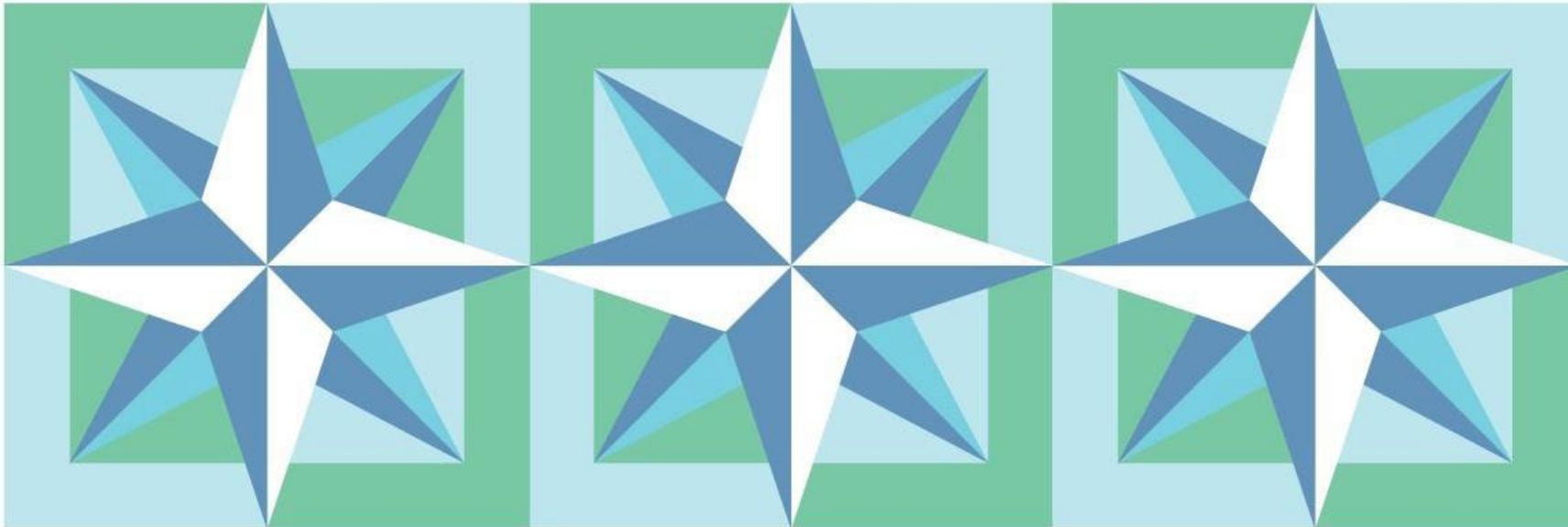
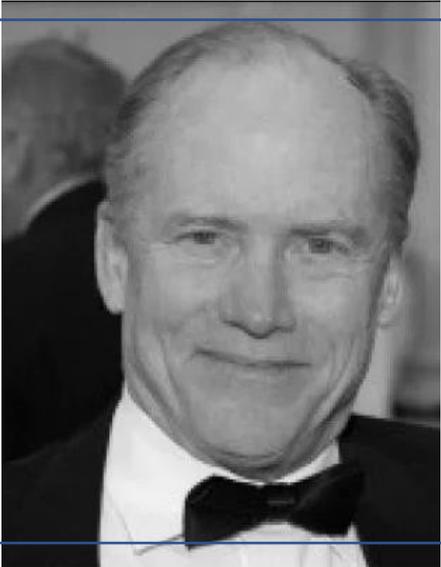


**NAVIGATING THE CHALLENGES OF BORROWING
AND CREDIT IN THE POST-PANDEMIC ECONOMY**

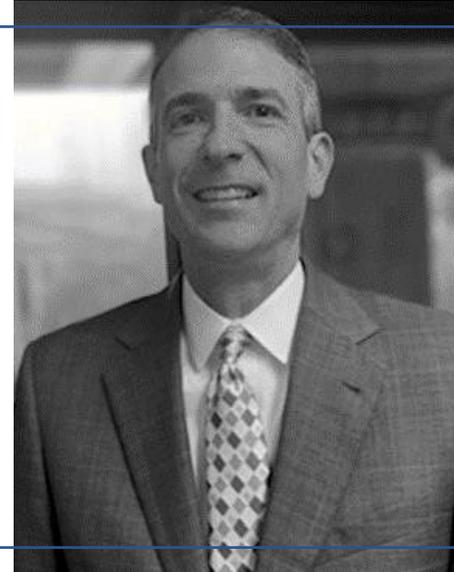


SEPTEMBER 12, 2022 | LOS ANGELES, CALIFORNIA

WELCOME & OPENING REMARKS



Michael Ballinger
Publisher
The Bond Buyer



Robert Berry
Executive Director
CDIAC

ECONOMIC OUTLOOK



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Economic Outlook:

The Fed's Dilemma: Inflation vs. Recession

September 2022



STIFEL

Lindsey M. Piegza, Ph.D.
Chief Economist

For Institutional Use Only

315k Payrolls Added in August

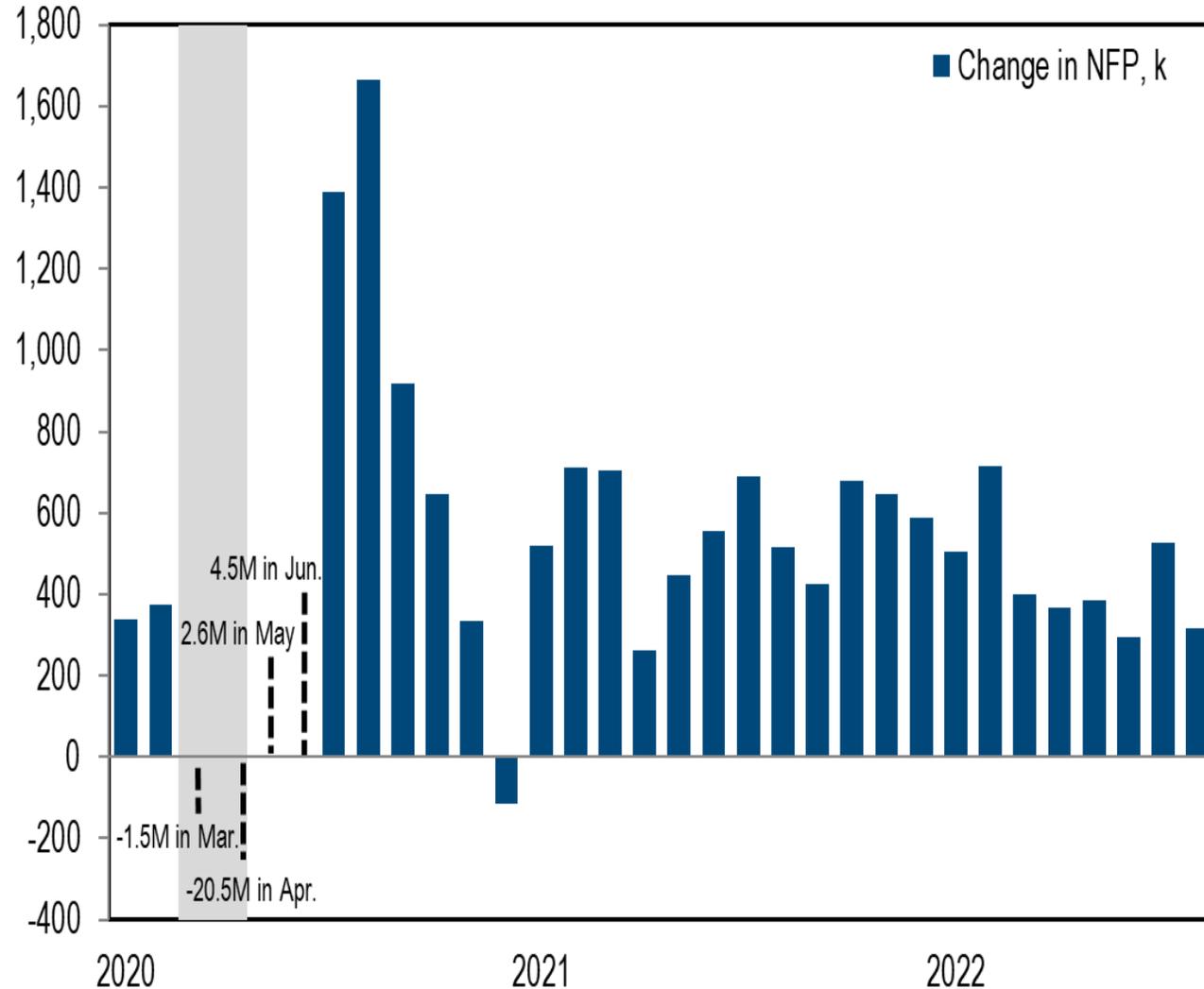
Other sectors of the economy are more clearly showing indications of waning momentum or slower growth, the labor market is not among them

Nonfarm payrolls rose **315k** in August 2022, a two-month low

With earlier revisions to June and July, the overall change (August data + net revisions) was 208k, the lowest since December 2020

Nonfarm payrolls fell 1.5M in March and 20.5M in April of 2020, the largest monthly decline on record

For the full year of 2021, payrolls rose 6.7M, a record high, but following a 9.3M drop in 2020, the largest decline on record, and more than the combined decline in 2008 and 2009



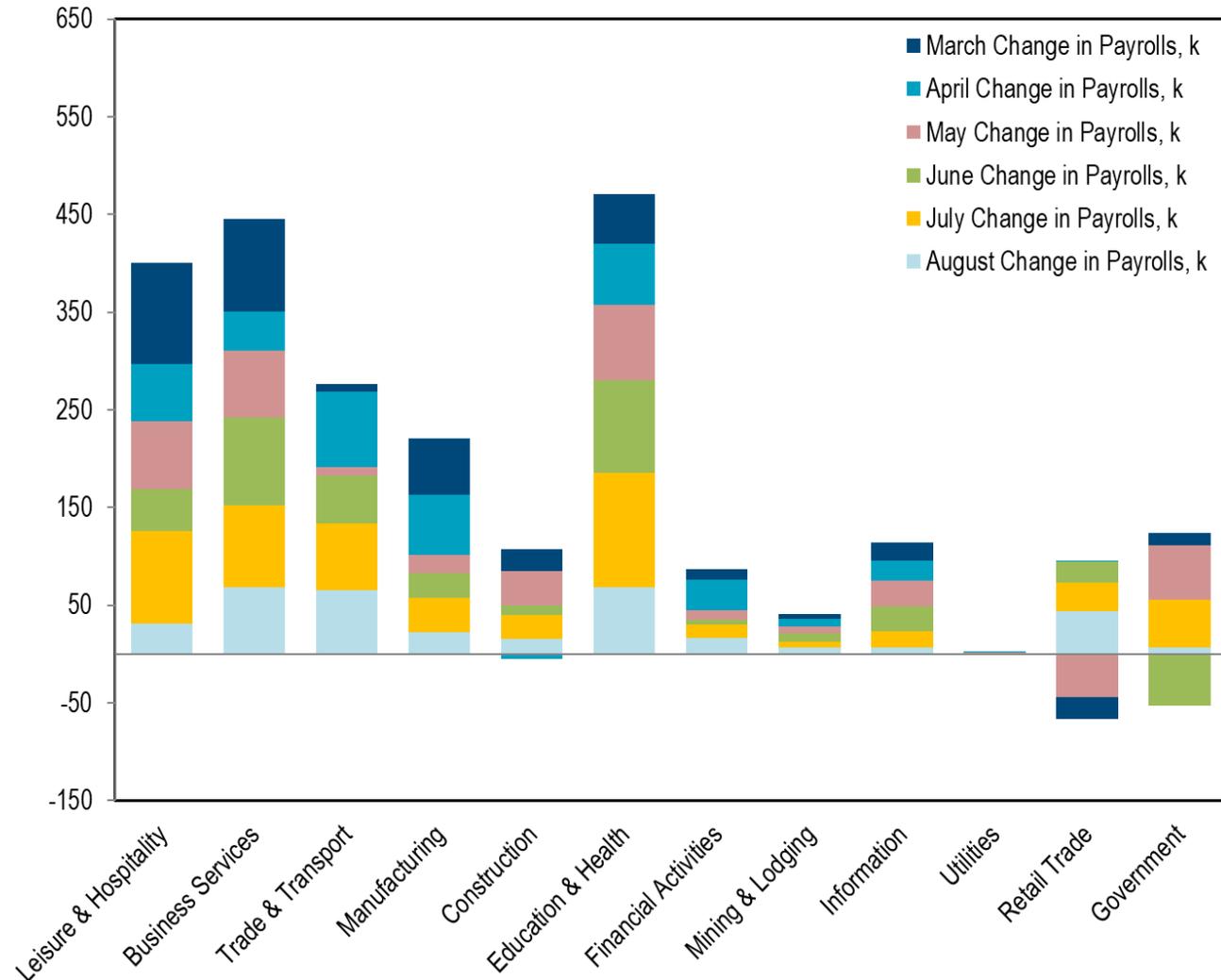
Source: Bureau of Labor Statistics/Haver Analytics

Payrolls by Category

Education & health payrolls and business services payrolls led the gain in payrolls in August with both payrolls rising **68k**

Trade & transport payrolls rose **65k**, and retail trade payrolls rose **44k**, and leisure & hospitality payrolls rose **31k**,

Additionally, information payrolls increased **7k** in August



Source: Haver Analytics/Bloomberg

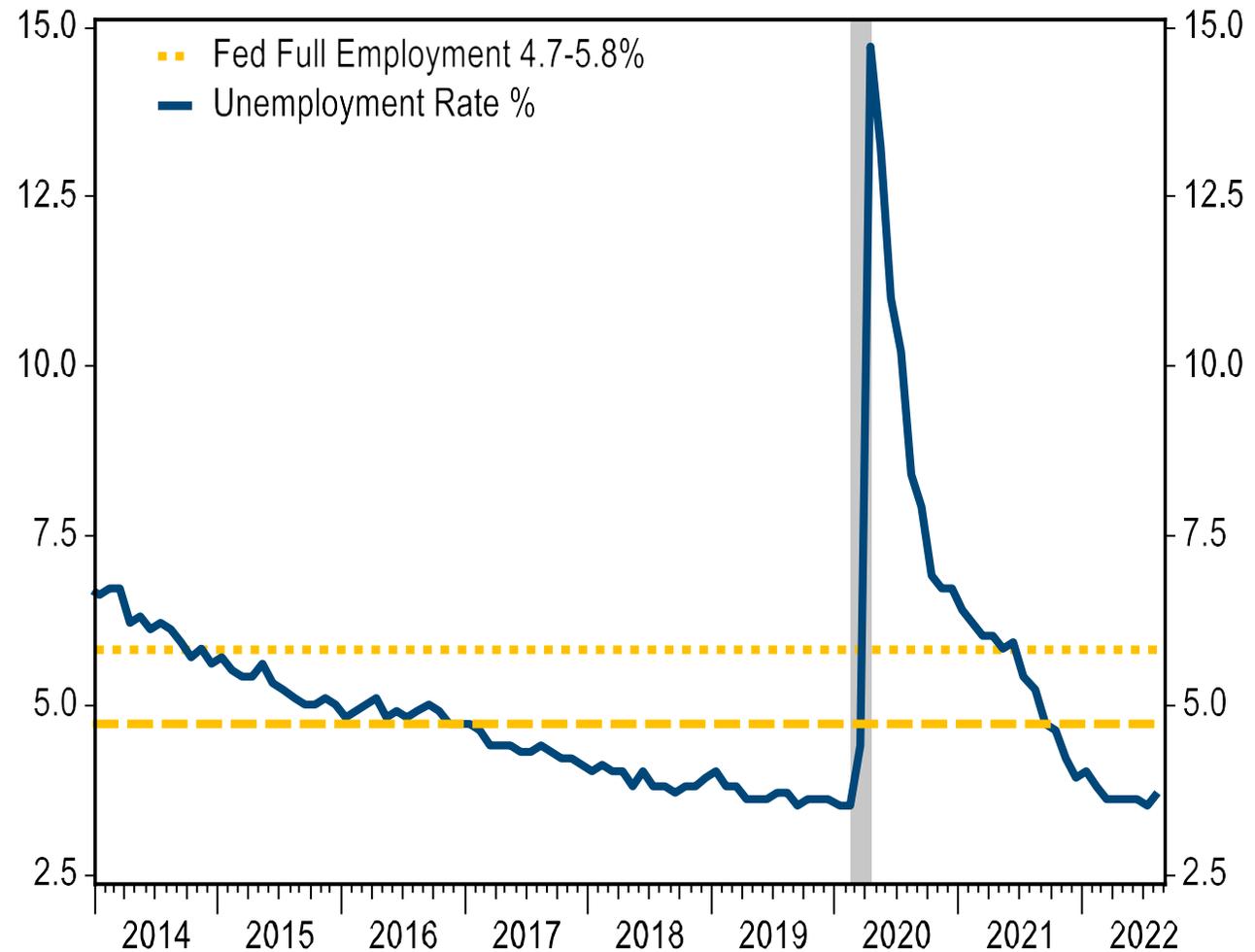
3.7% U.S. Unemployment Rate

The decline in the unemployment rate shows further improvement in labor market conditions

Household employment rose by **442k** in August, and the labor force rose by **786k**, resulting in an unemployment rate of **3.7%** in August, a **six-month high**

The decline in the unemployment rate reflects more employment *and* sidelined workers

Returning workers will push unemployment rate higher



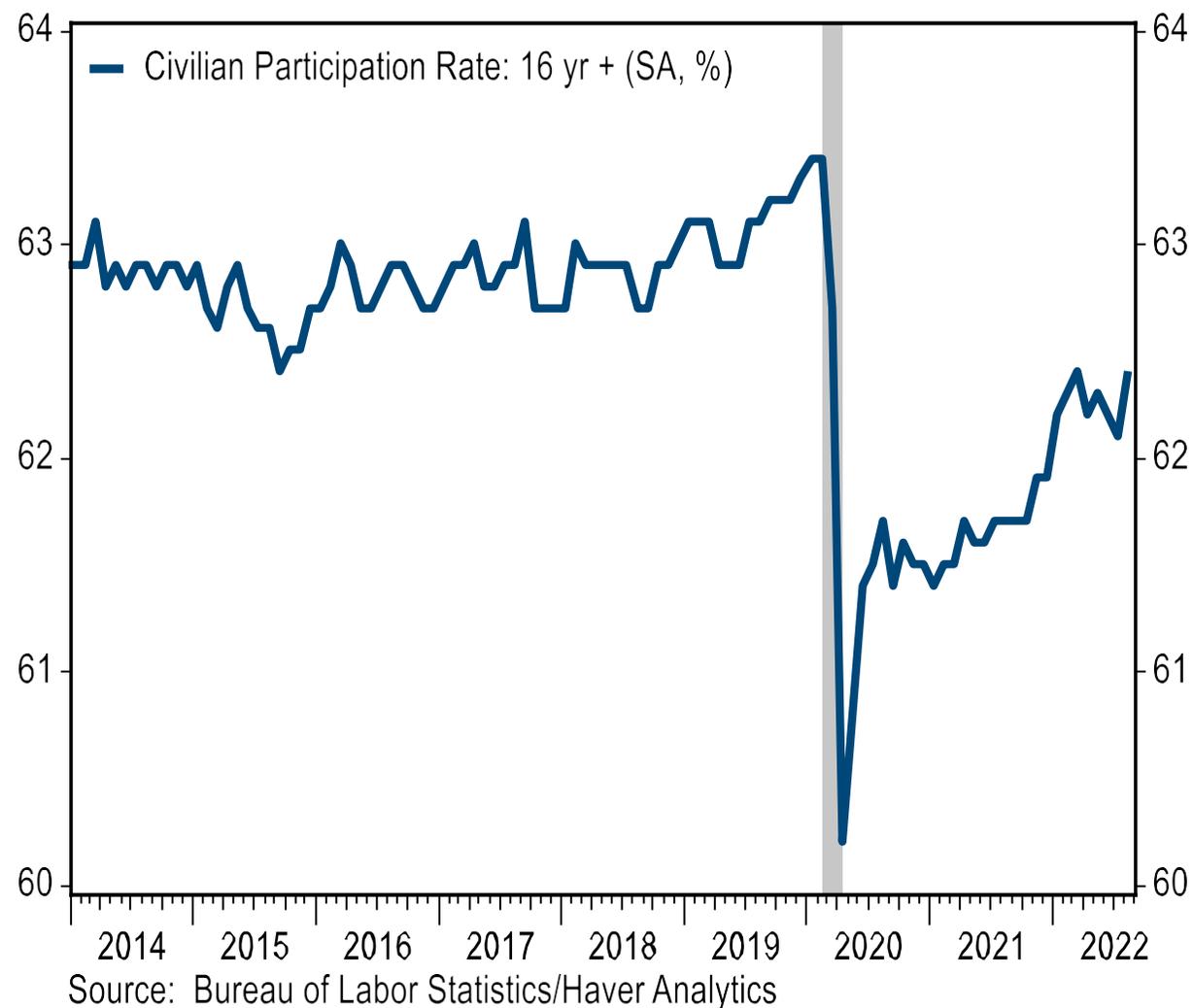
Source: Bureau of Labor Statistics/Haver Analytics

Participation Rate Stubbornly Low

The labor force rose by **786k** in August

The labor force participation rate rose from 62.1% to **62.4%** in August, a **five-month high** but well-below the pre-crisis peak of 63.4%

Fewer workers is far from the ideal scenario particularly as businesses remain desperate for workers



Average Hourly Earnings Remain Solid

As businesses search for workers, compensation is elevated, although the trend appears to be moderating as businesses struggle to absorb costs

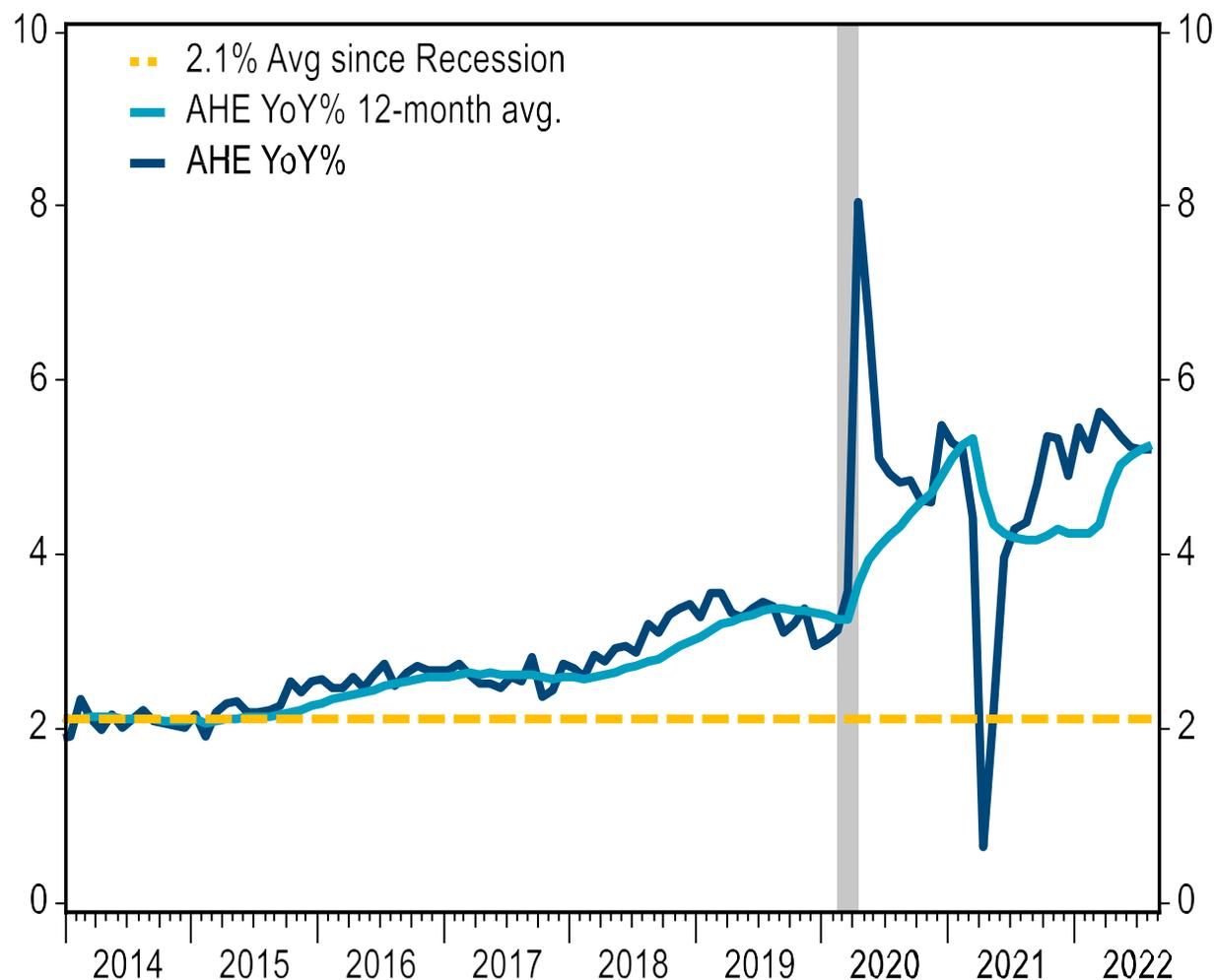
Average hourly earnings rose **0.3%** in August, following a 0.5% increase in July

Year-over-year, wages rose **5.2%** in August for the third consecutive month, below a recent peak of 8.2% in April 2020

Longer-term, businesses may turn to technology or close doors

For now, costs are likely to remain elevated as long as labor remains scarce

Average earnings increased early on during the pandemic as lower-wage workers dropped out of the workforce



