4.68% Dec
- 4.70% Nov
- 4.75% Oct
- 4.73% Sep
- 4.75% Aug

2% Target Rate
(20-year average 2.07%)

Note: The Trimmed Mean Personal Consumption Expenditures (TMPCE) averages more than 190 inflationary measures, stripping off the extreme highs and lows to give us a more accurate view of street level inflation.

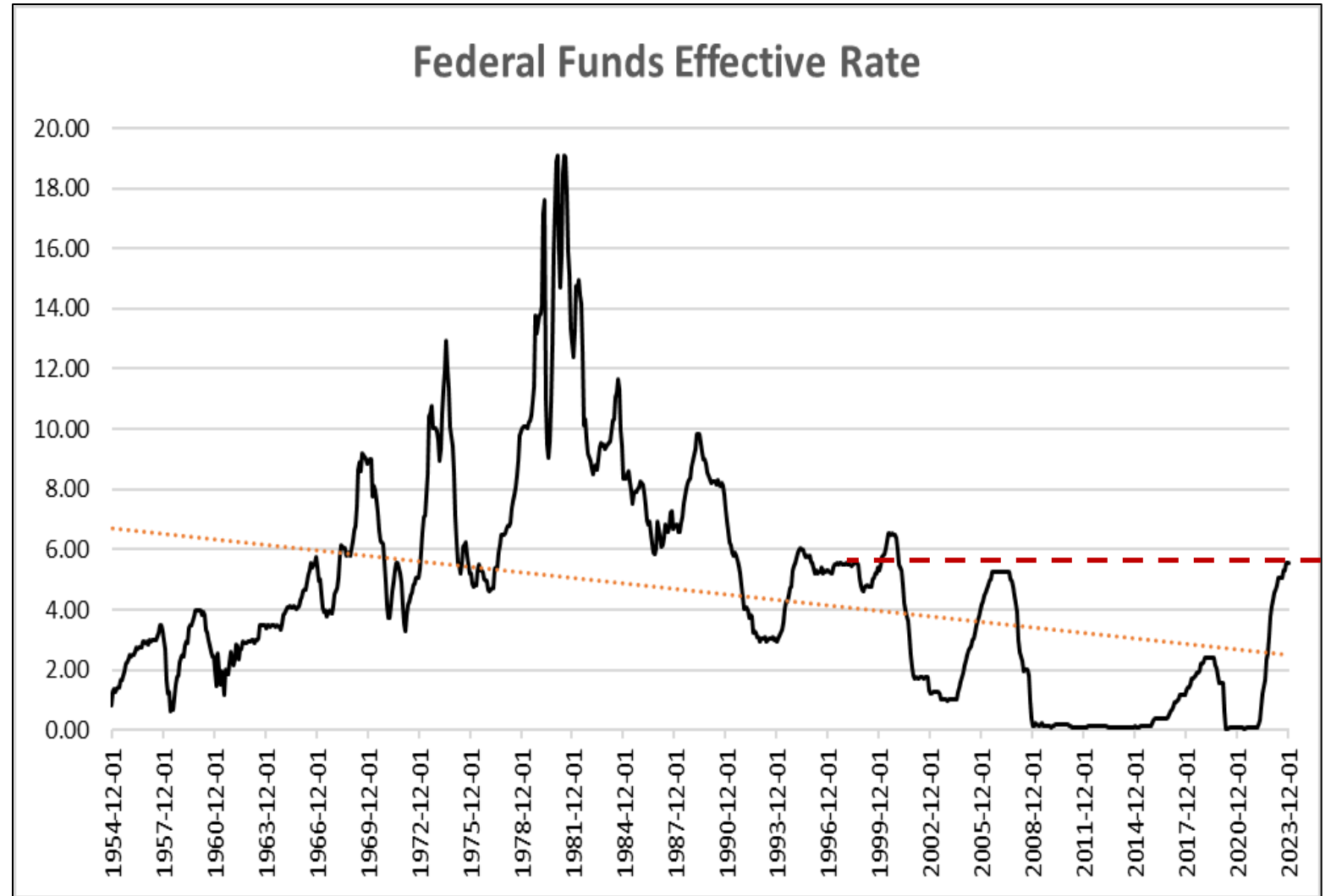
We Haven't Seen This inversion between inflation and wages since 2012

- 60% of the US is living check-to-check. With 78 million households falling further behind each month.
- Some secular pockets of inflation have started to ease, but wage inflation is sticky, and is likely partly the cause for some of this inflationary pressure.



