



Global Economic Activity

1Q 2023 Update
As of January 1, 2023

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Robert Santos
CEO

Mark McCarron
Partner, Managing Director

Diane Young
Partner, Managing Director

Ben Porras
Managing Director

Irene Apergis
COO

Daniel Casey
Vice President

1Q 2023

U.S. Economics

Consumers, Business Sentiment, Housing, & Inflation

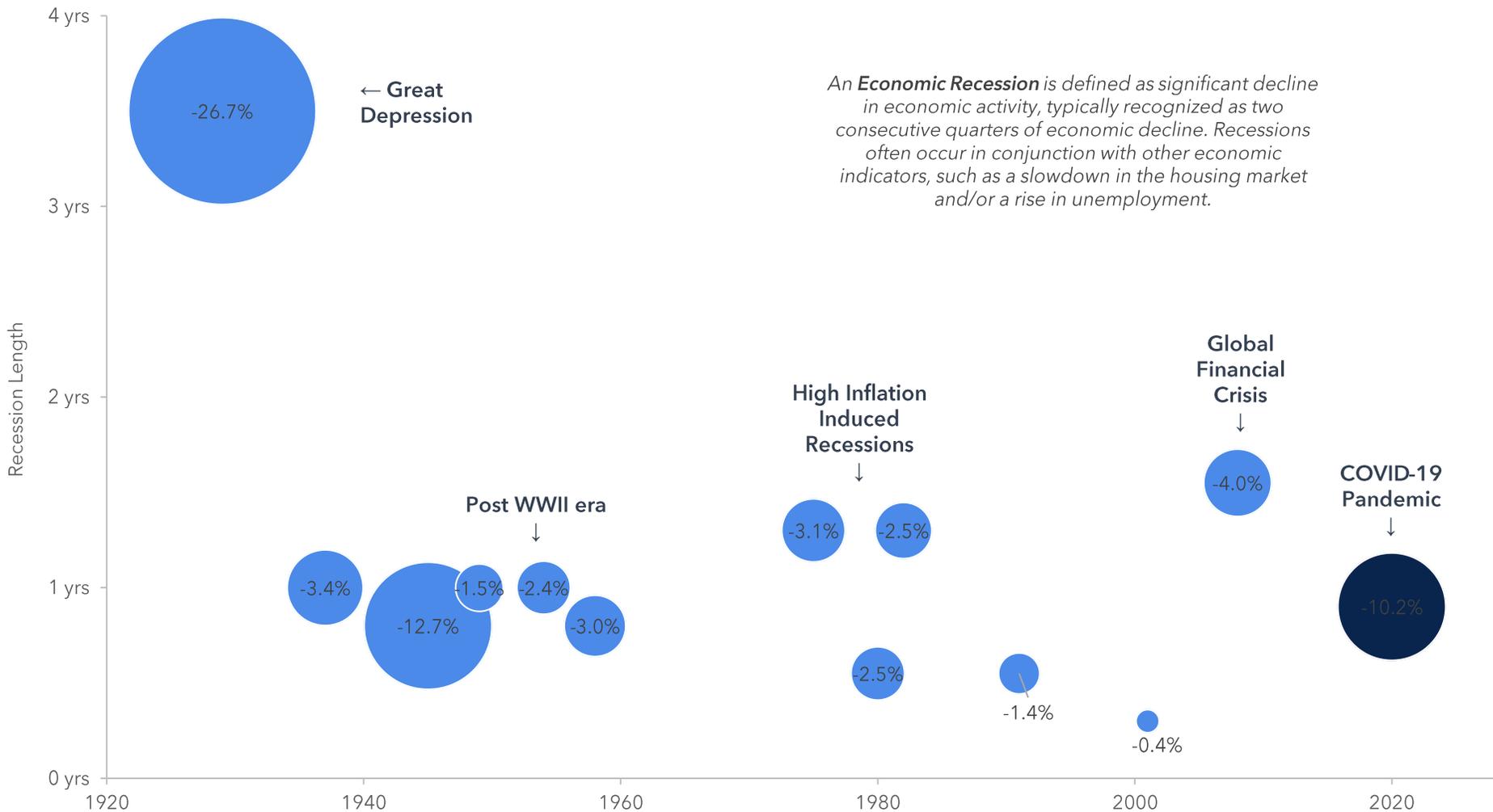
U.S. Economic Indicators

1Q 2023

Category	Economic Indicator	Report Date	Latest Report	1-Month Trend	6-Month Trend	10-Year Historical Percentile			
						Current	Current (●) & 1-Month Change(—)		
Employment	Nonfarm Payrolls	11/30	+263k	▼21k	▼123k	83%	-20,493k	●	+4,505k
	Unemployment Rate	11/30	3.7%	▲0.0%	▲0.1%	2%	3.5%	●	14.8%
	Average Workweek	11/30	39	▼0.2	▼0.2	53%	38	●	39
	Average Hourly Earnings	11/30	\$32.82	▲\$0.18	▲\$0.84	100%	\$24	●	\$33
	Initial Jobless Claims	11/30	+229k	▲10k	▼22k	1%	+0.2m	●	+4.7m
	Continuing Jobless Claims	11/30	+1,582k	▲131k	▼264k	1%	+1.3m	●	+20.3m
	Consumer	Personal Income	10/31	\$22B	▲\$0.2B	▲\$0.5B	78%	\$14B	●
Personal Spending		10/31	\$18B	▲\$0.1B	▲\$0.5B	100%	\$11B	●	\$18B
Consumer Confidence Index		11/30	100.2	▼2.0	▼3.0	53%	58	●	138
Michigan Confidence Index		11/30	56.8	▼3.1	▼1.6	13%	50	●	101
Housing	New Home Sales	11/30	+608k	▼25k	▼29k	35%	+0.4m	●	+1.0m
	Housing Starts	11/30	+1,408k	▼18k	▼155k	59%	+0.8m	●	+1.8m
	Building Permits	11/30	+1,508k	▼0.5k	▼188k	60%	+0.9m	●	+1.9m
	Monthly Supply (# of months)	10/31	3.3mos	▼0.2	▼0.7	43%	2mos	●	6mos
Manufacturing	Industrial Production (m/m%)	11/30	-0.2%	▼0.2%	▼0.1%	67%	-13%	●	6.3%
	ISM Manufacturing PMI	11/30	49.0	▼1.2	▼7.1	33%	42	●	64
	Capacity Utilization	11/30	80%	▼0.2%	▼0.3%	96%	65%	●	80%
	Durable Goods (New Orders)	10/31	\$273B	▼\$16B	▲\$10B	85%	\$157B	●	\$294B
Inflation (y/y%)	CPI	11/30	7.11%	▼0.6%	▼1.5%	79%	-0.2%	●	9.1%
	Core CPI	11/30	5.96%	▼0.3%	▼0.0%	88%	1.2%	●	6.6%
	PPI	11/30	7.40%	▼0.7%	▼3.7%	68%	-1.5%	●	11.7%
	Core PPI	11/30	6.25%	▼0.6%	▼2.4%	64%	0.2%	●	9.7%
	PCE	10/31	6.02%	▼0.3%	▼0.5%	86%	0.1%	●	7.0%
	Core PCE	10/31	4.98%	▼0.2%	▲0.1%	90%	0.9%	●	5.4%
	GDP Price Index (q/q% an.)	9/30	4.30%	▼4.7%	▼4.7%	54%	-1.3%	●	9.0%

Disclosures: As of 12/16/2022. Data sourced from Federal Reserve, NBER, Institute for Supply Management, University of Michigan, DOL, U.S. Census

History of U.S. Recessions

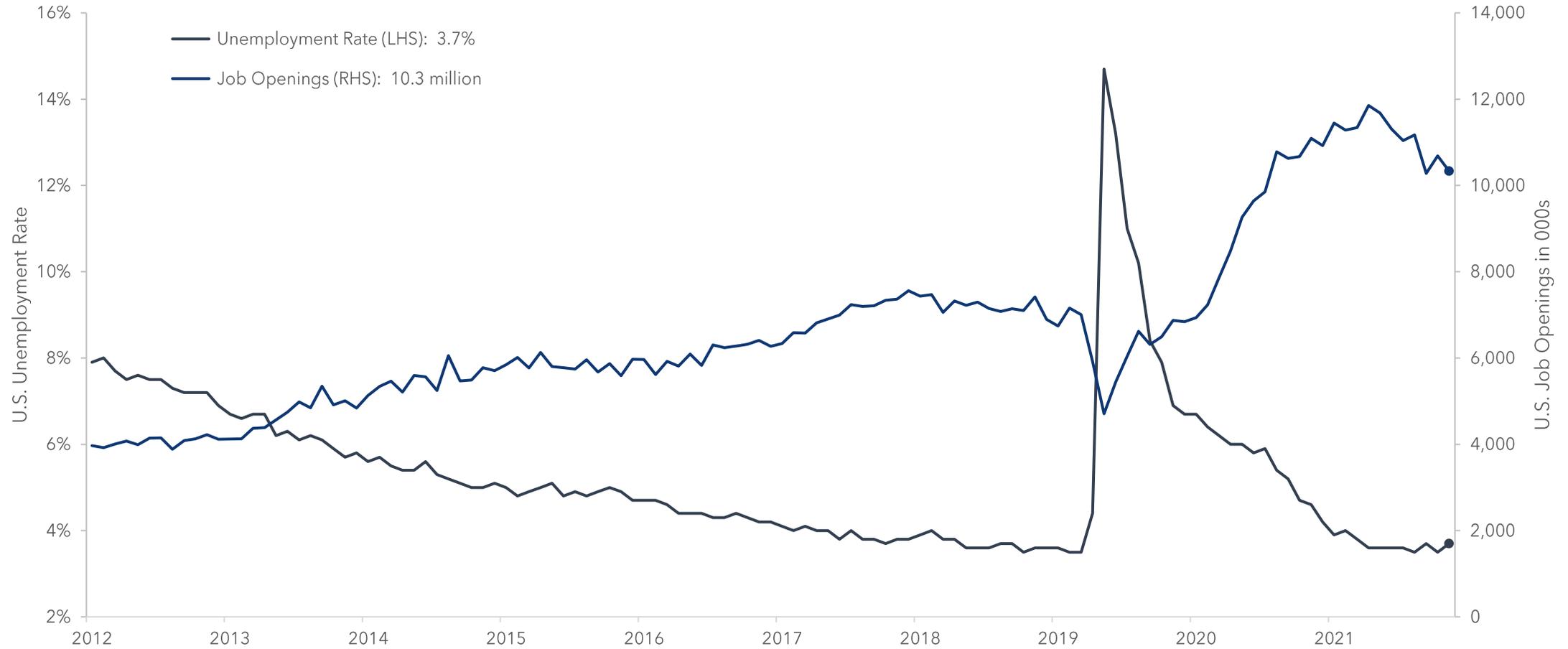


An **Economic Recession** is defined as significant decline in economic activity, typically recognized as two consecutive quarters of economic decline. Recessions often occur in conjunction with other economic indicators, such as a slowdown in the housing market and/or a rise in unemployment.