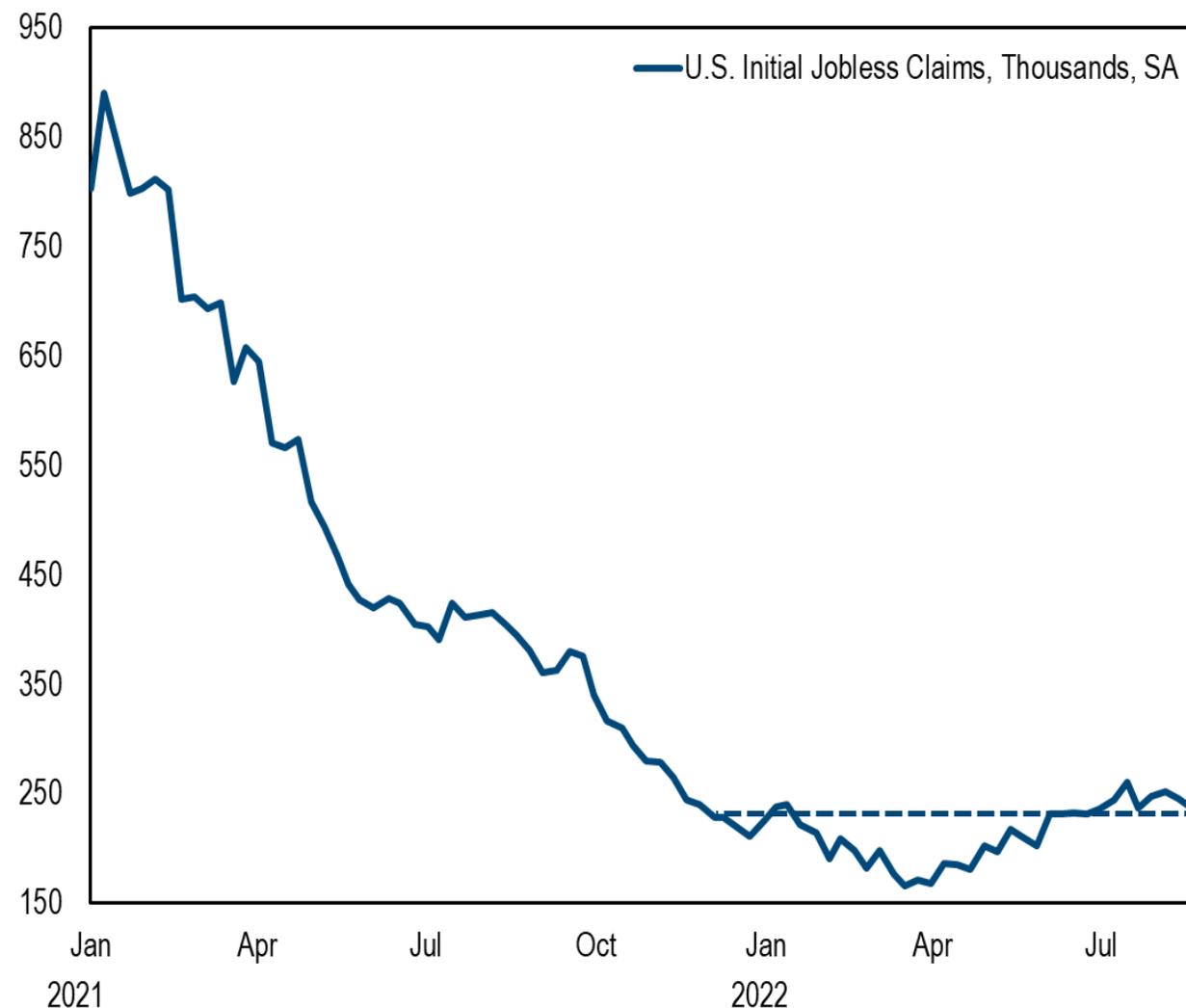
Source: Bureau of Labor Statistics/Haver Analytics

*Does not include government assistance

Data remain uneven and cracks are beginning to emerge in the labor market

Sizable corporate layoff announcements, fewer job openings and rising jobless claims

Initial jobless claims fell to **232k**, the third consecutive week of decline, albeit jumping more than 30k in the past three months



Source: U.S. Department of Labor/Bloomberg

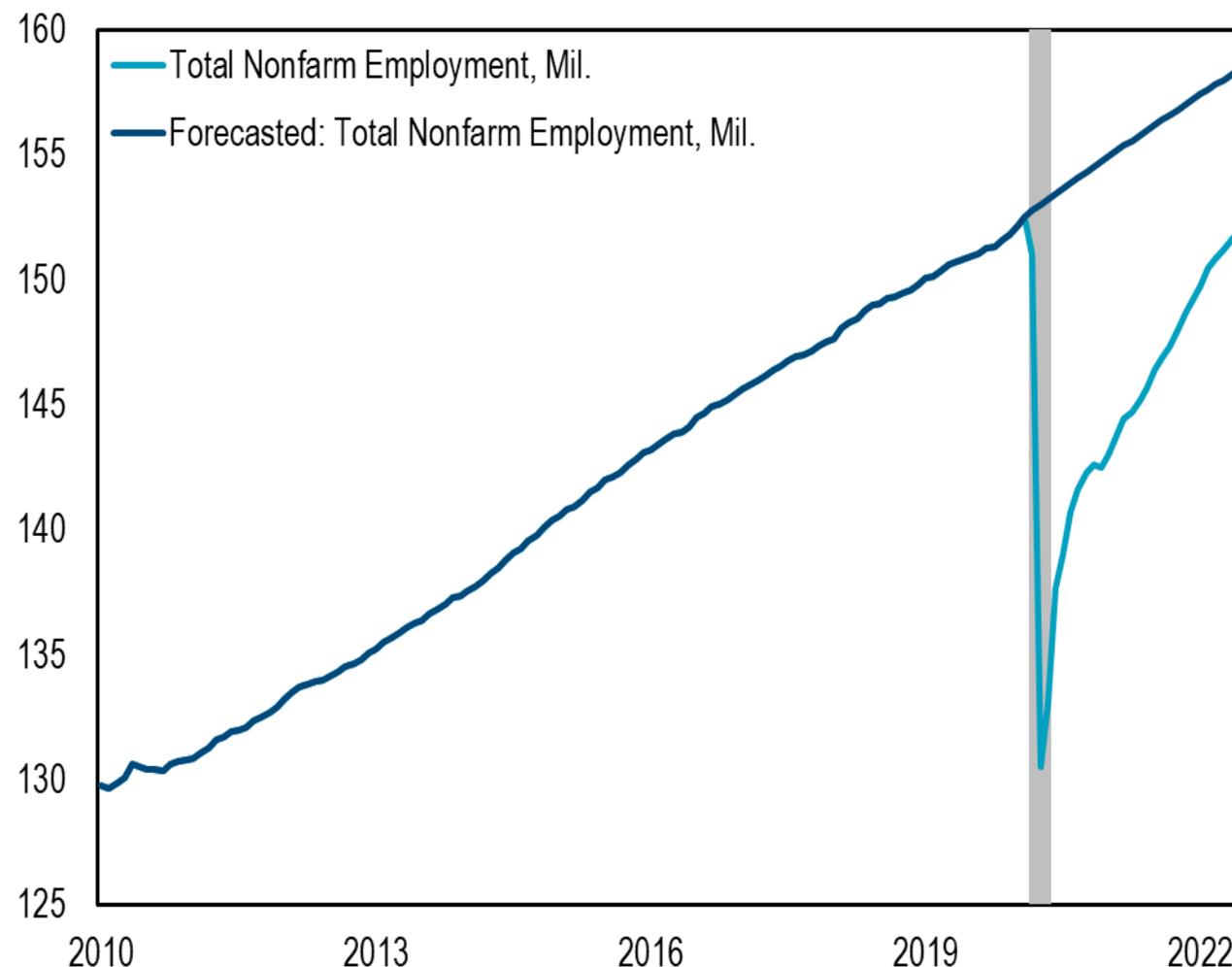
Total Employment Still Behind Pre-Covid Levels

While job creation remains solid, much of the improvement has been replacing jobs lost during the Covid-19 recession

Between March and April 2020, the U.S. lost 22M jobs

As of July, the labor market has finally recaptured all of the 22M jobs lost at the onset of the Covid-19 pandemic

Total nonfarm employment remains around **6.0M** jobs short of potential job growth at 152.7M as of August



Source: Bureau of Labor Statistics/Haver Analytics

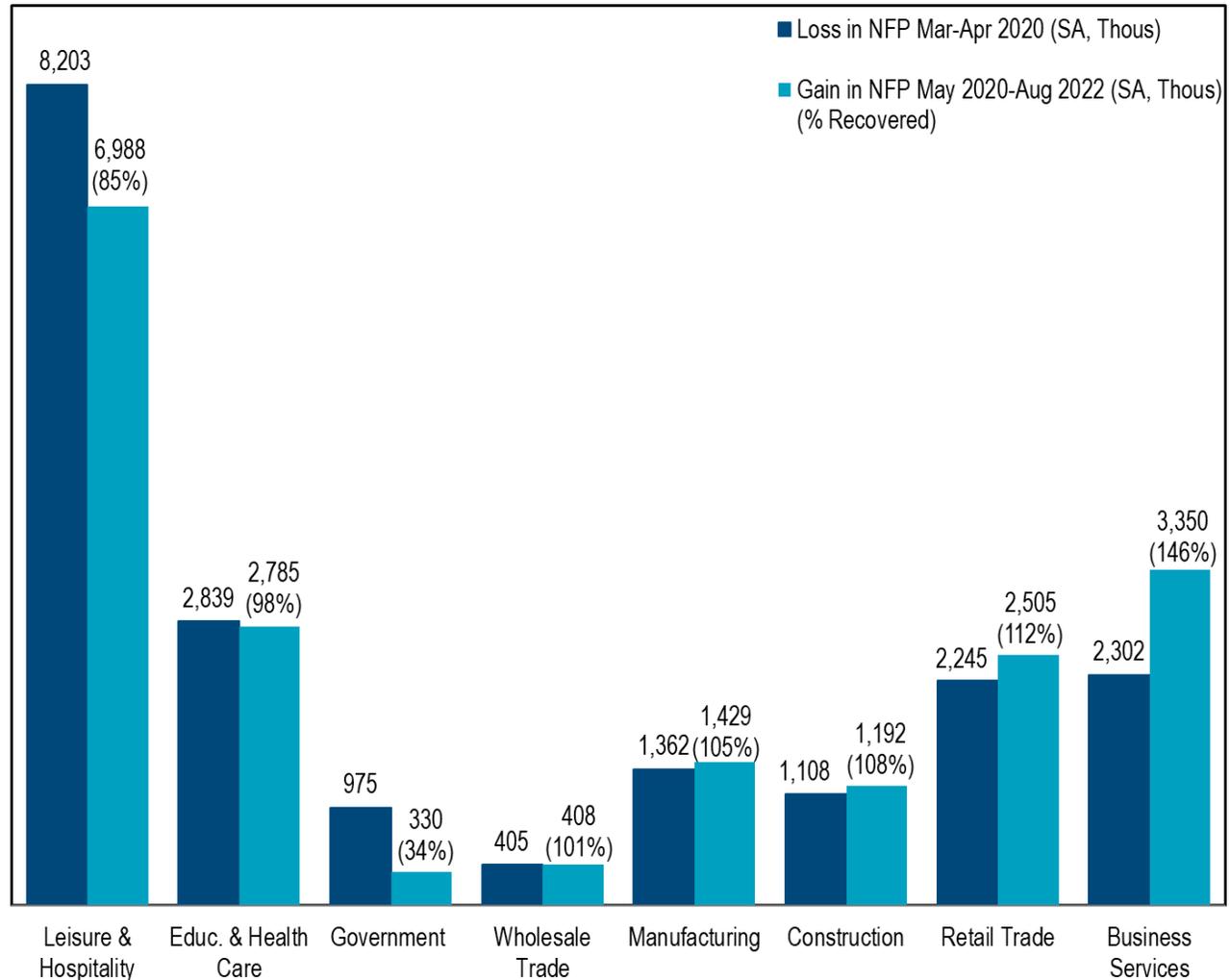
Hardest Hit Industries Still Struggle to Recapture Jobs

Labor market improvements have been uneven across sectors

Some of the hardest-hit sectors are still struggling to reconnect with customers, employees and supply chains, and thus, recapture lost jobs

The leisure and hospitality industry lost over **8M** jobs during the pandemic but has since recaptured nearly **7M** or **85%**

The hardest hit sectors have recaptured roughly 90% of lost jobs



Source: Bureau of Labor Statistics

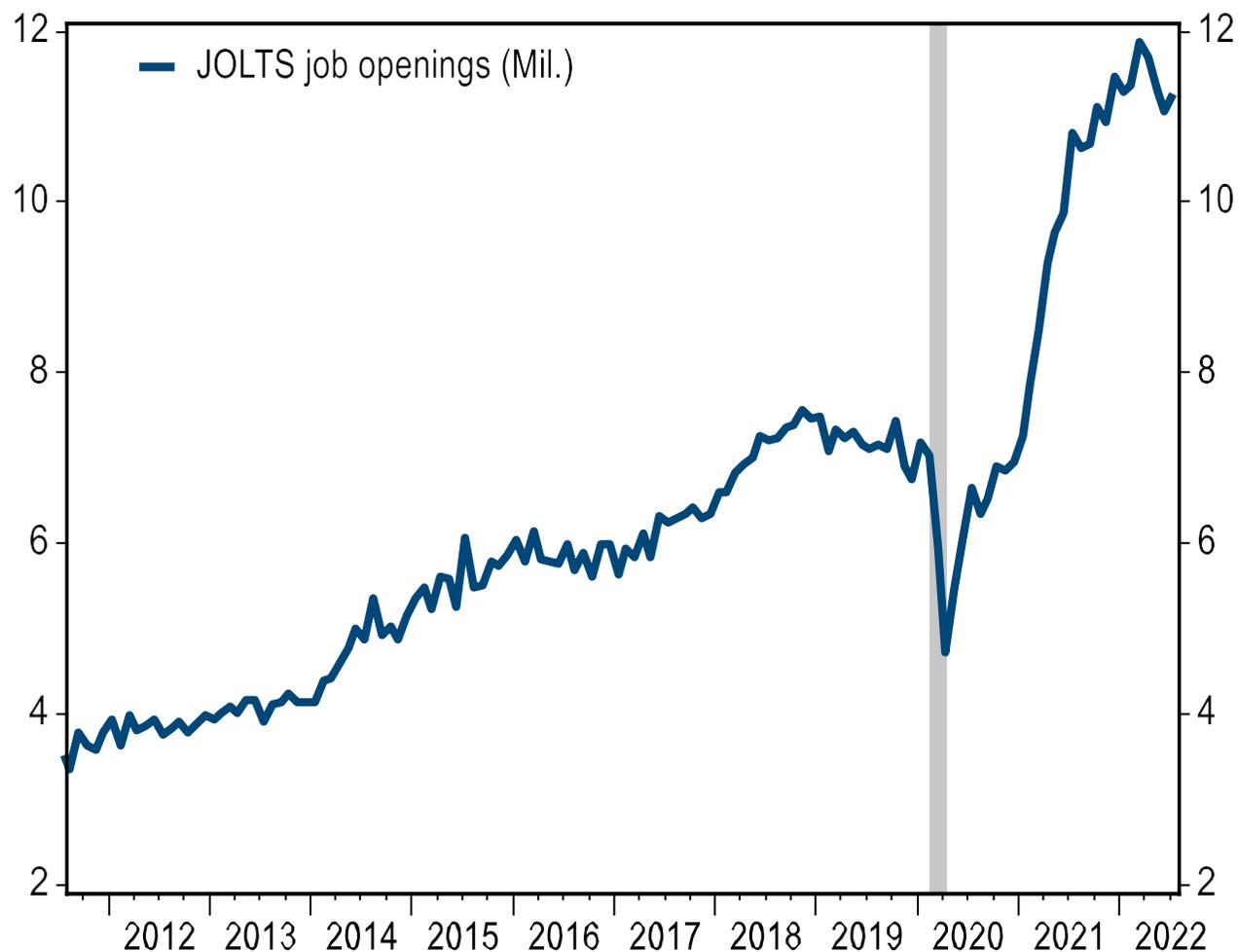
Labor Demand Outpaces Labor Supply

Hiring limited by supply, with demand far outpacing available workers

The number of job openings, according to JOLTS – the Job Openings and Labor Turnover Survey – rose from 11.0M to **11.2M** in July

Still, the thirteenth straight month above 10M, suggesting producers remain desperate for workers to increase output and meet a still-heightened level of demand for goods and services

There are roughly two vacant positions for every one person seeking a job



Source: Bureau of Labor Statistics/Haver Analytics

Where Have All the Workers Gone?

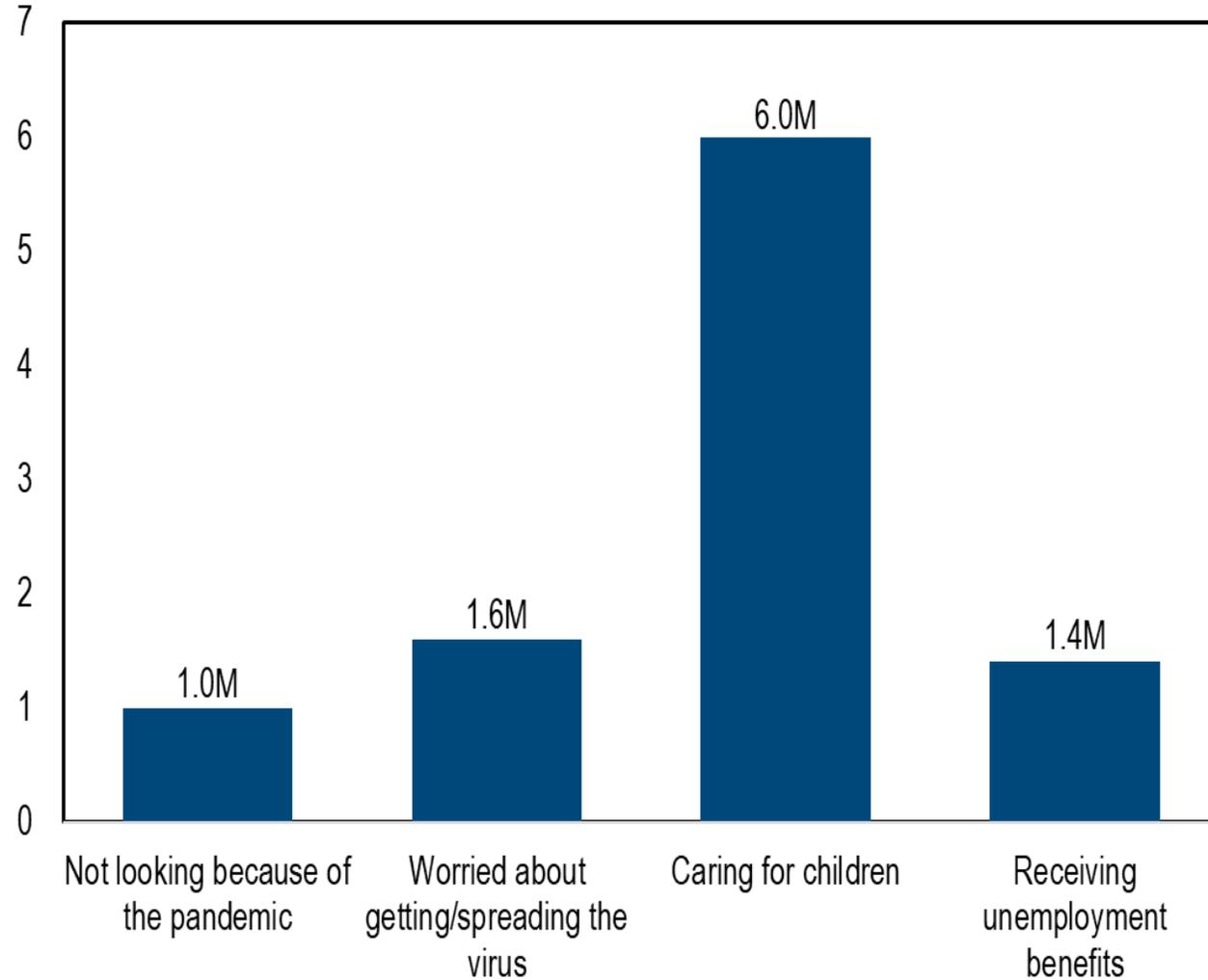
Some workers have lingering health concerns or ongoing health impacts resulting from the virus

Some face lingering childcare or elder care issues

Labor supply gap will be improved with schools reopen, higher vaccination rates and an end to federal benefits, but It will take time to entice workers back into the labor market

According to the Bureau of Labor Statistics, as of August, **1.6M** Americans report they remained sidelined due to *“worries about getting or spreading the virus”*

The Census Bureau reports that **6.0M** people are out of work because they were *“caring for children not in school or daycare”*

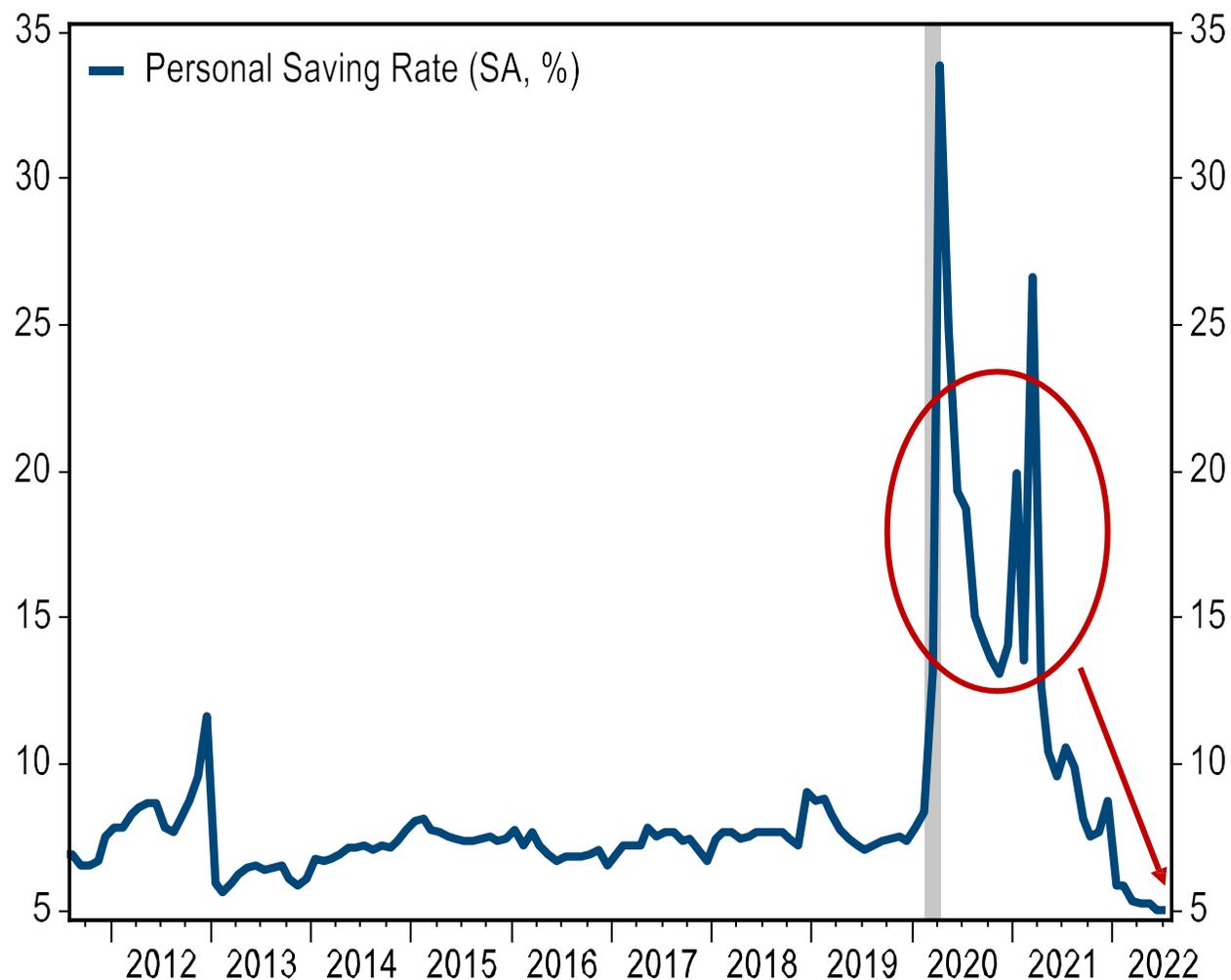


Source: Census Bureau/Bureau of Labor Statistics

The U.S. consumer remains solid with **\$932B** in savings and a savings rate of **5.0%** as of July

Additional savings, higher wages and additional federal spending will help supplement the consumer and mitigate the fiscal cliff resulting from an end of pandemic stimulus

Savings won't support potential workers indefinitely – already the savings rate has slowed, and that stockpile of savings has dwindled markedly as spending adjusts back to pre-pandemic patterns, fiscal support wanes and prices rise



