

Construction & Housing Outlook

Understanding The Many Pieces of The Puzzle

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MEET OUR TEAM

Hello.

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| Presentation Outline:

- **Construction Monitor & Outlook**

- How can we think about construction in 2023 and beyond?
- What unique factors will challenge the industry?

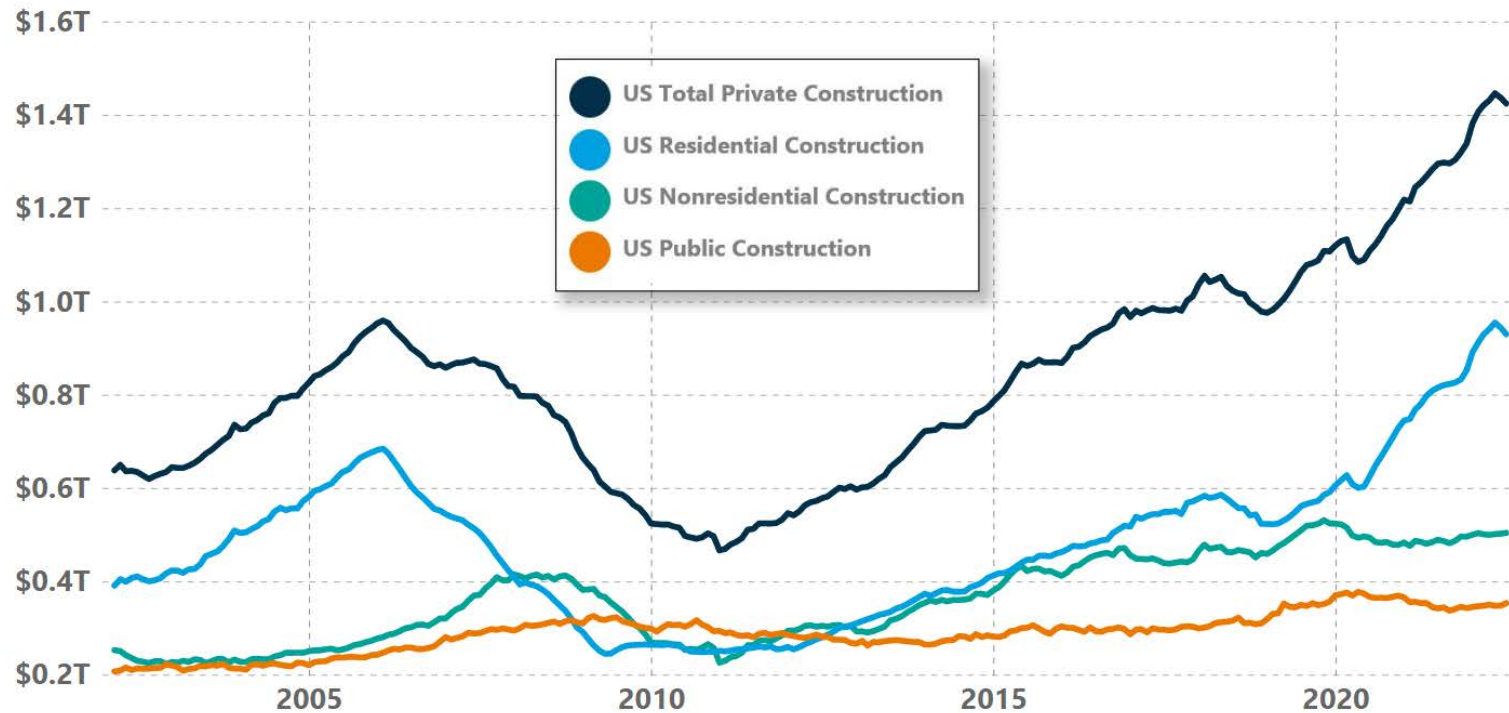
- **Housing Monitor & Outlook**

- Principle components look at housing market
- Factors affecting future supply & demand

High-Level Construction Monitor

Construction Spending by Summary Category

(\$, Seasonally Adjusted Annual Rate, "SAAR")