Disclosures: Data sourced from the Federal Reserve. This analysis is based on nominal GDP growth and contractions. The severity of each recession is calculated as the change in GDP from the peak quarter (before the recession) to the trough quarter (end of the recession). The Great Depression is the only recession that is calculated from 1929 to 1933.

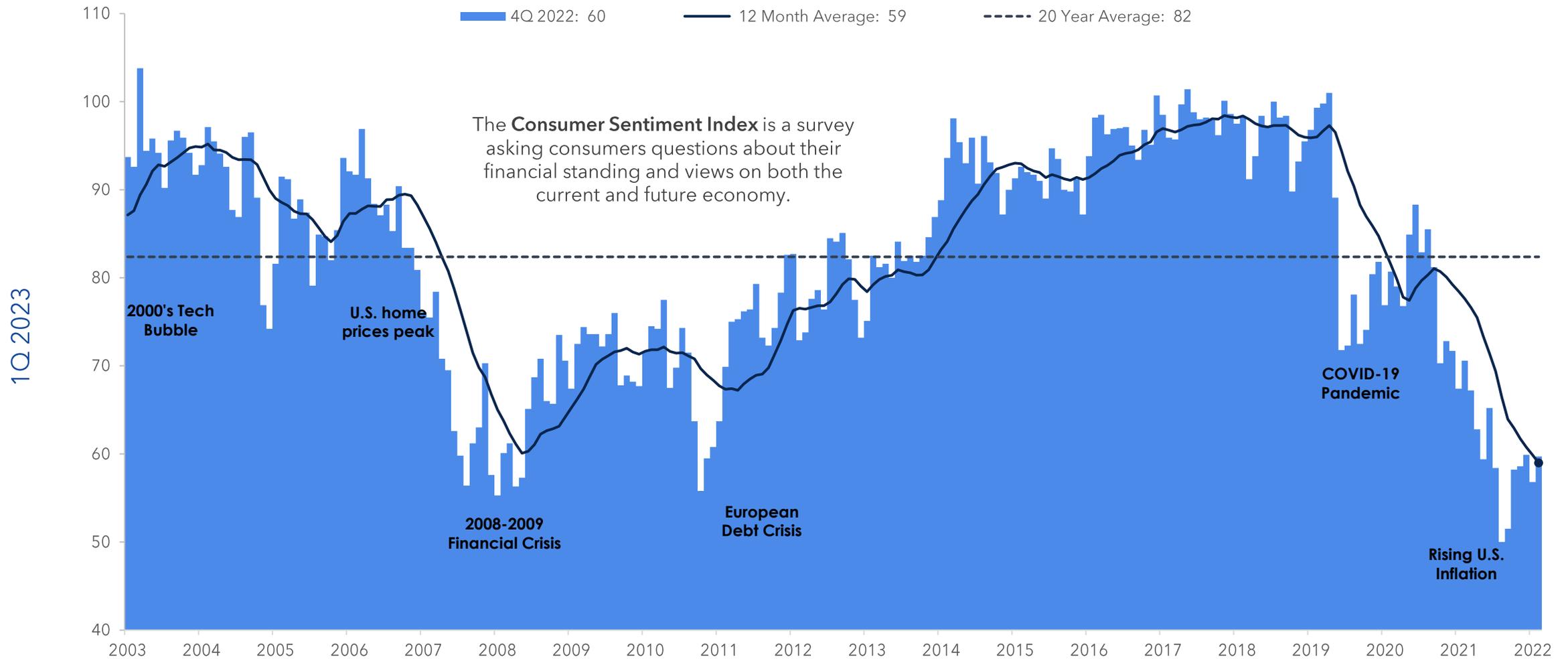
Unemployment Rate & Job Openings

1Q 2023



Disclosures: The Unemployment Rate represents the number of unemployed as a percentage of the labor force. Labor force data is restricted to people 16 years of age and older, who currently reside in 1 of the 50 states or the District of Columbia, who do not reside in institutions (e.g., penal and mental facilities, homes for the aged), and who are not on active duty in the Armed Forces. Job Openings (Total Nonfarm) is provided by the U.S. Bureau of Economic Analysis (St. Louis Federal Reserve identifier: JTSJOL). Data sourced from Federal Reserve and U.S. Bureau of Economic Analysis. RHS = right hand side. LHS = left hand side.

Consumer Confidence

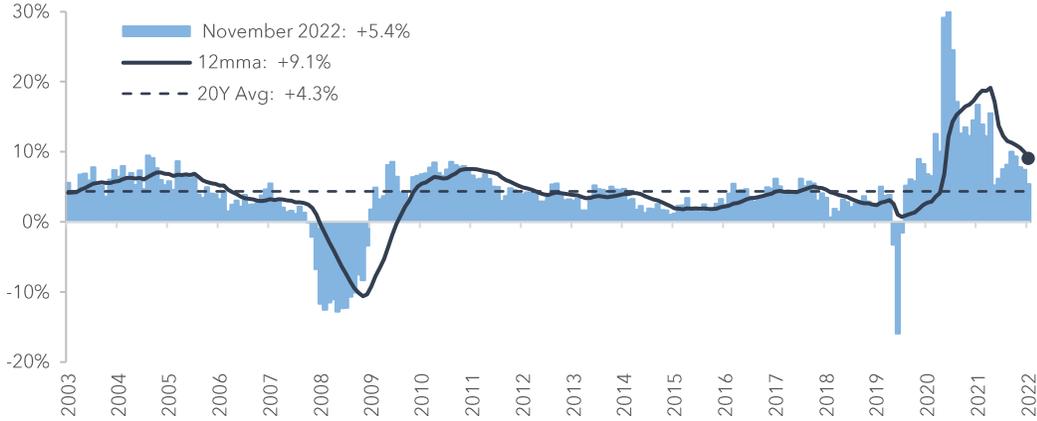


Disclosures: The University of Michigan Consumer Sentiment Index is a monthly survey that asks consumers questions about their financial standing and views on both the current and future economy.

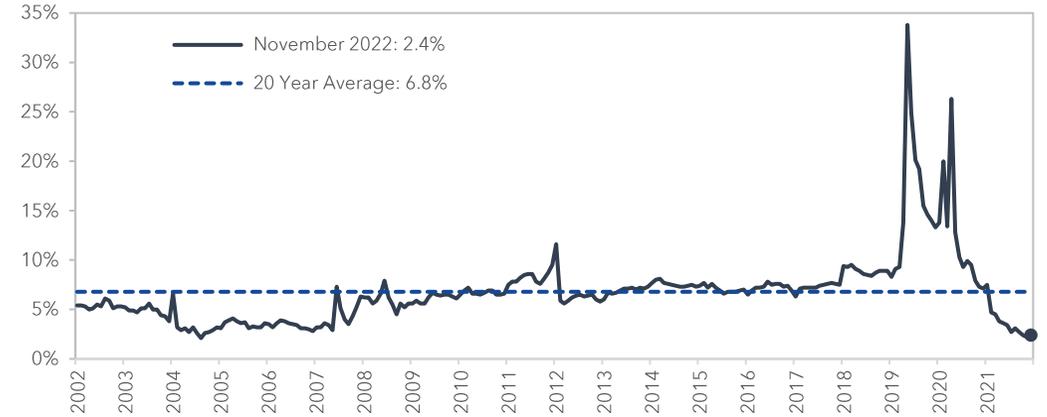
Retail Sales & Personal Finances

1Q 2023

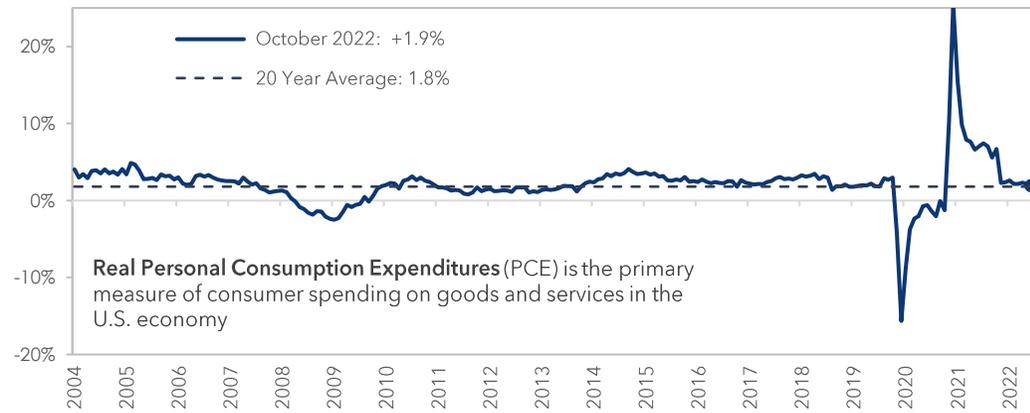
Year over Year Growth in Retail Sales
20 years of data (retail sales excluding food); 12mma = 12 month moving average



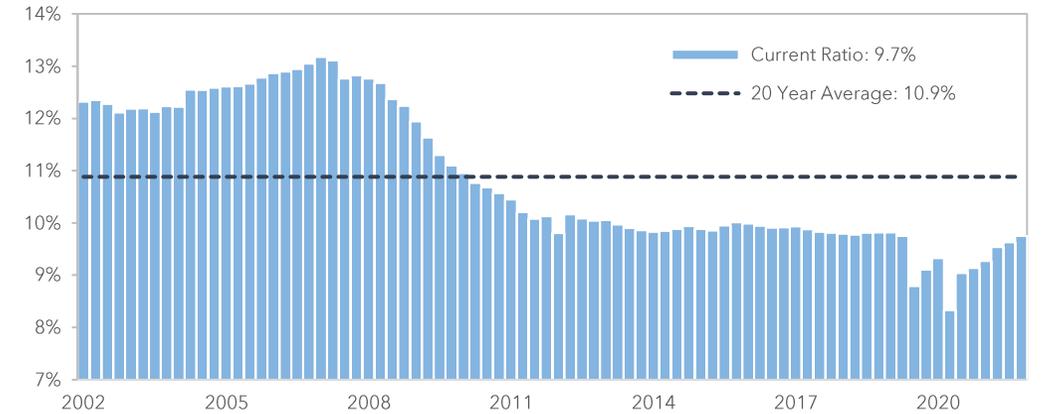
Personal Savings Rate
20 years of data; % of disposable income



Real Personal Consumption Expenditures
20 years of data adjusted for inflation



Household Debt Service Ratio
Percent of disposable personal income



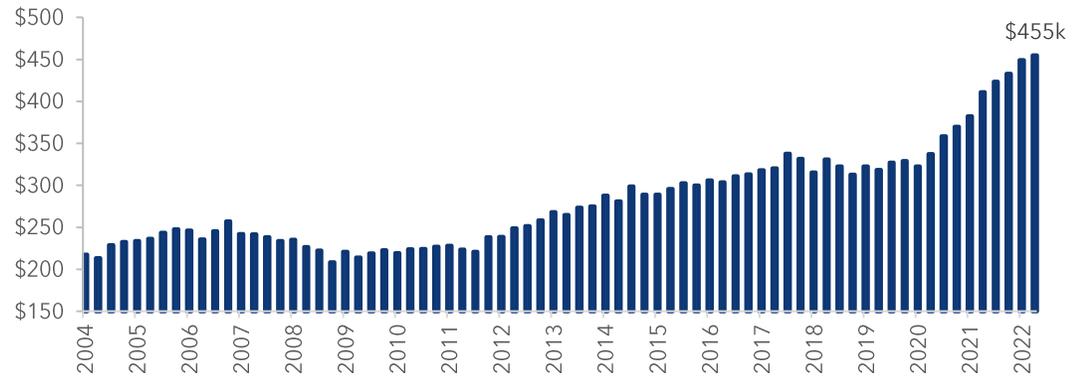
Disclosures: Data sourced from U.S. Bureau of Economic Analysis, U.S. Census Bureau, and the Federal Reserve.