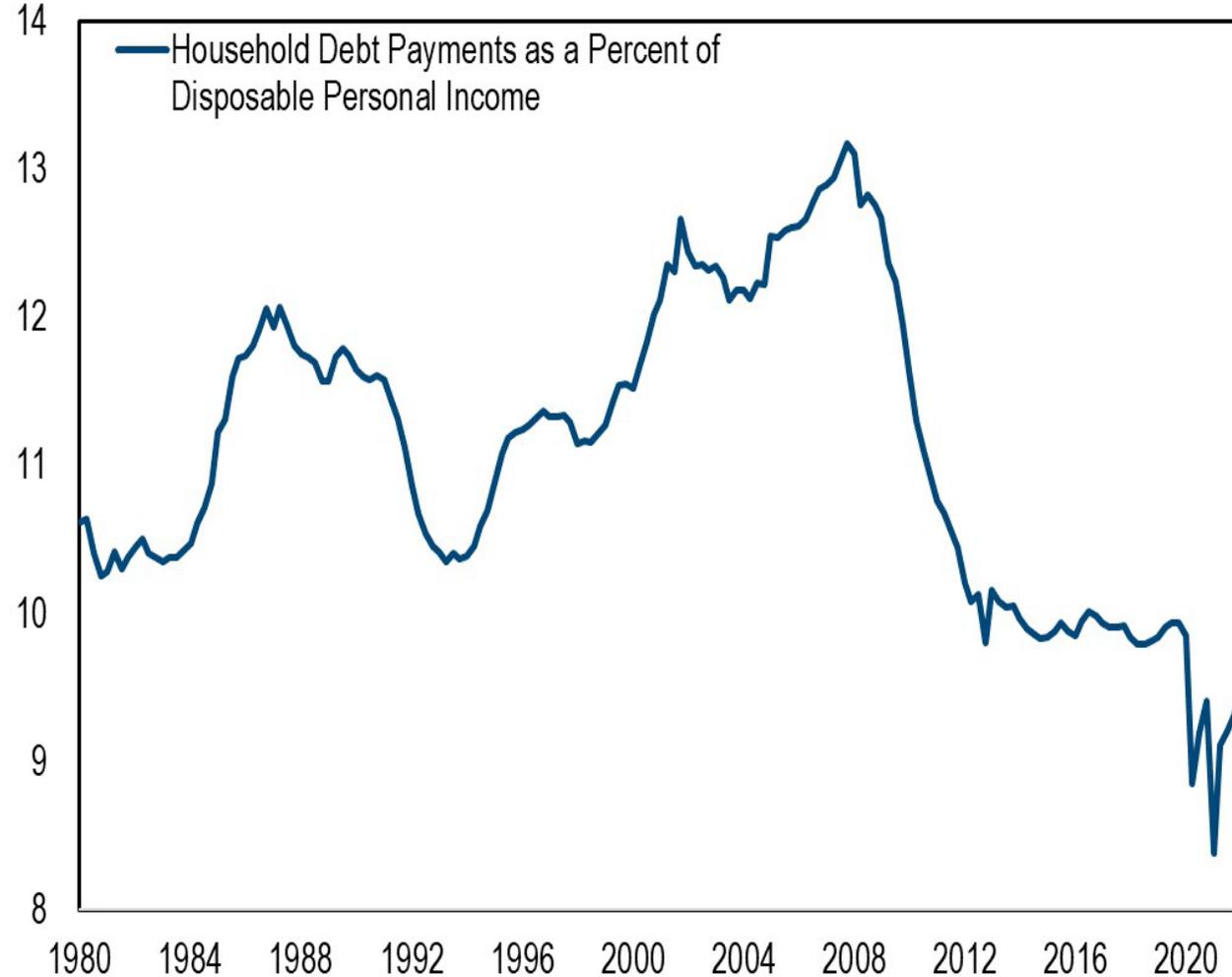
Source: Bureau of Economic Analysis/Haver Analytics

Debt as a Percent of Income Lowest Level on Record

At the same time, consumers are increasingly turning to credit cards and additional sources of debt to perpetuate their spending habits as fiscal support fades and savings dwindle

Most households are better positioned to take on at least some additional debt burden

Debt as a percent of disposable income rose from 9.3% to **9.5%** in Q1, still near the lowest on record



Source: FRED

Stimulus Support to Consumption Wanes

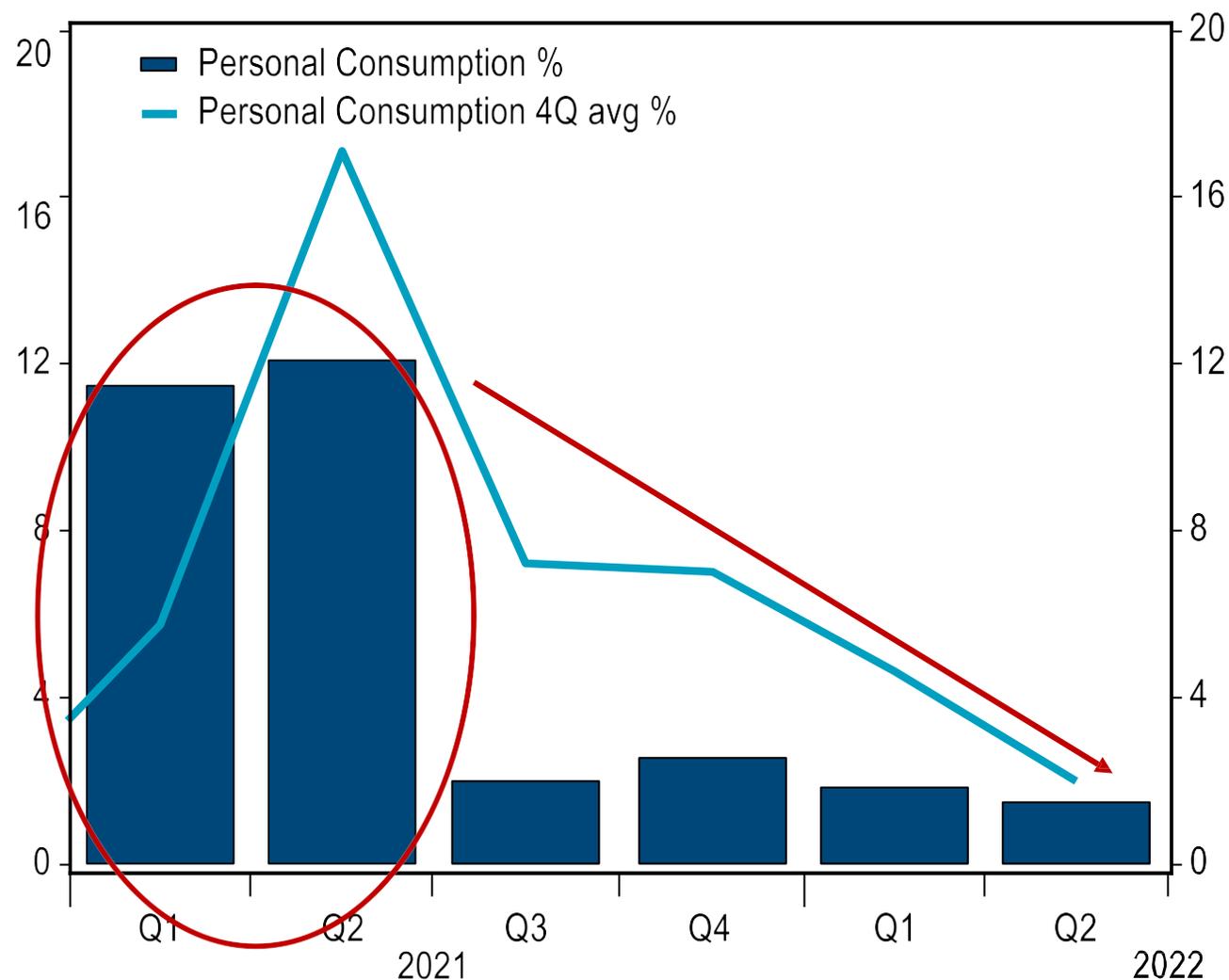
For some, the notion of a reduced or evaporated wealth cushion is causing an outright shift or reduction in spending habits

Consumer spending was robust at the start of the year reflecting pent-up demand and ample fiscal stimulus

Since then, however consumption has slowed, somewhat expected as fiscal support wanes

Personal consumption expenditures rose **1.5%** in Q2 2022, down from the 1.8% pace the quarter prior, and further below the 12% pace in Q2 2021

On a four-quarter average basis, consumption fell from 4.6% to 2.0%, further below the record 17.1% pace in Q2 2021



Source: Bureau of Economic Analysis/Haver Analytics

Retail Sales Trending Lower

Retail sales were robust at the start of the year

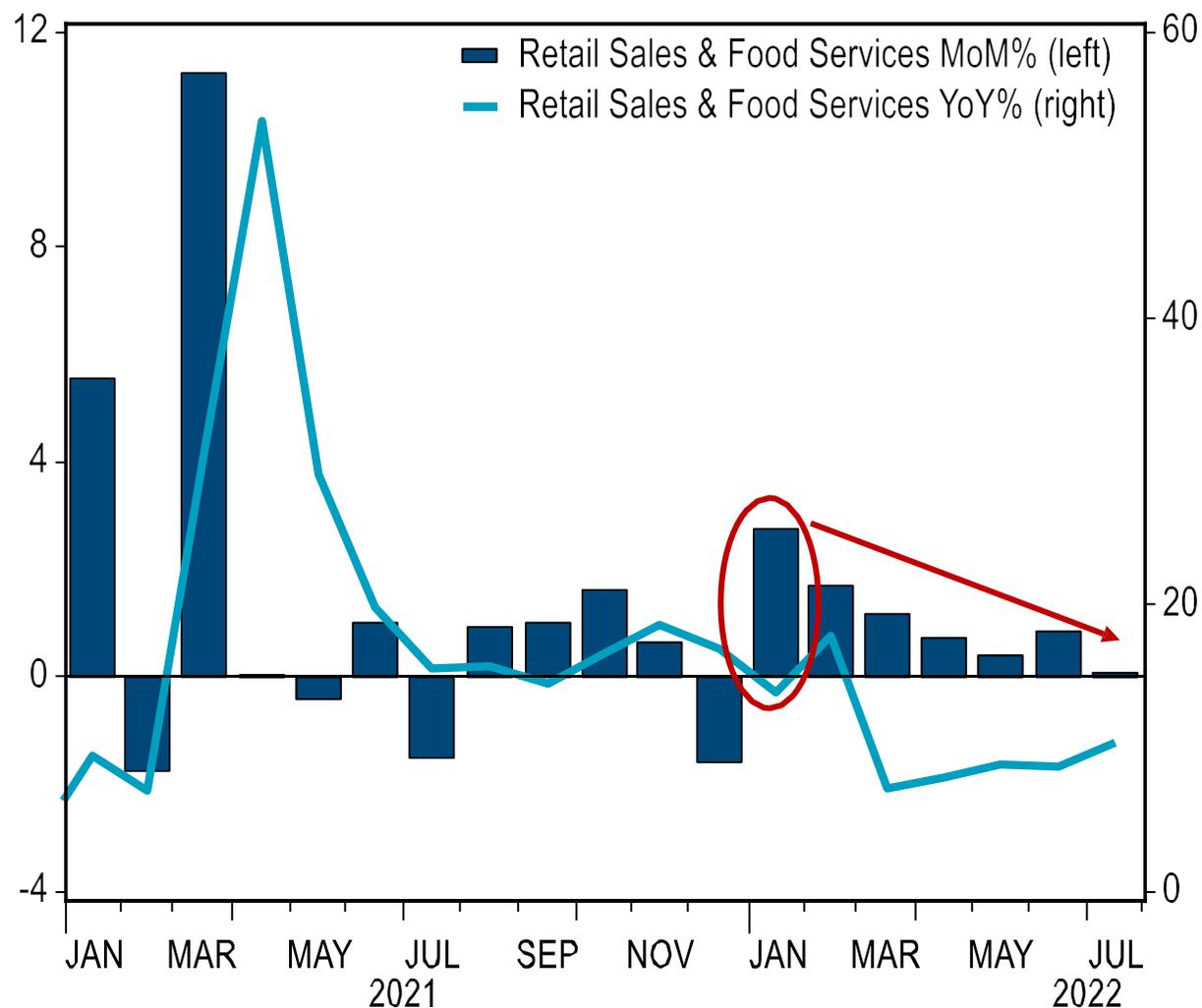
Sales rose **2.7%** in January, the strongest pace since March 2021 and following a 1.6% decline in December

Trillions in savings and upward momentum in wages has helped consumers to weather different variants and to offset a loss of fiscal support, but inflation is complicating the picture

Large retailers report customers are cutting back as the balance sheet is becoming increasingly fragile amid rising costs and rates

Sales were flat in July, following a 0.8% increase in June and a 0.4% increase in May

Year-over-year, retail sales rose **10.3%** in July, following an 8.5% gain in June

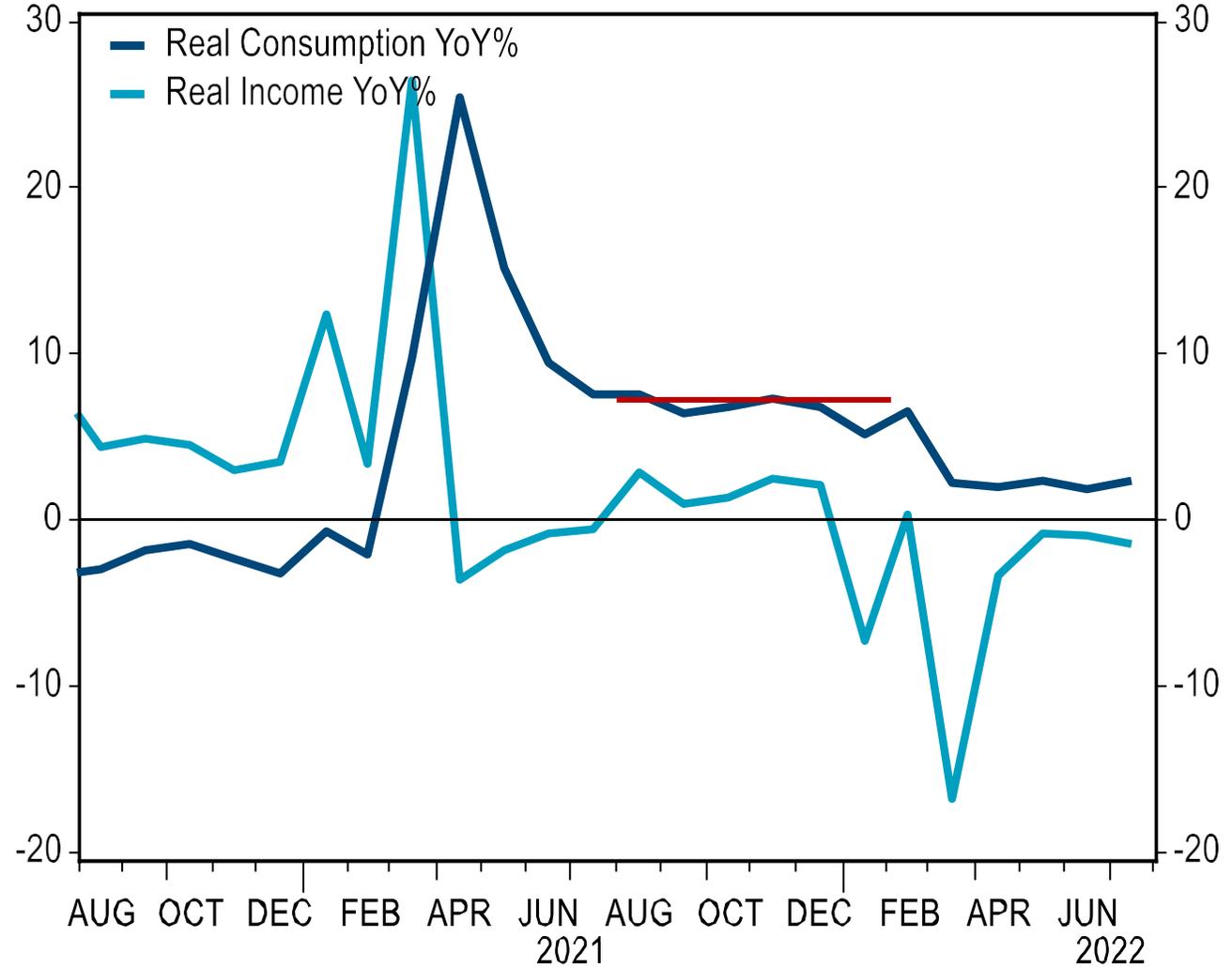


Source: Census Bureau/Haver Analytics

Despite *nominal* wage growth, taking inflation into account, real income has remained in the red since March, **down 1.6%** as of July

Consumption remains positive – for now – but real spending is already trending lower

July real consumption rose **2.2%** over the past 12 months, a two-month high, but down from a trend pace of **7.3%** in 2021



Sources: BEA, BEA/H/Haver

Manufacturing Activity Slowing

Even with a *relative* decline in spending, positive nominal spending is keeping pressure on producers

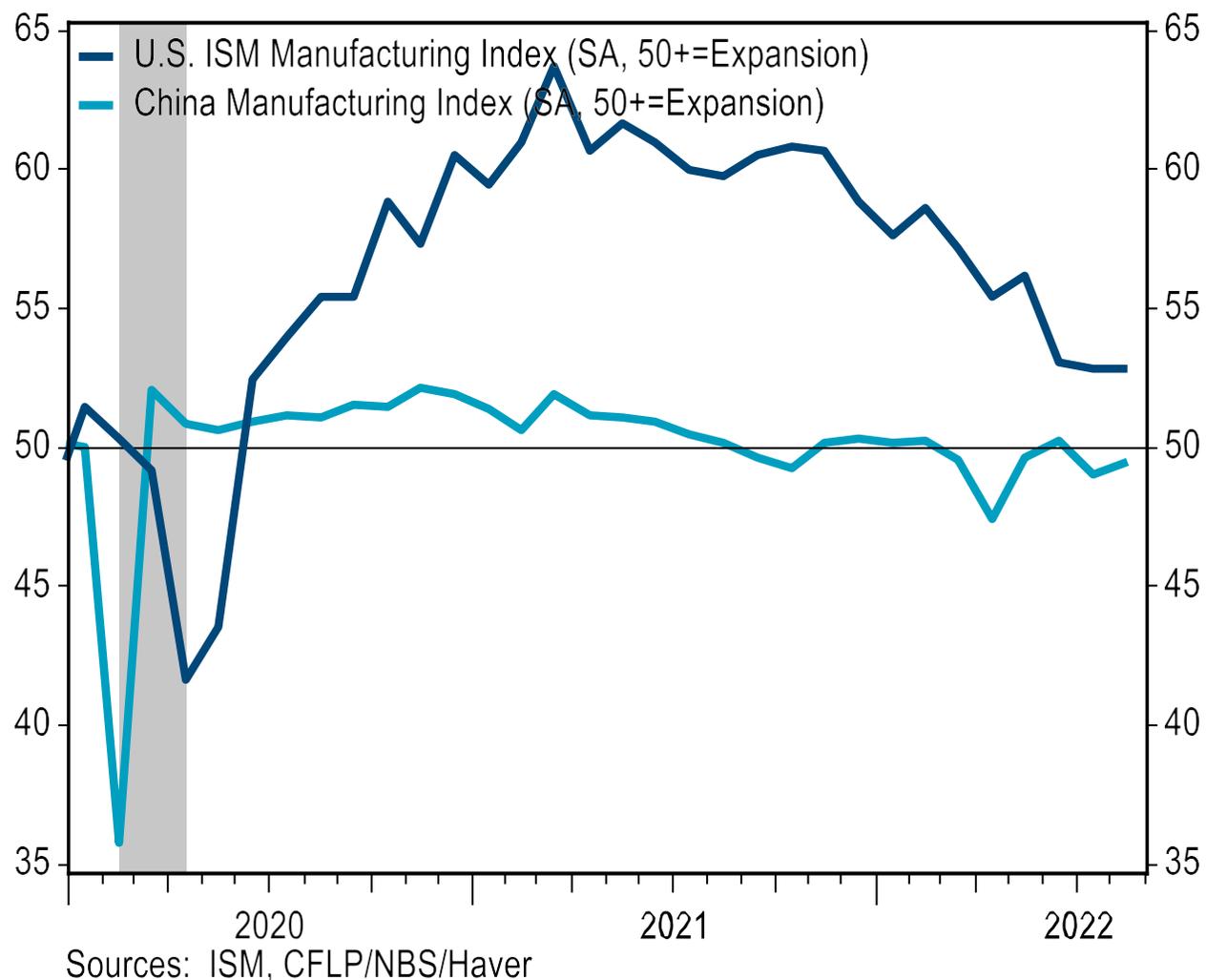
Producers face labor shortages and lingering supply chain disruptions which have improved but remain historically high

Shortages reported for lumber, tires, wire, etc. leading to extended wait times, higher prices and inventory complications

The ISM declined from a near-term peak of 60.8 in October 2021 to **52.8** as of August

The China Manufacturing PMI fell to **49.4** in August, bouncing along breakeven since June 2021

Solution to supply chain disruptions will depend on global policy, trade relations and geo-response to the virus – even domestic producers are impacted resulting in price pressures



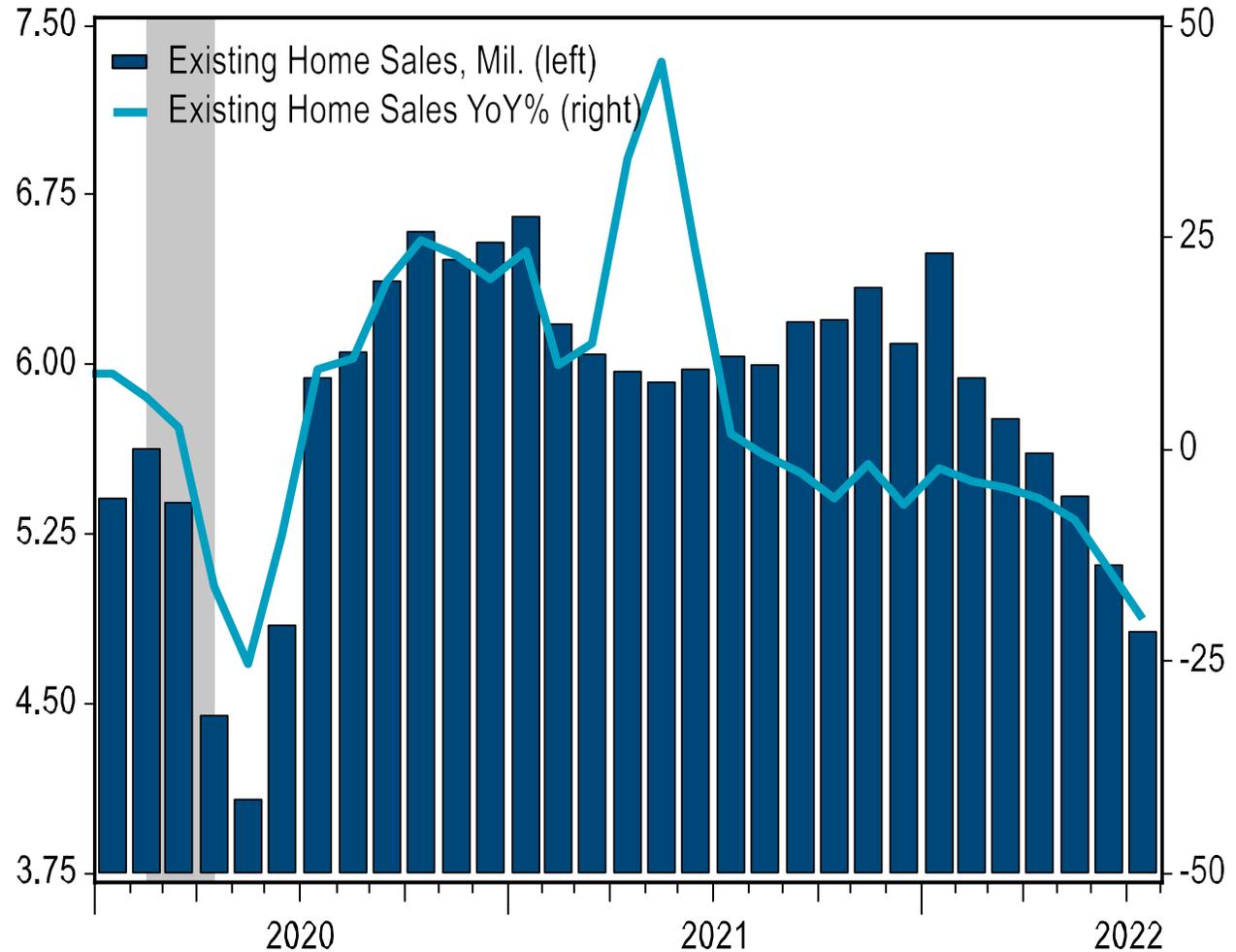
Americans view their home as a workplace, school and refuge

Home sales surged during the pandemic and immediate aftermath

Sales rose 6.6% at the start of the year, reaching a peak pace of 6.49M units

Rising interest rates, rising costs of materials and declining real income is already taking a toll on some would-be buyers and prompting many more potential sellers anxious to offload in a still-hot market

Existing home sales dropped 5.9% in July to a **4.81M** unit pace, down 26% from a recent January peak



Source: National Association of Realtors/Haver Analytics

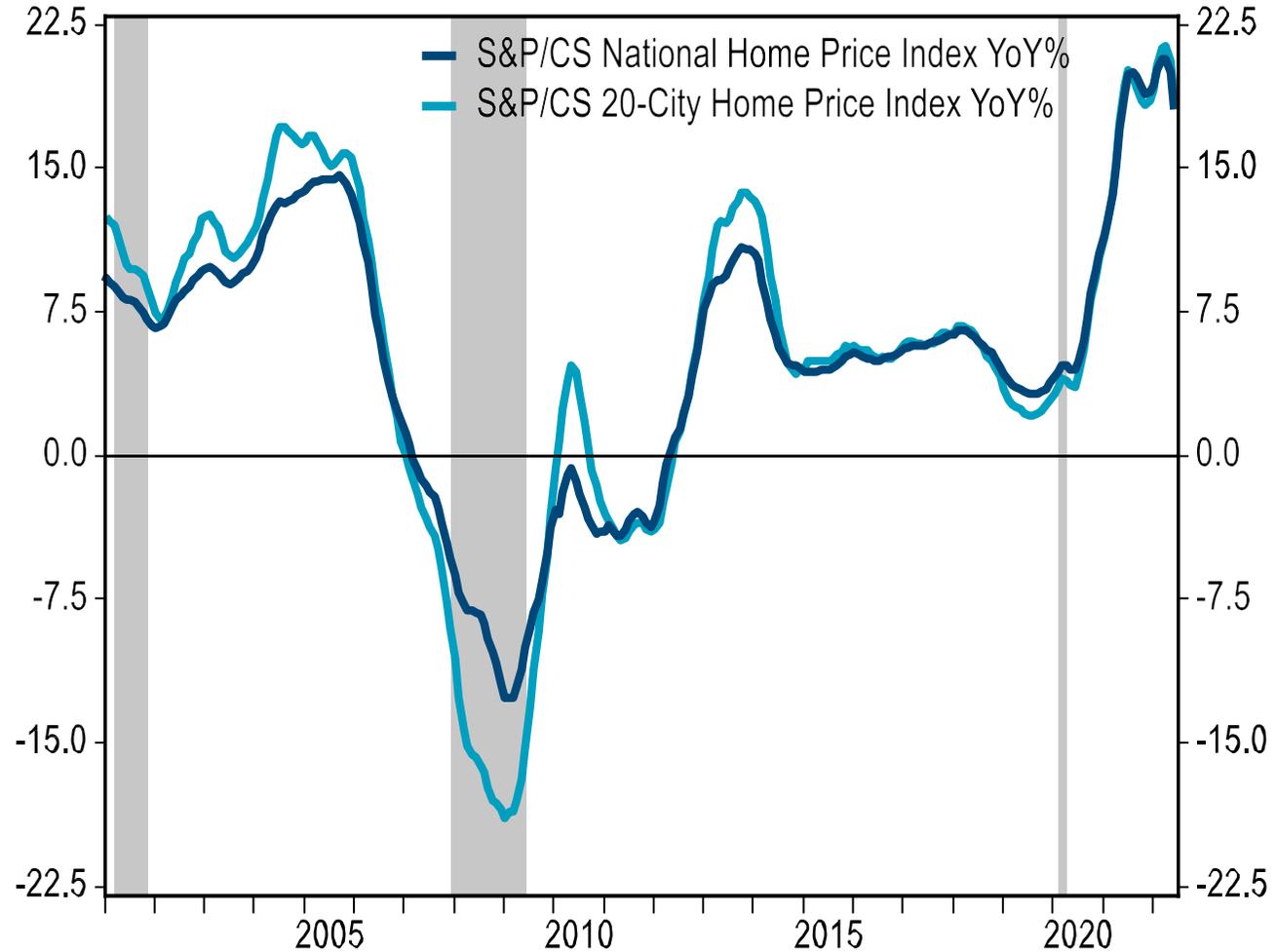
Home Prices Still Elevated

Demand is still *relatively* solid, supply is still *relatively* limited, keeping pressure on prices