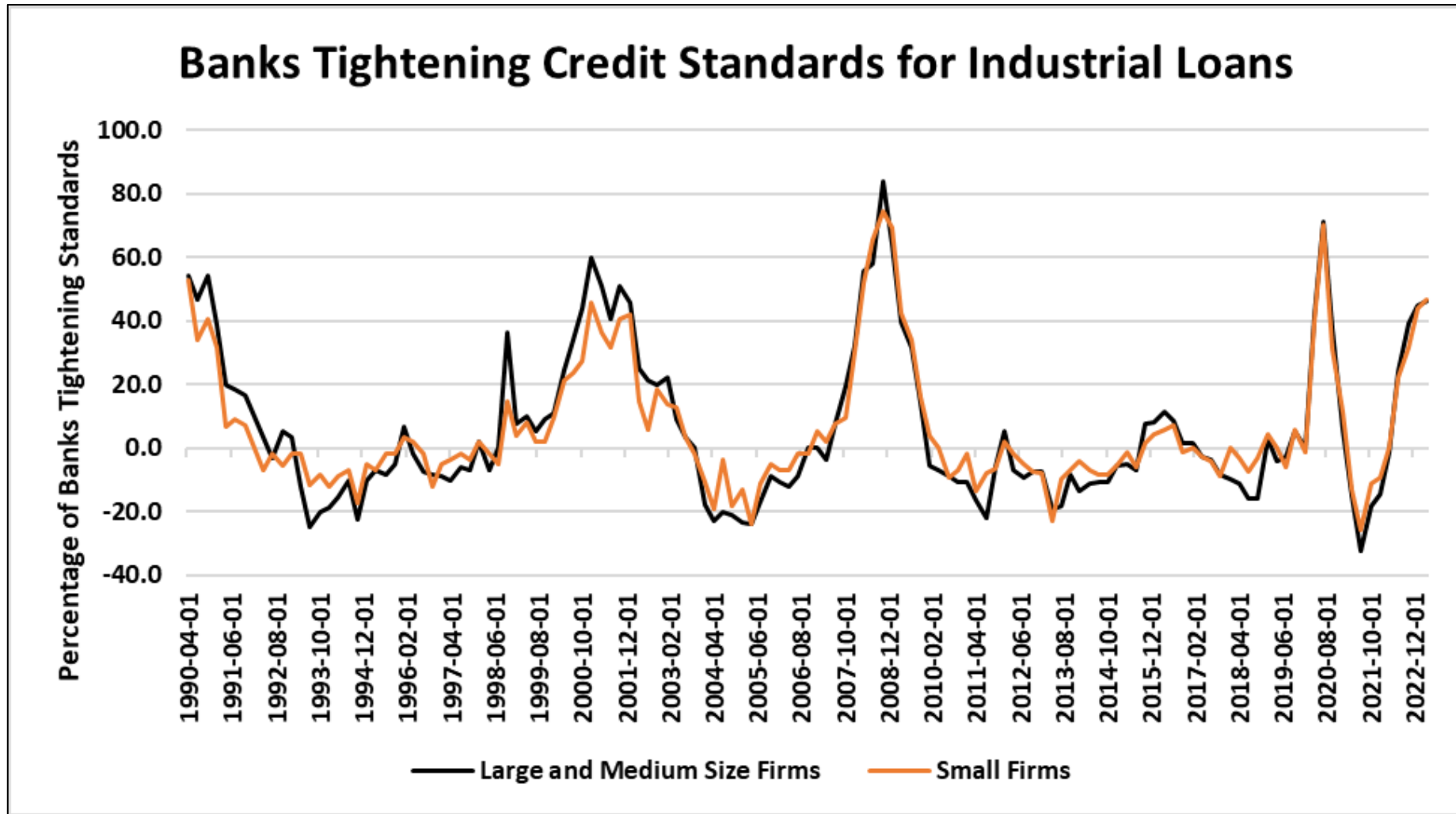
Therefore, Outlook for Fed Funds Rate to Hit Strongest Levels Since 2000...

- Nonresidential construction carries the greatest risk. More than \$200 billion in CRE lease contracts will be renegotiated before the end of 2023. Collectively, between \$1.3 trillion and \$3 trillion to be renegotiated over the next two years.
- Forecasts show some softening of the Fed Funds Rate late in 2024.
- The new neutral rate of interest target is likely to be 2.5%, rather than the 1% target in the decade prior to the pandemic. Rates will stay higher for longer.



Bank Credit Tightening Showed No Changes Through April (Latest Available).

- Bank credit standards were already tightening before the early March mini banking crisis started.
- The New York Fed household surveys show that bank credit was tightening at the fastest rate since the measure was collected.



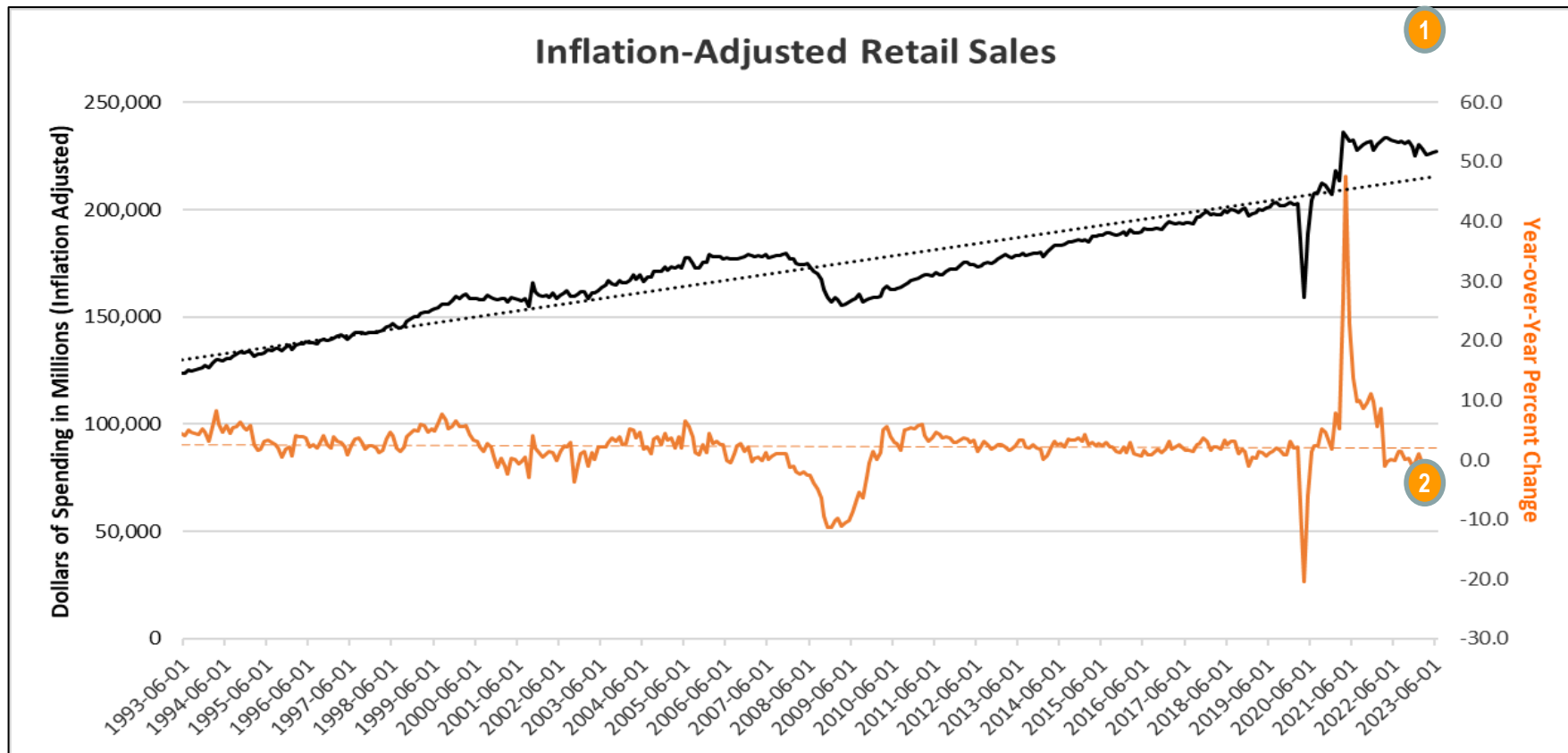
Here is Why So Much of the Economy continues to struggle

1. **65.1% of the marketplace remains overstocked** through the end of April relative to 10-year average between Sep 2009 and Sep 2019.
 - Approximately 35% of the market is likely in a continuous reorder cycle, but the majority of the market is likely still conservatively ordering for the rest of 2023.
 - Some supply chain pressures in China could reverse this thinking for sourcing managers.