Housing Market Update

1Q 2023

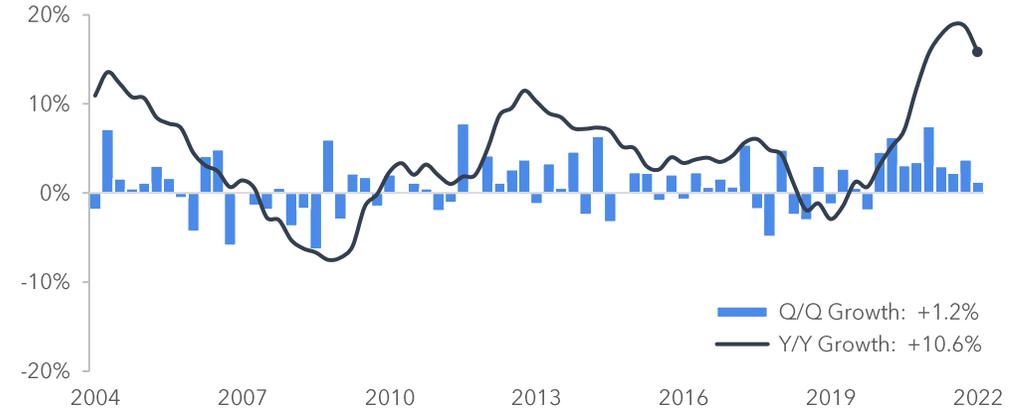
Median Sales Price for Homes Sold in the U.S.

USD in thousands, seasonally adjusted



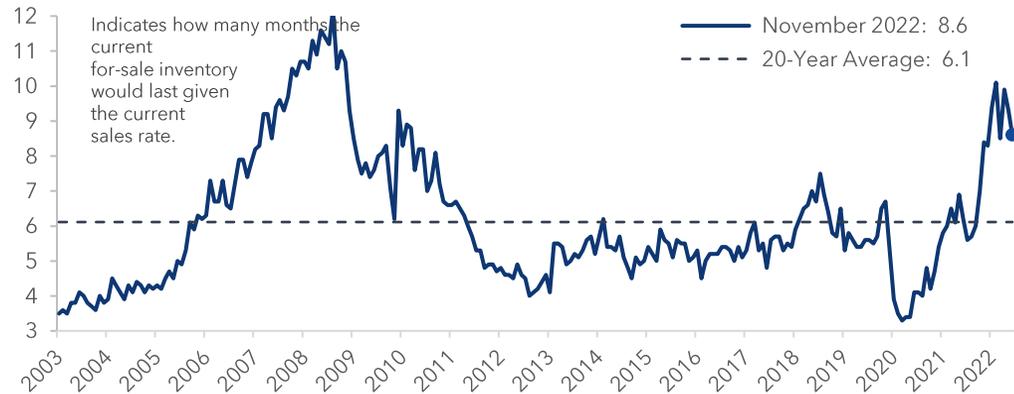
Rolling Changes in U.S. Home Prices

Year over year growth rate is an average of the past 4 quarters



U.S. Home Inventory (in months)

Ratio of Houses for Sale to Houses Sold



Housing Starts in 000s

Current level and year over year growth in housing starts

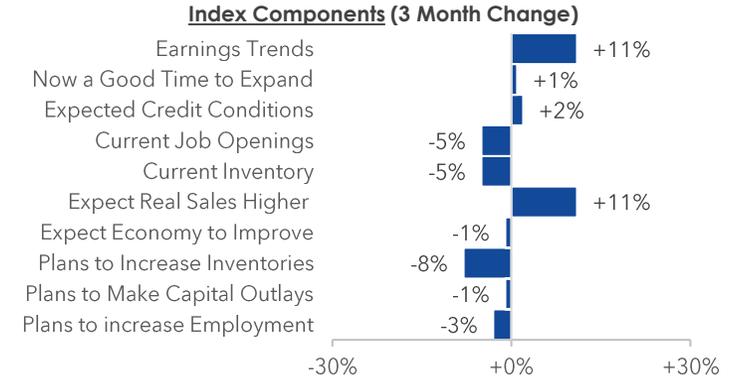
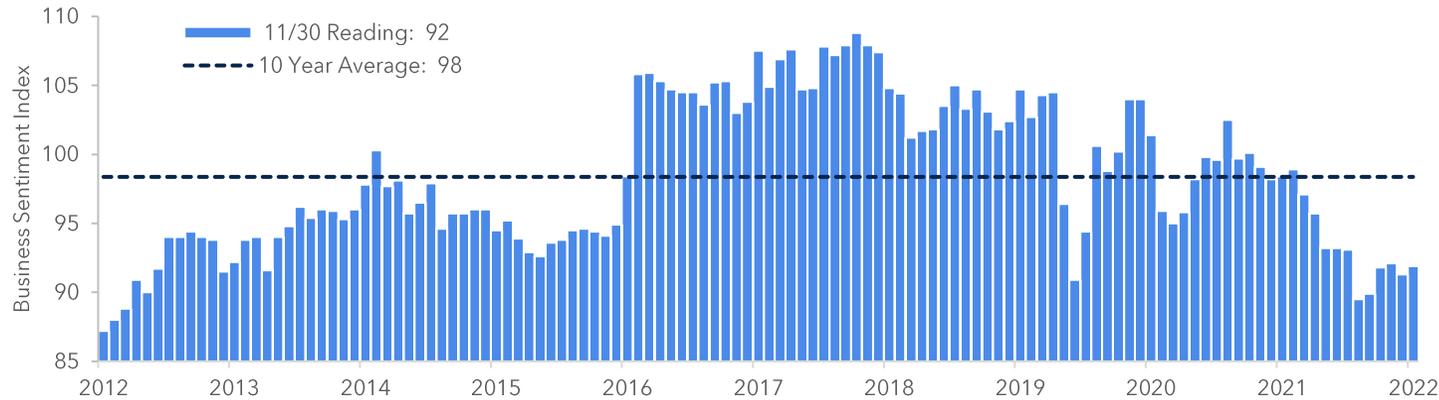


Disclosures: Data sourced from National Association of Realtors and Federal Reserve.

Business Activity & Sentiment

National Federation of Independent Business (NFIB) Small Business Optimism Index & Components

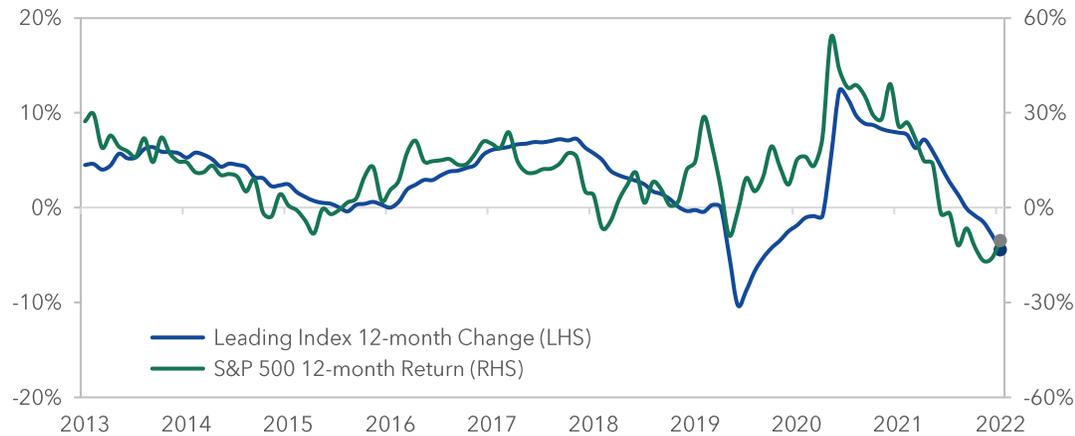
Small businesses make up ~50% of the U.S. workforce. This index provides a pulse on small business owners' outlook



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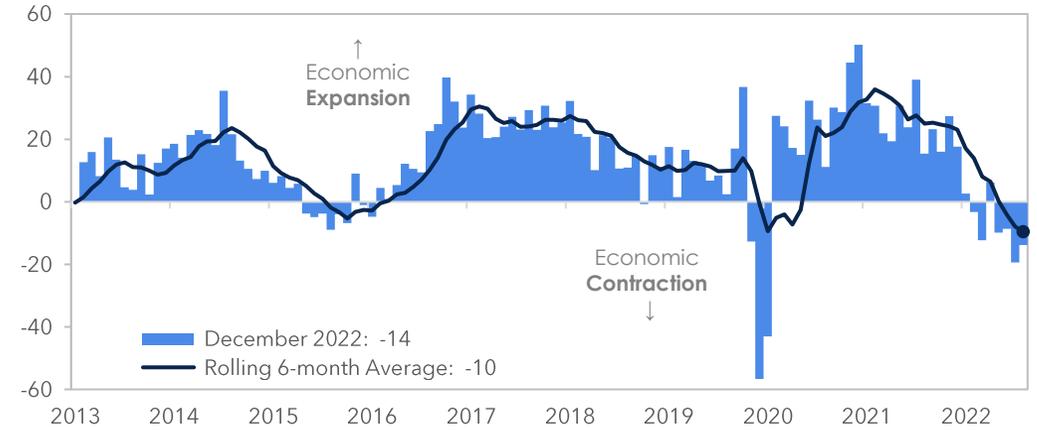
Leading Economic Index vs S&P 500 Return

