TXOGA's chartbook provides a vital reference for our members as well as those who are interested in understanding data which tell the story of what's happening with the economy, oil and gas markets at the global, U.S. and Texas levels

Key points for the week of July 3, 2023

▷ **Exceeding low economic expectations.** Concerns for economic weakness at home and abroad – especially in China – were counterbalanced by an upward-revised Q1 2023 U.S. GDP report issued the end of June

▷ **Oil market fundamentals have continued to tighten.** U.S. oil demand remained at the top of its five-year historical range, and official estimates call for record-high global demand in 2024. At the same time as OPEC+ has announced supply cuts, U.S. ending stocks of crude oil fell by 11.0 mb for the week ended June 23 and were down by 38.8 million barrels (4.6%) so far in Q2 2023 to their lowest for the month of June since 1986

▷ **Global and U.S. natural gas markets have benefitted from historically strong supply, inventories and trade, but seasonal variation drove U.S. prices at Henry Hub 22.7% higher in June.** The global natural gas outlook hinges on European demand given its seasonality and storage levels vis-à-vis China’s outlook and natural gas demand
A fact that may not be widely apparent – especially given the headlines about potential economic weaknesses and recession, high price inflation, and oil prices that have remained modest – is that U.S. oil demand has remained at the top of its five-year historical range, and global oil demand is projected by official estimates to reach a record high 102.7 million barrels per day (mb/d) in 2024, per the U.S. Energy Information Administration (EIA).

It is notable that this is the point in time when recessionary economic expectations were broadly expected to bite American consumers, and U.S. demand has remained solid by many indicators, including a rebound in consumer sentiment per the Univ. of Michigan’s survey.

These are signs of economic strength and resiliency, but also raise the question whether the U.S. Federal Reserve may continue to hike the Fed Funds rate further and longer if price inflation does not subside with their expectations.

The solidity of oil demand in the face of myriad economic challenges, however, reinforces that the linkage between oil demand growth and the economy has remained strong.

Consequently, these are two key charts that we keep current to monitor for consistency between them but also compare with our supply-side analysis, which will become a subject for the next chart of the week.

sources: EIA; Team analysis
As of mid-June, consumer sentiment rebounded to its strongest level in four months. The Univ. of Michigan survey of consumers has historically corresponded with the changes in U.S. consumer spending, which represents 68% of GDP. Sentiment has remained historically weak, but consumer spending has continued to grow slowly.

The large U.S. trade deficit has dragged on growth. The U.S. real trade deficit continued in Q1 2023 at an annualized rate of $1.24 trillion, which if sustained would represent the second largest annual deficit in 94 years on record.

Labor markets still solid. The employment situation is a lagging indicator of GDP growth. The U.S. unemployment rate rose to 3.7% in May per BLS, while non-farm payroll employment increased by 339,000, which is historically solid.

Interest rates have risen, but the premium for low credit quality returned to its 2018-2019 levels. High yield (HY) rates reflect debt costs for firms with below-investment grade credit quality. HY rates averaged 11.1% in 2018-2019 but 14.2% in the first half of June, 9.0% above the Fed Funds rate, which is a similar spread to 2018-2019.

Anemic conditions for growth. The ADS business conditions index, published by the Philadelphia Fed. Res. Bank, is a leading indicator of GDP growth. A quarterly average of the ADS index has improved from negative readings so far in 2023, which historically corresponds with slow but improved growth conditions.

Nonfarm payroll employment & unemployment rate

Fed Funds rate and CCC & lower corporate bond yields

Aruoba-Diebold-Scotti Business Conditions Index (qtr. avg.) vs. U.S. real GDP growth

Real net exports of goods and services

Industrial production and investment growth

sources: FRED; Univ. of Michigan; BEA; CME Group; Federal Res. Board; Philadelphia Fed. Res.; BLS
Global oil market balance at-a-glance

- Led by resurgent emerging markets, global oil demand is expected to reach a record 102.7 mb/d in 2024 per EIA.
- EIA’s oil production estimates of 1.5 mb/d in 2023 and 1.3 mb/d in 2024 are volumes needed to balance global markets in their view. U.S. assumed to be largest single contributor this year, but could be impeded by activity and productivity levels.
- Under these assumptions, EIA projects a balanced global oil market in Q3 2023 and Brent crude oil prices over $80 per barrel.
Mean reversion analysis can be useful in assessing short-term market actions. The historical mean reversion target has risen and lined up with futures prices as of late June. Futures prices remain slightly backwardated, and confidence intervals based on past prices show the potential for greater upside than downside.