Year-over-year, the 20-city home price index rose **18.7%** in June, down from the 21.3% peak in April, the largest gain on record

Nationally, home prices rose **18.0%**, following a 19.9% rise the month prior, and down from the 20.6% peak reached in April, the largest gain in the history of the index dating back to 1987

Price growth is not limited to downtown, urban markets



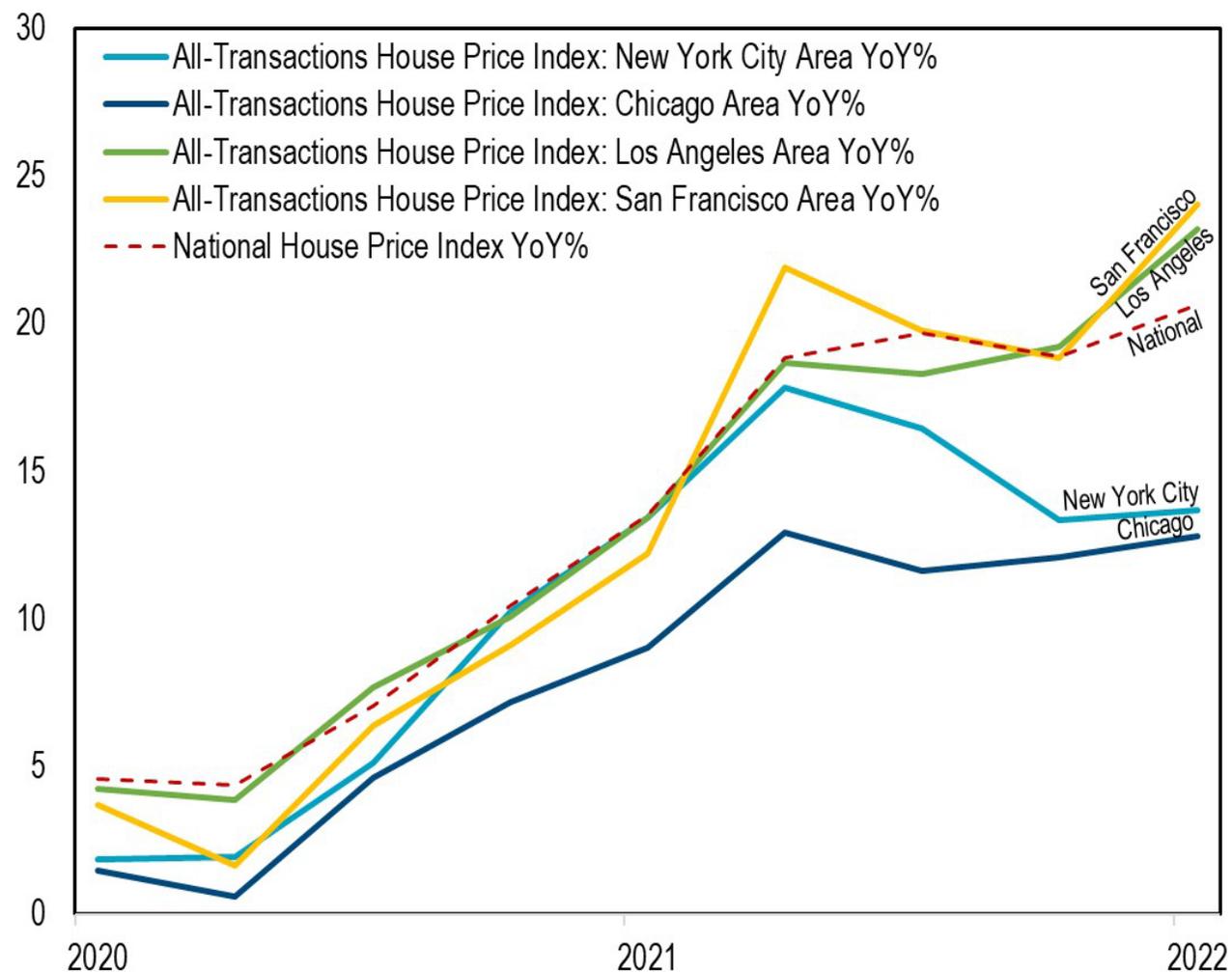
Source: Standard & Poor's/Haver Analytics

Home Prices Still Elevated... But Slowing

House prices in Chicago are up 12.8% in Q1 2022, up from 12.1% in Q4, down however from a near-term peak of 12.9% in Q2 2021

In New York City, house prices are up 13.7% as of Q1 2022, while house prices in the Los Angeles area are 23.2% more expensive

Home prices in San Francisco, meanwhile, have also started to rise slightly, up 24% in Q1 2022



Source: FRED

\$1.2T Infrastructure Plan

Continued uncertainty creates an opportunity for officials in Washington to ramp up spending in the name of economic growth, job creation and taming inflation – despite further inflationary implications

After months of negotiations and a standoff between progressive and moderate Democrats, the **\$1.2T** package of road, broadband, and other *"hard"* infrastructure improvements passed in November

Key items include:

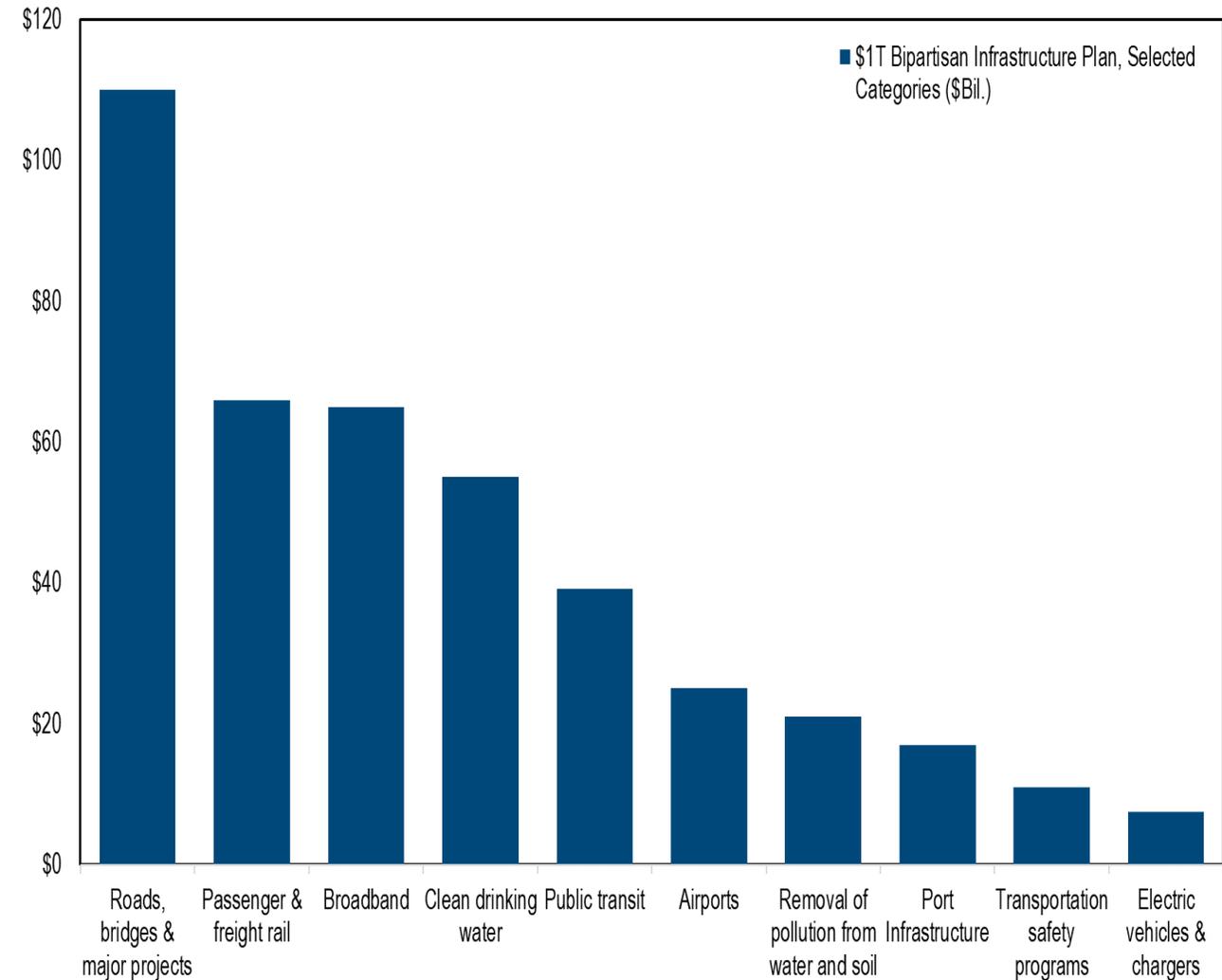
\$110B for roads & bridges

\$66B for passenger & freight rail

\$55B for clean drinking water

The five-year spending initiative will have a limited impact on growth in near-term

In the SOTU, President Biden continued to push for BBB at \$1.75T



Source: Reuters/NPR

Advocates Argue

- The package will serve to reduce the deficit by limiting tax fraud and increasing tax revenues from corporate America
- Increase spending to combat climate change
- Allow the government to negotiate certain drug prices

Opposition Suggests

- The legislation will simply result in tax increases on most households
- The legislation would fail to bring down inflation with some arguing the legislation may exacerbate inflation pressures by handing out more federal dollars to American households resulting from elevated tax collection from the private sector

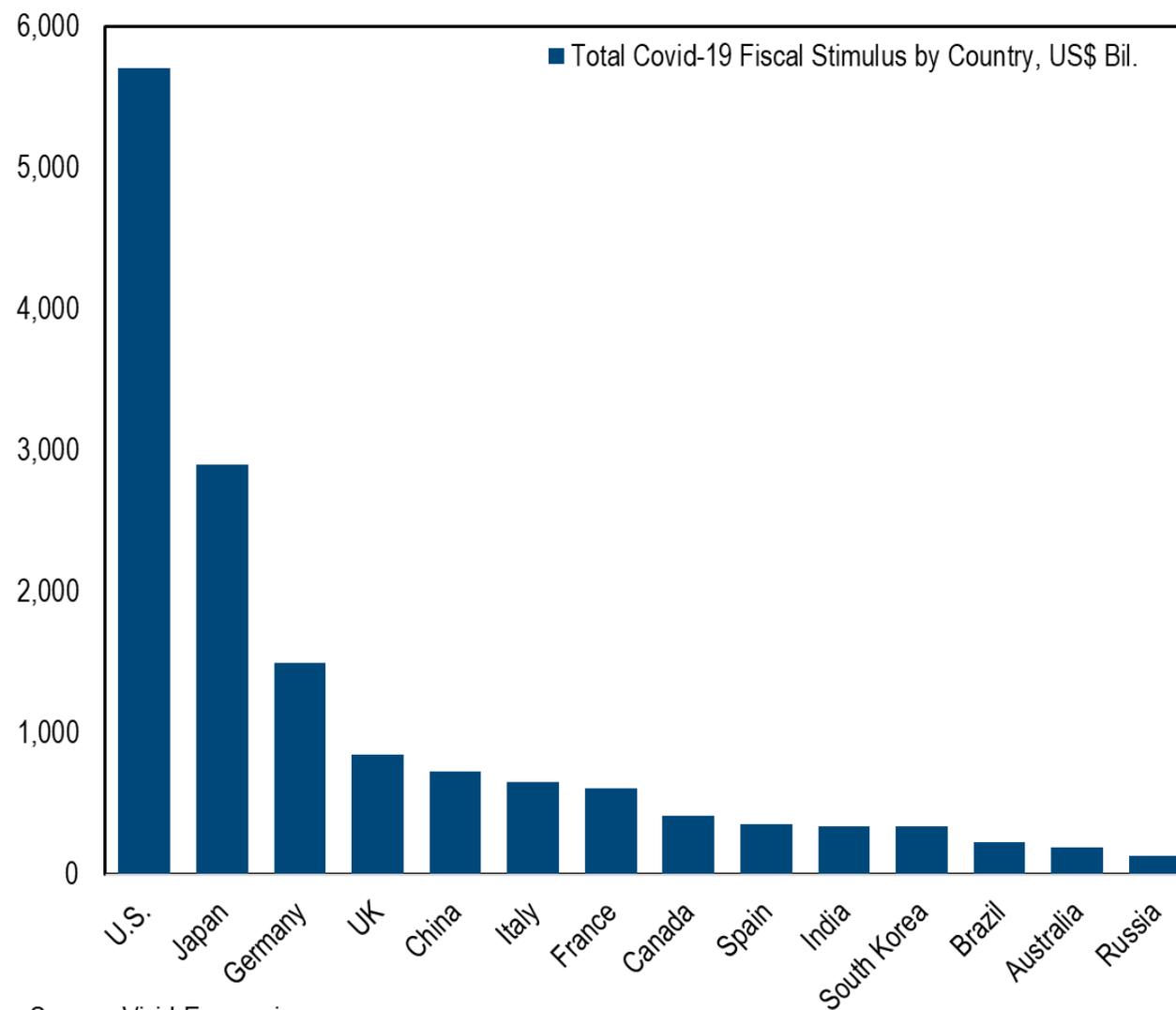
Bipartisan Analysis Concludes

- According to initial estimates, the measure could reduce the deficit by about \$102B over the next 10 years
- Although, other analysis suggests the act would slightly increase inflation until 2024
- The bill passed in the Senate on August 7 and passed in the House on Friday, August 12

Even without the IRA, the U.S. has spent nearly **\$6T** in Covid relief grossly contributing to the nation's inflationary concerns

Developed nations in total spent **\$17T** on the pandemic with government spending becoming a greater share of GDP in every major advanced economy, a relentless expansion of government

The U.S., however, spent more than double the next highest spender with much in the way of direct payments, leading to higher inflation rates than almost anywhere else in the world



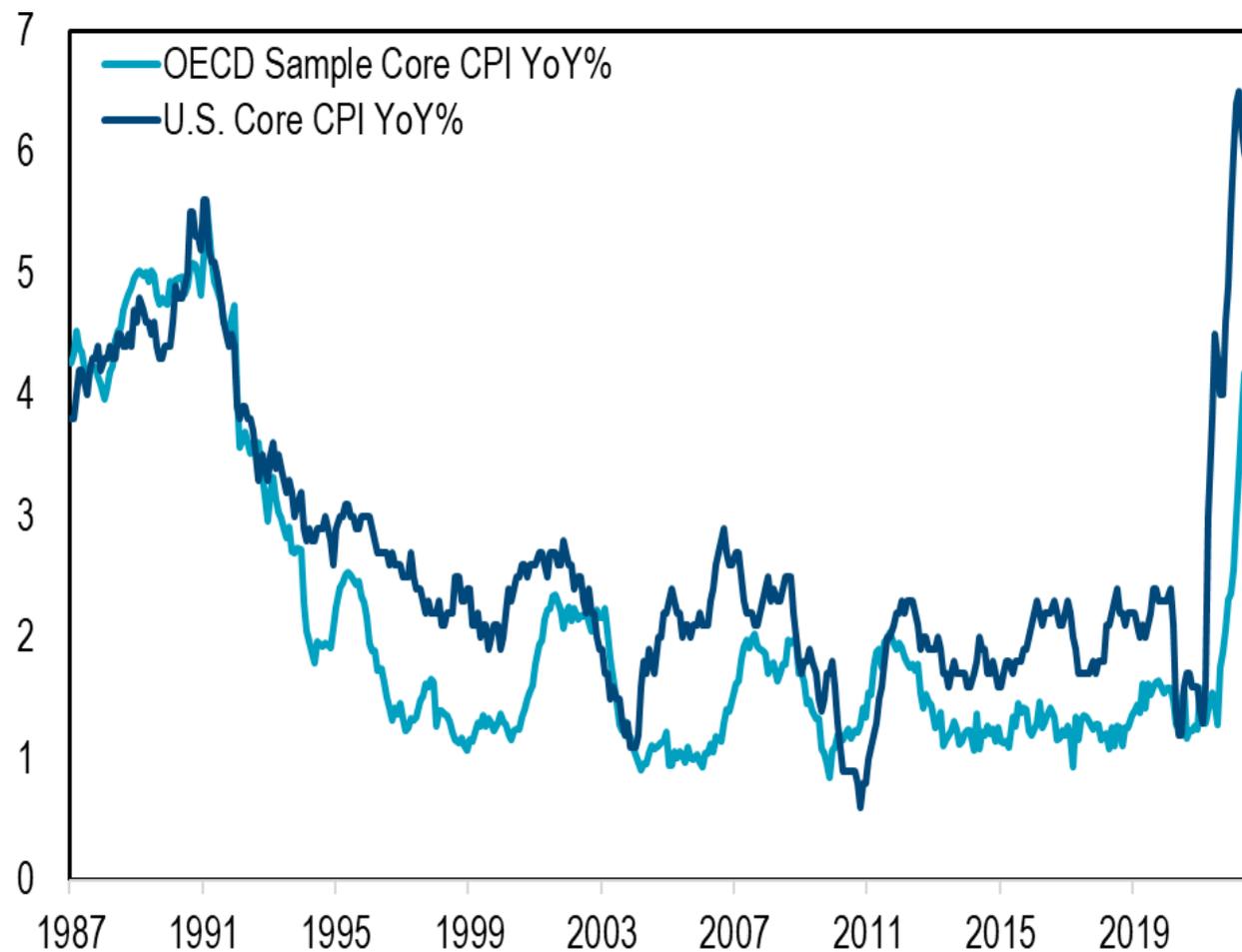
Source: Vivid Economics

U.S. Inflation Higher than Abroad

Countries are reeling from supply-side constraints

U.S. inflation has been exacerbated by fueling demand-side metrics and labor costs resulting from fiscal policy measures

U.S. inflation continues to outpace other countries, rising **5.9%** as of July vs. **4.2%** elsewhere in the developed world



Source: FRED

*Sample includes: Canada, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, and the U.K.

Rate Expectations Materially Increased

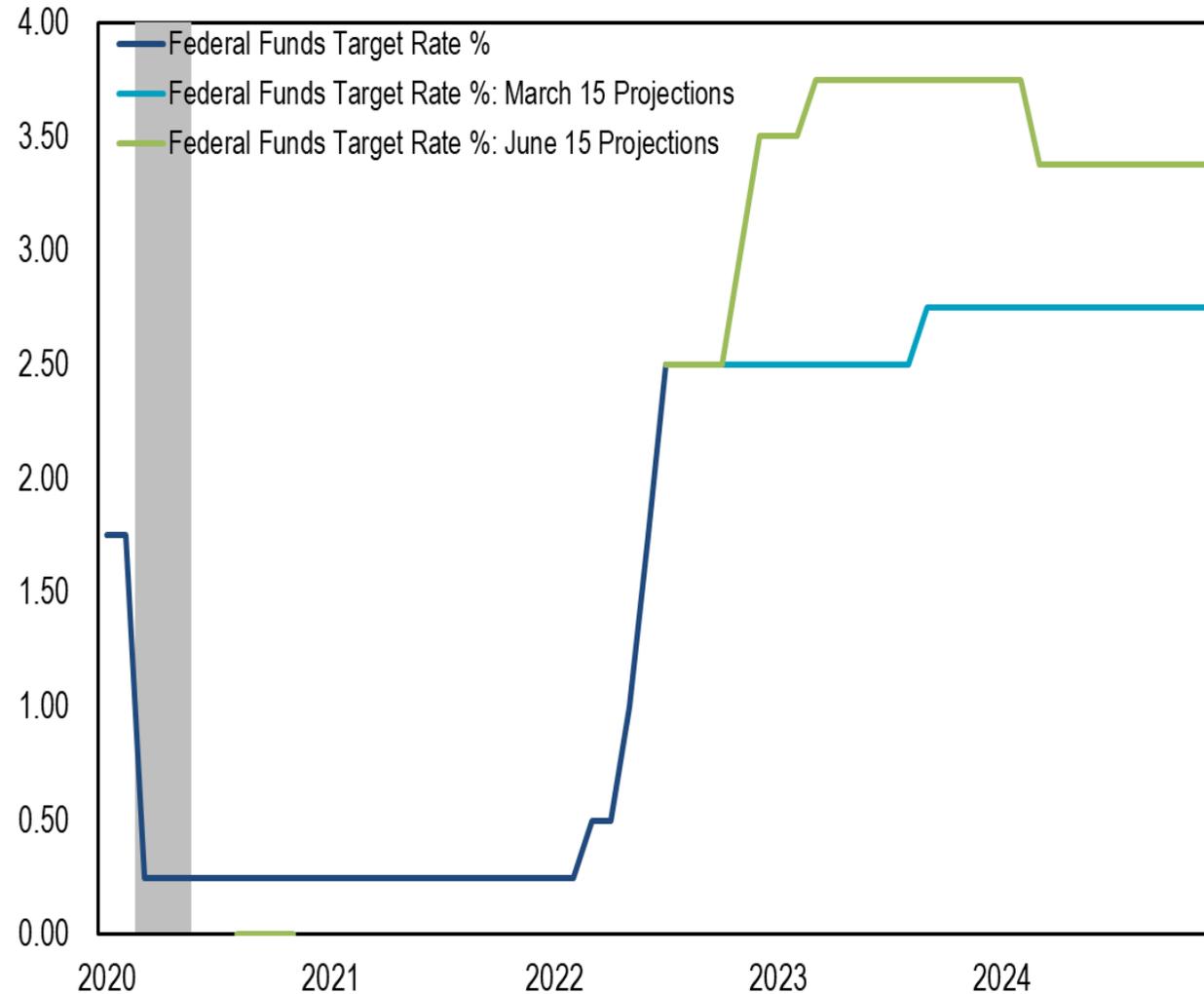
In March the Fed took a decisively more hawkish position

The Fed raised rates, **25bps** in March, **50bps** in May, and **75bps** in June and July reaching 2.25-2.50%

The Fed's expected rate pathway has markedly increased with inflation still *"too-high"*

According to the June 2022 FOMC dot plot, members now expect the target rate to reach near **3.50%** this year and around **3.75%** next year

In March, the SEP showed expectations for **2%** in 2022 and **2.75%** in 2023

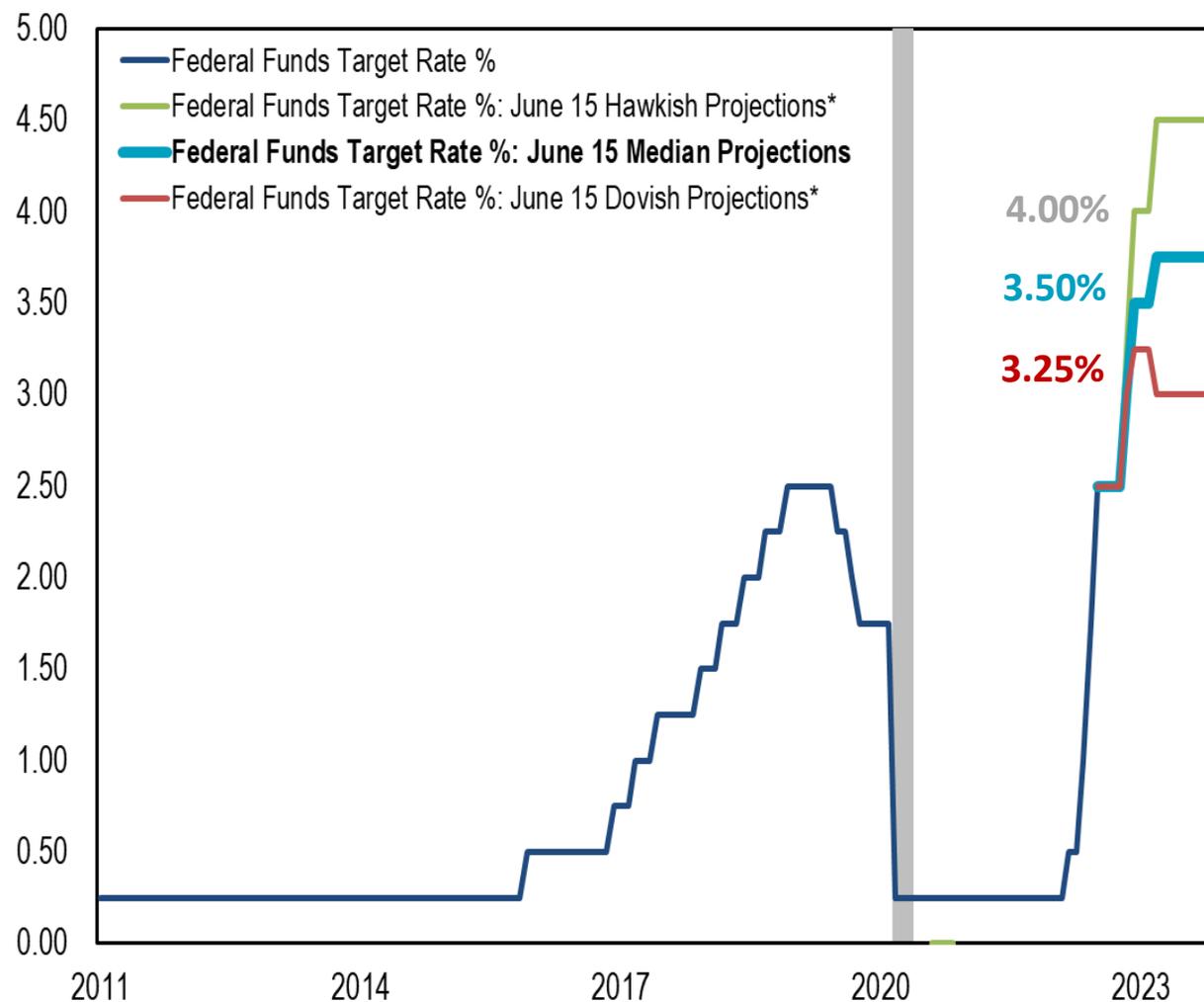


Source: Federal Reserve Board/Bloomberg

An Array of Policy Opinions Among Fed Members

The array of opinions among policy makers is still quite large

The more dovish members are forecasting a federal funds rate of closer to **3.25%** by year-end while hawkish members are forecasting around **4.0%** by year-end