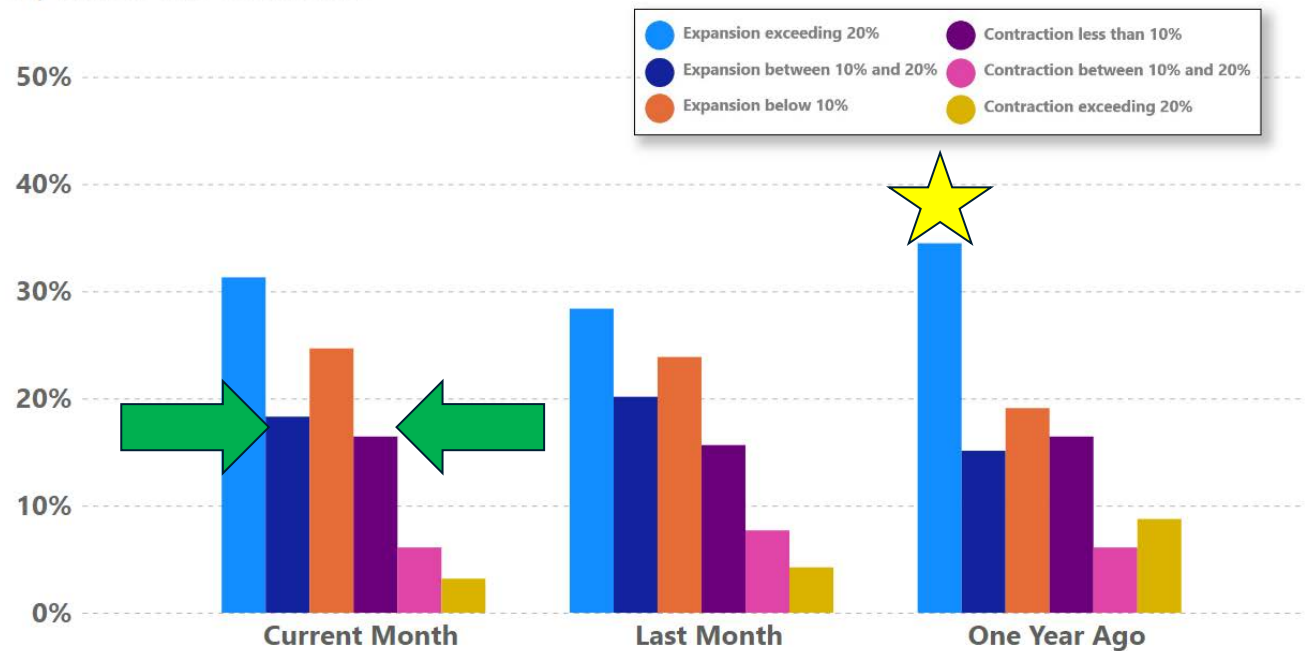


Source: Census Bureau, Construction Spending Report

Geographic Growth is More Concentrated

Expansion Index Results in USA by Percent of MSAs Reporting

September 2022 Data Release



Growing Influence of Mega Projects

THE U.S. 2022 YEAR TO DATE MEGA PROJECTS STORY

Month	State	City/County	Type	Name	\$s (millions)	
January 2022	New York	East Hampton	Engineering/Civil	South Fork Wind Farm	\$2,000	1 for \$2.0 billion
April 2022	Maine	Kittery	Institutional	P-381 Multi-Mission Dry Dock 1, Portsmouth Naval Shipyard	\$1,731	
April 2022	New Jersey	Kearny	Engineering/Civil	Portal North Bridge Project	\$1,560	
April 2022	Louisiana	Sulphur	Industrial	Tellurian Driftwood Liquefied Natural Gas (LNG) Production & Export Facility - Phase 1	\$10,000	
April 2022	California	Cupertino	Residential	The Rise Mixed-Use, Sand Hill Property Co. (3.9 million sf)	\$2,700	
April 2022	California	Sacramento	Institutional	Aggie Square Mixed-Use Project Phase 1 - University of California, GMH Associates	\$1,100	5 for \$17.1 billion
May 2022	New York	New York	Commercial	Terminal 4 (T4) Redevelopment (10 New Gates), JFK Airport	\$1,500	
May 2022	Pennsylvania	Philadelphia	Institutional	New Inpatient Tower - Children's Hospital of Philadelphia (2.5 million sf)	\$1,900	
May 2022	Indiana	Indianapolis	Institutional	IU Health Methodist Hospital - Hospital Consolidation, Indiana University Health (IUH)	\$1,600	
May 2022	Texas	Sherman	Industrial	Texas Instruments Semiconductor Wafer Fabrication Plants (4.7 million sf)	\$15,000	4 for \$20.0 billion
June 2022	Florida	Apopka	Industrial	Apopka 429, Blue Steel Dev LLC (2.5 million sf)	\$1,000	
June 2022	Kentucky	Glendale	Industrial	BlueOvalSK Battery Park - Ford Motor Company (5.0 million sf)	\$5,800	
June 2022	Texas	Beaumont	Engineering/Civil	Arbor Renewable Gas Facility - Spindletop Plant	\$1,000	3 for \$7.8 billion
July 2022	Massachusetts	Boston	Residential	Bunker Hill Housing Redevelopment (fka One Charlestown) (2.8 million sf)	\$1,400	
July 2022	Pennsylvania	Pittsburgh	Institutional	Heart & Transplant Hospital at UPMC Presbyterian - U of Pittsburgh Medical Center	\$1,500	
July 2022	Michigan	Lansing	Industrial	General Motors Battery Cell Manufacturing Plant (2.5 million sf)	\$7,000	
July 2022	Texas	Baytown	Industrial	TGS 500K, Trans-Global Solutions	\$1,420	
July 2022	California	Paramount	Industrial	World Energy Paramount Sustainable Fuel Refinery Upgrades	\$2,000	5 for \$13.3 billion

Data source and table: ConstructConnect.

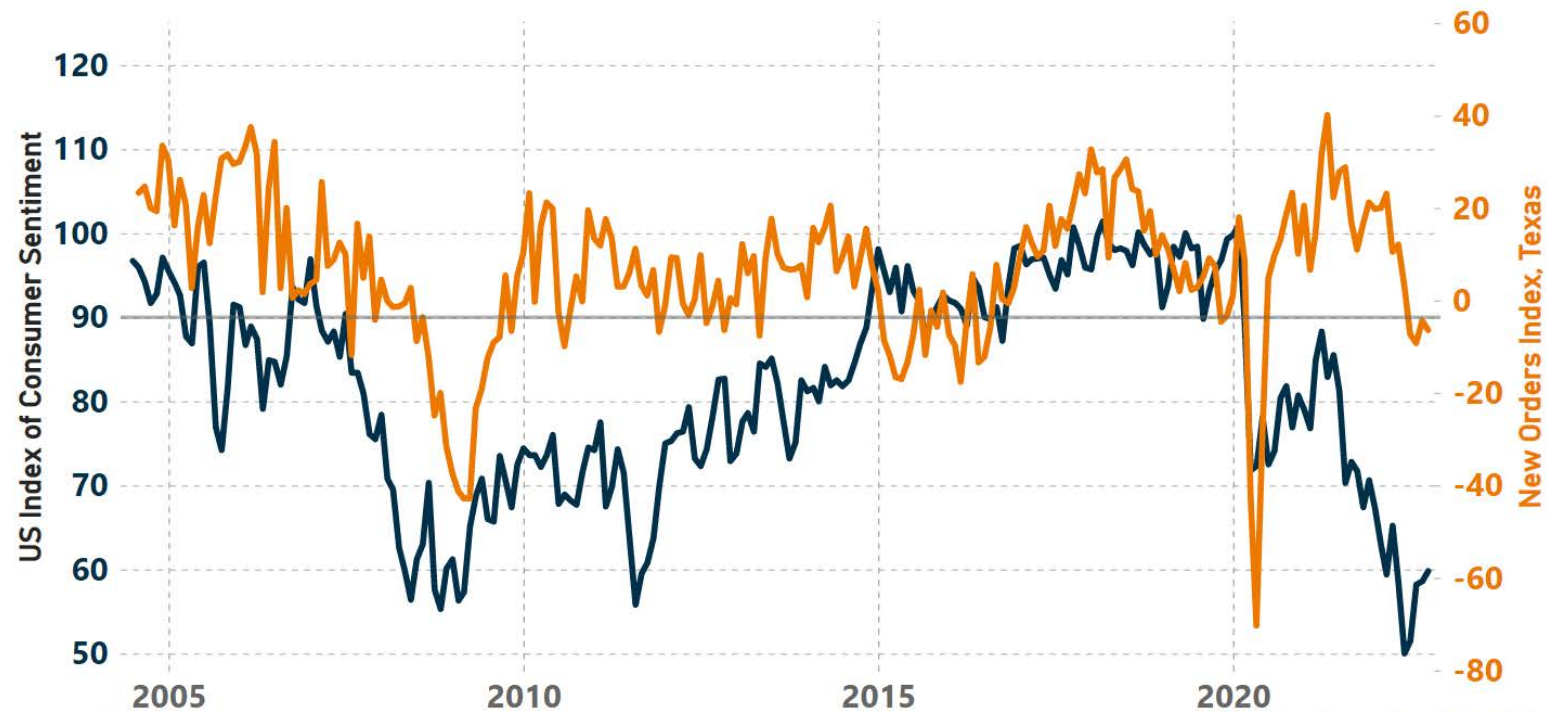
Excludes Intel's \$20B Chip Foundry, as Intel refused to start the project without funds from the CHIPS Act
 There are 18 such projects ytd, adding to \$60 billion;
 Total nonresidential starts ytd are \$300 billion; Grand Total starts ytd are about \$500 billion.