Last 10 years of monthly data from Federal Reserve



Philadelphia Federal Reserve Business Index

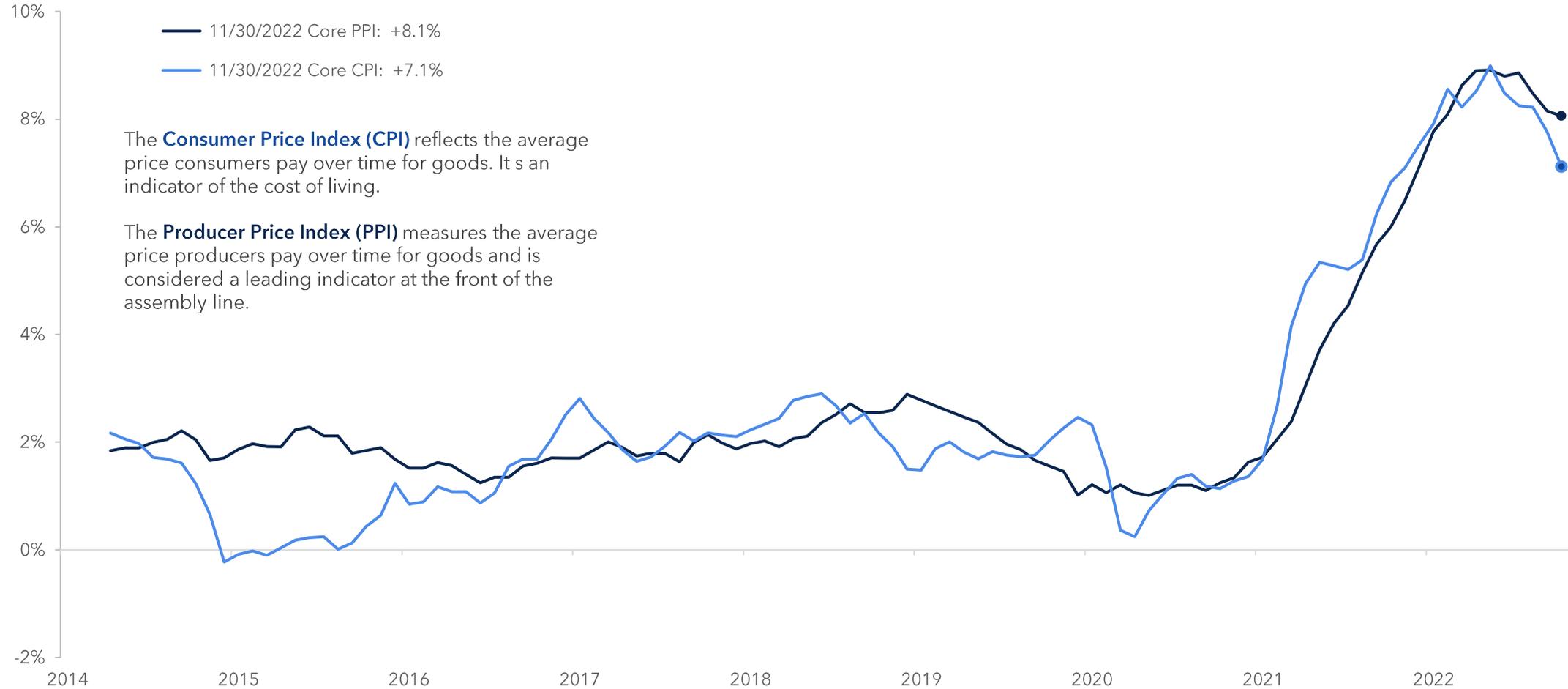
Readings of more (less) than zero signal expansion (contraction)



Disclosures: Data sourced from Federal Reserve. S&P 500 performance is based on price returns of the State Street SPDR S&P 500 ETF (SPY).

CPI vs PPI

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Disclosures: Data sourced from the Federal Reserve, U.S. Bureau of Labor Statistics. The Consumer Price Index (CPI) measures the changes in the price level of a basket of consumer goods and services purchased by households. The Producer Price Index (PPI) measures the average changes in prices received by domestic producers for their output (based on Final Demand: Finished Goods Less Foods and Energy).

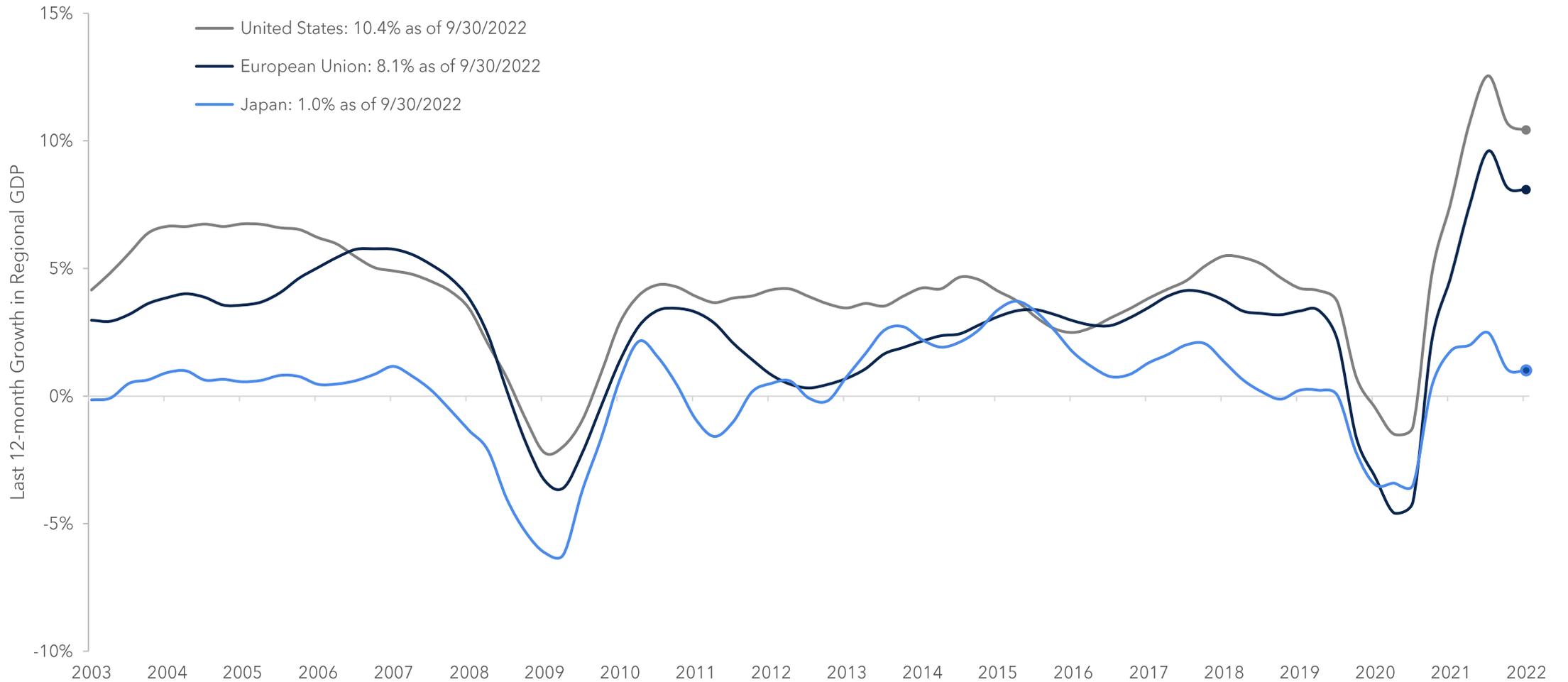
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Global Economics

GDP, Manufacturing, & Oil Industry

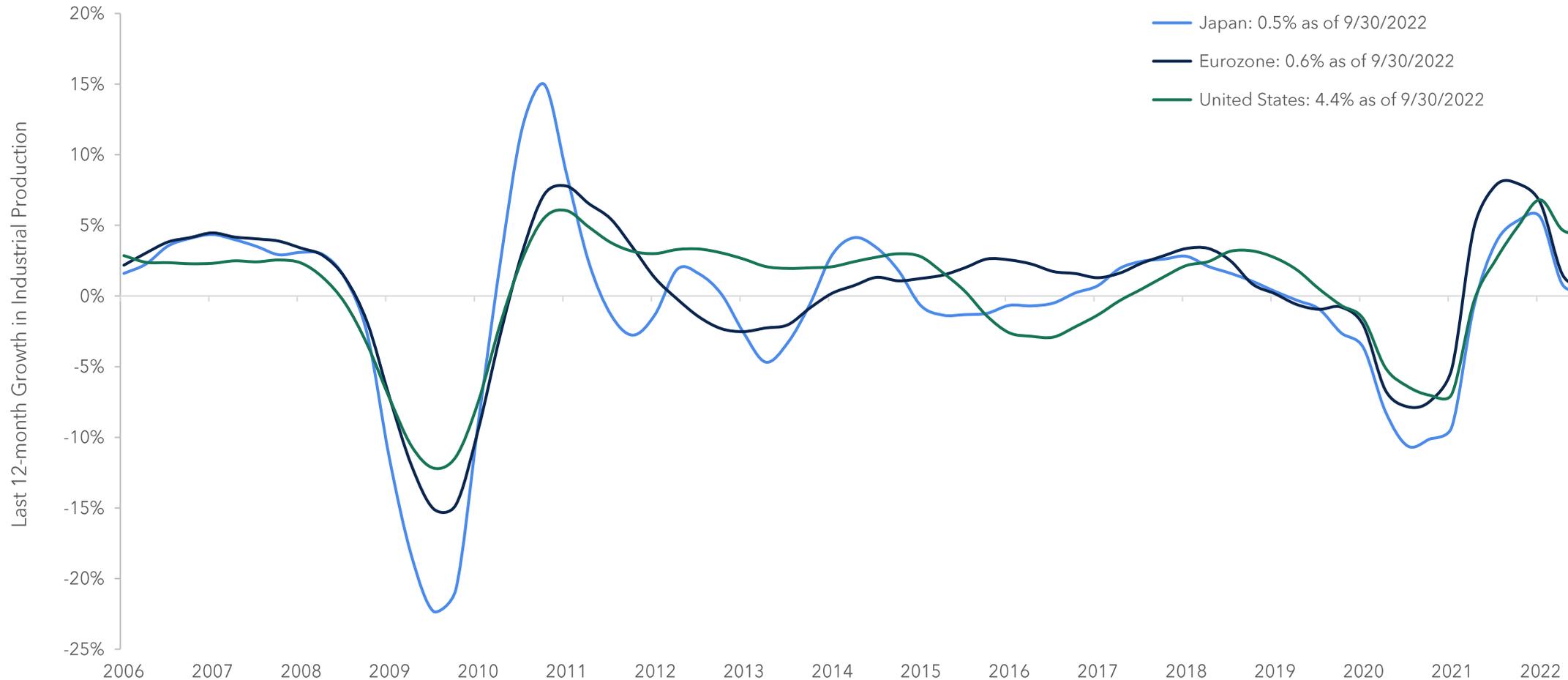
Global GDP Growth

1Q 2023



Disclosures: Data from the Federal Reserve, European Central Bank, and Bank of Japan. Growth is calculated as the rolling last 12-month growth in Gross Domestic Product (GDP).