Source: Federal Reserve Board/Bloomberg

*Median projections based on June Dot

“Too High” Inflation Motivation for Hawkish Fed

“Too high” inflation motivation for Fed policy directive

Labor and wage gains “solid,” however, inflation has become more “broad-based”

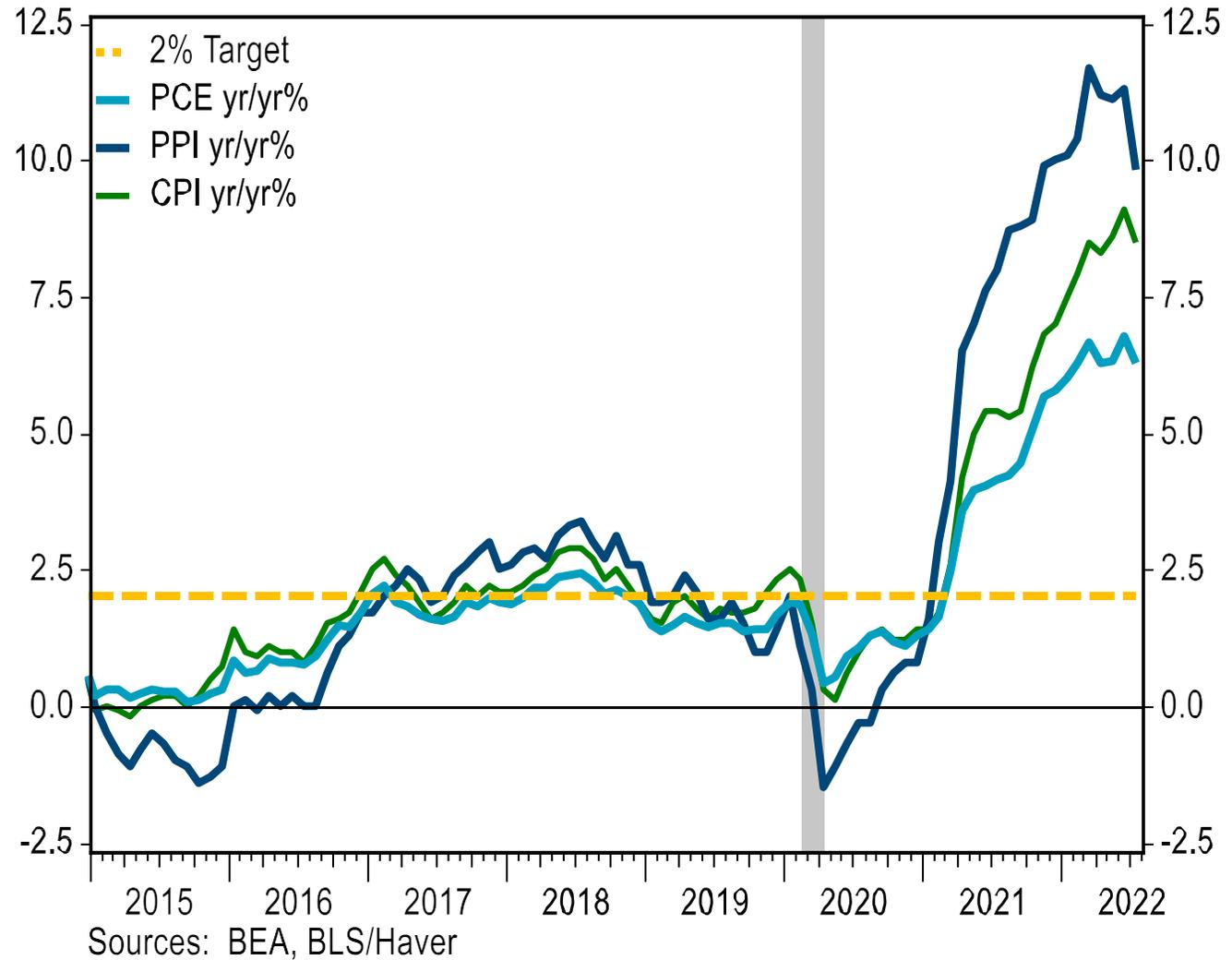
Even with recent reprieve, the CPI is up 8.5% and the PPI is up 9.8% as of July

The PCE fell **0.1%** in July and rose **6.3%** YoY, down from the 6.8% pace in June

The core PCE rose **0.1%** in July and rose **4.6%** YoY, down from the 4.8% pace in June

Inflation had fallen short of the Fed’s 2% target for nearly a decade

However, in 2021 alone, inflation averaged 3.7%



Inflation by Category

	MoM%	YoY%
CPI	0.0%	8.5%
Core CPI	0.3%	5.9%
PPI	-0.5%	9.8%
Core PPI	0.2%	7.6%

The cost of gasoline continues to rise, up **44%** over the past 12 months, with other housing materials such as lumber and heating equipment up **5%** and **17%** over the past 12 months, respectively

The cost of animal feed and certain foods has also increased with animal feeds up **13%**, eggs up **38%**, and pork prices up **8%** from a year ago in July



Gasoline: **44.0%** YoY



Used Cars & Trucks: **6.6%** YoY



Asphalt: **73.8%** YoY



Prepared Paint: **25.8%** YoY



Lumber: **5.3%** YoY



Heating Equip.: **17.3%** YoY



Animal Feeds: **12.8%** YoY



Pork: **7.6%** YoY



Eggs: **38%** YoY



Mixed Fertilizer: **18.2%** YoY



Cereal: **16.8%** YoY



Corn: **9.3%** YoY

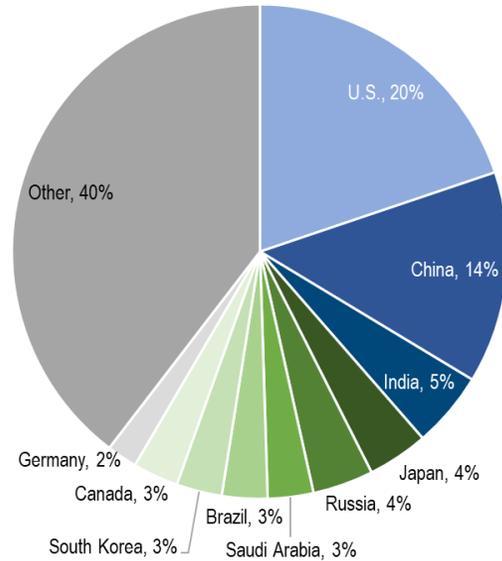
Source: Haver Analytics

Russia is the world's **third largest oil producer** behind only the U.S. and Saudi Arabia

While Russia accounts for 3% of U.S. crude oil imports and roughly 1% of total crude oil processed by U.S. refineries, **Russian exports account for nearly 25% of the European Union's crude, 40% of its natural gas, and 46% of its coal imports**

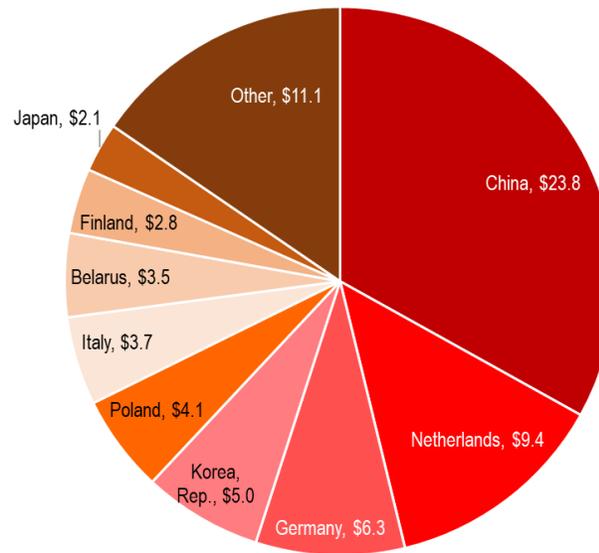
Oil prices are at \$83.29 a barrel as of September 8, down from a near-term high of \$123.70 on March 8

World's Largest Oil Consumers and Total Market Share



Source: U.S. Energy Information Administration

Purchases by Country of Russia's 2020 Crude Exports, \$Bil.



Source: Source: World Bank Integrated Trade Solution/Bloomberg/UN Comtrade Database

Ukraine is considered the breadbasket of Europe with 70% of land agricultural

Ukraine is the **fourth-largest exporter of maize** globally – behind only the U.S., Argentina and Brazil – accounting for 13% of the world’s total maize exports

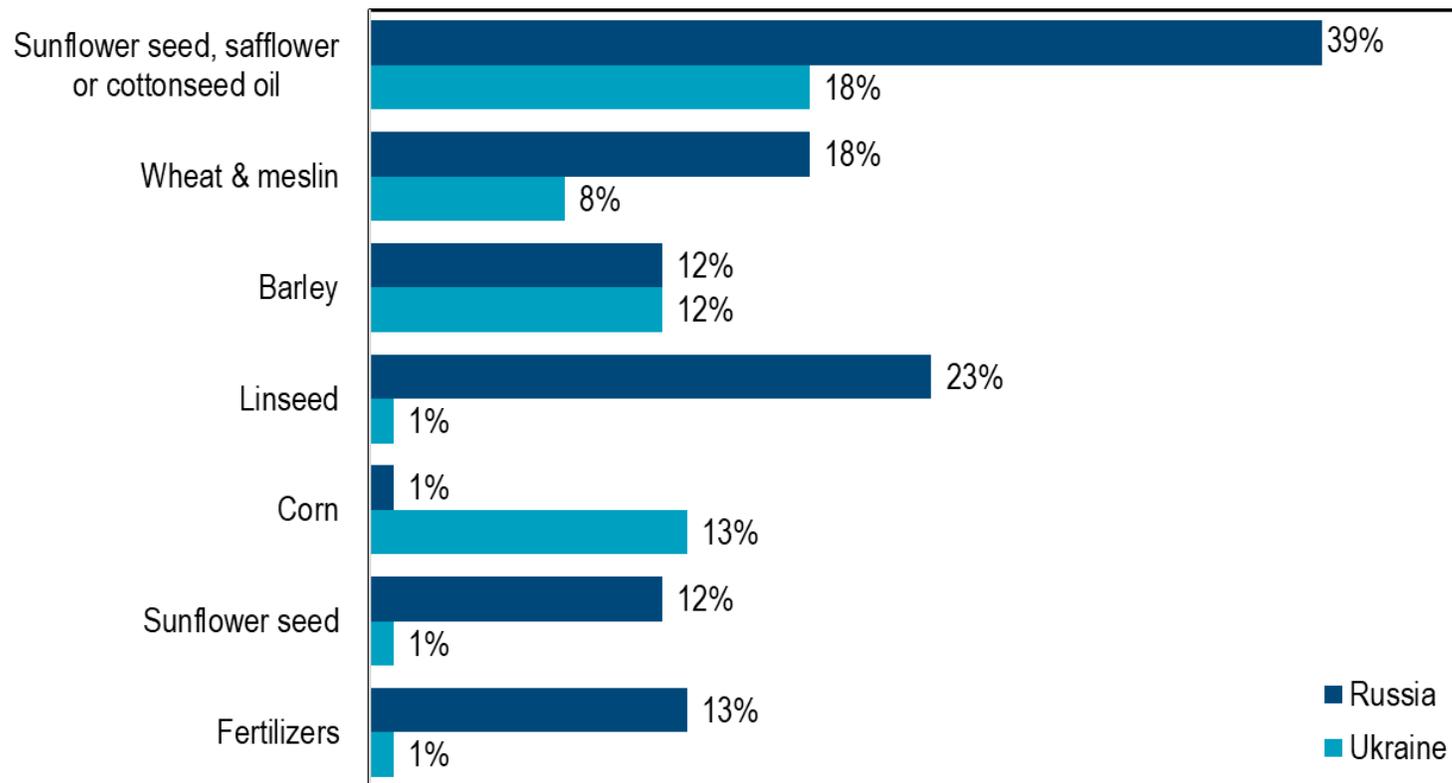
Ukraine is the **fourth-largest exporter of barley**, accounting for 12% of total world exports, and **the fifth-largest exporter of wheat and meslin**

Ukraine is the **largest exporter globally of sunflower seeds and sunflower oil**, which is the fourth most-consumed vegetable oil in the world

Russia is a **leading exporter of wheat and meslin**, exporting \$7.9 billion worth in 2020, or roughly 18% of global exports

Russia is **the sixth-largest producer of corn**, accounting for 2.3% of the world’s exports

Russia & Ukraine Share of Total Global Exports in 2020, %*



Source: International Trade Centre

*Exports shown are those with a combined share over 10% of 2020 export

Cost of Staples Elevated

Prices were already on the rise after Covid-19, international conflict is adding pressure

Commodity prices have cooled amid fears of slowing global growth but prices are still elevated

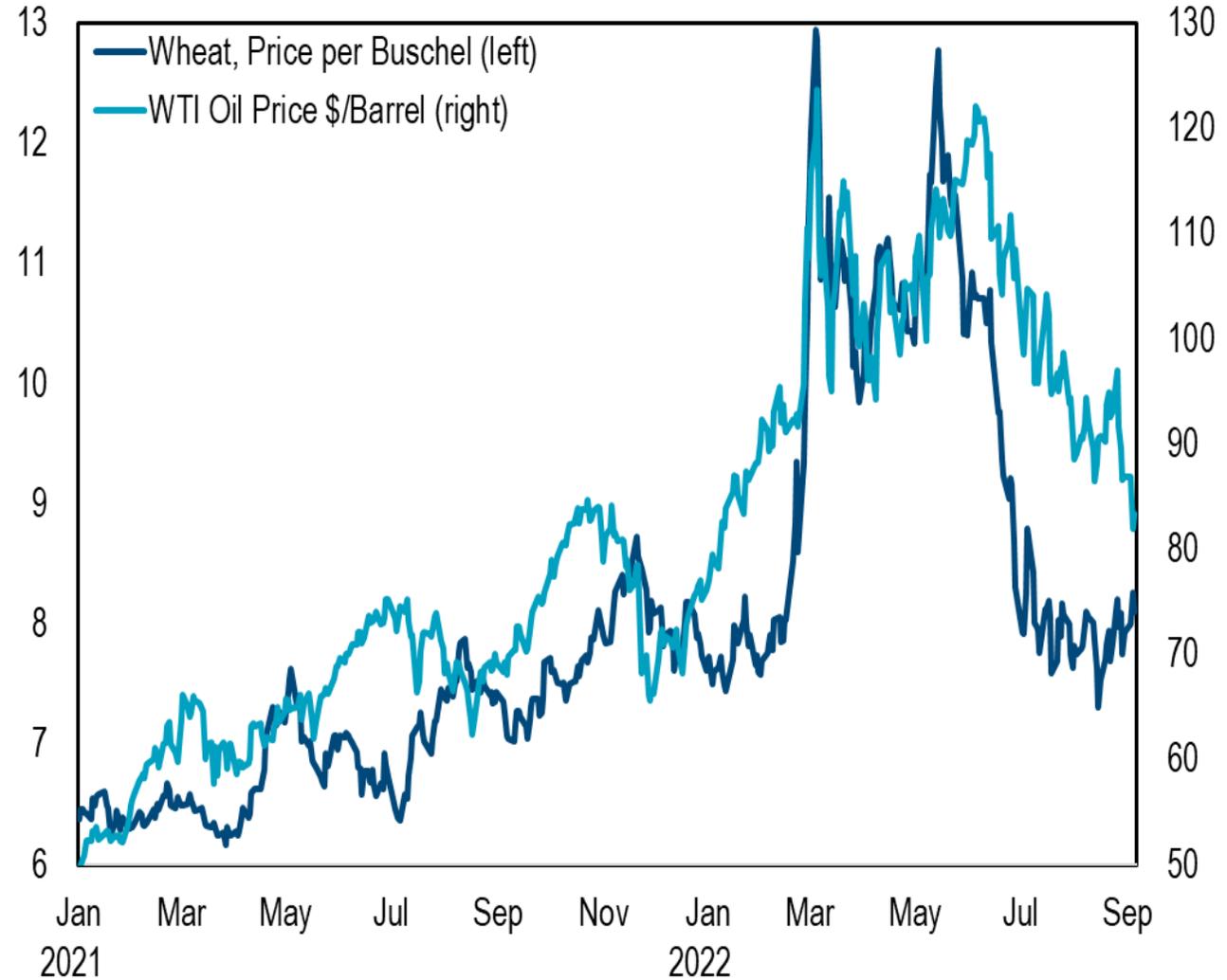
Wheat costs are up 5% since the start of the year and oil is up 11%

The cost of staples – bread, pasta, and flour – remains elevated as the world faces uncertain grain stockpiles, although shipments have resumed

Gas prices are down from a peak of \$5.02 to **\$3.75** a gallon as of September 6, up 18% from this time last year

The fastest way to derail consumer is heightened energy prices, but there is no alternative for food supply

Oil prices are at **\$83.29** a barrel as of September 8, down from a \$123.70 peak in March



Source: Bloomberg

U.S. Economy Showing Signs of Weakness

The Fed has vowed to raise rates enough to root out inflation but will it work?

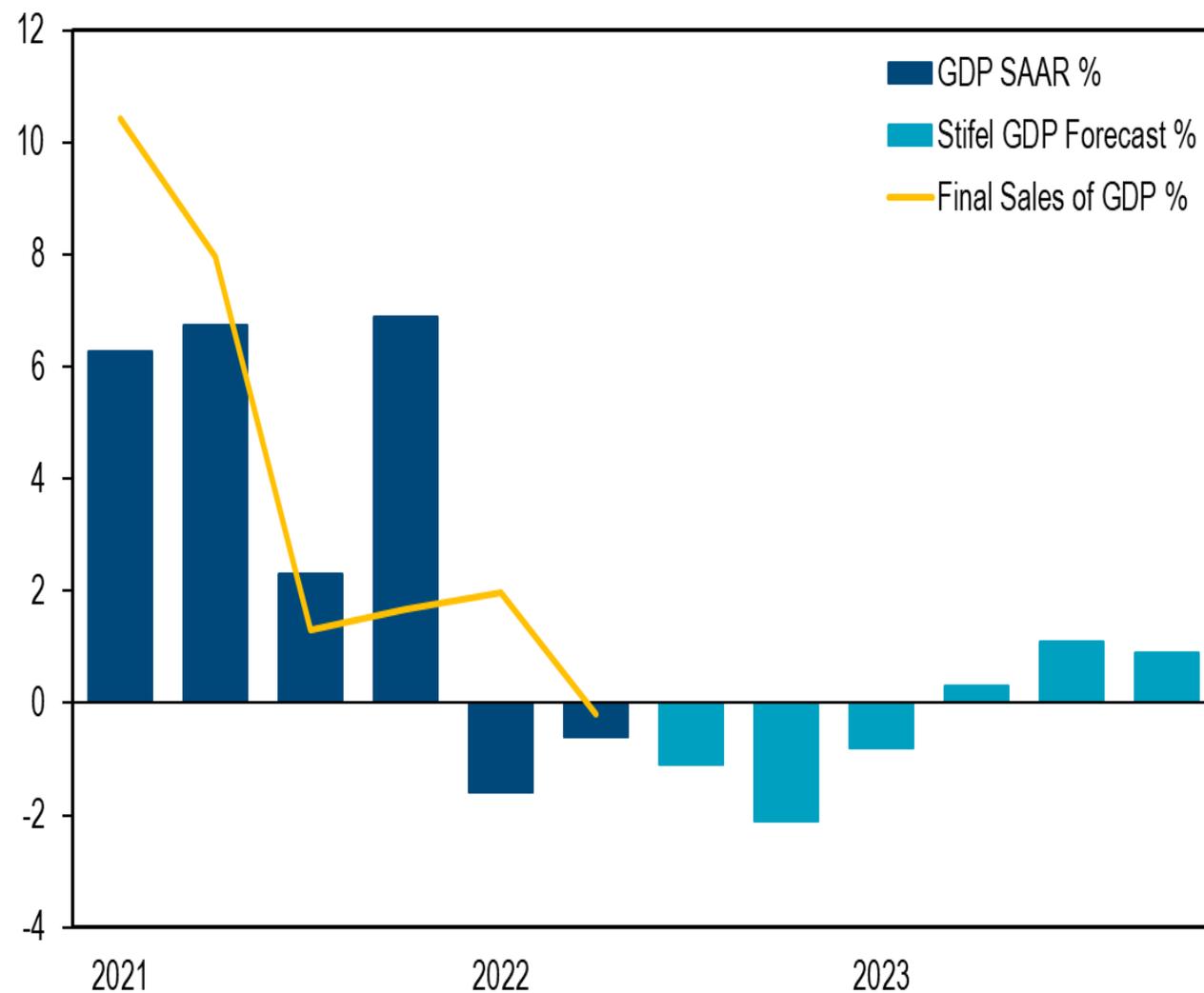
Typically, the Fed raises rates when the economy is overheating versus struggling to gain legs post-pandemic

The majority of price pressures stem from supply side constraints, limiting impact of Fed rate hikes

With an aggressive rate path, growth is likely to slow further into recession

GDP fell **0.6%** in Q2 2022, the second consecutive quarter of decline

Excluding trade and inventories, final sales to domestic purchasers fell **0.2%**



Source: Bloomberg/Stifel

- National Bureau of Economic Research (NBER) Business Cycle Dating Committee *officially* determines recession
- Eight committee members accepted as experts in macroeconomics and business cycle research
- An official recession involves a significant decline in economic activity that is spread across the economy
- Weakness typically lasts for a modest period of time
- The Committee emphasizes “*economy-wide*” measures of economic activity

Yes:

- Negative Q2 GDP, following a 1.6% drop in Q1
- Manufacturing is slowing from a recent peak of 60.8 to 52.8 in August
- Real retail sales have slowed to 1.7% in July from a peak of 9.1% in February
- Real income growth is negative, down 1.6% in July
- Hiring slowed from 526k to 315k in August and the unemployment rate ticked up from 3.5% to 3.7%

No:

- Excluding inventories and trade, Q2 GDP dropped just 0.3% after a 2.0% rise in Q1
- Manufacturing remains above breakeven
- Real consumption still positive, up 2.2% in July
- Real income growth improved from a recent low of -16.9% to -1.6% in July
- Unemployment rate rose from 3.5% to 3.7%, still near the lowest level in the last 50 years



*“We’re going to do everything we can to avoid a recession, but **we are committed to bringing inflation down**, and we are going to do what we need to do.”*

-Minneapolis Fed President Neel Kashkari, CBS’s Face the Nation, July 31, 2022



*“**Inflation remains far too high and not near our price stability goal**...This is why we don’t want to declare victory on inflation coming down. We’re not near done yet.”*

-San Francisco Fed President Mary Daly, Financial Times Interview, August 11, 2022



*“**We have more work to do because we have not seen that turn in inflation**. It's got to be a sustained, several months of evidence that inflation has first peaked – we haven't even seen that yet – and that it's moving down.”*