| Look Forward & Reason Back: New Orders

- The directional change of New Orders activity precedes other events:
 - Production Activity (0-1 month lag)
 - Backlog Activity (1-2 month lag)
 - Supplier Deliveries (~2-4 month lag)
 - Employment (~3-5 month lag)
- Changes in new orders activity serves as a leading indicator of supply chain behavior changes

Falling Consumer Sentiment Lead Similar Change in Manufacturing by Six Months

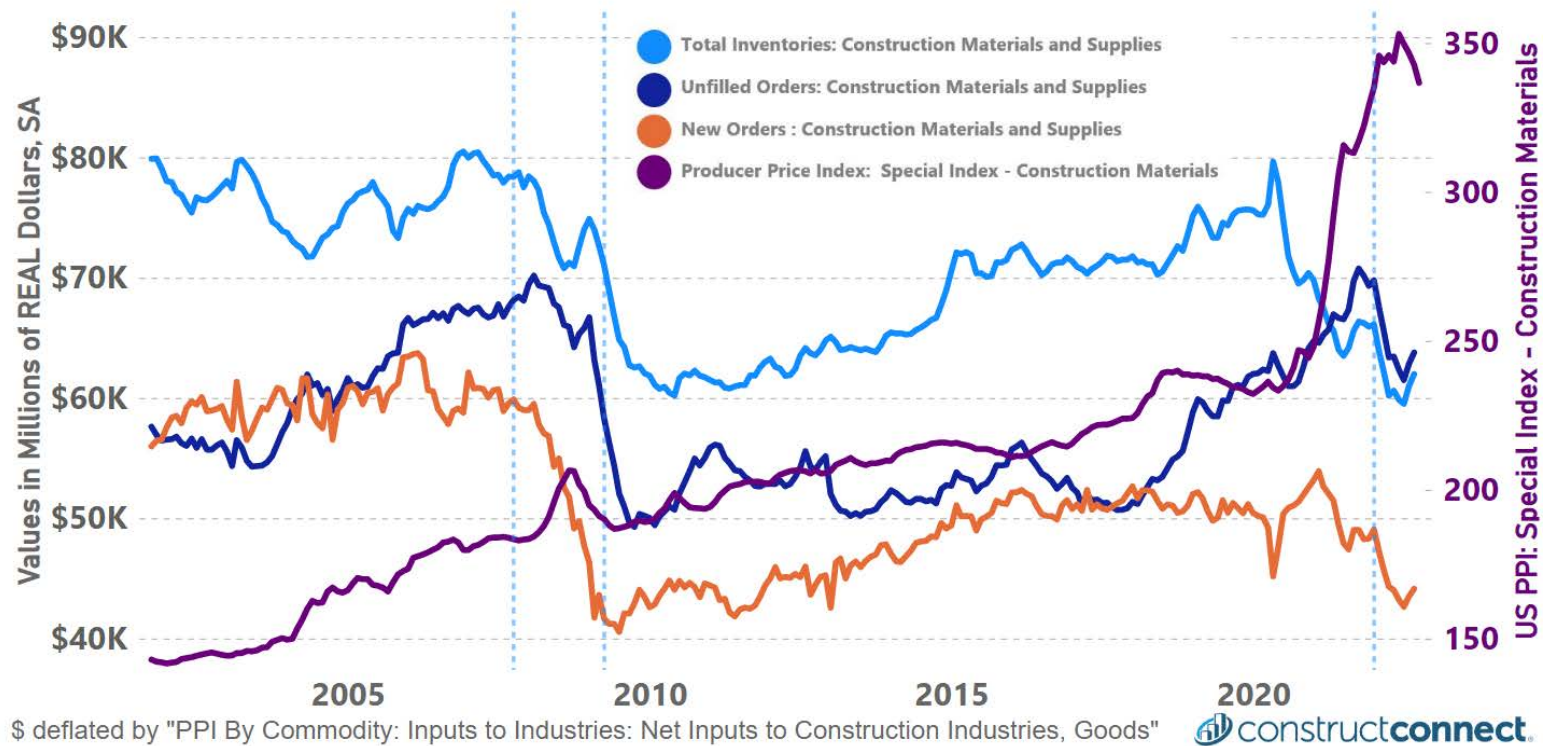
Consumer sentiment's historic peaks and declines has preceded similar manufacturing new orders changes



Source: New Orders Index for Texas, Fed Reserve of Dallas; Surveys of Consumers, University of Michigan