Inventory to Sales Ratio (ISR) Analysis				
Sector	April Sales (Millions)	9/12/09 - 09/12/19 10-YR Average	Apr-23	ISR Percent Above/Below Pre-pandemic
Total Business		1.34	1.40	4.5%
1 Automotive		2.49	0.65	-73.7%
2 Retail		1.43	1.29	-9.8%
3 Merchant Wholesalers		1.29	1.40	8.5%
4 Manufacturing		1.35	1.50	11.1%
1 Drugs Wholesalers	84,911	1.09	1.03	-5.5%
2 Department Stores (ie. Nordstrom's)	11,154	2.11	2.01	-4.7%
3 Chemical Wholesalers	14,323	1.17	1.12	-4.3%
4 General Merchandise (ie. Walmart)	72,315	1.43	1.41	-1.4%
5 Food and Beverage Stores	81,844	0.78	0.78	0.0%
6 Apparel Stores	25,640	2.39	2.39	0.0%
7 Furniture, Appliance Stores (i.e NFM)	18,773	1.63	1.65	1.2%
8 Computer Wholesale Distributors	25,033	0.79	0.80	1.3%
9 Paper Wholesalers (ie. National Paper)	8,178	1.09	1.11	1.8%
10 Building Material Stores (ie. Home Depot)	35,654	1.85	1.94	4.9%
11 Machinery Wholesalers (ie. John Deere, Vermeer)	50,586	2.60	2.81	8.1%
12 Furniture Wholesalers	10,111	1.71	1.85	8.2%
13 Lumber and Construction Material Wholesalers	18,007	1.49	1.69	13.4%
14 Commerical Equipment Wholesalers	49,622	1.09	1.25	14.7%
15 Grocery Wholesalers	71,359	0.68	0.78	14.7%
16 Durable Goods Wholesalers	304,226	1.59	1.85	16.4%
17 Hardware, Plumbing, Heating Wholesalers	19,505	2.05	2.47	20.5%
18 Household Appliances/Electronics Wholesalers	63,794	1.10	1.38	25.5%
19 Alcohol Wholesale Distributors	14,574	1.31	1.67	27.5%

Inflation-Adjusted Retail Spending Continued to Remain Stable and Near Historically High Rates Through June.

1. Inflation-adjusted retail sales continued to outpace the 30-year trend through June.
2. Some slight fatigue in consumer spending was beginning to show up in June and inflation-adjusted sales fell 1.6% Y/Y.