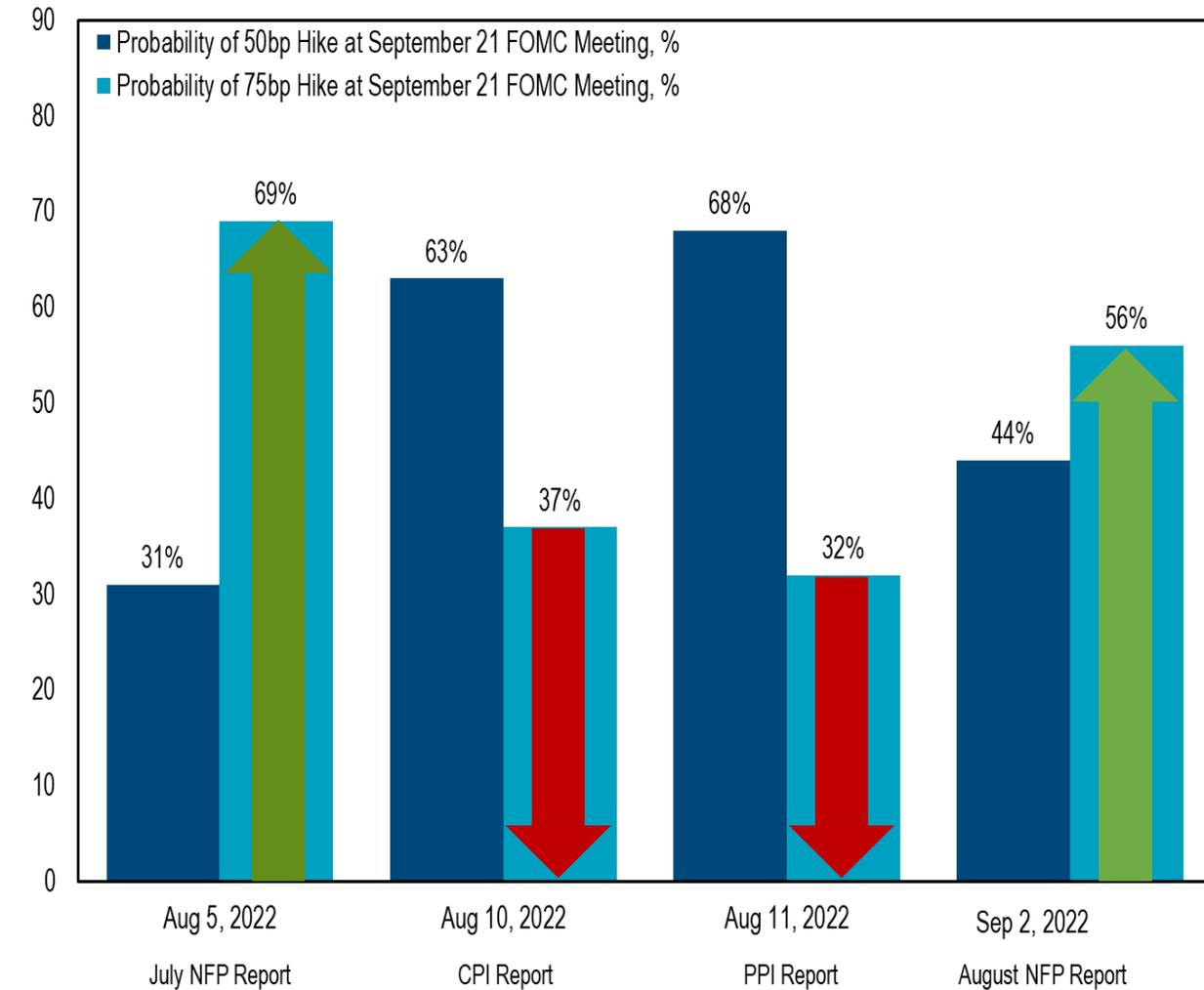
-Cleveland Fed President Loretta Mester, Washington Post Interview, August 2, 2022

The Market Says, “No” with Reduced Expectations for Rate Hikes into Year-End

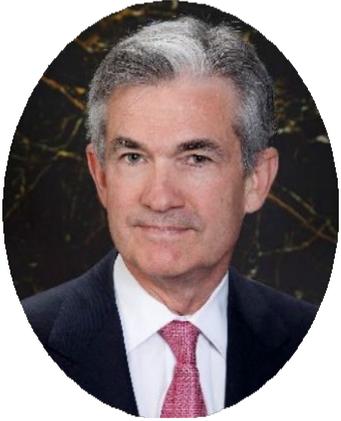
Market participants continue to ping pong between a **50bp** and **75bp** hike come September 21 with the expectation for at least two more **25bp** hikes into year-end

Following a stronger-than-expected July employment report, investors anticipated a **75bps** increase

Following a weaker-than-expected July inflation report, investors reduced expectations to **50bps** come September



Source: Bloomberg/CME FedWatch



*“The Federal Open Market Committee's (FOMC) overarching focus right now is to bring inflation back down to our 2 percent goal. **Price stability is the responsibility of the Federal Reserve and serves as the bedrock of our economy.** Without price stability, the economy does not work for anyone.”*

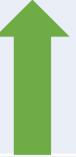
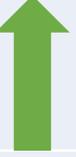
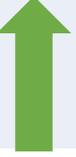
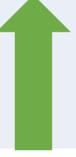
*“**Restoring price stability will take some time** and requires using our tools forcefully to bring demand and supply into better balance. Reducing inflation is likely to require a sustained period of below-trend growth.”*

*“While higher interest rates, slower growth, and softer labor market conditions will bring down inflation, they will also bring **some pain to households and businesses.** These are the unfortunate costs of reducing inflation. But a failure to restore price stability would mean far greater pain.”*

*“In current circumstances, with inflation running far above 2 percent and the labor market extremely tight, **estimates of longer-run neutral are not a place to stop or pause.**”*

-Federal Reserve Chairman Jerome Powell, Jackson Hole Policy Summit, August 26, 2022

What Does This Mean for Rates?

Inflation	FF Pathway	GDP Expectations	10-Year UST Yield Near Term	10-Year UST Yield Medium Term
	Dovish	Minimal Contraction/Modest Recovery		
	Dovish	Modest Contraction/Minimal Recovery		
	Hawkish	Deeper Contraction/Robust Recovery		

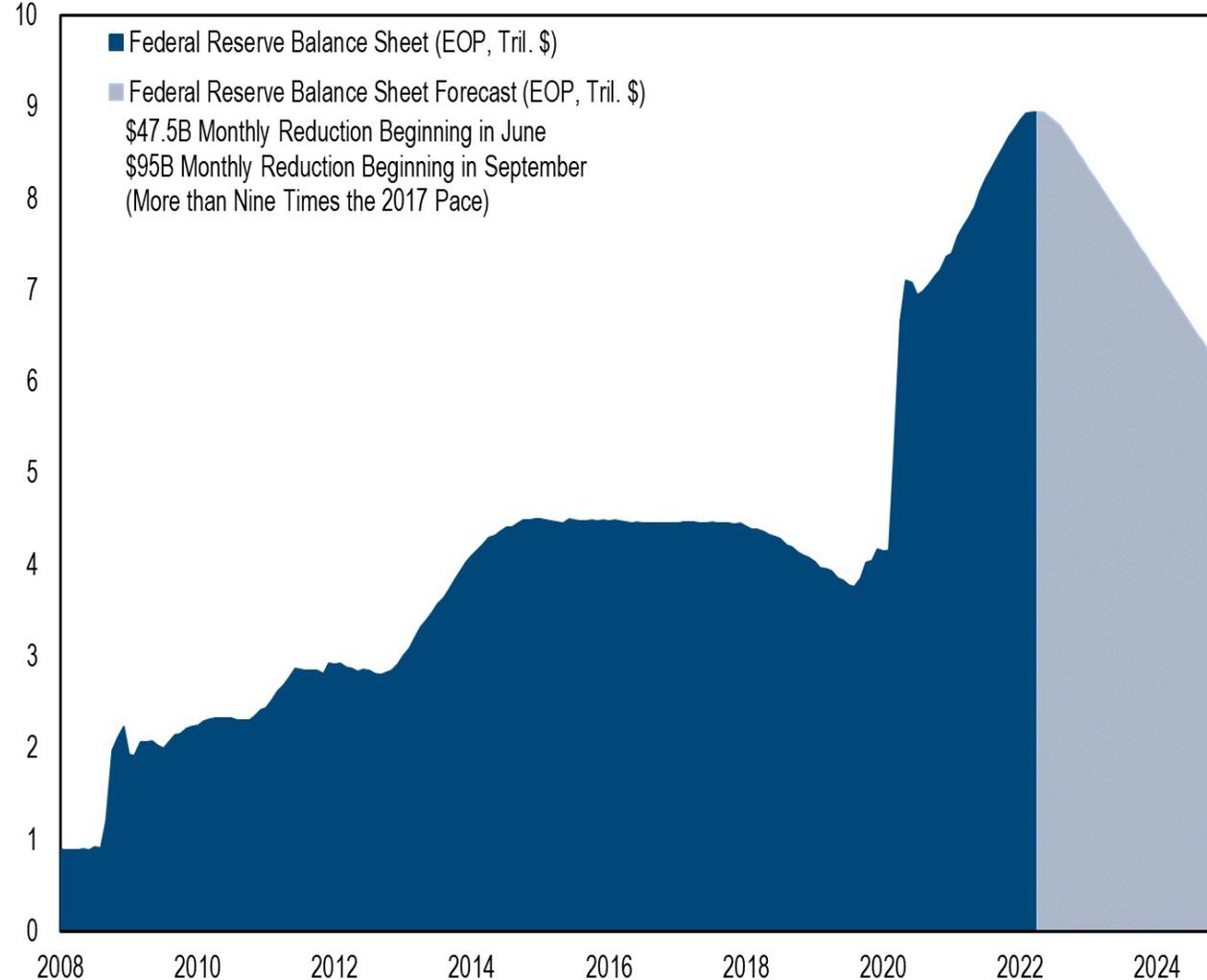
- As the Fed moves, the short end will presumably move along with the Fed
- The long end will struggle to keep up with the Fed as policy intentionally slows domestic activity risking persistent inversion

Balance Sheet Provides Alternative to Rate Hikes and Floor for Rates

Balance sheet reduction could help add upward momentum or at the very least provide a floor to longer rates

Aside from raising rates, the Fed is ramping up a drawdown of the balance sheet to **\$95 billion** a month by September including a \$60 billion reduction of UST and a \$35 billion reduction MBS

Recall, by contrast, after the taper in 2014, the Fed kept its balance sheet steady for roughly three years before allowing the portfolio to shrink



Source: Federal Reserve Board/Haver Analytics/Stifel

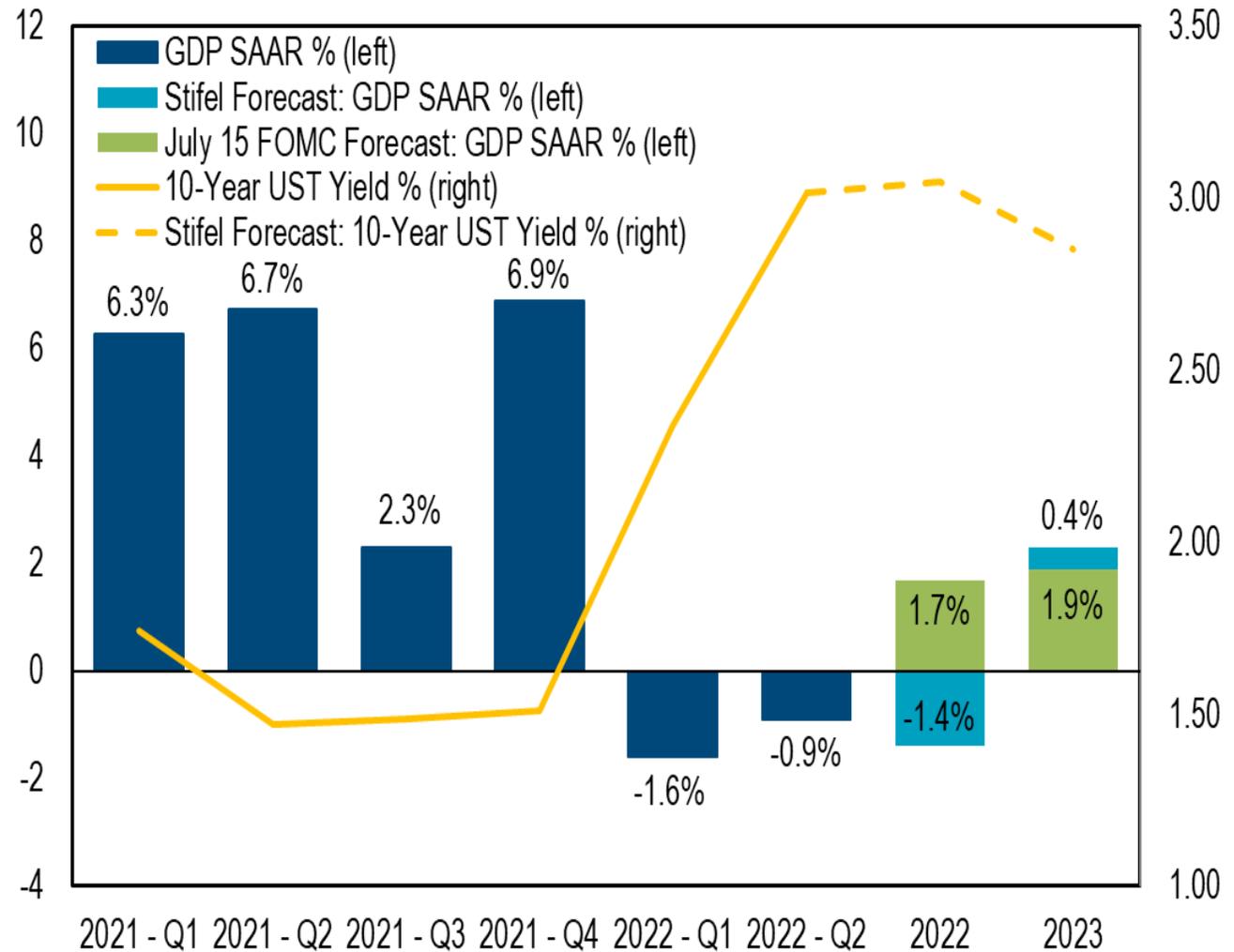
Fed Optimistic Regarding Growth

Amid increased economic uncertainty and volatility in the market, the economy is likely to slow into the second half of the year with growth dropping further into negative territory and the Fed struggling to raise rates enough to tamp down inflation

Of course, the only certainty is uncertainty

From a forecasting perspective, understanding the directional momentum and potential factors driving that pressure in one direction or the other

Economic forces not alone in driving the market: fiscal policy, international conflict, and geo-politics



Source: Census Bureau/Federal Reserve/Stifel/Bloomberg

Thank you

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Outperform - For credit specific recommendations we expect the identified credit to outperform its sector specific peers over the next six months.

Market perform - For credit specific recommendations we expect the identified credit to perform approximately in line with its sector specific peers over the next six months.

Underperform - For credit specific recommendations we expect the identified credit to underperform its sector specific peers over the next six months.

Additional Information Is Available Upon Request

I, Lindsey Piegza, certify that the views expressed in this research report accurately reflect my personal views about the subject securities or issuers; and I certify that no part of my compensation was, is, or will be directly or indirectly related to the specific recommendations or views contained in this research report.

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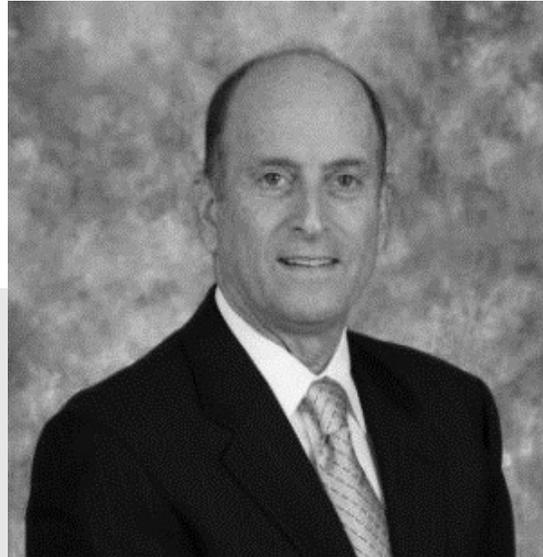
STIFEL | Fixed Income
Capital Markets

CITY & COUNTY SECTOR



Colin Bettis

*County Debt Officer
County of Sacramento*



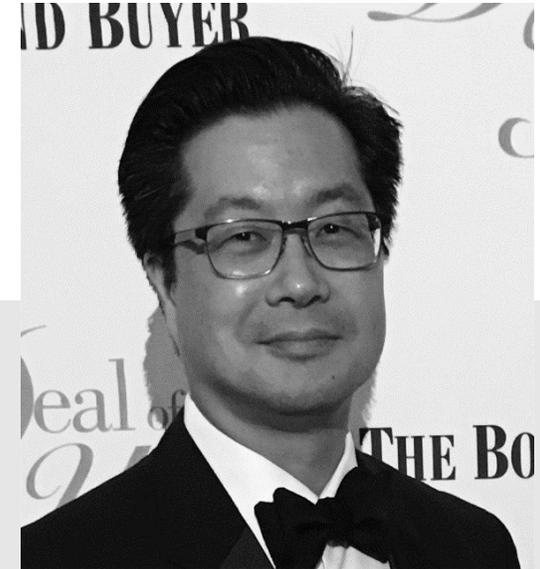
Jay Goldstone

*Chief Operating Officer
City of San Diego*



Eric Hoffmann

*Associate Managing Director
Moody's Investors Services*



Christopher Mukai

*Managing Director
Citigroup*

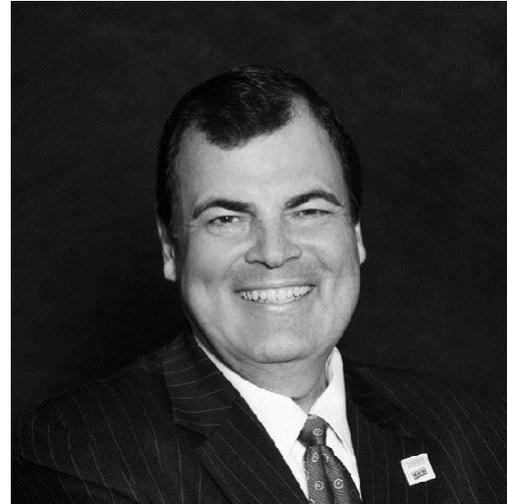
WATER & WASTEWATER SECTOR



Margaret Backstrom
Managing Director
Morgan Stanley



Jenny Poree
Sector Leader, Utilities
S&P Global



Nikolai Sklaroff
Capital Finance Director
San Francisco Public
Utilities Commission



Sophia Skoda
Director of Finance
East Bay Municipal
Utility District

2022 U.S. Water Outlook



Welcome



Jenny Poree

Sector Leader

U.S. Water

San Francisco, CA

jenny.poree@spglobal.com

Select Publications:

[Western U.S. Drought: Declining Supply, Rising Challenges](#)

[Outlook For U.S. Municipal Utilities: Stable, With Expanding Operating Margins](#)

[Cyber Risks In A New Era: U.S. Utilities Are Cyber Targets And Need To Plan Accordingly](#)

[Construction Ahead: Roughly \\$1 Trillion Infrastructure Act Tackles Backlog And Future Risks](#)

[How The Western States Plan Is Critical To Ratings As Colorado River Flows Slow To A Trickle](#)

[Management Matters: As Risks Rise Across The Water And Sewer Sector, The Importance Of Transparency Surges](#)

Water Utility Sector | Uncharted territory

What We're Watching – Water And Sewer Utilities



Rate affordability

Rates remain affordable although increases are outpacing inflation. We expect capital spending on aging infrastructure and climate mitigation to pressure affordability over time.



Climate preparedness

Environmental risks have an outsized influence on operations and capital planning. Hydrological variability, extreme temperatures, and severe storms are challenging managers.



Aging infrastructure

The sector has a significant backlog of funding needs. While the IJA will boost funding for some, underinvestment continues to expose operational and financial risk.



Federal policy shifts

Federal support for small and disadvantaged communities will be credit supportive but may not be enough to address contaminants, cybersecurity, and other challenges.



Inflationary pressures

Inflation will remain elevated through 2022. Its impact on capital projects and allocations for mandated programs could pressure budgets or increase leverage.



Innovation

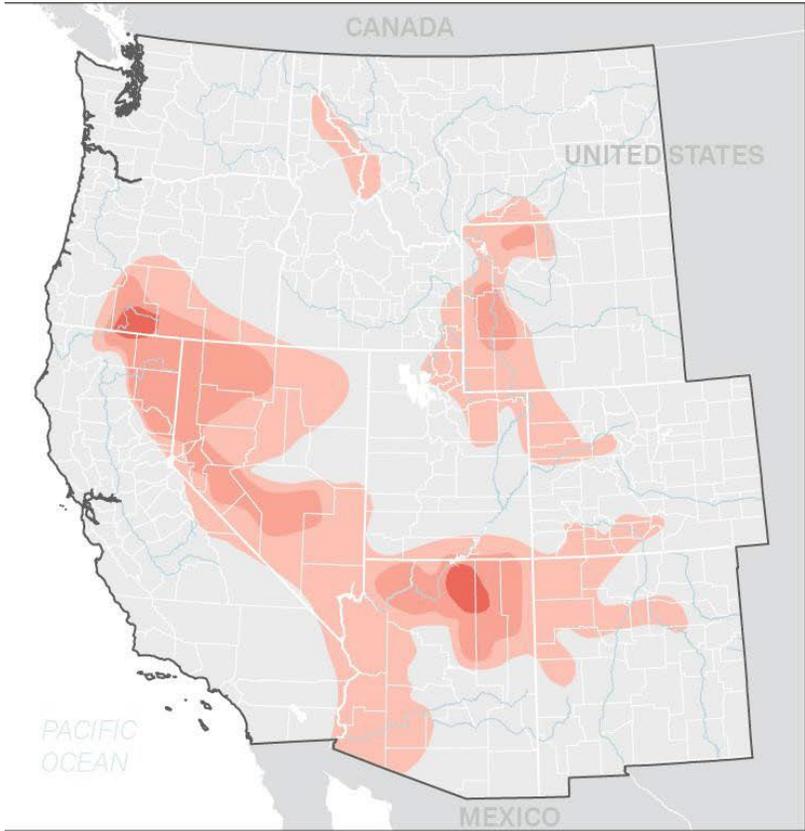
Managers continue to innovate. We expect projects such as recycled water, waste-to-energy, and AI-based asset management to support credit quality.

Source: S&P Global Ratings.

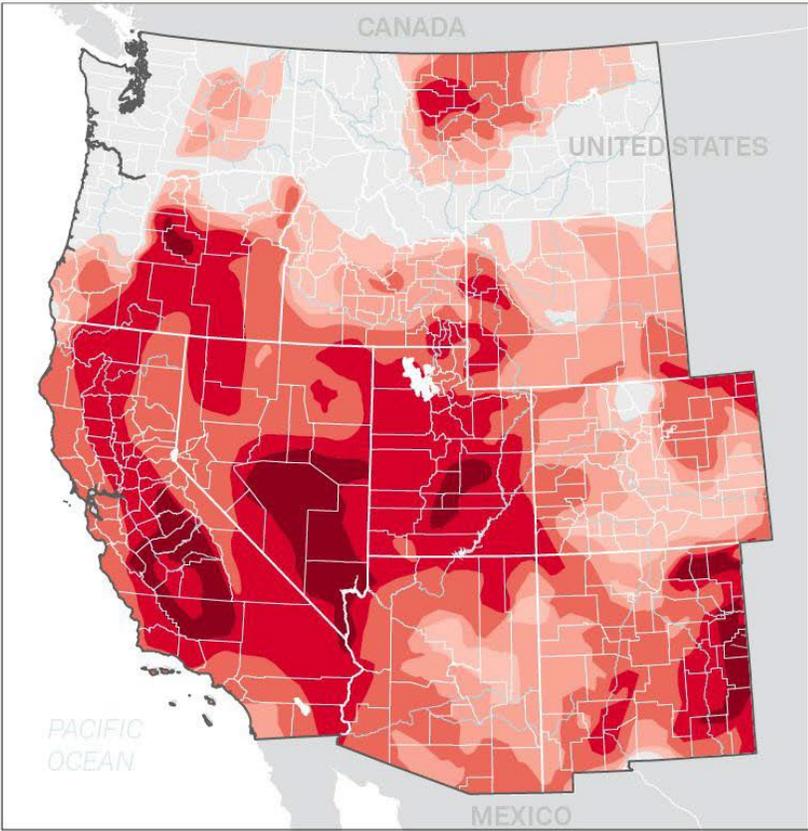
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Drought Challenges | Declining supply; rising challenges

2010



2022



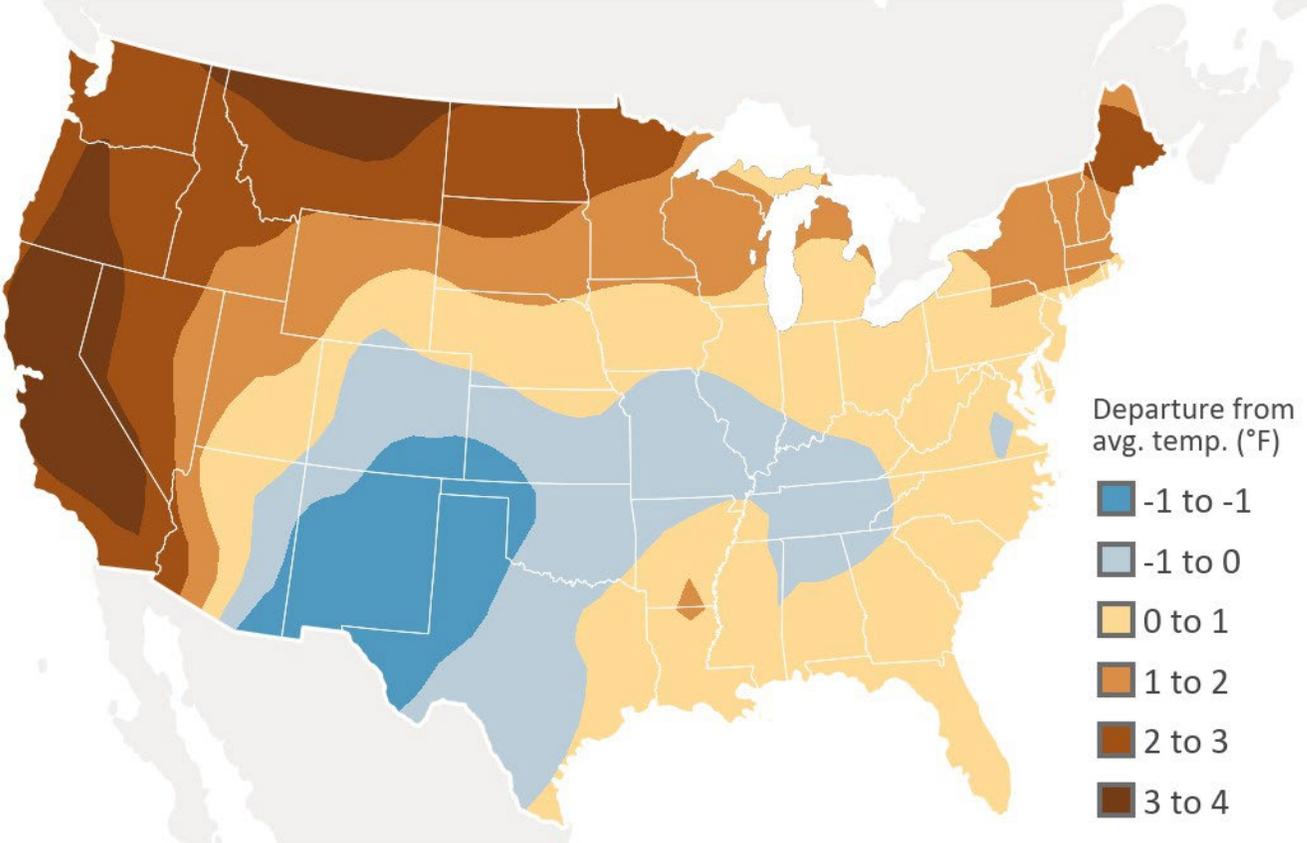
- No drought
- D0 - abnormally dry
- D1 - moderate drought
- D2 - severe drought
- D3 - extreme drought
- D4 - exceptional drought

Western Region Coverage Ratios vs. National Median

Source: S&P Global Ratings.