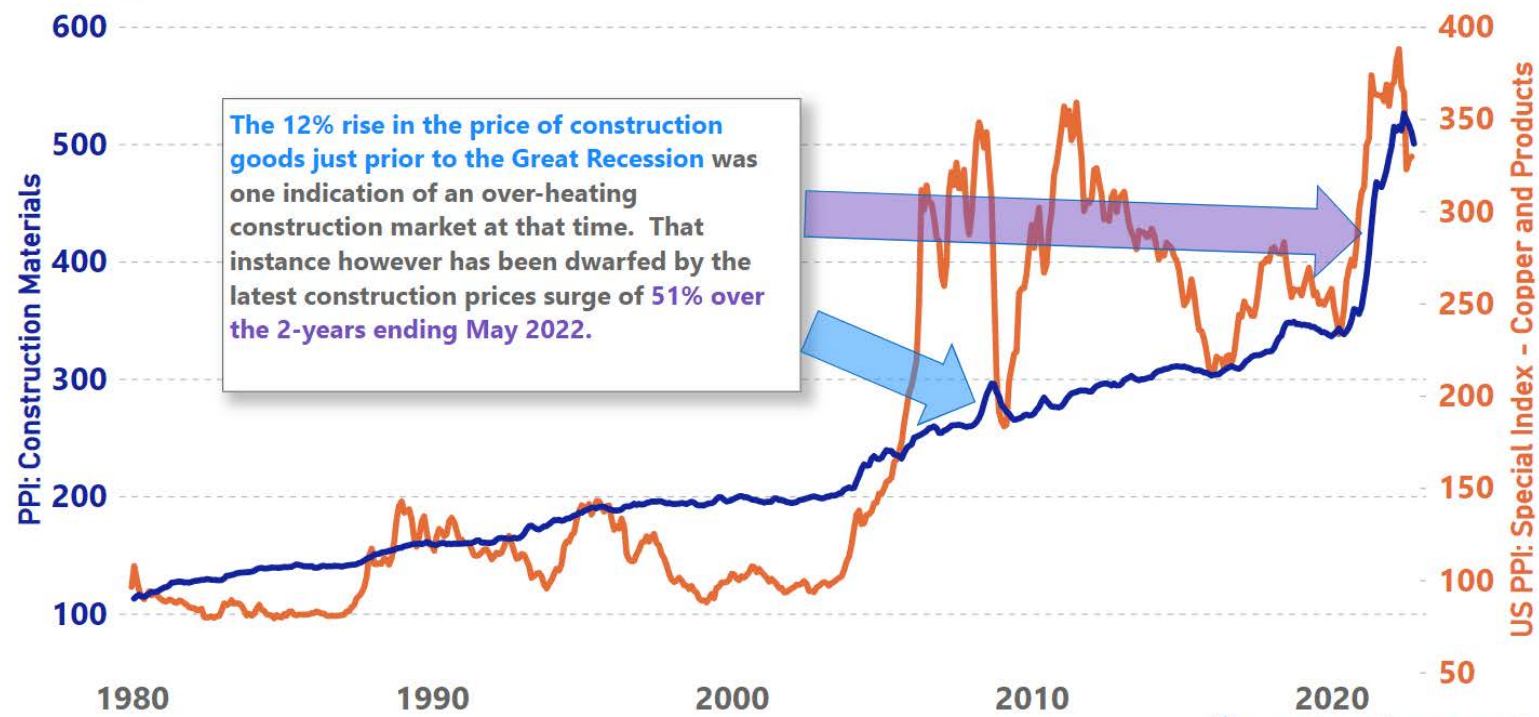
Physical Volumes of Unfilled and New Orders May Be Falling, Hidden by Inflation

Under high inflation, the real \$ value of unfilled & new orders is falling, could this help ease a future recession?



Copper Price Movements Lead Overall Construction Material Costs

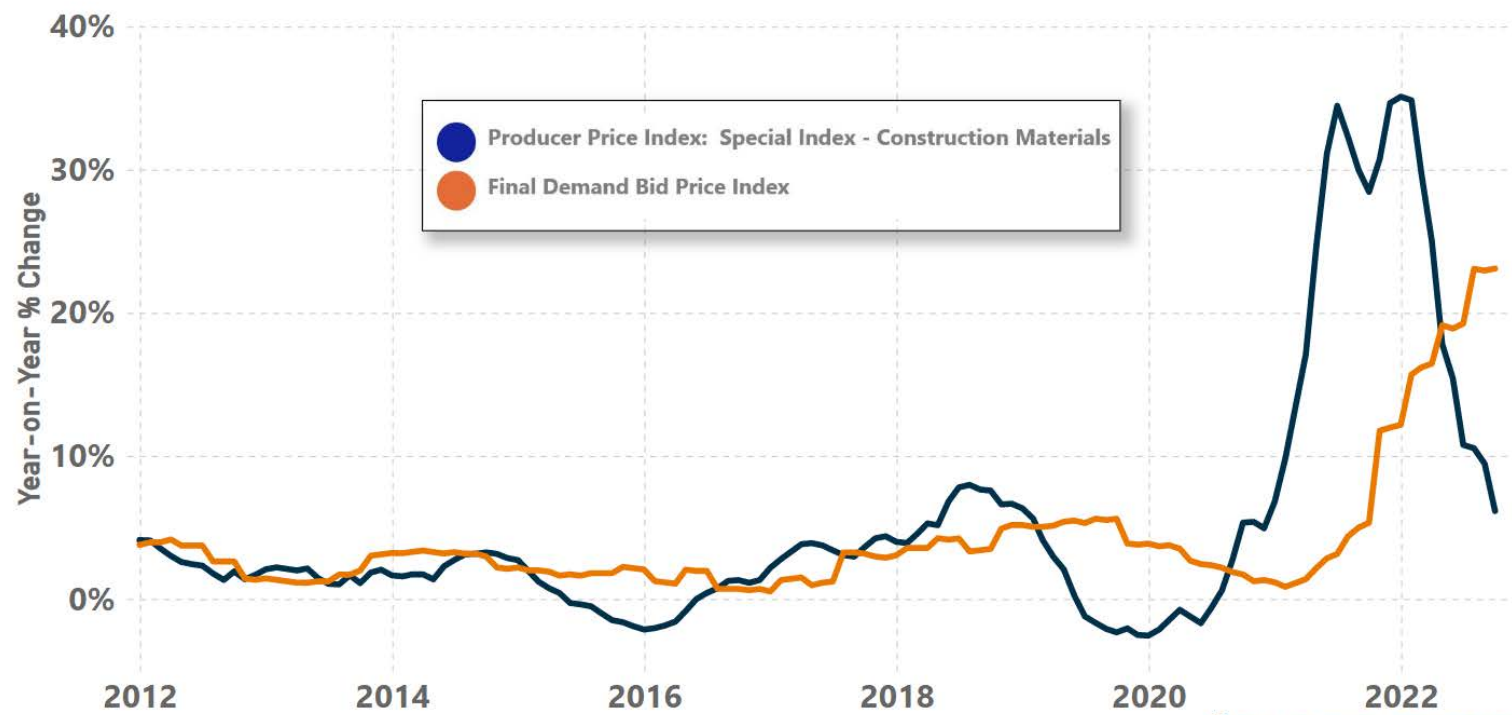
2008 copper correction led construction costs by several months