Global Industrial Production



Disclosures: Data from the Federal Reserve, European Central Bank, and Bank of Japan. Growth is calculated as the rolling last 12-month growth in industrial production.

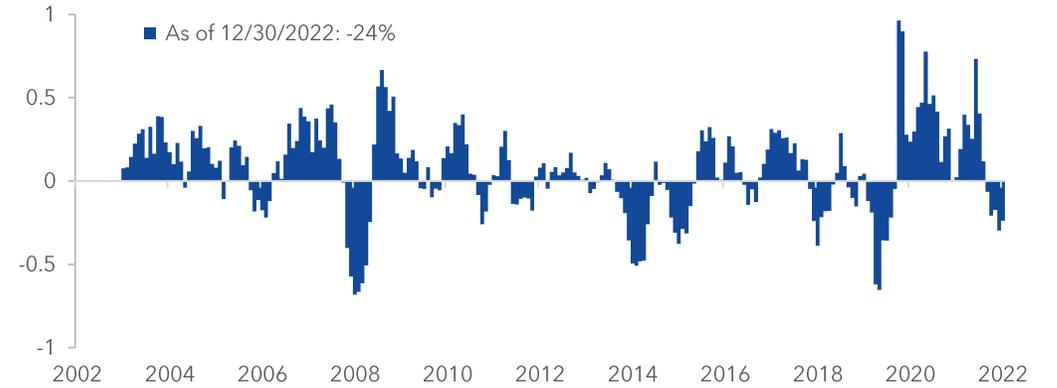
Oil Update

1Q 2023

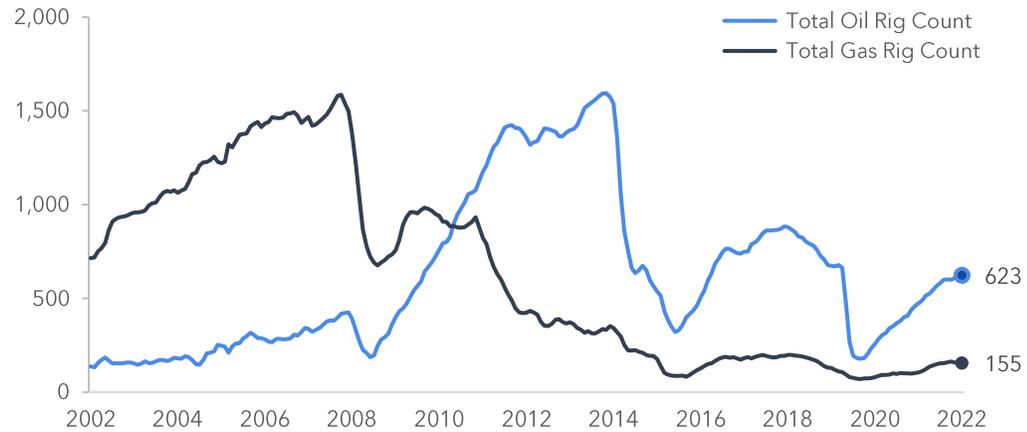
Price of WTI Crude Oil
20 years of monthly datapoints



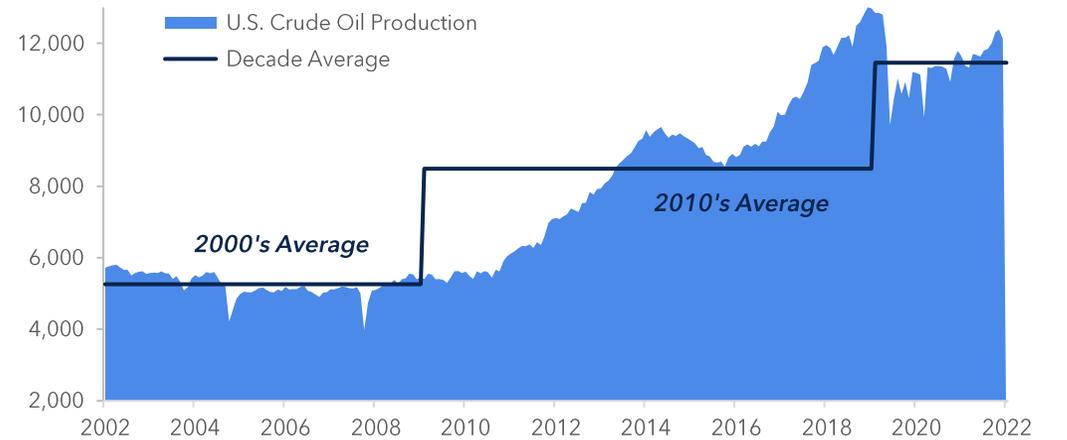
Rolling 6 Month Change in Oil Prices
20 years of monthly datapoints



Total U.S. Rig Count
Oil & Gas Rig Count from Energy Information Administration (EIA)



U.S. Crude Oil Production
Barrels per day in 000s



Disclosures: Data sourced from the Federal Reserve and the Energy Information Administration (EIA).

Definitions

Consumer Price Index (CPI)	Measures the changes in the price level of a basket of consumer goods and services purchased by households. .
Economic Contraction	A phase of the economic business cycle, typically after the peak, in which the economy as a whole declines.
Economic Expansion	A phase of the economic business cycle, typically after the trough, in which the economy as a whole grows.
Home Price Index	A broad measure of the movement of single-family house prices in each city across the United States.
Home Sales (Existing)	An economic indicator that reflects the number of homes that have previously been constructed and are now being resold.
Home Sales (Pending)	An economic indicator that reflects the number of homes that are being sold but have not been finalized.
Household Debt Service Ratio	The ratio of total required household debt payments to total disposable income
Inflation	A general rise in price level relative to available goods and services
Inventory to Sales Ratio	A measure of the amount of inventory companies are holding versus the number of sales
Leading Economic Index	An economic leading indicator intended to forecast future economic activity calculated by The Conference Board, a non-governmental organization. The value of the index is derived from the values of ten key variables.
NFIB Small Business Optimism Index	A measure of small business health in the United States.
Personal Savings Rate	A percentage of disposable personal income for the broad population
Philadelphia Fed Business Index:	A regional federal reserve bank index measuring changes in business growth. A value above (below) zero indicates growth (contraction).
Producer Price Index (PPI)	Measures the average changes in prices received by domestic producers for their output.
Real Yield:	Calculated as the Nominal Yield minus CPI rate
Retail Sales	A measure of consumer demand for goods based on purchases of durable and non-durable goods over a defined period of time
Unemployment Rate	A lagging economic indicator which is calculated as the percent of the labor force that is jobless
University of Michigan Consumer Sentiment Index	A monthly survey that asks consumers questions about their financial standing and views on both the current

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Disclosures and Legal Notice

- **Investing involves risk, including the possible loss of principal.** Stock markets can be volatile. Investments in securities of small and medium capitalization companies may involve greater risk of loss and more abrupt fluctuations in market price than investments in larger companies. Investments in fixed-income instruments are subject to the possibility that interest rates could rise, causing their values to decline. High yield and unrated debt securities are at a greater risk of default than investment grade bonds and may be less liquid, which may increase volatility. Investors in asset-backed securities, including mortgage-backed securities and collateralized loan obligations (“CLOs”), generally receive payments that are part interest and part return of principal. These payments may vary based on the rate loans are repaid. Some asset-backed securities may have structures that make their reaction to interest rates and other factors difficult to predict, making their prices volatile and they are subject to liquidity and valuation risk. CLOs bear similar risks to investing in loans directly, such as credit, interest rate, counterparty, prepayment, liquidity, and valuation risks. Loans are often below investment grade, may be unrated, and typically offer a fixed or floating interest rate.
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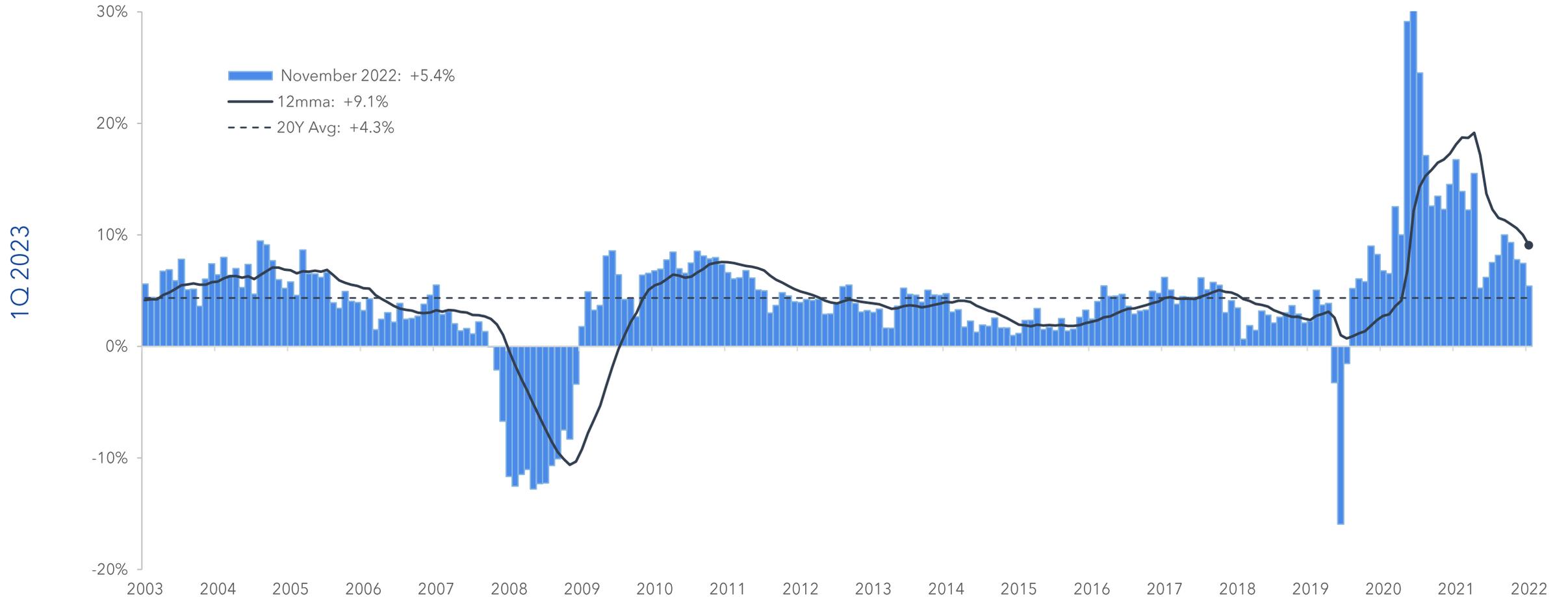
Larger Chart Versions

Note: If you plan to use the larger chart versions below, please be sure to manually update the page numbers in the table of contents or remove the table of contents page all together.