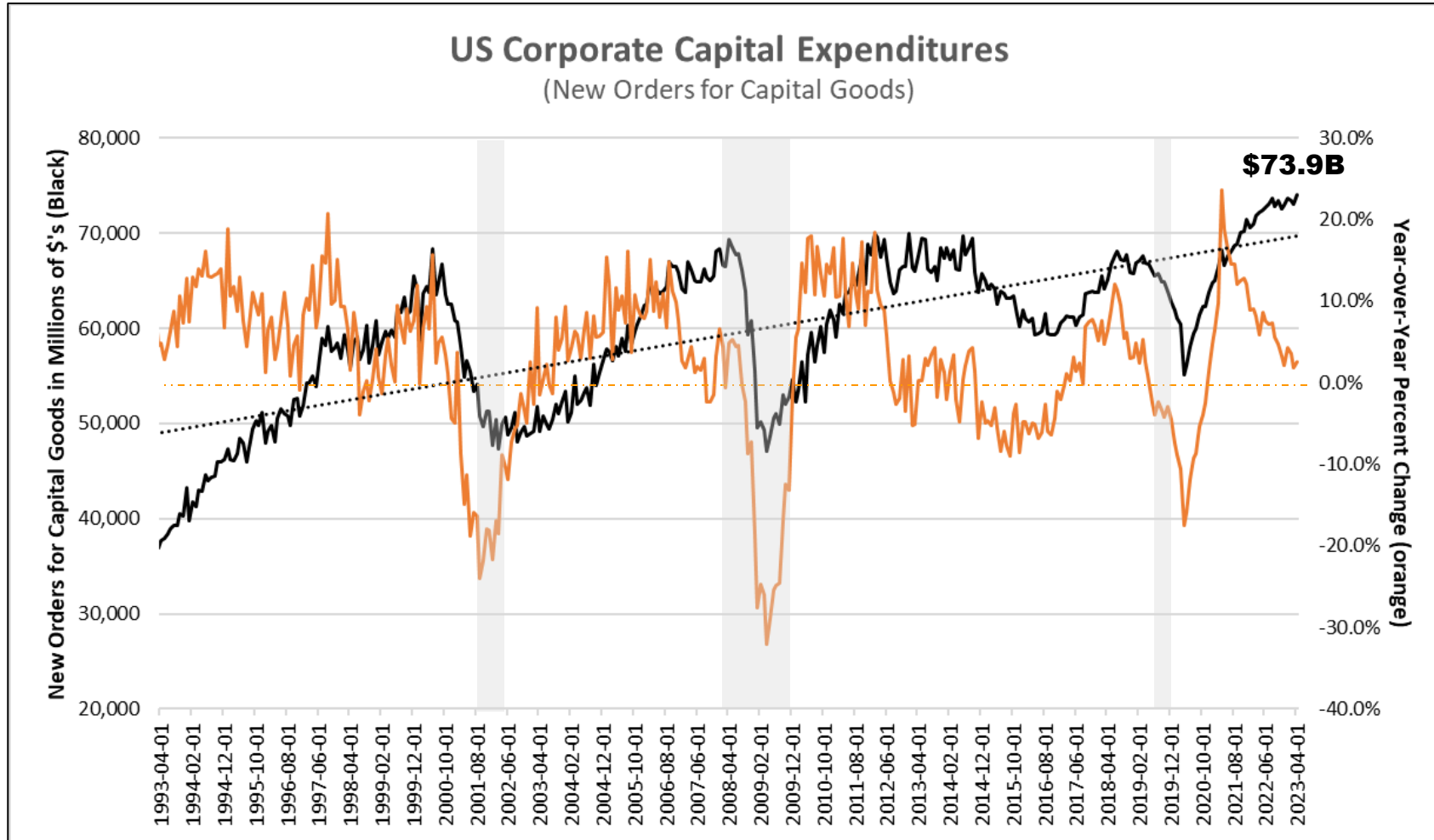
Construction Spending Mixed in May

- Nonresidential construction spending still growing 17.3% Y/Y vs. residential which was down 9.1%
 - **Single family** **-25.0%**
 - **Multi-family** **20.4%**
- Manufacturing construction activity up 76.3% Y/Y on \$194B in annualized spending. (Normal is \$60B)
- Infrastructure spending beginning to build momentum.
- Annual growth rates are slowing...but on a much more difficult comparison.

Value of Construction Put in Place in the United States, Seasonally Adjusted Annual Rate
(Millions of dollars. Details may not add to totals due to rounding.)

Type of Construction	May 2023	Apr 2023	May 2022	Percent change May 2023 from -	
				Apr 2023	May 2022
Total Construction	1,925,565	1,908,996	1,880,896	0.9	2.4
Residential	867,630	849,444	979,044	2.1	-11.4
New single family	371,347	365,127	495,129	1.7	-25.0
New multifamily	127,655	127,722	106,054	-0.1	20.4
Nonresidential	1,057,935	1,059,553	901,853	-0.2	17.3
Manufacturing	194,301	192,396	110,185	1.0	76.3
Conservation	11,775	12,262	9,095	-4.0	29.5
Sewage and waste disposal	38,438	38,145	31,367	0.8	22.5
Lodging	23,040	23,138	19,060	-0.4	20.9
Water supply	25,810	25,105	22,280	2.8	15.8
Highway and street	125,264	125,906	109,845	-0.5	14.0
Health care	60,757	61,636	54,409	-1.4	11.7
Transportation	62,765	62,776	57,351	0.0	9.4
Public safety	12,562	12,082	11,634	4.0	8.0
Educational	109,156	109,377	101,690	-0.2	7.3
Power	115,671	116,172	109,063	-0.4	6.1
Office	95,919	95,622	90,630	0.3	5.8
Commercial	124,590	126,861	118,290	-1.8	5.3
Amusement and recreation	30,438	30,384	29,655	0.2	2.6
Communication	24,522	24,551	24,225	-0.1	1.2
Religious	2,930	3,139	3,074	-6.7	-4.7

Corporate Investment Remains Steady



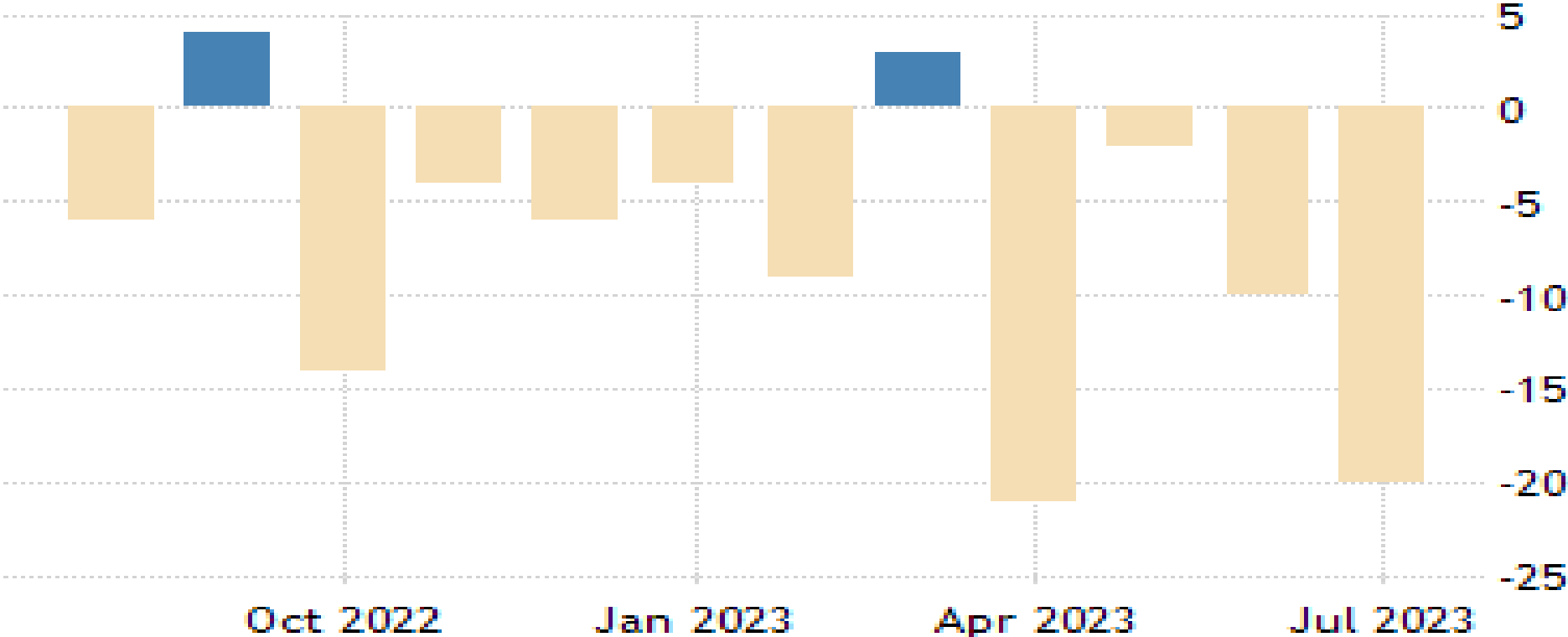
New Orders for Durable Goods Remained Stable (in general)

- Some growing sectors through May included:
 - Computers
 - Electrical equipment and appliances
 - Automotive
 - Defense sector
- Weak sectors include:
 - Communications equipment
 - Fabricated metals
 - Primary Metals