Sources: Bureau of Labor Statistics

Construction Pricing Catching Up After Years of Unprecedented Cost Increases

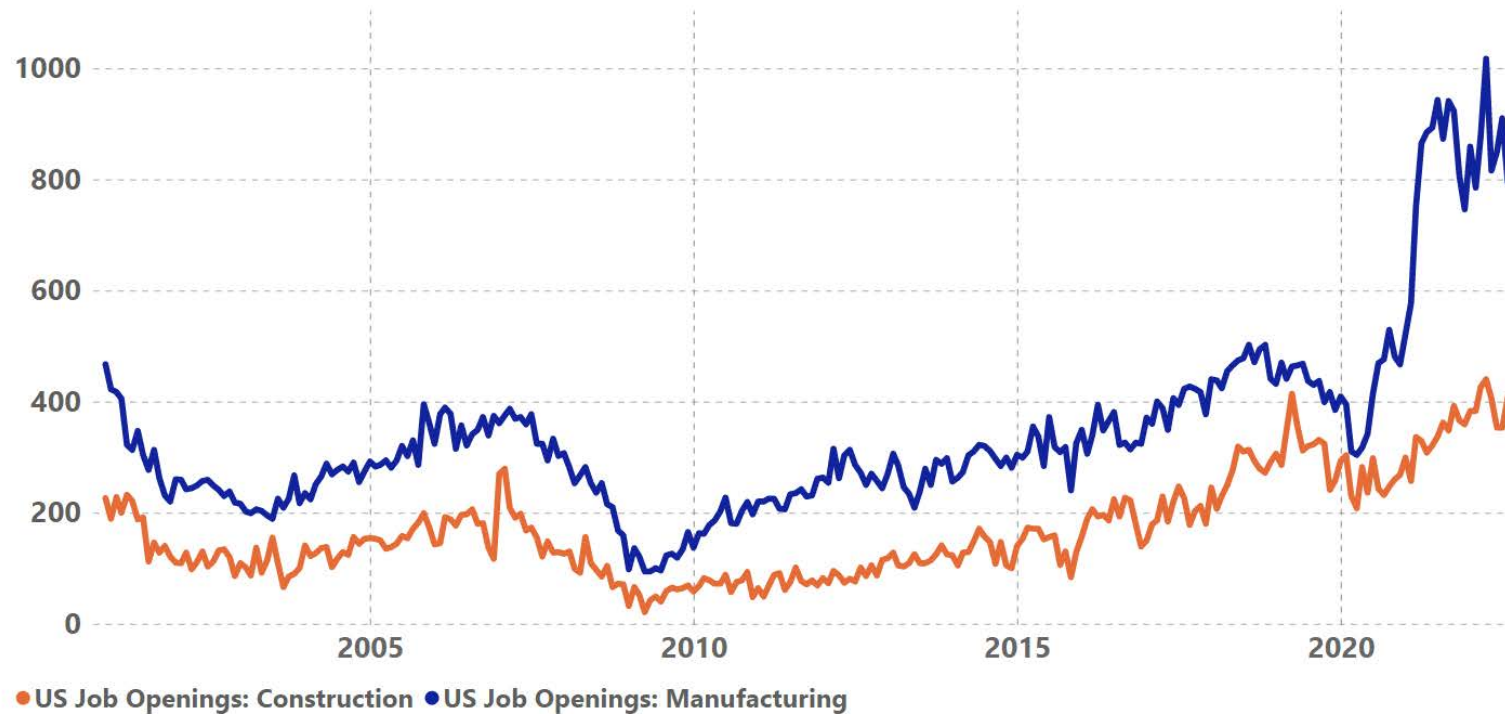
Firms are passing along price increases after two-years of runaway cost increases



Sources: Data from the Bureau of Labor Statistics, Material Price Calculations by Construct Connect

Jobs Market Struggles for Manufacturing and Construction Hires

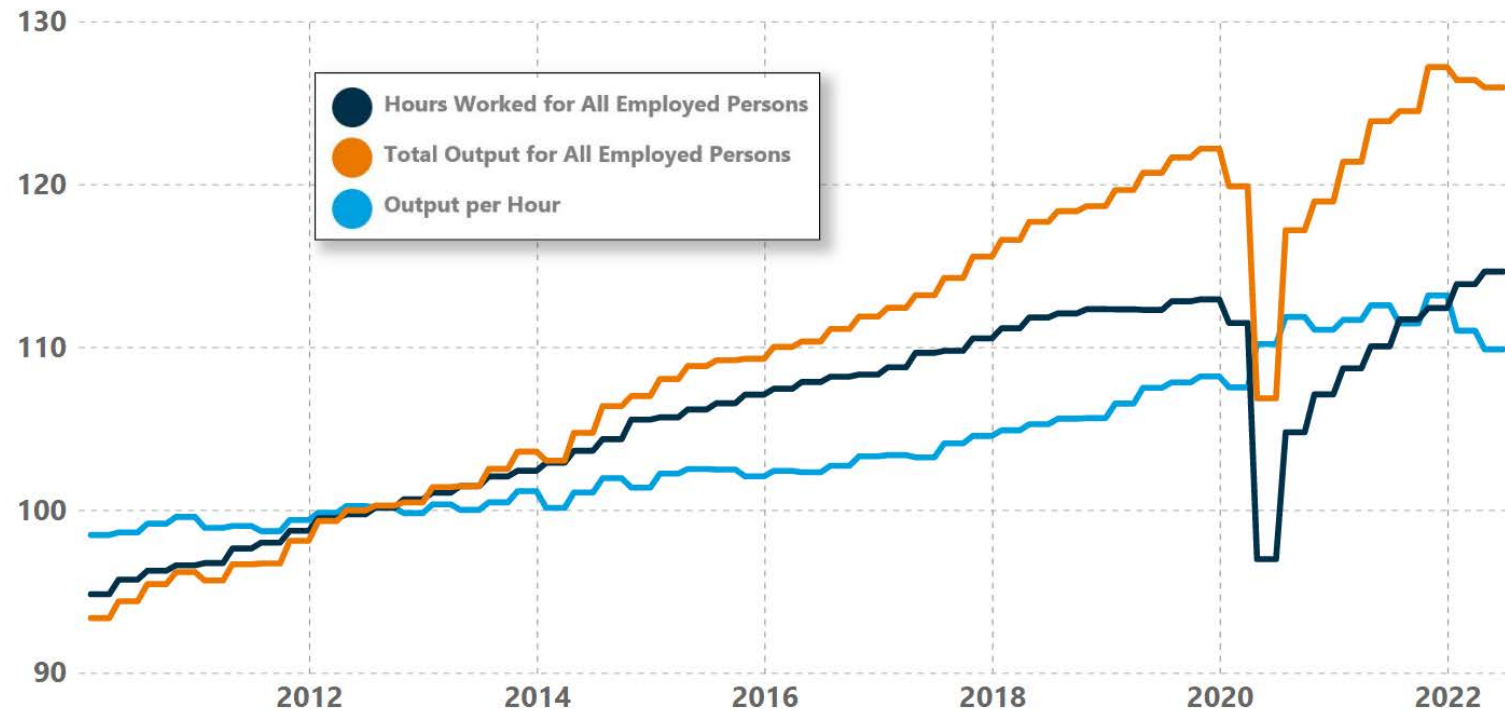
Job openings (in thousands)



Source: Bureau of Labor Statistics (BLS)

U.S. Nonfarm Business Output Declines Despite Rising Hours

Data for nonfarm business sector labor, all employed (Indexed 2012=100, seasonally adjusted)