Year over Year Growth in Retail Sales

Year over Year Growth in Retail Sales

20 years of data (retail sales excluding food); 12mma = 12 month moving average



Disclosures: Data sourced from U.S. Bureau of Economic Analysis, U.S. Census Bureau, and the Federal Reserve.

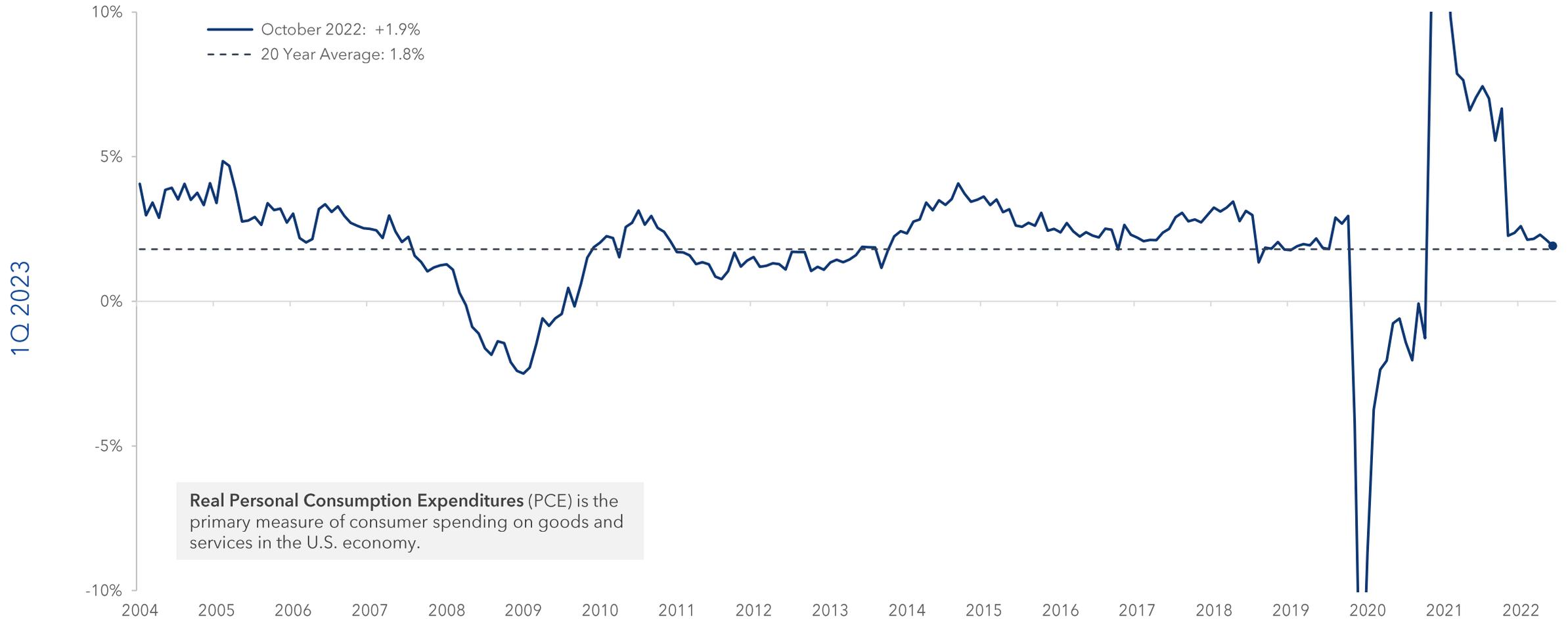
Personal Savings Rate (% of disposable income)

1Q 2023



Disclosures: Data sourced from U.S. Bureau of Economic Analysis, U.S. Census Bureau, and the Federal Reserve.

Real Personal Consumption Expenditures

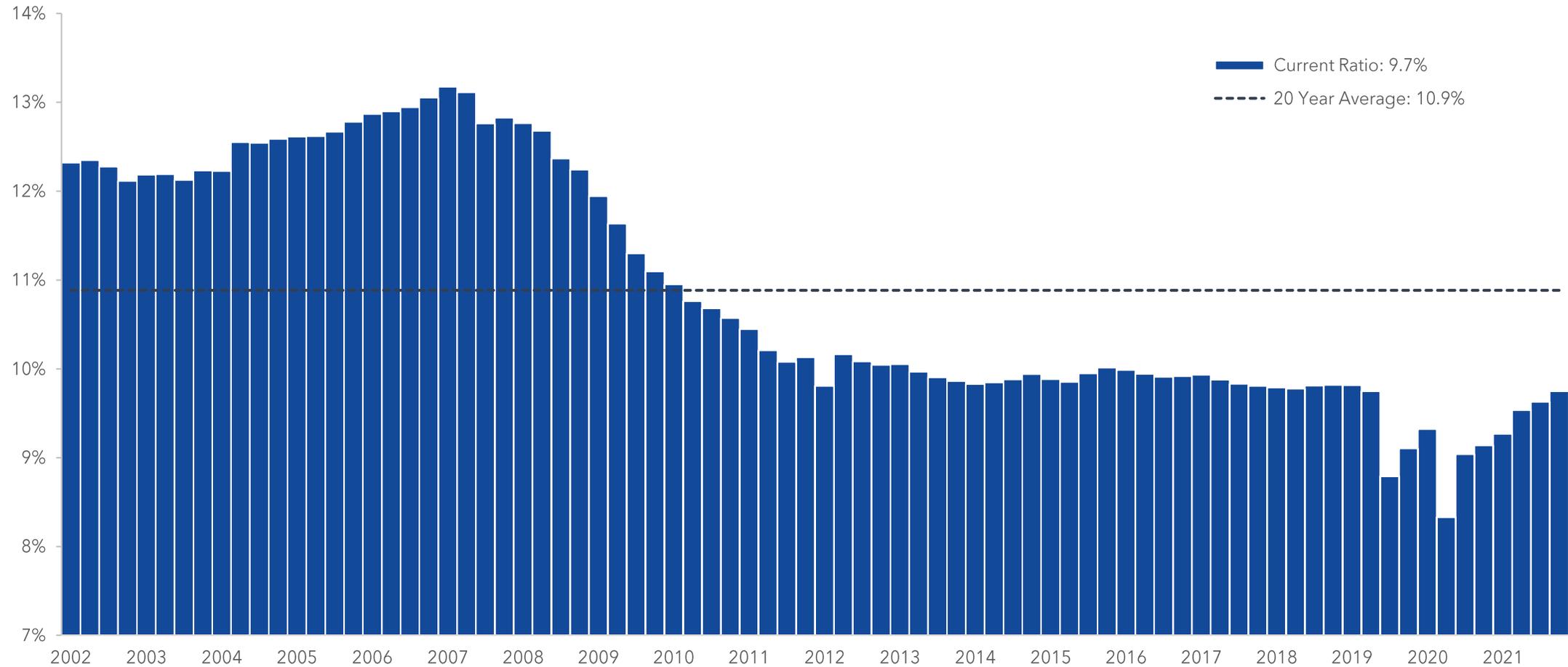


Disclosures: Data sourced from U.S. Bureau of Economic Analysis, U.S. Census Bureau, and the Federal Reserve.

Household Debt Service Ratio (% of Disposable Personal Income)

Household Debt Service Ratio
Percent of disposable personal income

1Q 2023



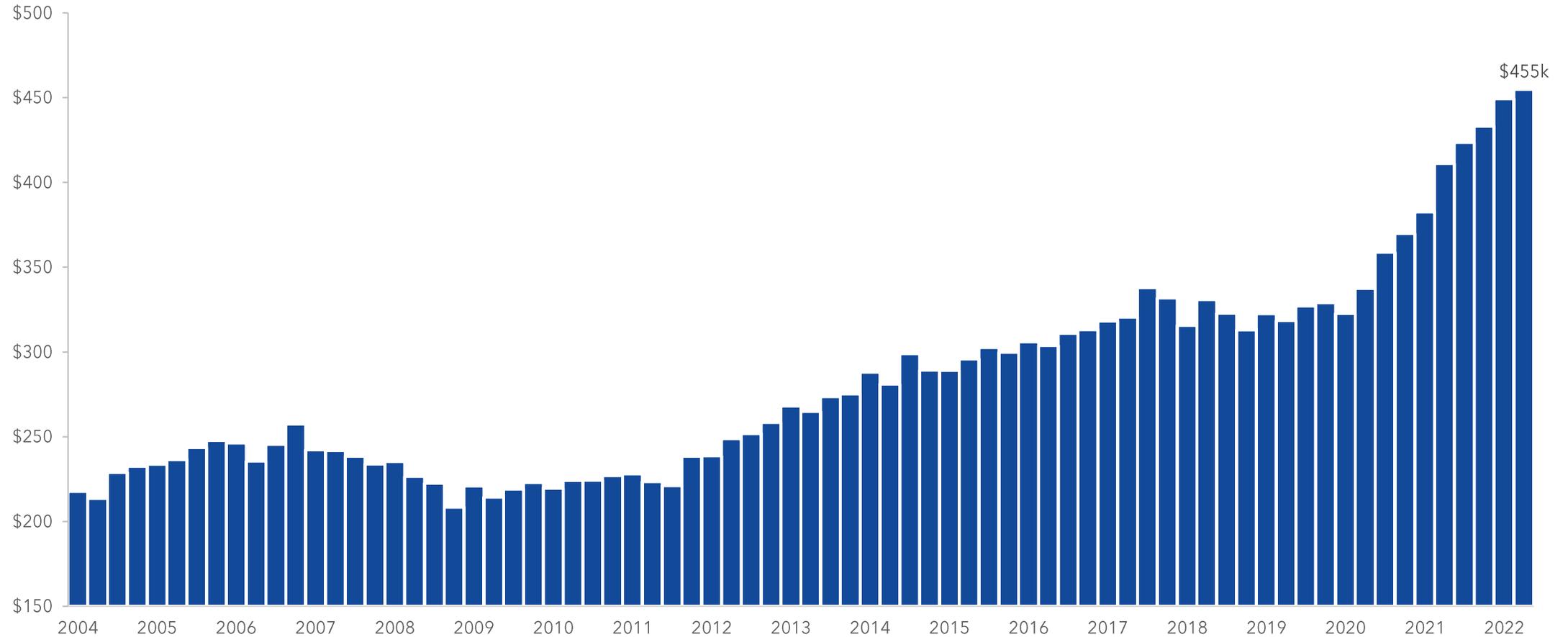
Disclosures: Data sourced from U.S. Bureau of Economic Analysis, U.S. Census Bureau, and the Federal Reserve.