Drought Challenges | Beyond hydrology

September forecast



Western Region Coverage Ratios vs. National Median

Source: S&P Global Ratings.

Drought Challenges | California is well positioned

Ratio	California Medians	National Medians
Coverage	2.2x	1.9x
Days liquidity	623	488
Debt to capitalization	35%	38%

Western Region Coverage Ratios vs. National Median

Source: S&P Global Ratings.

Management | Preparation for emerging challenges

Financial



- Long-range strategic planning with revenue and expenditure forecasting
- Multi-year capital planning



- Financial policies for liquidity and operations



- Transparency and timely reporting

Operational



- Comprehensive asset management
- Supply forecasting with scenario modeling



- Emergency preparedness
- Cyber security
- Climate assessments



- Multi-year rate modeling coupled with frequently updated rate studies

Transparency and Accountability – It Matters

- During the past two years, 38% of the negative rating actions resulted from weak transparency, lack of accountability (related to event risk or disclosure), or risk management.
- Transparency and accountability are influential credit drivers
 - Mitigate potential forward-looking risks
 - Add credibility to forecasts
 - Improve stakeholder relationships

Key Disclosure Considerations



Clean Water Act mandates and various state and local environmental regulations, require critical timely disclosure of permit violations or regulatory noncompliance.



Event-related disclosures from acute physical risks help evaluate the credit impact from potential service disruptions or system failures.



Delays in releasing financial and operational data may misrepresent a utility's ability to repay debt in full and on time. In our conversations with management teams, we've learned that sometimes failure to disclose transfers, extraordinary accounting measures, or under performance has resulted in regulatory findings and financial penalties.



Disclosure of cyber breaches, turnover in management from fraud or mismanagement of funds, or other potential organizational risks, can influence credit ratings when material.



Key demand and customer information including rate increases, water demand management, state approvals, regulatory and safety considerations help S&P Global Ratings evaluate budgetary balance, liquidity, and rate-making flexibility.

Source: S&P Global Ratings.
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Water and Wastewater Panel
CDIAC California Public Finance
Preconference Seminar 2022

Sophia Skoda
Director of Finance

East Bay Municipal Utility District

Key Facts About EBMUD

- 13th largest retail water system in the United States and 2nd largest in California
- Provides wastewater treatment and disposal to a subset
- Strong environmental stewardship of the Mokelumne Watershed



Challenges

- Infrastructure
 - Aging infrastructure
 - New and different infrastructure to deal with climate change related realities challenge



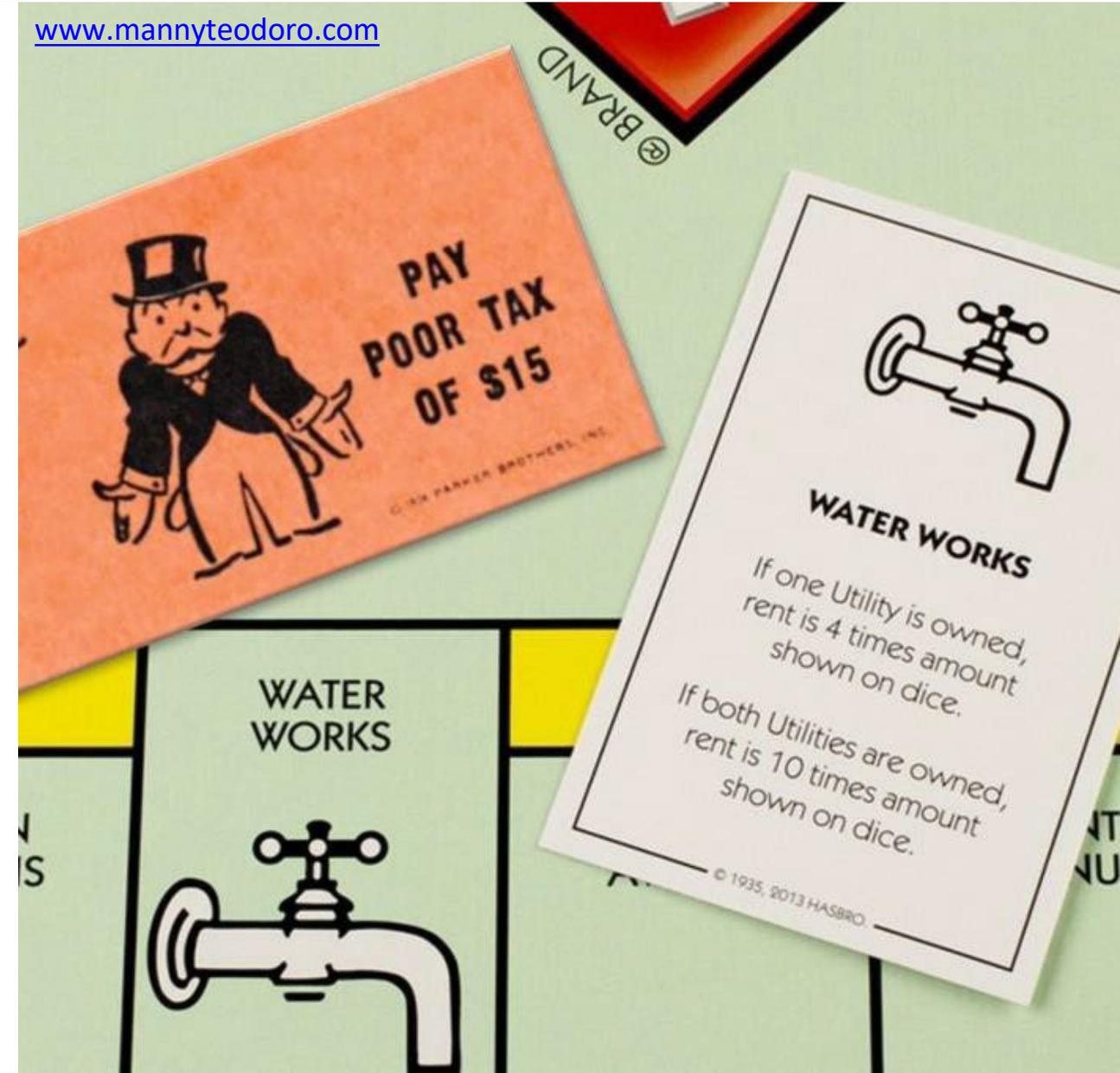
- Compounding drought
 - Changing weather and the cost to deal with many more variables is a complex and multi-faceted beast



Additional Challenges

- Governor's shutoff moratorium
 - Will expectation of free service become a way of life?
- Affordability
 - Awareness at an all time high but no great answers in our 21st world
- State housing shortage
 - How do California water agencies ensure we don't contribute to the housing shortage in times of dwindling water supplies?

www.mannyteodoro.com



- Awareness
 - Wider public dialogue on climate change provides an opportunity to engage with public on challenges and solutions
- Drought surcharges
 - Noticed and adopted surcharges that the public becomes familiar with offer the promise of revenue stability with the incentive to change customer behavior

EBMUD DECLARES STAGE 2 DROUGHT EMERGENCY

BY EAST BAY MUNICIPAL UTILITY DISTRICT APR 27, 2022 MEMBER SUBMITTED NEWS

OAKLAND – Following a bleak California snow survey on April 1 and the driest January to March on record, the East Bay Municipal Utility District Board of Directors voted 6-1 to elevate its drought response and mandate a 10 percent District-wide water use reduction target.

- Flow restrictors
 - A way to provide for basic water needs while people engage with utilities to sort out billing



Water and Wastewater Panel

CDIAC California Public Finance Pre-conference Seminar 2022

Nikolai J. Sklaroff, *Capital Finance Director*
San Francisco Public Utilities Commission



San Francisco
Water Power Sewer

Services of the San Francisco Public Utilities Commission

Water



**HETCH HETCHY
RESERVOIR**
Delivering high quality water
every day

Power



**SOLAR PANELS AT
SAN FRANCISCO AIRPORT**
Generating clean energy for
vital City services

Sewer



**OCEANSIDE TREATMENT
PLANT**
Protecting public health and the
environment

Key Facts About SFPUC

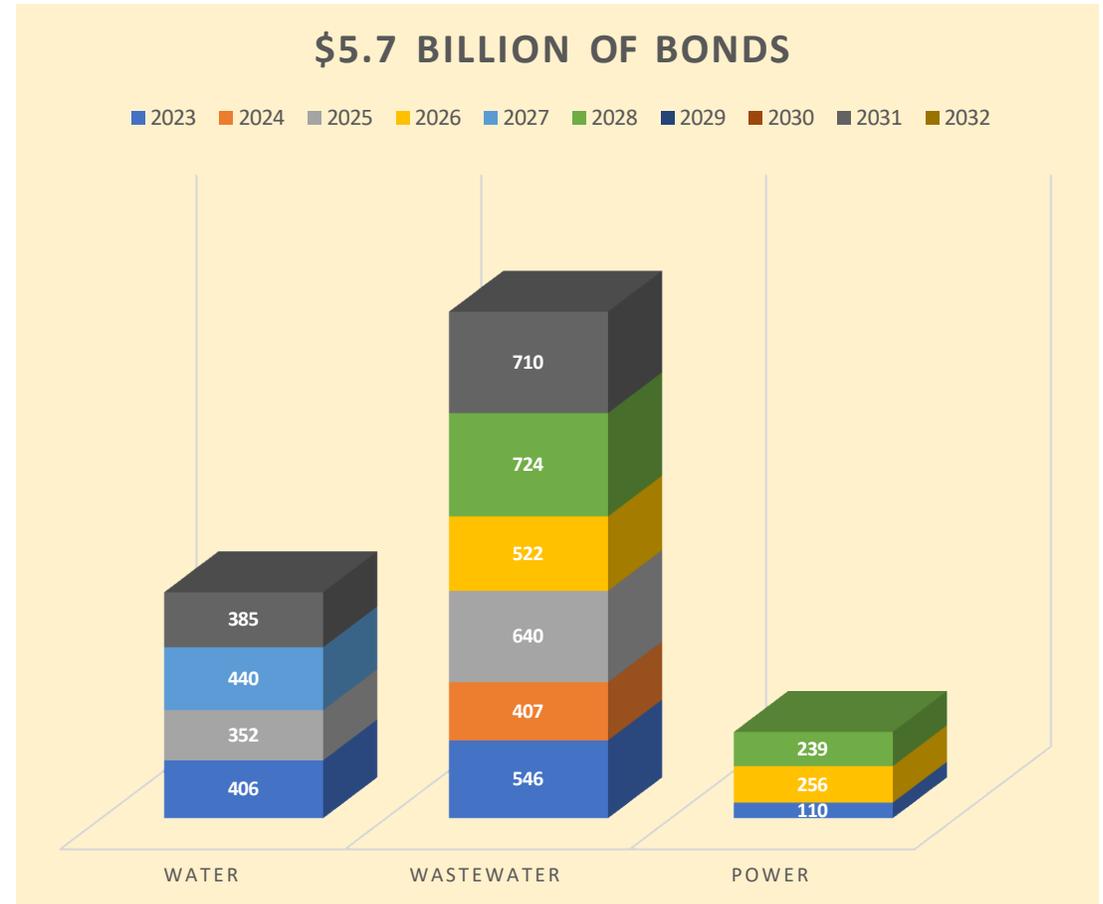
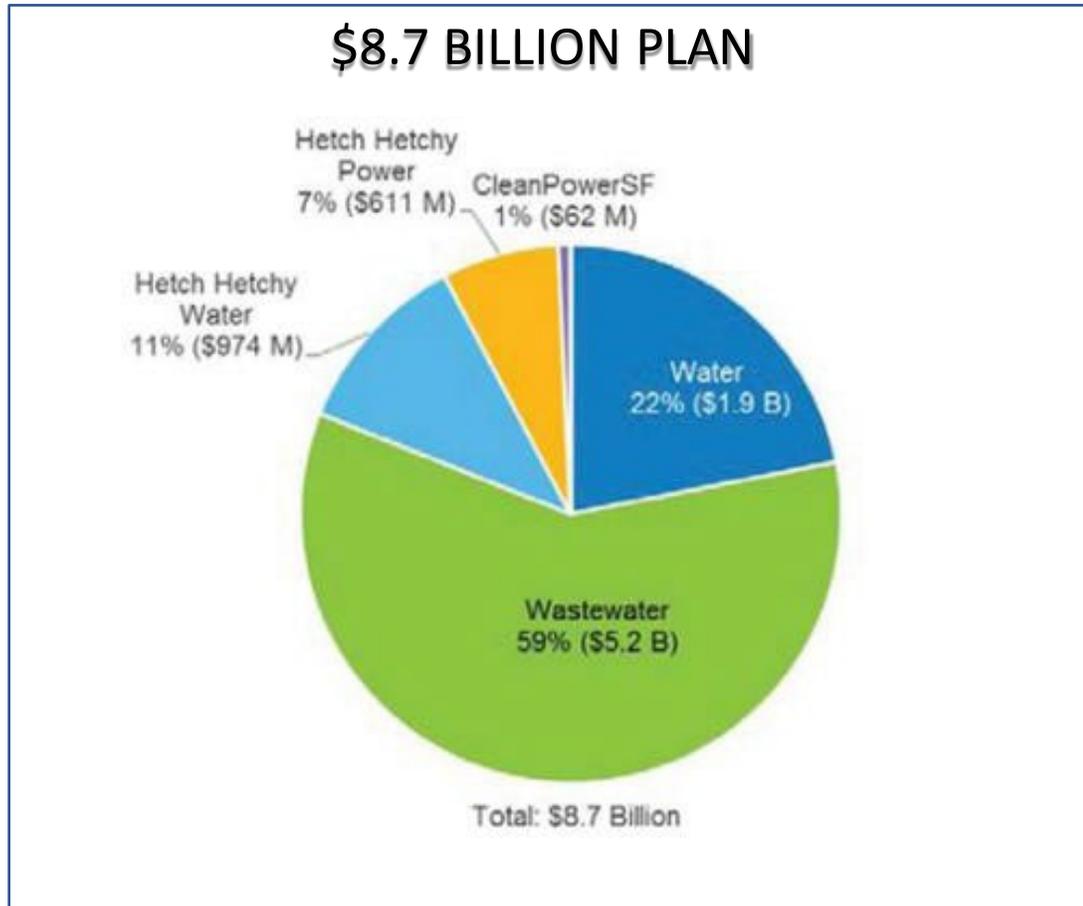
- Third largest public utility in the California, with 2,300 employees working in seven counties
- Delivering some of the purest drinking water in the world from Hetch Hetchy Reservoir to businesses and residents in San Francisco and three Bay Area Counties, serving 2.7 million
- 2/3 of water sales and 1/2 of water sales revenues are outside of San Francisco
- CleanPowerSF, a Community Choice Aggregator, provides residents and businesses with clean energy alternatives



Key Current Issues

- Managing disclosure, compliance and debt administration of \$6+ billion debt portfolio with limited staff
- Maintaining 7 ratings - 4 credits
- Managing labeled green bonds and ESG disclosure needs
- Managing commercial paper in a rising rate environment
- Mandatory tender next year
- Threat to BABs subsidy
- Impact of drought/conservation
- Navigating among Revenue Bond, WIFIA, SRF and emerging options (i.e. Army Corps WIFIA)
- Issuing nearly \$6 billion of new debt in a volatile rate environment

Charter-Mandated Annual 10-Year Plan Update



TRANSPORTATION SECTOR



Rodney Johnson
Deputy Executive Officer
Finance - Treasury
LA Metro



Tim Mengle
Deputy Executive
Director, Finance
LA Metro



Scott Monroe
Senior Director
Global Infrastructure &
Project Finance Group
Fitch Ratings



Ira Smelkinson
Managing Director
Loop Capital Markets



Tatiana Starostina
Chief Financial Officer
Los Angeles World Airports



FitchRatings

North American Transportation Sector Update

CDIAC Bond Buyer Pre-Conference

September 2022

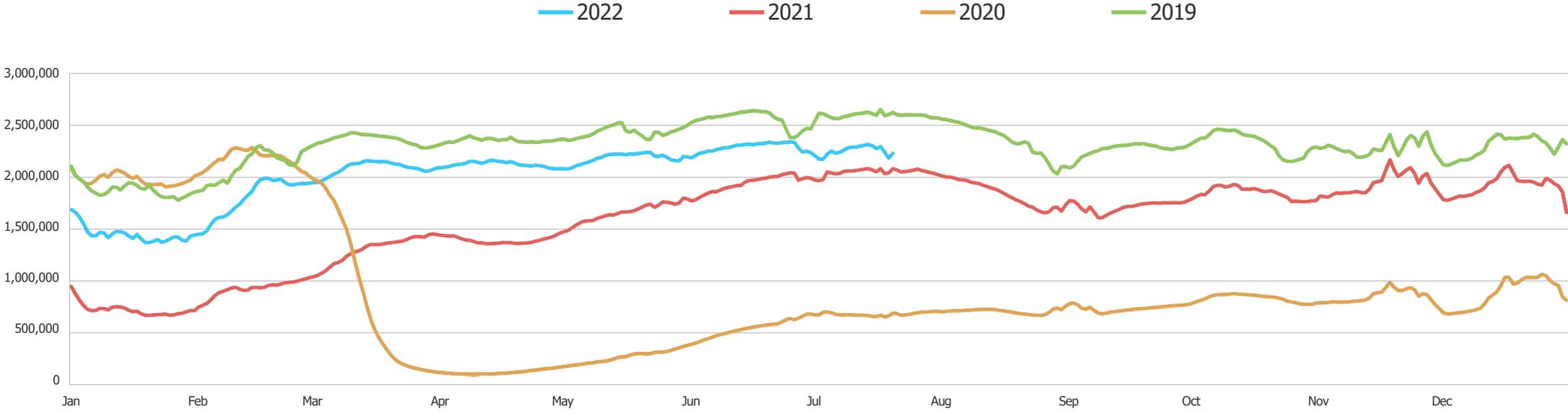
Credit Trends – North American Infrastructure

- Major 2022 credit drivers
 - COVID recovery
 - Supply chain disruptions
 - Elevated inflation
 - Increasing interest rates
 - High oil prices
 - Ukraine crisis



Transportation Volumes Have Rebounded, But Have They Stalled?

TSA Throughput 7-Day Moving Averages

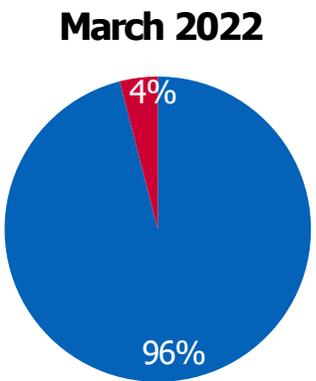
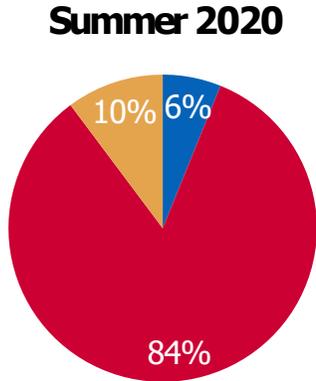
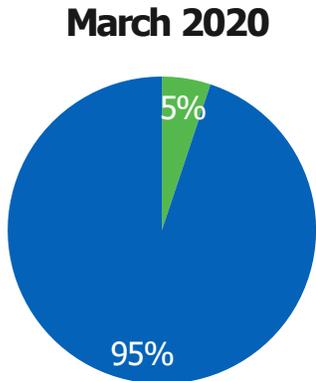


Source: Fitch Ratings; Transportation Security Administration

AIRPORTS: RATINGS OUTLOOKS DURING TWO YEARS OF PANDEMIC

- Pre-Covid: Stable Sector Profile with Several Potential Positive Rating Actions
- Summer 2020: Most Ratings Had Negative Outlook or on Rating Watch
- Current: Airport Ratings Restored to Stable Outlook
- Few Airport Rating Downgrades in Contrast to All Airline Ratings Downgraded or On Negative Outlook

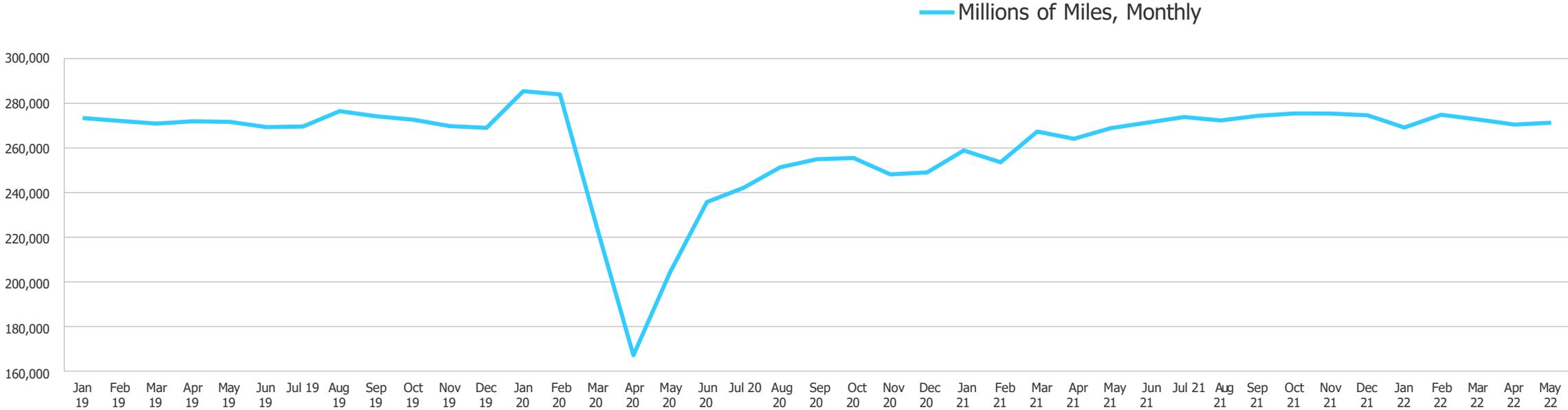
■ Positive
 ■ Stable
 ■ Negative
 ■ RWN



Transportation Volumes Have Rebounded, But Have They Stalled?