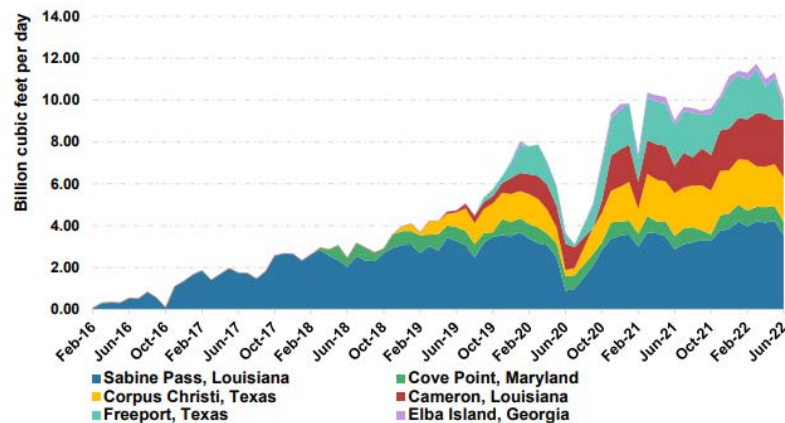


Source: Bureau of Labor Statistics

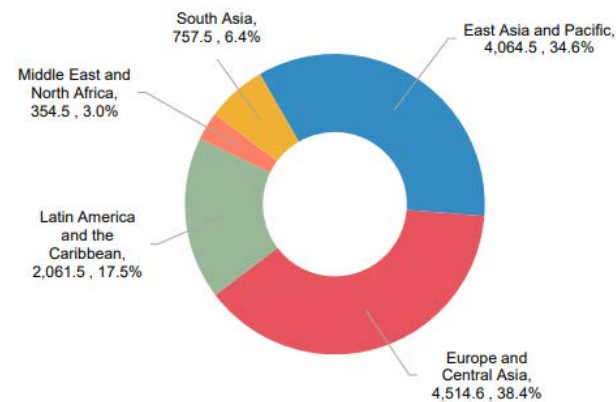
US Energy Infrastructure Opportunity

- US to move towards the delivery of 50 BCM of LNG to Europe annually.
 - Huge terminal infrastructure upgrades & expansions on both sides.
 - Expect some form of short & long-run price adjustments

1c. Domestically-Produced LNG Exported by Terminal
(February 2016 through June 2022)



1d. Domestically-Produced LNG Exported by Region
(Cumulative from February 2016 through June 2022)
(Bcf, %)



Source: EIA Reports *Natural Gas Monthly Report*, *LNG Monthly* (https://www.energy.gov/sites/default/files/2022-08/LNG%20Monthly%20June%202022_0.pdf)

| Macroeconomic Takeaways

What your business CAN'T rely on:

- Cheap labor
- Cheap capital
- Residential markets

What might be more reliable?

- Private Commercial Infrastructure
 - Transition to greater portion of work in mega-projects
 - Energy infrastructure
 - Greater on-shoring and “continentalization” of supply chains.
- Exporting energy as products
- Market Diversification

| In Closing, what is worth monitoring?

Real Dollar terms of...

- New orders and unfilled orders (\$)

Non-Dollar terms for..

- New Orders, Backlog, Production
- Housing (counts)
- Inventory to Sales

Silver-linings: Change creates opportunities but finding them is not always easy.

Housing Outlook

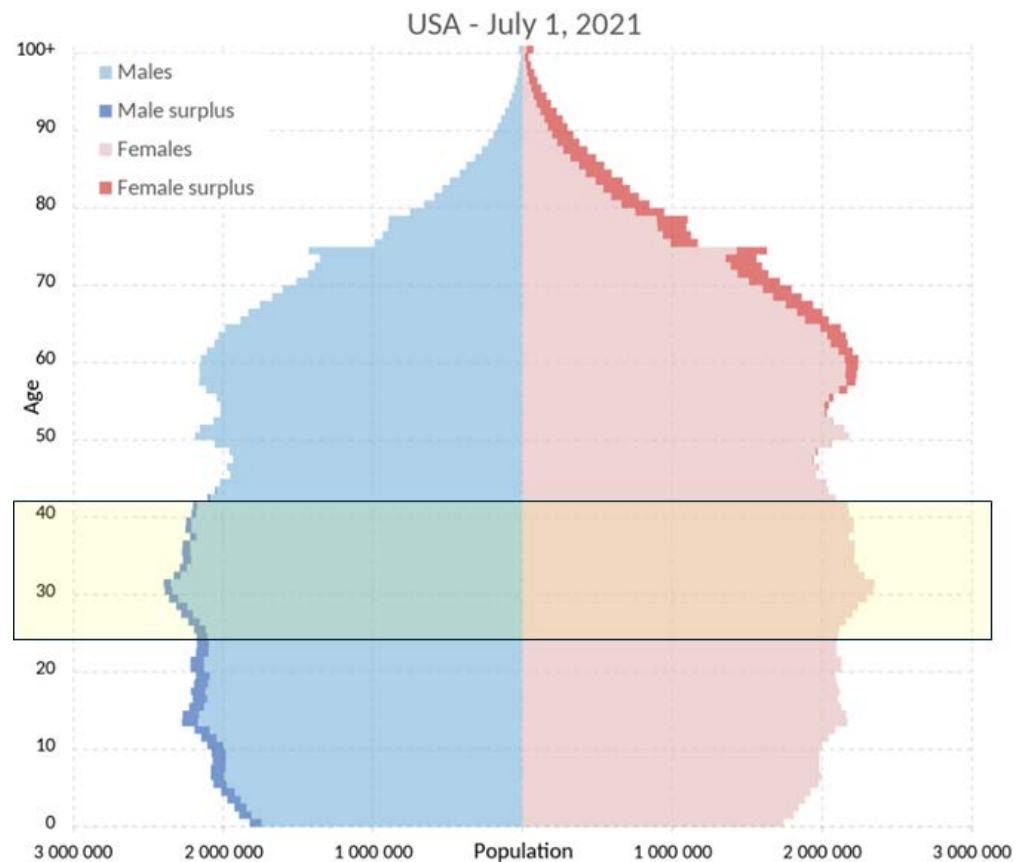
Demographics

Financial Markets

Good News First...