Median Sales Price for Homes Sold in the U.S.

Median Sales Price for Homes Sold in the U.S.

USD in thousands, seasonally adjusted

1Q 2023



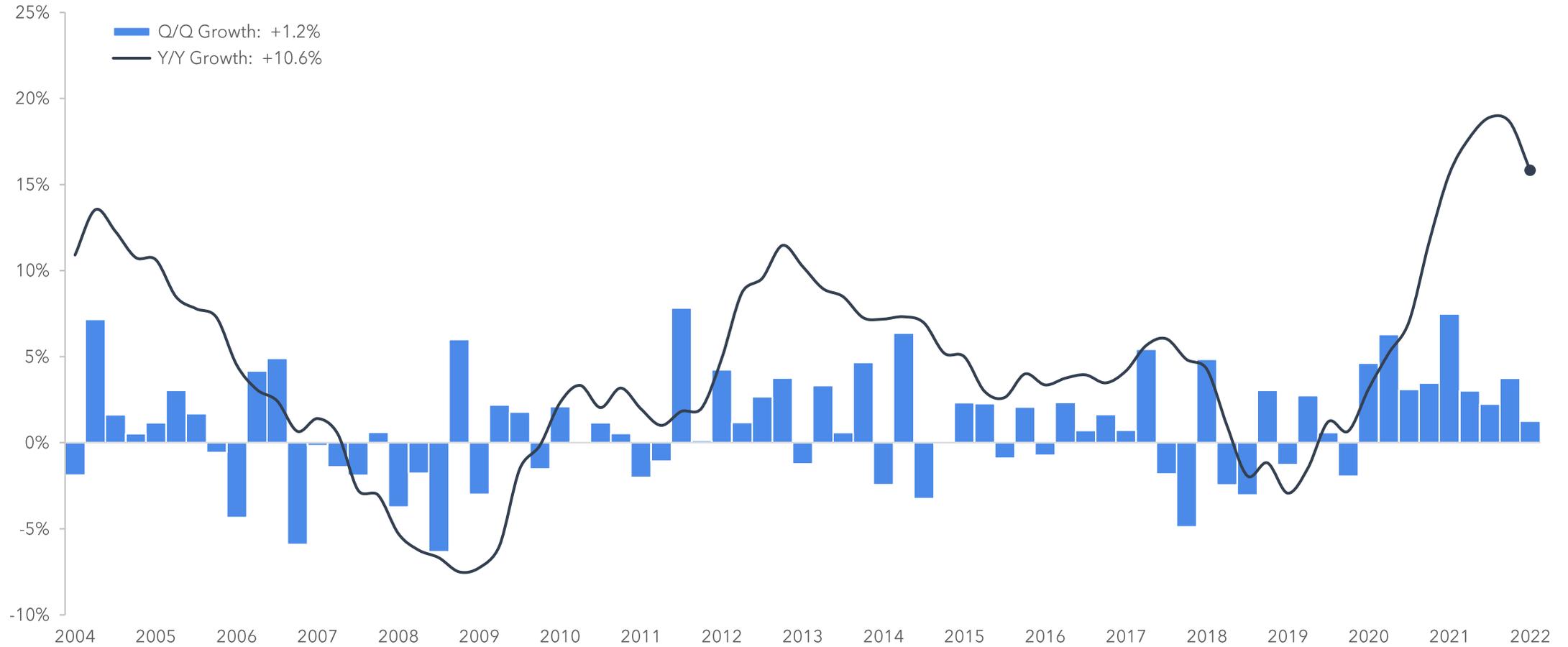
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U.S. Home Prices

Rolling Changes in U.S. Home Prices

Year over year growth rate is an average of the past 4 quarters

1Q 2023



Disclosures: Data sourced from National Association of Realtors and Federal Reserve.

U.S. Home Inventory

U.S. Home Inventory (in months)

Ratio of Houses for Sale to Houses Sold

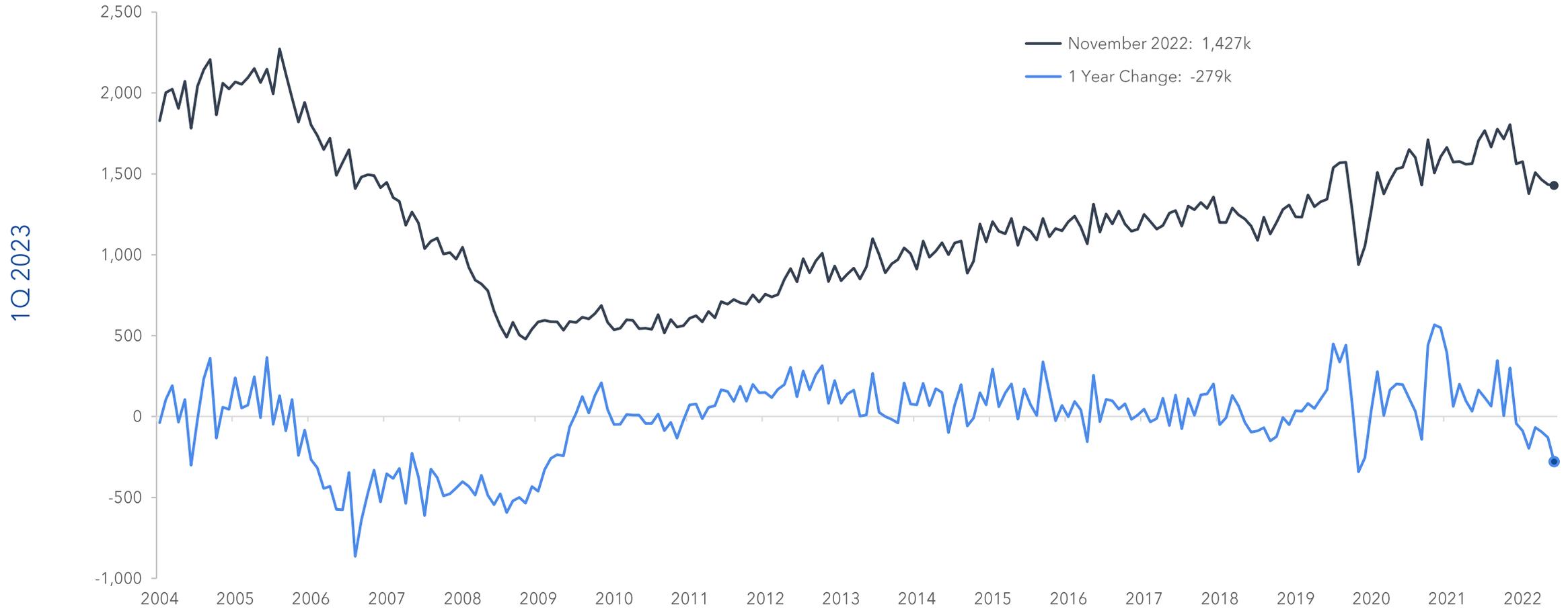


Disclosures: Data sourced from National Association of Realtors and Federal Reserve.

Housing Starts in 000s

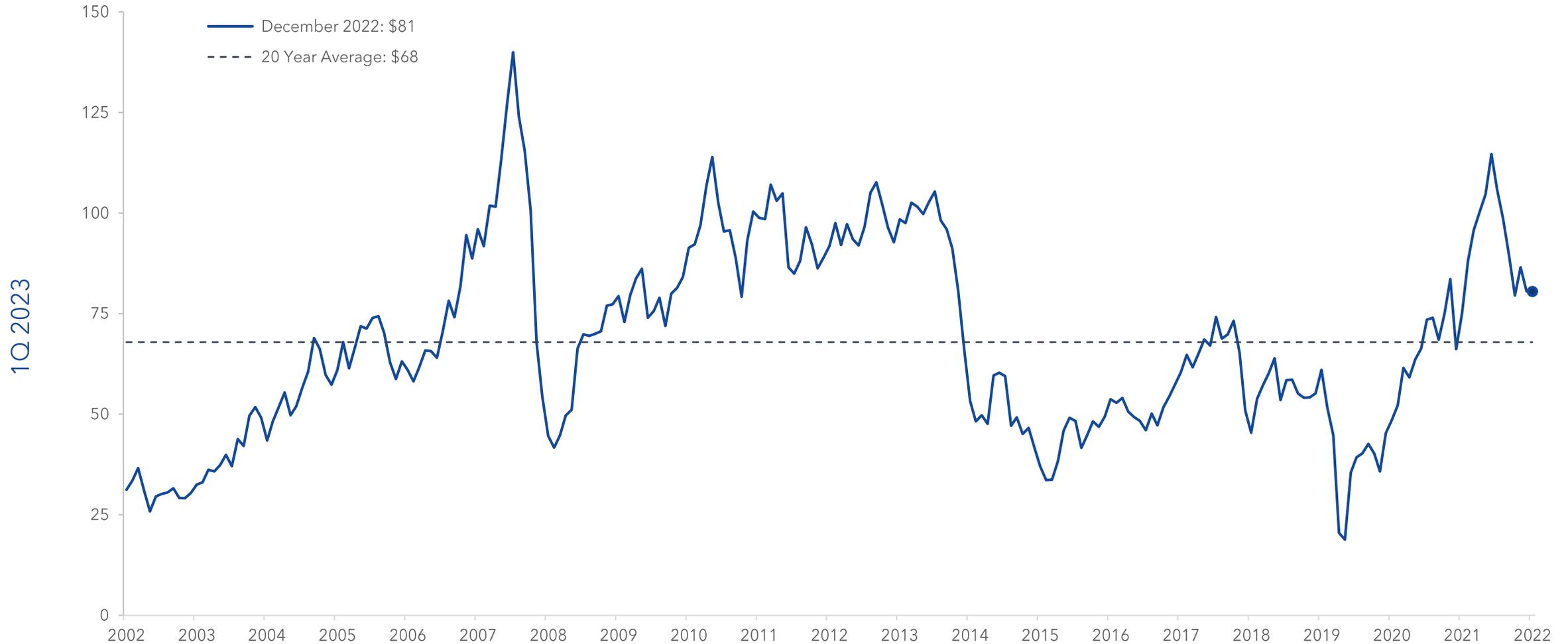
Housing Starts in 000s

Current level and year over year growth in housing starts



Disclosures: Data sourced from National Association of Realtors and Federal Reserve.