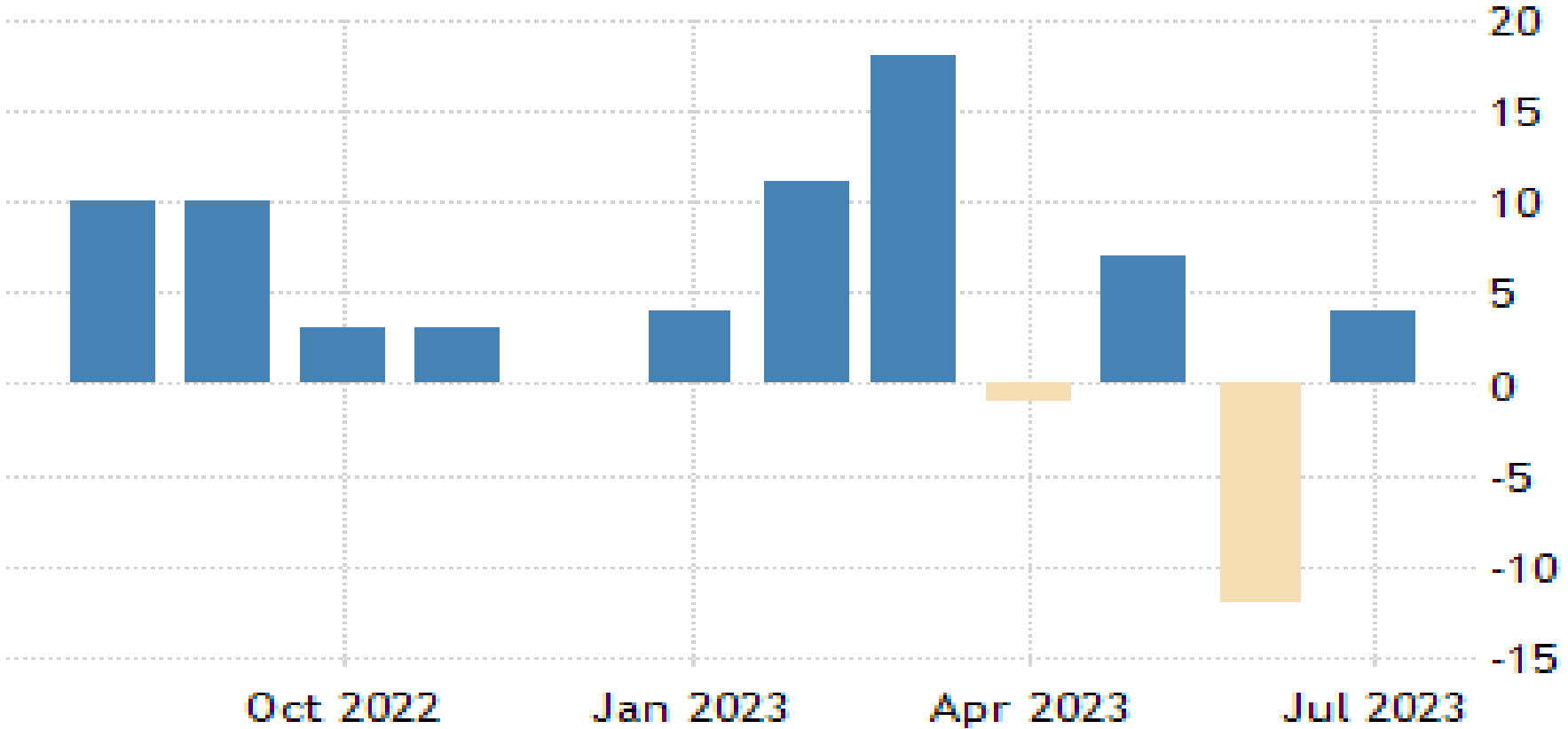
[Estimates are shown in millions of dollars and are based on data from the Manufacturers' Shipments, Inventories, and Orders Survey.]

Item	Seasonally Adjusted			Not Seasonally Adjusted						
	Monthly		Percent Change	Monthly			Y/Y	Year to Date		Percent Change 2023/2022
	May-23	Apr-23		May-23	Apr-23	May-22		2023	2022	
Total:	288,180	283,233	1.7	288,027	272,347	268,450	7.3%	1,384,546	1,337,649	3.5
Excluding transportation:	185,616	184,537	0.6	190,457	181,468	188,429	1.1%	923,996	919,882	0.4
Excluding defense:	269,930	262,193	3.0	273,357	251,940	256,591	6.5%	1,301,177	1,273,146	2.2
Manufacturing with unfilled orders:	206,161	202,920	1.6	204,104	194,880	189,466	7.7%	987,873	958,552	3.1
Primary metals:	26,763	26,642	0.5	27,871	26,266	28,629	-2.6%	136,655	140,076	-2.4
Fabricated metal products:	35,221	35,213	0.0	37,897	35,575	37,640	0.7%	180,319	183,016	-1.5
Machinery:	37,618	37,261	1.0	38,169	37,053	37,325	2.3%	188,943	186,542	1.3
Computers and electronic products:	24,047	23,971	0.3	22,249	22,093	22,056	0.9%	114,278	111,985	2.0
Computers and related products:	2,003	2,051	-2.3	1,805	1,799	1,531	17.9%	9,037	7,352	22.9
Communications equipment:	2,863	2,910	-1.6	2,403	2,504	2,794	-14.0%	13,571	14,351	-5.4
Electrical equipment, appliances,	14,049	13,820	1.7	14,304	13,500	13,363	7.0%	69,757	65,652	6.3
Transportation equipment:	102,564	98,696	3.9	97,570	90,879	80,021	21.9%	460,550	417,767	10.2
Motor vehicles and parts:	62,668	61,337	2.2	63,150	58,058	57,586	9.7%	307,866	284,576	8.2
Nondefense aircraft and parts:	21,775	16,440	32.5	19,294	12,482	9,915	94.6%	69,115	67,817	1.9
Defense aircraft and parts:	4,978	7,711	-35.4	3,886	7,415	3,468	12.1%	26,508	17,970	47.5
All other durable goods:	47,918	47,630	0.6	49,967	46,981	49,416	1.1%	234,044	232,611	0.6
Capital goods:	106,929	103,992	2.8	100,914	98,011	87,620	15.2%	484,384	461,066	5.1
Nondefense capital goods:	91,027	85,342	6.7	87,972	79,609	77,359	13.7%	412,266	404,916	1.8
Excluding aircraft:	73,959	73,462	0.7	72,958	70,988	70,942	2.8%	364,612	354,930	2.7
Defense capital goods:	15,902	18,650	-14.7	12,942	18,402	10,261	26.1%	72,118	56,150	28.4