Vehicle Miles Traveled

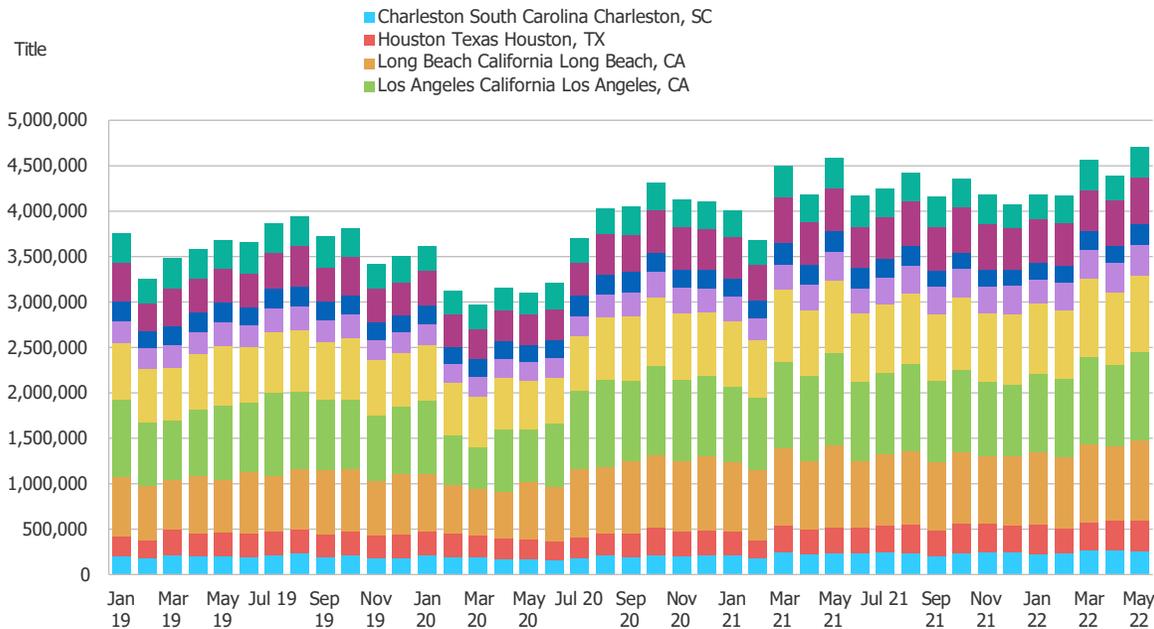
Seasonally Adjusted



Source: Fitch Ratings; U.S. Federal Highway Administration

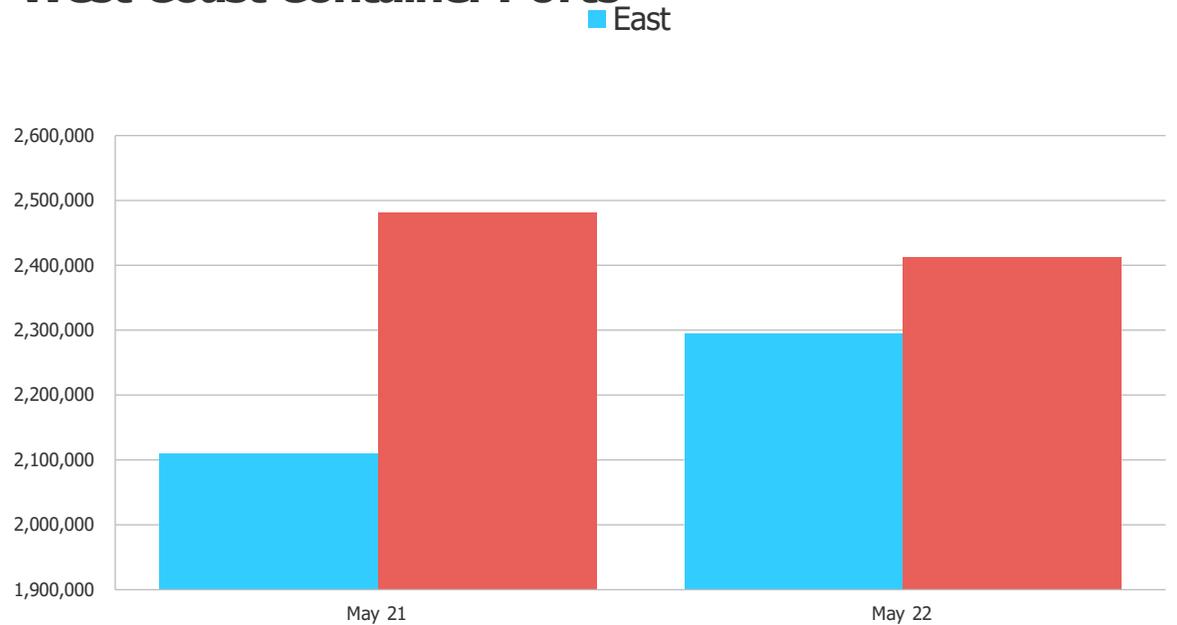
Port Activity is Up – East Coast Ports Gaining

20-Foot Equivalent Units (TEU) Handled by Select U.S. Container Ports



Source: Fitch Ratings; U.S. Department of Transportation

Comparison of TEU at Select U.S. East Vs. West Coast Container Ports



NOTE: East = Charleston, Houston, Port of NY & NJ, Port of Virginia, Savannah;
 West = Long Beach, Los Angeles, NWSA (Seattle & Tacoma), Oakland
 Source: Fitch Ratings; U.S. Department of Transportation

Key Factors Heading into 2022

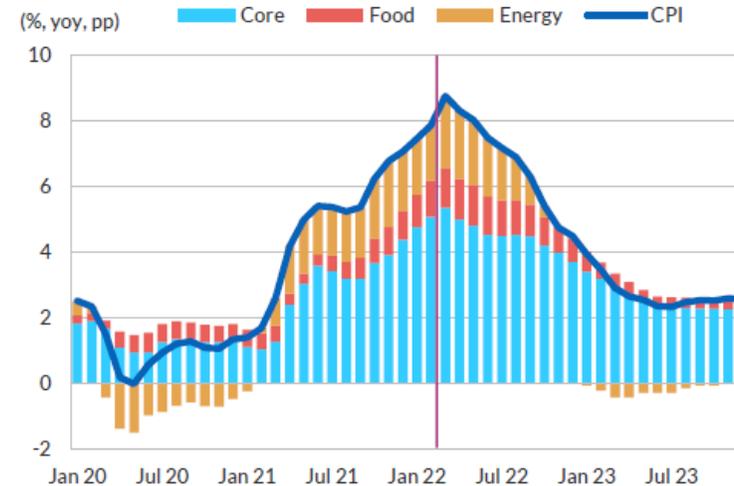
- Moderating Traffic Growth
- High but Slowing Inflation
- Rising Interest Rates
- Working from Home to Decline
- High Gas Prices
- Continued Expansion of Managed Lanes

United States – Forecast Summary

(%)	Annual Avg. 2017-2021	2020	2021	2022F	2023F
GDP	1.9	-3.4	5.7	3.5	1.6
Consumer spending	2.3	-3.8	7.9	3.7	2.3
Fixed investment	3.4	-2.7	7.8	2.7	1.5
Net trade (contribution pp)	-0.6	-0.2	-1.8	-0.9	-0.7
CPI inflation (end-year)	2.5	1.4	7.0	4.5	2.6
Unemployment rate	5.1	8.1	5.4	3.8	3.9
Policy interest rate (end-year)	1.22	0.25	0.25	2.00	3.00
Exchange rate, USDEUR (end-year)	0.87	0.81	0.88	0.90	0.90

Source: Fitch Ratings

US - CPI Inflation Contributions



Source: Fitch Ratings' estimates, BLS, Haver Analytics

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LOS ANGELES INTERNATIONAL



BOND BUYER PRE-CONFERENCE, SEPTEMBER 12, 2022

LAX is Supported by Core Credit Strengths and a Strong Financial Position

Exceptional Market Position

- Serves the second largest CSA in the U.S., providing a significant Origin and Destination (“O&D”) base¹
- LAX ranked 1st nationally in domestic O&D passengers in calendar year 2021²
- LAX was the third busiest international gateway in the nation for the 12-month period ending November 30, 2021³
- While LAX recovery has been slower than national trends as a result of the large international passenger traffic accommodated by the Airport, increases in domestic travel have remained constant with national recovery trends^{3,4}

Solid Financial Position

- Strong cost recovery methodologies, supported by Airline Rate Agreement
 - Rate agreement through 2032 that includes extraordinary Debt Service Coverage charge of not less than 1.40x all obligations
- Maintains strong liquidity levels, superior Debt Service Coverage and unmatched annual net cash flows
- Strong liquidity balances with \$1.45 billion of unrestricted cash, equating to 731 days cash on hand as of June 30, 2022⁵
- Strong Bond Security Provisions

New Capital Program to Meet Demand

- \$15 billion Existing Airport Capital Program will be completed by 2026
- Major Projects Are Being Successfully Delivered by LAWA, P3 Developers and Airline Partners: West Gates at Tom Bradley (Midfield Satellite Concourse South), T 1.5 (Southwest), T2/3 (Delta), T4 (American), T6 (Alaska), Automated People Mover, Consolidated Rental Car Facility, and LAX Economy Parking Garage
- Next Airport Capital Program is under development to meet demand, improve passenger experience, safety and efficiency

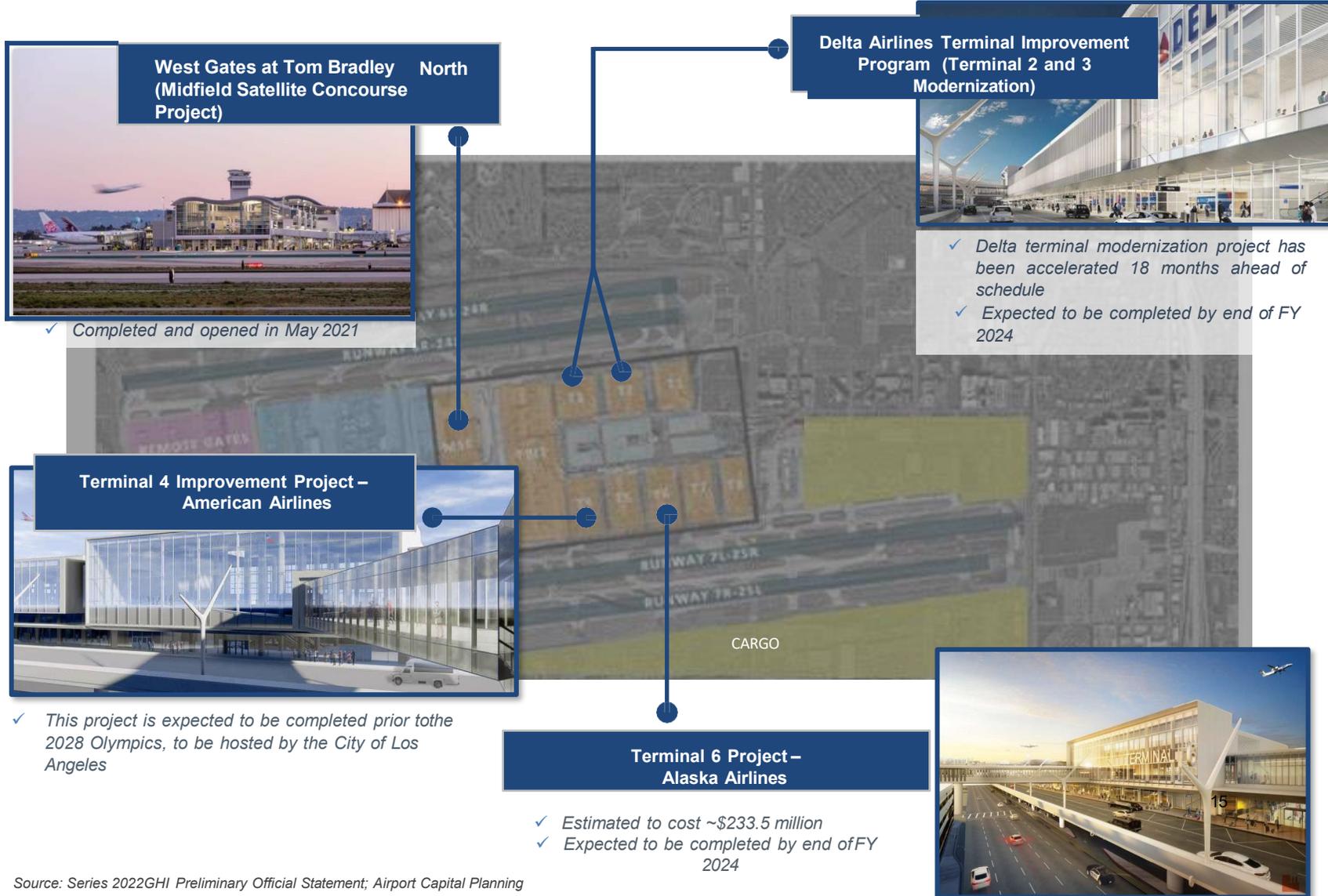
¹ Series 2022GH Official Statement, p. 71.

² Series 2022GH Official Statement, p. 60.

³ Series2022GH Report of the Airport Consultant, p. A-4.

⁴ Series2022GH Report of the Airport Consultant, Figure 1. ⁵ Preliminary, unaudited, subject to change

Capital Project Progress: Major Terminal Programs Are Being Delivered



Source: Series 2022GHI Preliminary Official Statement; Airport Capital Planning

Capital Project Progress: Major Landside Projects Are Well-Underway

- ✓ In June 2022, ConRAC handed over the ready-return/idle storage building to rental car tenants to build customer spaces
- ✓ Operational date expected Q3 CY2023
- ✓ Department expects portions of the ConRAC will receive LEED Silver certification



APM

- ✓ In April 2022, the elevated guideway structure of the APM System was completed
- ✓ Expected to open first half of CY 2024



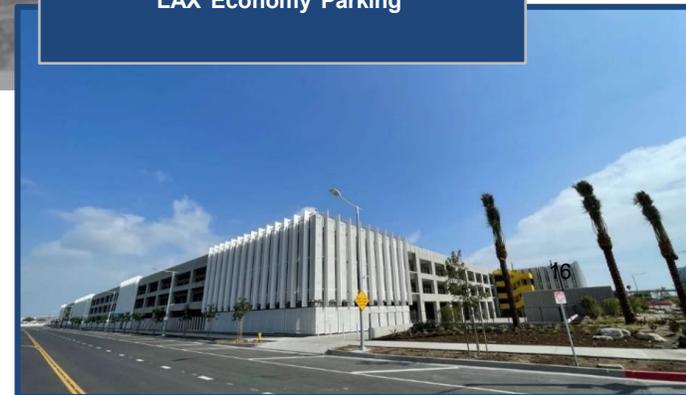
LAX Economy Parking

- ✓ Opened and operational in October 2021

LAX Economy Parking



Automated People Mover (APM)

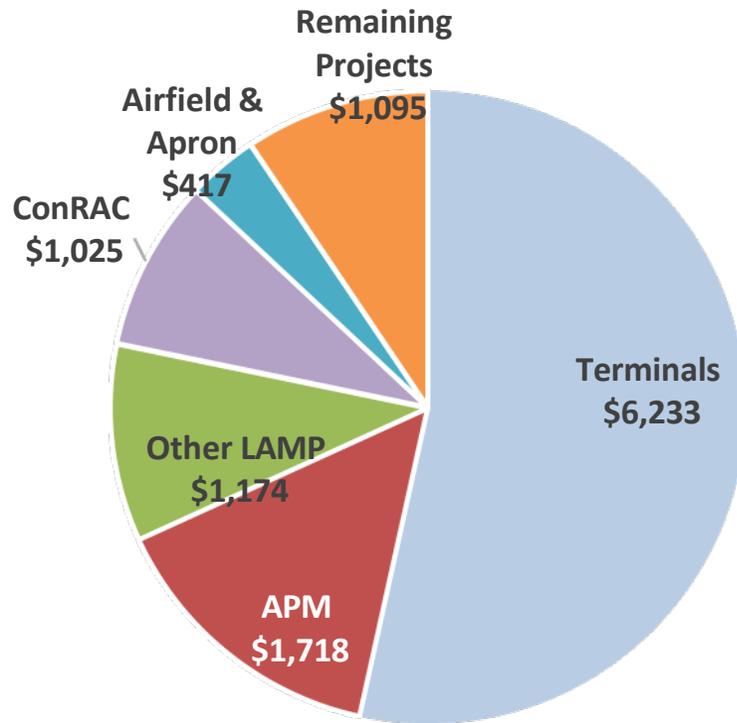


Source: Series 2022GHI Preliminary Official Statement; Airport Capital Planning

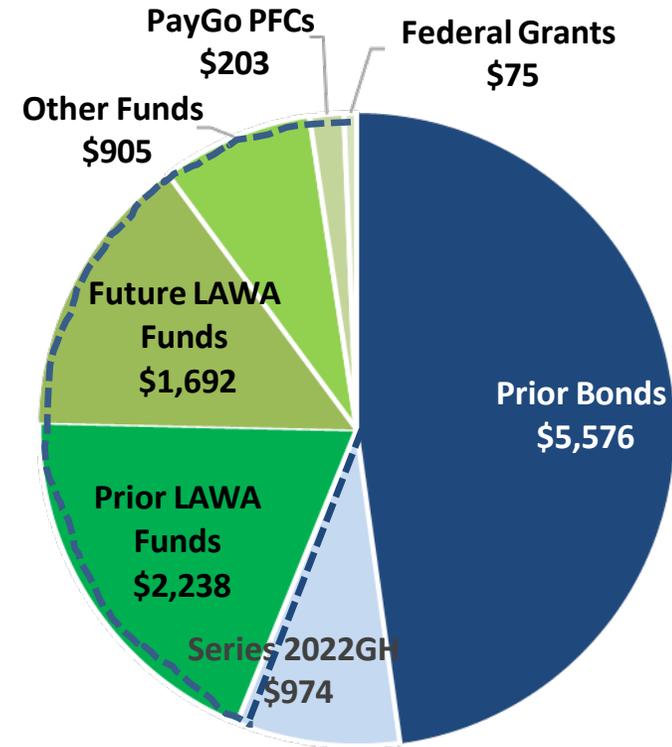
Existing Capital Program Is Fully Funded

44% of the Existing Capital Program is funded on a PayGo basis

Existing Capital Program by Cost Center (millions)



Existing Capital Program Funding Sources* (millions)



Airfield & Terminal Modernization Project (“ATMP”) passed environment approval at the end of 2021



Reduces airfield wait times and aircraft idling, decreasing air pollutant emissions

- Reconfigures taxiways and runway exits to meet current FAA design standards
- Improves runway exit configurations to enhance safety
- Extends Taxiway D westerly to better manage airfield operations and to meet FAA standards
- Improves Taxiways C and D for access to new concourse and terminal facilities



Provides new, state-of-the-art facilities that will improve the passenger experience

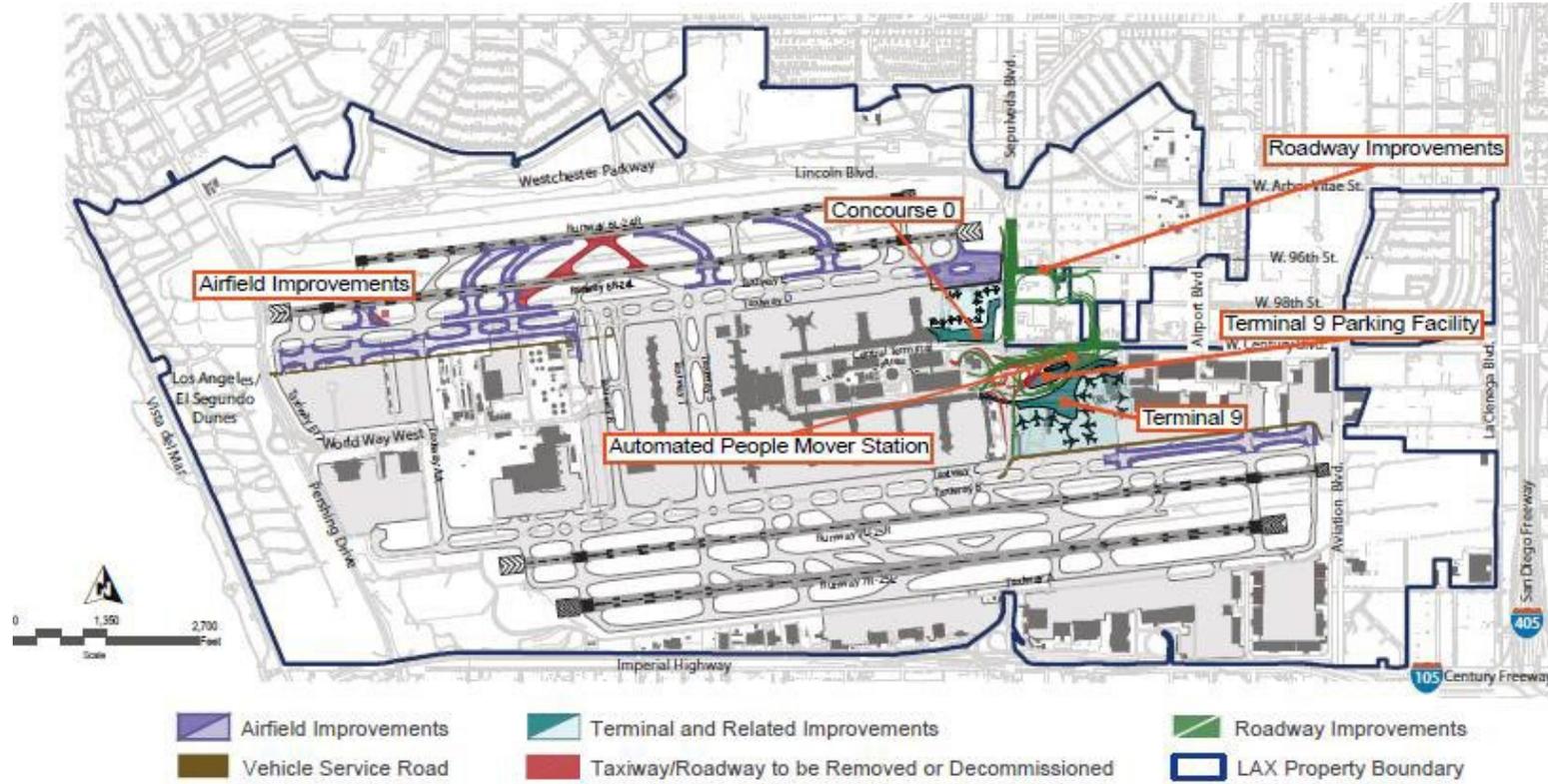
- Includes Terminal 9 with 12 to 18 new gates
- Extends Terminal 1 with Concourse 0 with 9 net new gates
- Replaces 15 of 18 West Remote Gates
- Provides full-service international capabilities



Redirects airport traffic from local streets to new dedicated roadways

- Reconfigures Central Terminal Area access and creates direct roadway access for Terminal 9
- Reduces congestion on public thoroughfares and neighborhood streets
- Adds a new Automated People Mover train station at Terminal 9
- Includes a pedestrian corridor over Sepulveda Blvd between Terminals 8 and 9

Airfield & Terminal Modernization Project





LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

September 12, 2022

Quick Facts

- LACMTA’s service area covers 1,433 square miles across 88 cities
- Unique among U.S. transportation agencies
 - As a self-help county, serves as planner and coordinator, designer, builder, and operator for Los Angeles County’s transportation network
- 3rd largest system in the country with 782,000 daily boardings in Q4 of FY2022, a 20.5% increase from Q4 of FY2021
- Primary funding source is voter-approved sales taxes, providing 2% in perpetuity

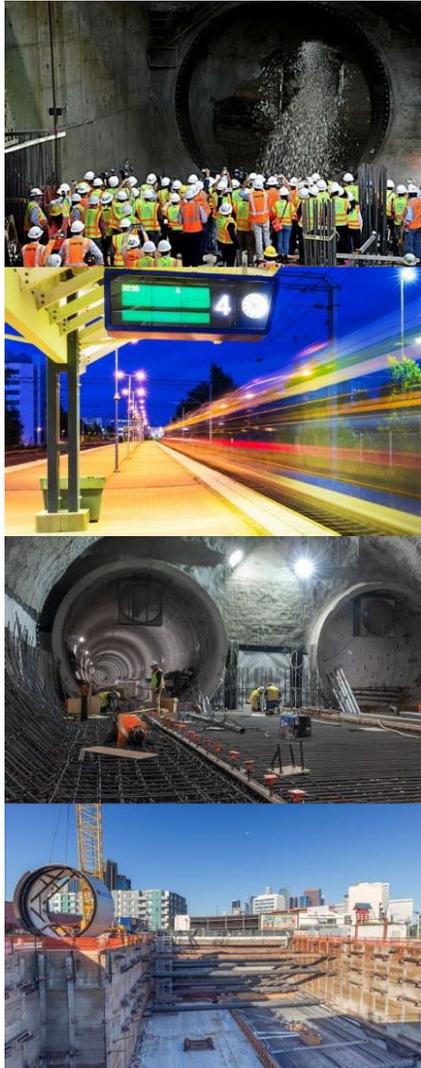


Sales Tax Resources

- Authorized by voter approval
 - Extraordinary constituent support, evidenced by Measure M garnering over 71% of the vote
- Applies both to incorporated and unincorporated areas of Los Angeles County, including areas not served by LACMTA
- Local sales tax revenues securing debt are remitted monthly by the California Department of Tax and Fee Administration (CDTFA) directly to the bond trustee, who deducts 1/6th interest of the half-yearly amount and 1/12th of the semiannual principal amount before remitting to LACMTA

Source	Effective Year	Tax Rate	Sunset	Allocation% (Local/LACMTA)
Proposition A	1982	0.5%	None	25 / 75%
Proposition C	1991	0.5%	None	20 / 80%
Measure R	2009	0.5%	June 30, 2039	15 / 85%
Measure M	2017	0.5% until Measure R sunset, 1.0% thereafter	None	16 / 84%

Updates on Revenues, Ridership and Major Capital Projects



- Sales tax revenues now exceeding pre-pandemic levels
 - FY 2022 estimated revenues are 18.6% higher than FY 2021 revenues*
 - Pandemic sales tax revenue decline of 2.5% was limited to FY 2020

- Ridership has increased significantly from pandemic levels

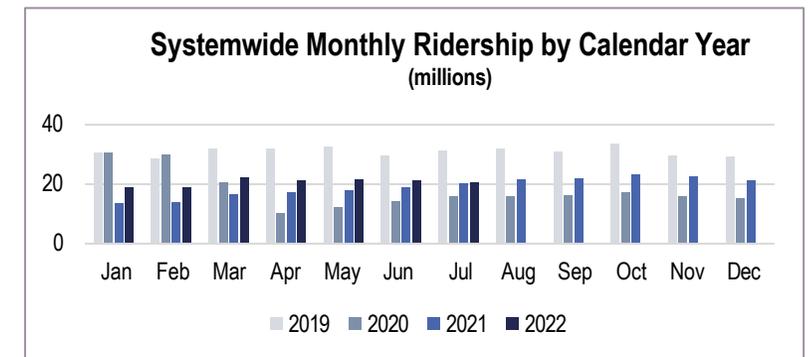
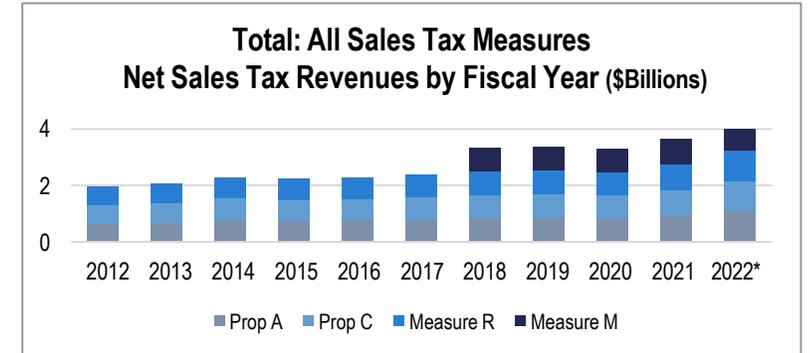
- FY 2023 Budget fully restores bus service; focus on NextGen improvements

- METRO’s footprint continued to expand significantly throughout the pandemic

* FY2022 estimated revenues reflect sales tax receipts received during the fiscal year.

For more information on sales tax receipts see the section titled "HISTORICAL PROPOSITION C SALES TAX COLLECTIONS" of Metro's most recent Official Statement.

<https://emma.msrb.org/P31436771-P31116179-P31527581.pdf>



- Current Major Capital Projects**
- Crenshaw/LAX: Connects Expo Line to LAX and the Green Line
 - Regional Connector: Directly connects downtown lines to reduce transfers
 - Purple Line: Extends D line from Wilshire/Western to West LA
 - Gold Line Foothill: Extends L line through San Gabriel Valley and Azusa to Claremont

KEYNOTE SPEAKER



Fiona Ma, CPA
California State Treasurer

Please join **CDIAC** in Wilshire
Ballroom 5th Floor, Salon I for
lunch.