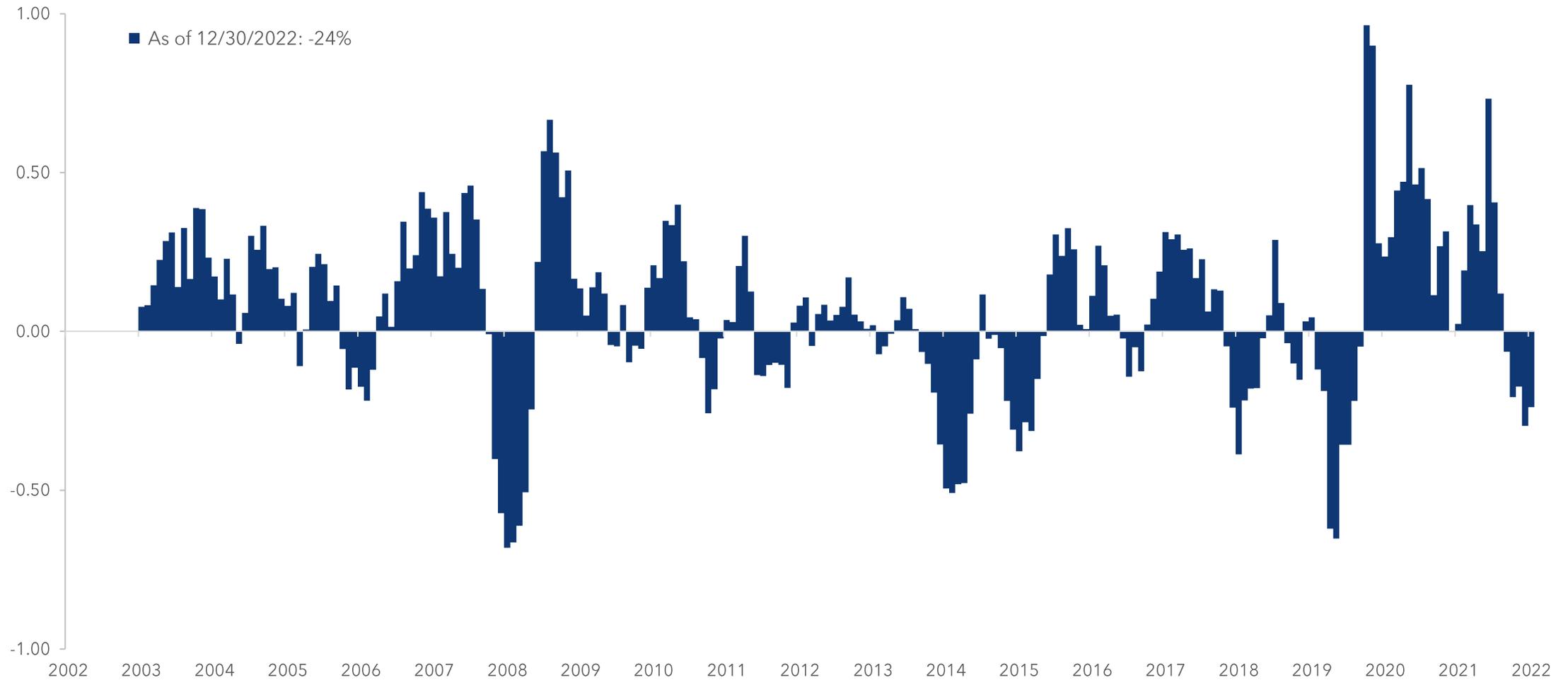
Price of WTI Crude Oil



Disclosures: Data sourced from the Energy Information Administration (EIA).

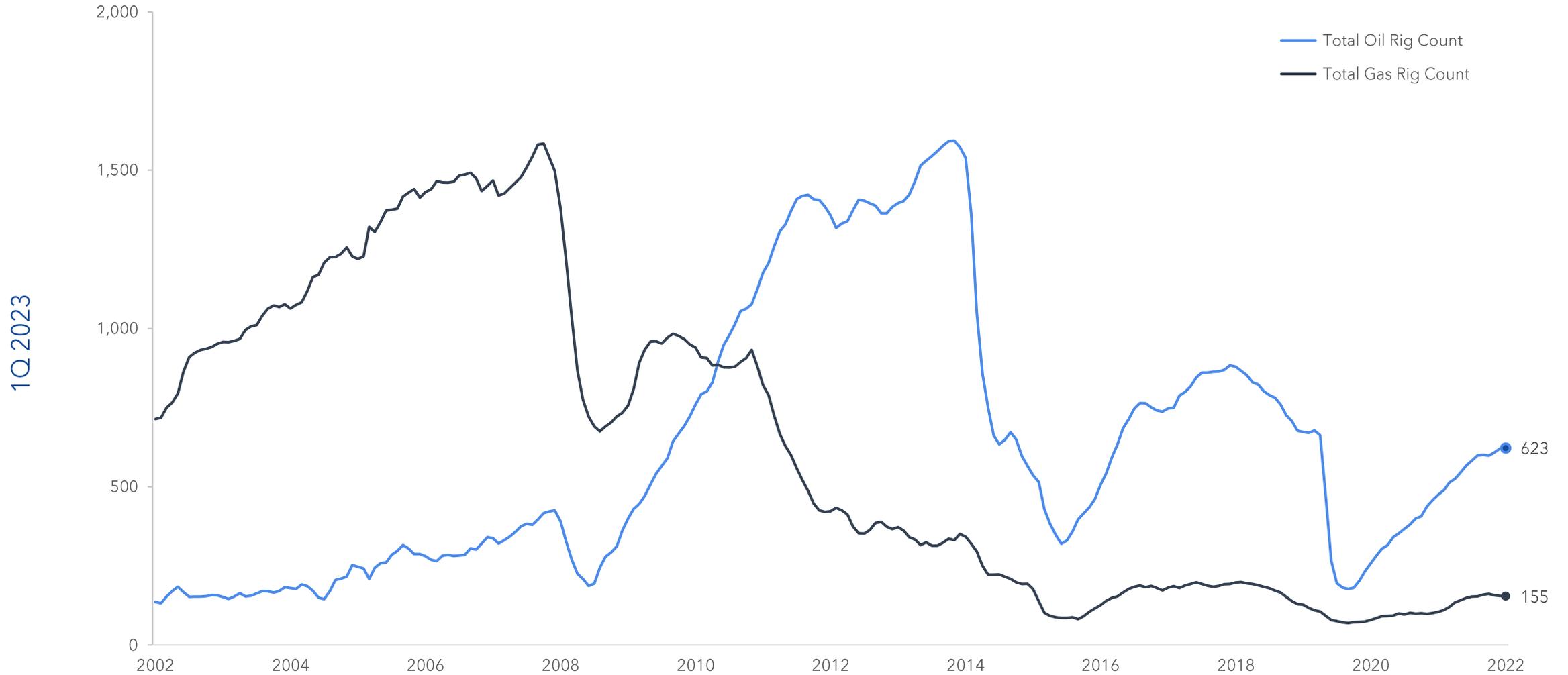
Rolling 6 Month Change in Oil Prices

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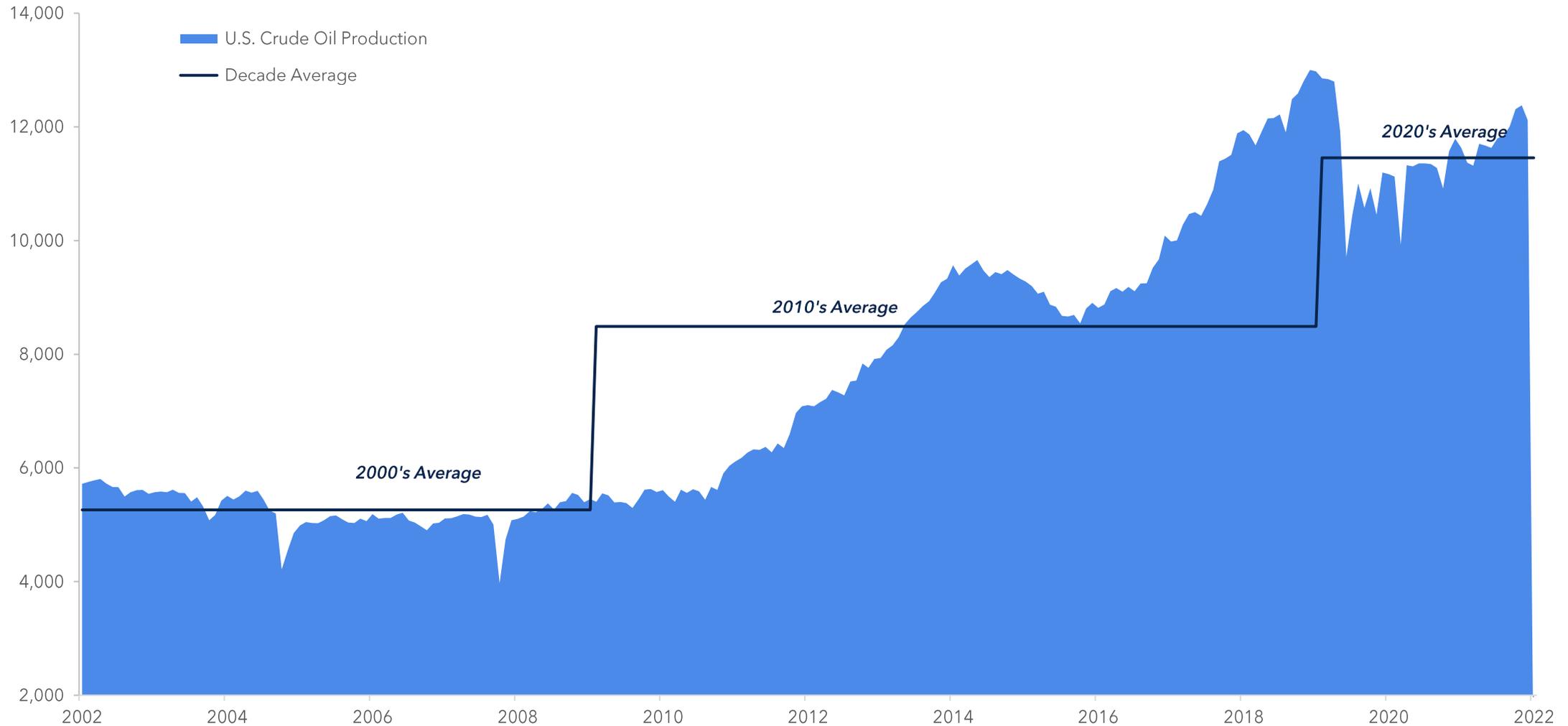
Total U.S. Rig Count



Disclosures: Data sourced from the Energy Information Administration (EIA).

U.S. Crude Oil Production (Barrels per day in 000s)

1Q 2023



Disclosures: Data sourced from the Energy Information Administration (EIA).



Thank You



ARROWROOT
Family Office