Kansas Manufacturing Index - Slumping



Employment Index Not So Bad in Manufacturing



Global Manufacturing Highlights

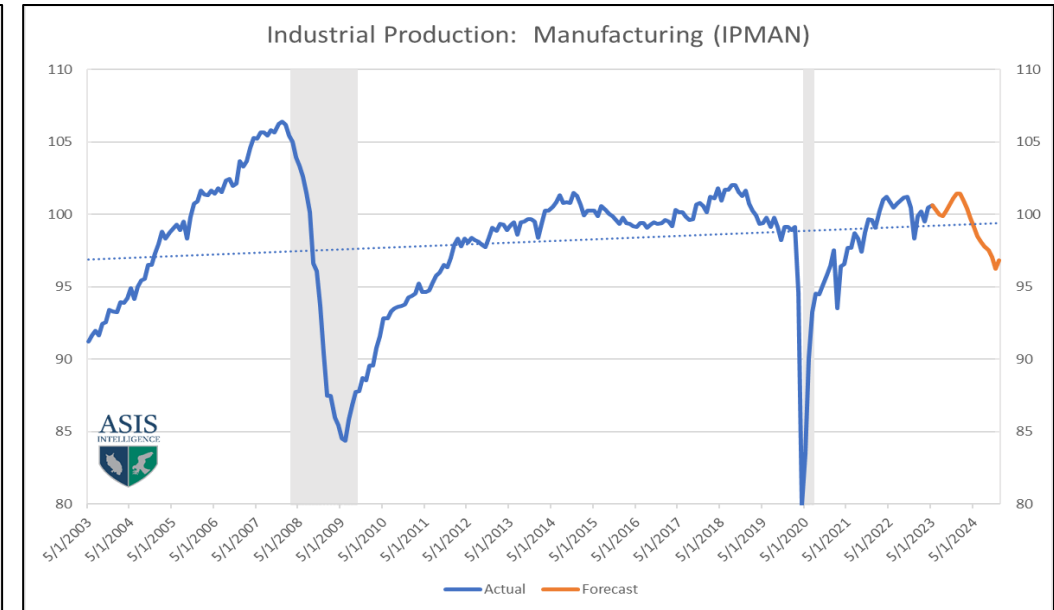
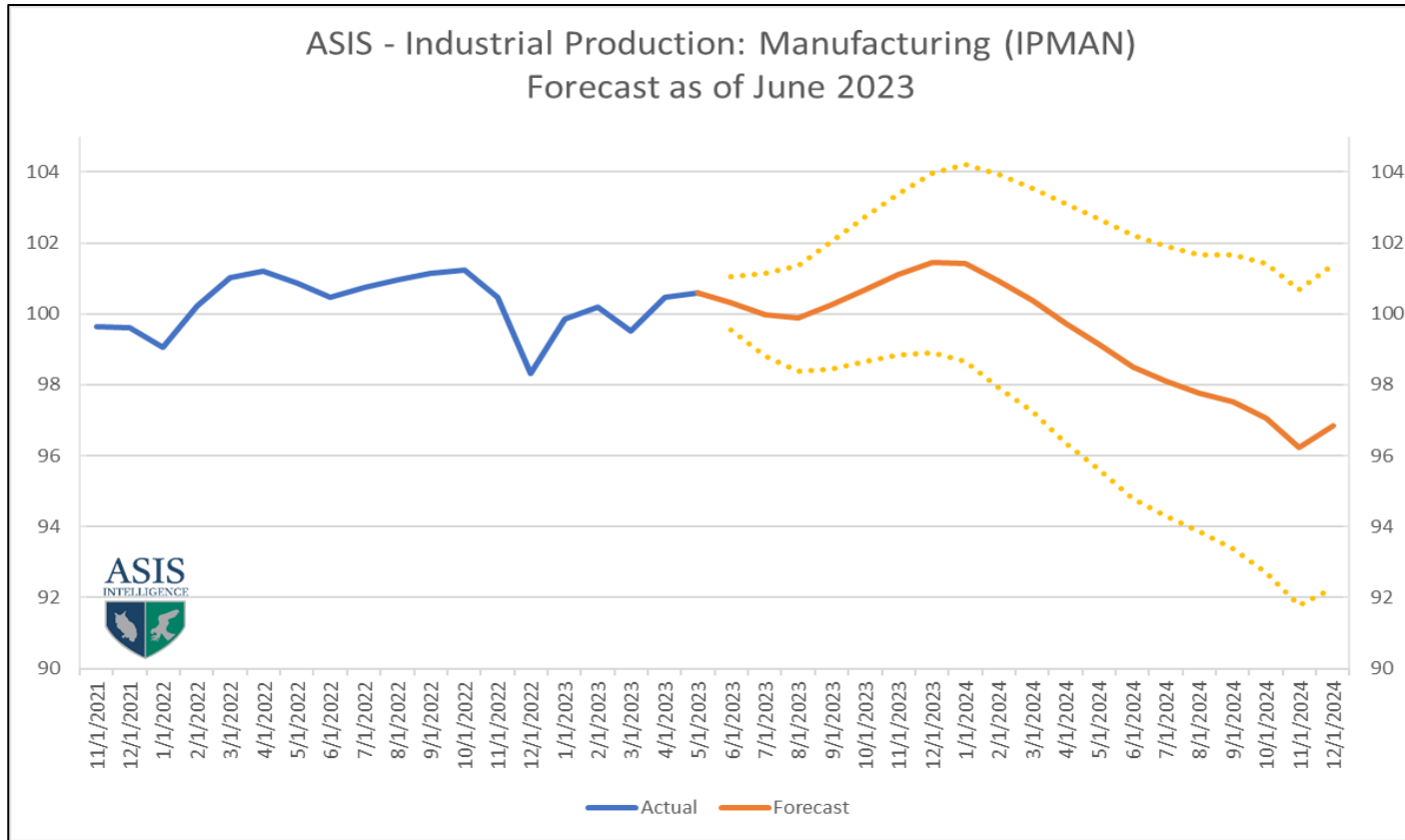
- 19 countries had manufacturing sectors in contraction in June
- Europe still in recession.
- Asia is reeling from lack of demand in NA and Europe
- India is booming – because of shifting sourcing patterns
- Canada and the US in contraction, Mexico just barely hanging on.
- This could make some raw materials more plentiful, and help clear backlogs
- But from a global economy perspective, its not great news.