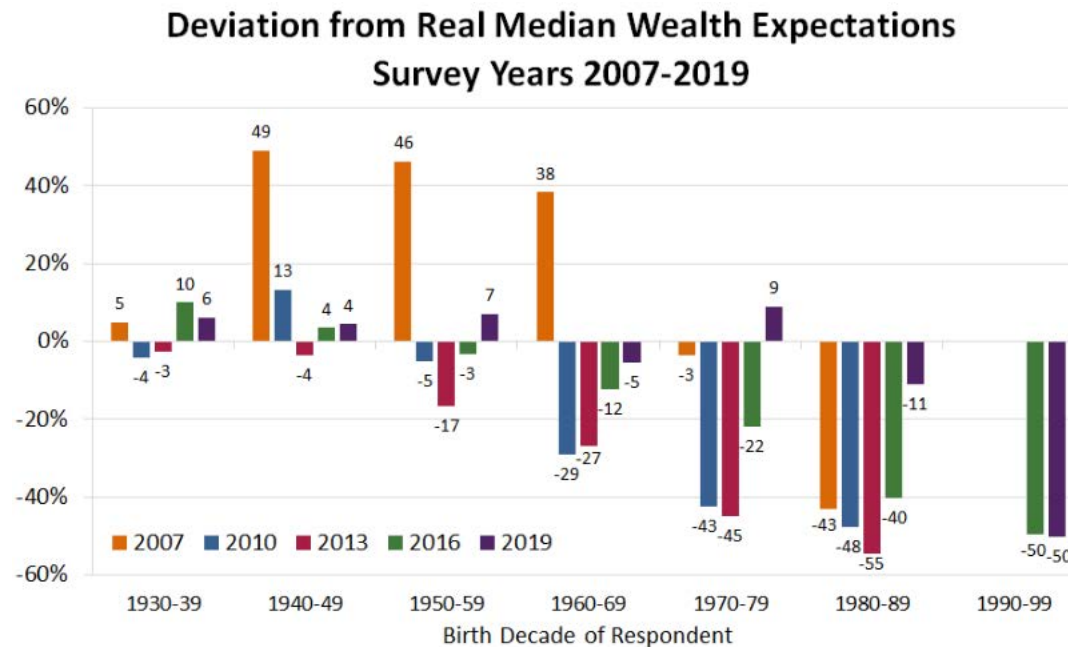
- Millennials are breaking 30!
- 73M people, the largest generation in the U.S. by size.
- Highest percentage of any previous generation to attend college (39%), compared to preceding generations at 30% (X), 25% (BB), 15% (S) *Pew Research.*

Source: U.S. Census Bureau



Then the Bad...

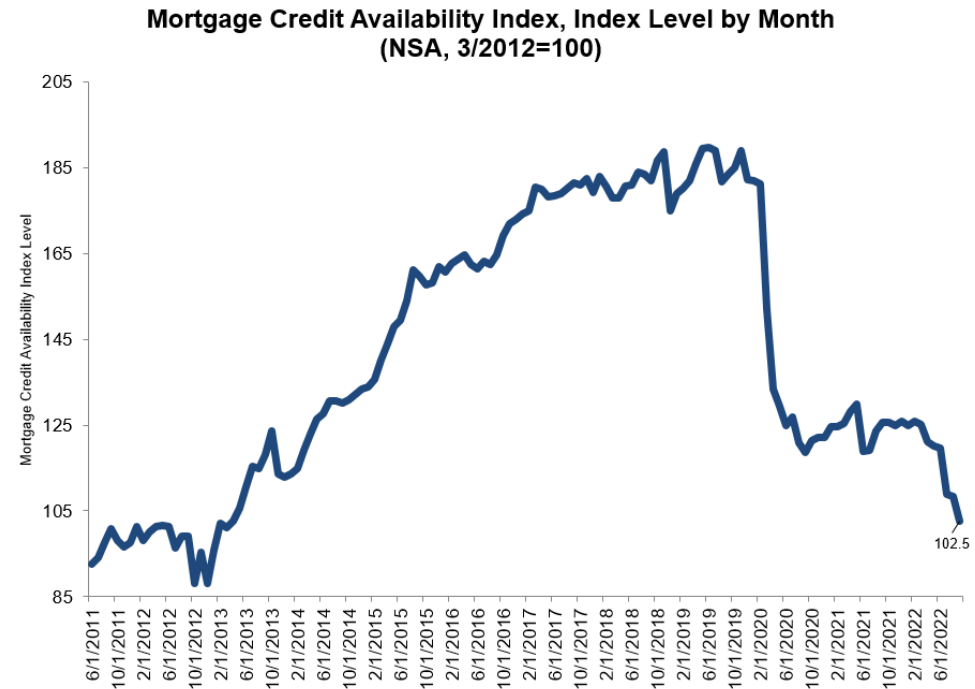
- Millennials are struggling to build wealth, impacting housing choice.



<https://www.stlouisfed.org/on-the-economy/2021/march/millennials-catching-up-earlier-generational-wealth>

Double Whammy: Rising Rates & Standards

- MCAI: a formula using: supply of mortgage credit, borrower credit score, loan type, loan-to-value ratio and indexed to 3/2012
- The last seven months have reported consecutive declines.



Source: Mortgage Bankers Association; Powered by ICE Mortgage Technology

<https://www.mba.org/news-and-research/research-and-economics/single-family-research/mortgage-credit-availability-index-x241340>

U.S. New Foreclosures Market Will Rebalance After Years of Suppression

Expiring Foreclosure Moratoriums at the Federal and Lower Levels Will Bring More Homes on the Market