Country	Current Month	Latest Month Manuf. PMI	Prior Month Manuf. PMI	M/M Change	Current Month Services PMI	Latest Month Services PMI	Prior Month Services PMI	M/M Change
Global PMI	June	48.8	49.6	-0.8	June	54.0	55.5	-1.5
Eurozone PMI	June	43.4	44.8	-1.4	June	52.0	55.1	-3.1
US	June	46.3	48.4	-2.1	June	54.4	54.9	-0.5
China	June	50.5	50.9	-0.4	June	53.9	57.1	-3.2
Canada	June	48.8	49.0	-0.2				
Mexico	June	50.9	50.5	0.4				
Japan	June	49.8	50.6	-0.8	June	54.0	55.9	-1.9
Germany	June	40.6	43.2	-2.6	June	54.1	57.2	-3.1
South Korea	June	47.8	48.4	-0.6				
UK	June	46.5	47.1	-0.6	June	53.7	55.2	-1.5
France	June	46.0	45.7	0.3	June	48.0	52.5	-4.5
India	June	57.8	58.7	-0.9	June	58.5	61.2	-2.7
Italy	June	43.8	45.9	-2.1	June	52.2	54.0	-1.8
Taiwan	June	44.8	44.3	0.5				
Brazil	June	46.6	47.1	-0.5	June	53.3	54.1	-0.8
Spain	June	48.0	48.4	-0.4	June	53.4	56.7	-3.3
Russia	June	52.6	53.5	-0.9	June	56.8	54.3	2.5
Netherlands	June	43.8	44.2	-0.4				
Ireland	June	47.3	47.5	-0.2	June	56.8	57.0	-0.2
Greece	June	51.8	51.5	0.3				
Poland	June	45.1	47.0	-1.9				
ASEAN	June	51.0	51.1	-0.1				
Vietnam	June	46.2	45.3	0.9				
Philippines	June	50.9	52.2	-1.3				
Australia	June	48.2	48.4	-0.2	June	50.3	52.1	-1.8
Switzerland	June	44.9	43.2	1.7				
Hong Kong	June	50.3	50.6	-0.3				
Singapore	June	54.1	54.5	-0.4				

Sources: S&P Global, Caixin, JP Morgan, Jibun Bank, Nevi, BME, CIPS

Armada Forecast For Industrial Production in Manufacturing

1. These models use 18-22 economic metrics to forecast output from each of the following sectors of durable manufacturing.
2. The following models show a forecast over the next 18 months, these models are updated monthly.

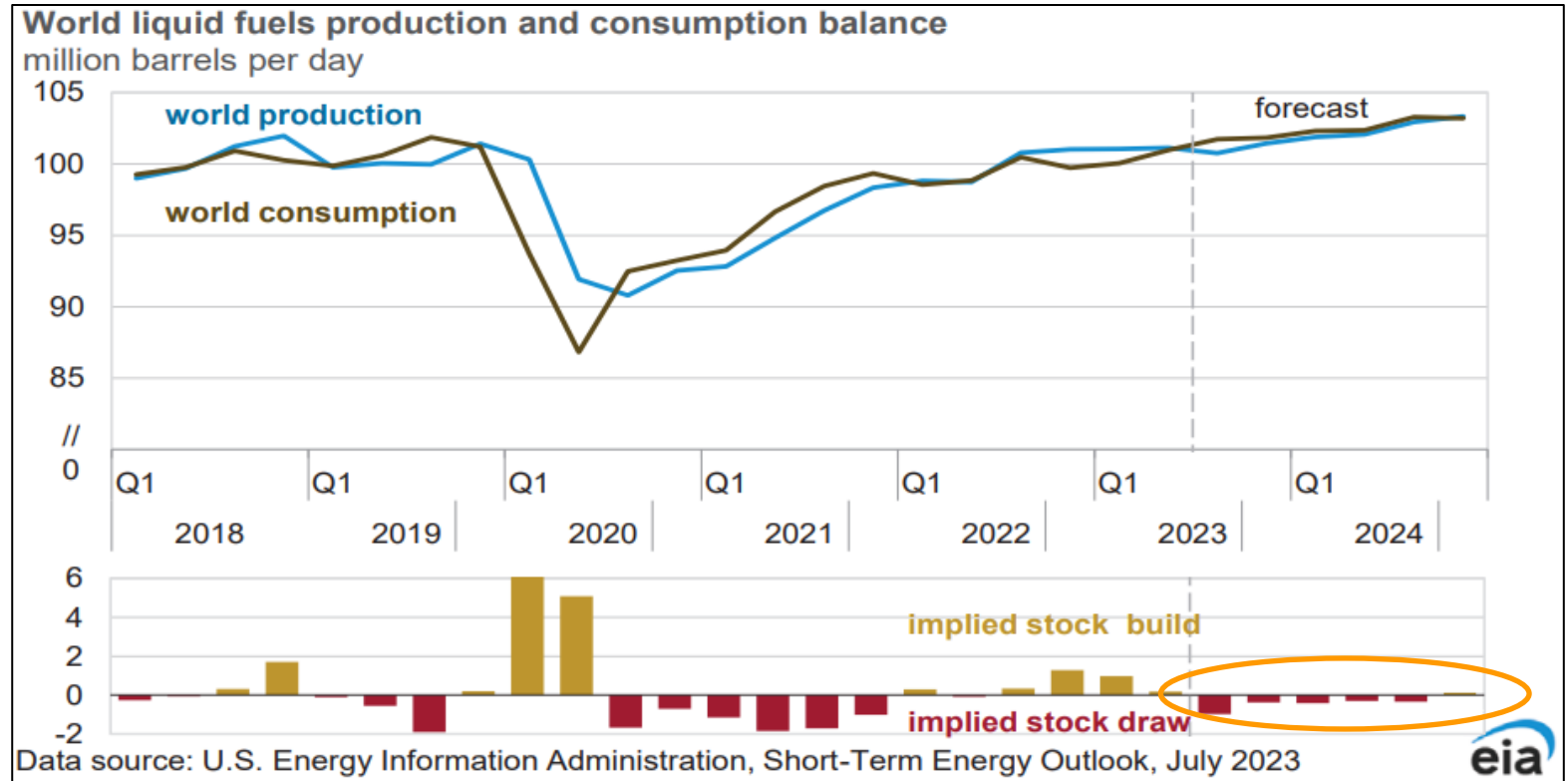


Accuracy:

- **3 months: 99.65%**
- **6 months: 93.88%**

EIA forecast has inverted since Q1 – now expecting a net draw on inventories.

- Now an implied net draw through 2023/2024 according to EIA
 - Consumption is still 20M Bpd currently with US production at 12.5M Bpd; 7M Bpd gap must still be imported
 - The US will start rebuilding the SPR in 2023 and 2024?
 - Concerns that global excess capacity is still just 1.2% higher currently, when China and Europe are largely consuming less.



Crude forecast:

• 2021	\$68.21
• 2022	\$94.91
• 2023	\$74.43
• 2024	\$78.51

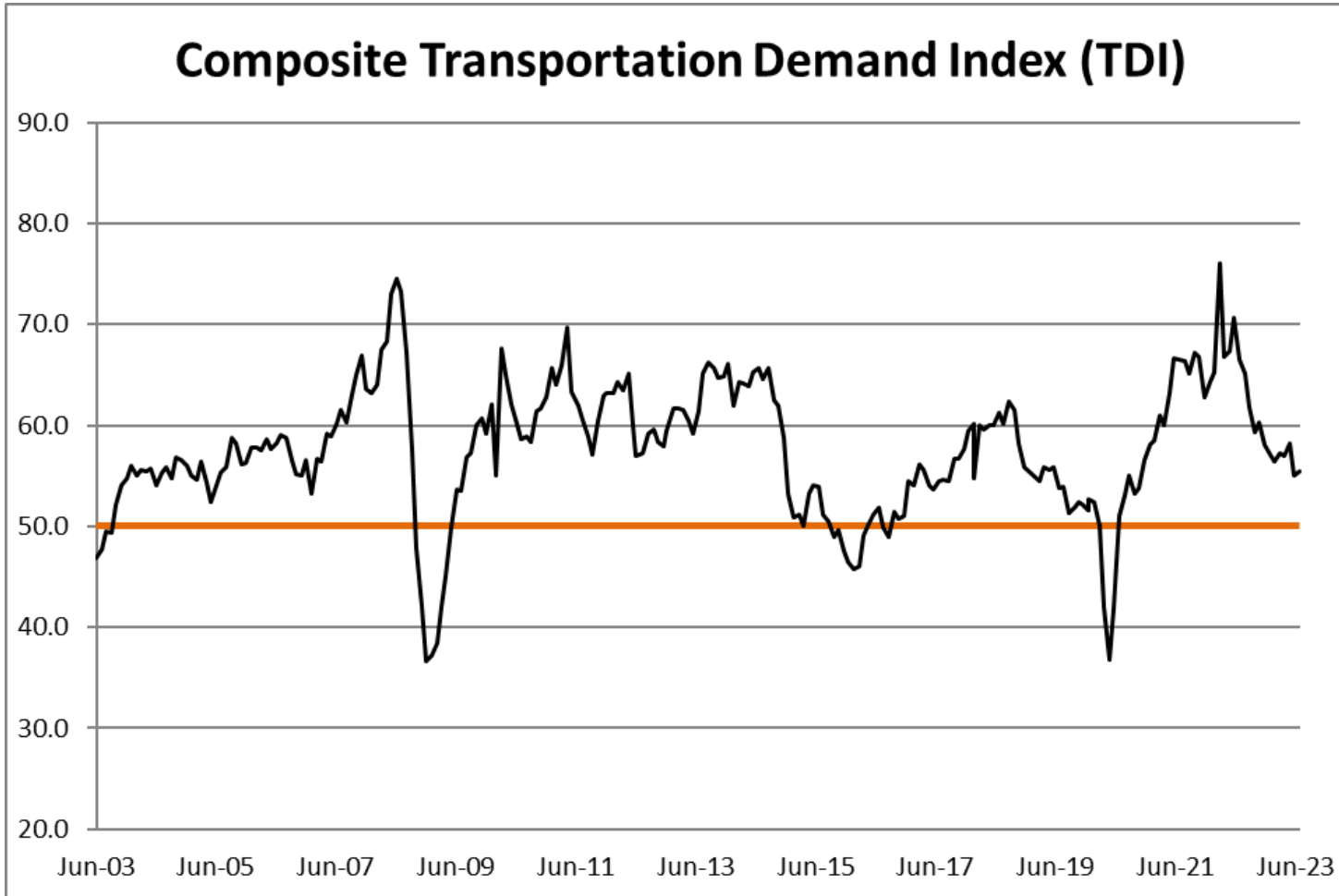
Diesel forecast:

• 2021	\$3.29
• 2022	\$5.02
• 2023	\$3.96
• 2024	\$3.84

Gasoline forecast:

• 2021	\$3.02
• 2022	\$3.97
• 2023	\$3.40
• 2024	\$3.34

Armada Transportation Demand Index Showing the Market “Normalizing” Relative to Pre-Pandemic Levels of Activity.



	23-Jun	23-May	22-Jun	Y/Y Change %	M/M Change %
Composite	55.4	55.0	66.5	-16.7%	0.7%
Rail	53.4	53.4	63.8	-16.3%	0.0%
Trucking	55.5	55.1	67.0	-17.2%	0.7%
Air	61.0	60.6	66.5	-8.3%	0.7%
Maritime	59.6	58.3	64.7	-7.9%	2.2%

- All measures still over 50, but the “normalization” is obvious.
- March ushered in a bit of a flattening of the demand curve, and it remains stable relative to historical values.

For More Enlightenment

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Flagship – Three times a week
(MWF). \$7 per month

Strategic Intelligence System –
\$44 monthly

Wrap Up

- This webinar has been recorded. A link to the webinar replay and the presentation deck will be included in a follow-up email to you tomorrow.
- In 6 months, you may be asked to provide feedback about the value of today's event.