Source: Federal Reserve Bank of NY, Household Debt and Credit Report

Single-Family Starts Drop 20% as Mortgage Rates Rise

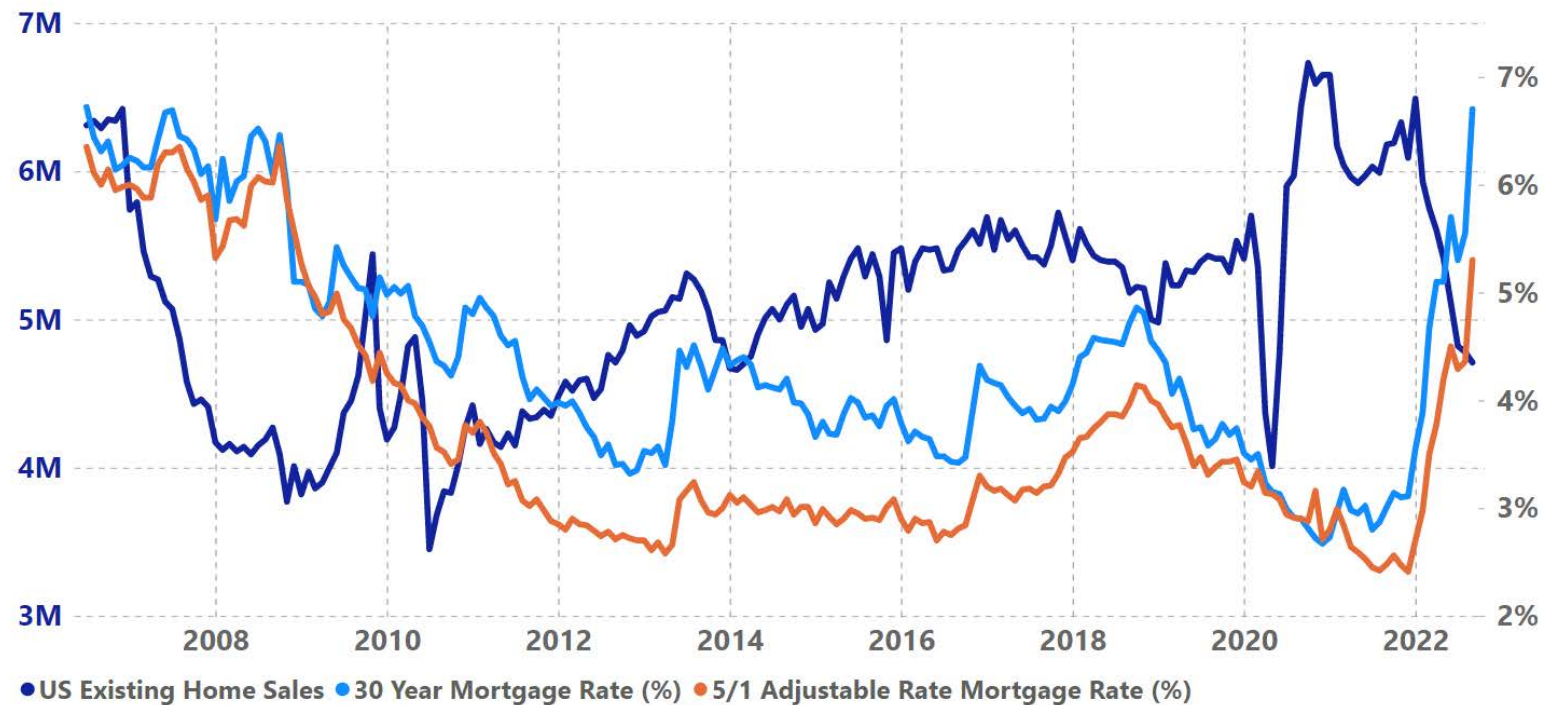
Slowing economy, rising mortgage rates are cooling starts (Thousands of Units SAAR)



Sources -- U.S. Census Bureau; Mortgage Rate, Freddie Mac

2022 Data Report Rising Interest Rates and Slowing Home Sales Volumes

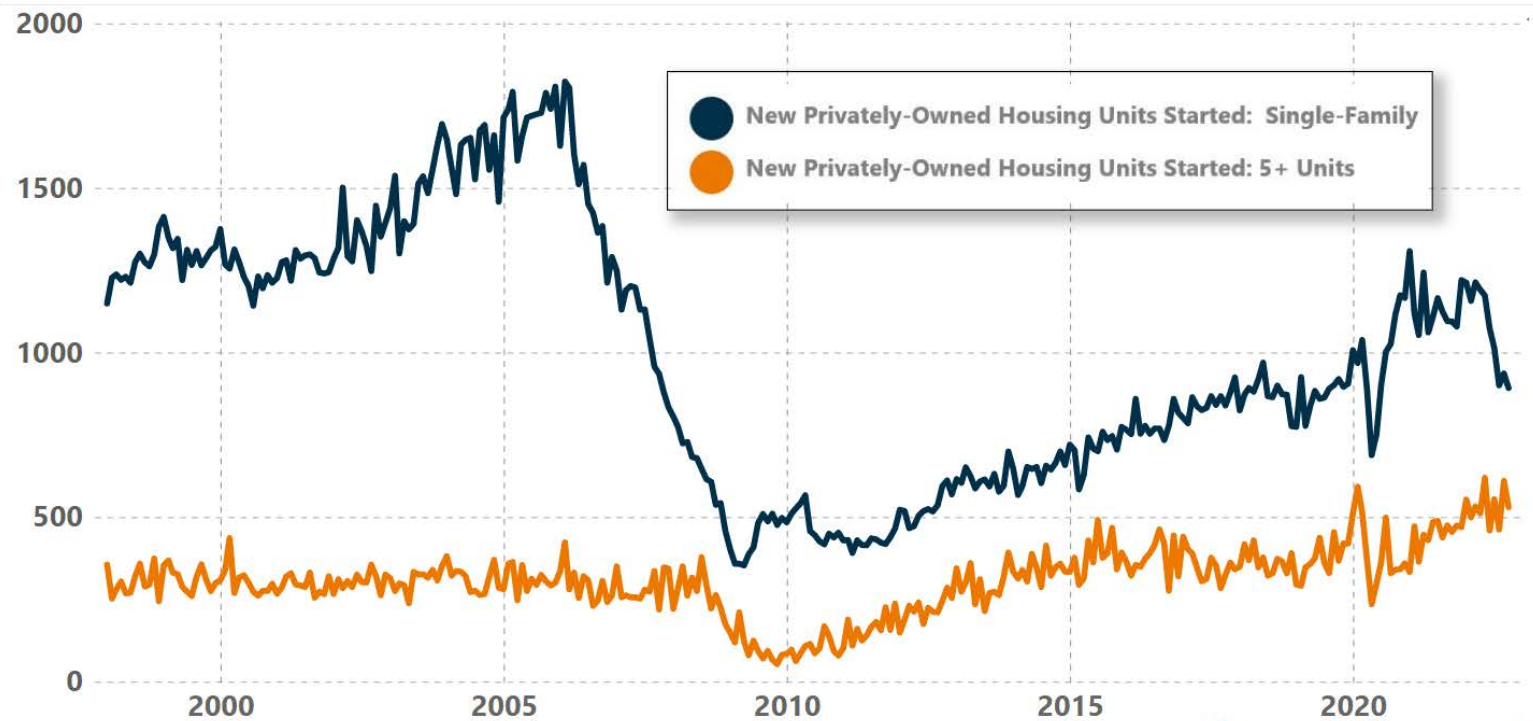
Rapid increase in home mortgage rates likely contributed to near 2-year low in U.S. home sales (000's units, SAAR)



Sources: Interest Rates - Freddie Mac, Primary Mortgage Market Survey, Home Sales - National Association of Realtors

Permit Counts Show Shift Towards Multi-Family Construction

Multifamily permits remain at decades high, while single-family counts fall to 2019 levels (Units in Thousands, SA)



Sources -- U.S. Census Bureau

| Housing Highlights

Demand:

- Affordability is weakening home prices, sapping demand.

Supply:

- Labor will be the greatest constraint to supply

Outcome:

- Risk of excessive WIP at a time when economic conditions could easily worsen.
- Further transition towards MF growth and consumption

THANK YOU

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BEFORE YOU BUILD.



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Let's Connect:



Questions & Answers

Think of a question later?

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