WTI crude prompt month futures slow stochastic

Index level

For the week ended June 23, U.S. petroleum demand of 20.3 mb/d rose by 1.5% y/y and remained atop its five-year range.

Oil price momentum down-shifted through the last week of June with economic and monetary policy uncertainties being offset by an upward-revised Q1 2023 GDP report.

Net exports

Global demand for U.S. oil has remained solid. Petroleum net exports were 2.9 million barrels per day (mb/d) for the week ended June 23. In 2023 so far, there has only been one week (Feb. 3) with petroleum net imports, so 2023 has remained on track to set a U.S. exports' record.

U.S. ending stocks of crude oil (commercial & SPR)

Million barrels (mb)

Crude oil ending stocks fell by 11.0 mb for the week ended June 23 and were down by 38.8 mb (4.6%) so far in Q2 2023.
Natural gas prices rose to $2.67 per mmBtu for Aug. 2023 delivery and were aligned with their mean reversion target. Despite having risen by 22.7% in June, historical variation has continued to show more potential upside than downside. Futures prices as of June 30 are for $4.18 per mmBtu in Dec. 2023.

Although consumption through last winter was unseasonably low, natural gas consumption has recently topped its five-year range.

Natural gas prices at Henry Hub rose by 22.7% in June to $2.78 per mmBtu as of June 30.

Working gas in underground storage (2.6 tcf as of June 30) was at the top of its five-year range but showed minimal stock building over the past three weeks.
Lower prices have recently corresponded with less drilling activity in Texas, 306 oil-directed rigs and 39 gas-directed rigs as of June 23.

Following record high 5.86 mb/d of Texas crude oil production in Jan, production apparently slipped to 5.40 mb/d in March per EIA. Based on weekly Texas drilling activity and U.S. production, TXOGA estimates that Texas crude oil production has remained at 5.4 mb/d in June.

As of June 2023, Texas has driven 75% of U.S. crude oil production so far this year and accounted for an increased share of total U.S. oil production.

EIA’s drilling productivity report estimates that production across Texas shale basins -- Eagle Ford and parts of the Permian, Hayessville, and Anadarko -- have set a record high in Q2 2023.

EIA-estimated rig productivity decreased by about 5% y/y in May 2023 across oil-producing basins but remained 17% higher than it was in Dec. 2019.
Texas’ oil and natural gas industry employment and wages have risen solidly.

Texas Oil & Gas Industry Employment Rose by +8.3% y/y

- Oil & gas extraction: 440,738 jobs in Q4 2021 vs. 477,327 jobs in Q4 2022
- Support activities for oil & gas ops.: 33,479 jobs in Q4 2021 vs. 36,538 jobs in Q4 2022
- Gas stations & fuel dealers: 37,013 jobs in Q4 2021 vs. 38,727 jobs in Q4 2022
- Petroleum refiners: 46,324 jobs in Q4 2021 vs. 48,801 jobs in Q4 2022
- Petrochemical mfg.: 7,374 jobs in Q4 2021 vs. 7,604 jobs in Q4 2022
- Pipeline construction: 27,638 jobs in Q4 2021 vs. 30,373 jobs in Q4 2022
- All other*: 15,511 jobs in Q4 2021 vs. 17,308 jobs in Q4 2022

Texas Oil & Gas Industry Wages Rose by +11.0% y/y

- Oil & gas extraction: $12.4 B in Q4 2021 vs. $13.8 B in Q4 2022
- Support activities for oil & gas ops.: $1.9 B in Q4 2021 vs. $2.1 B in Q4 2022
- Gas stations & fuel dealers: $0.4 B in Q4 2021 vs. $0.5 B in Q4 2022
- Petroleum refineries: $1.7 B in Q4 2021 vs. $2.0 B in Q4 2022
- Petrochemical mfg.: $0.4 B in Q4 2021 vs. $0.5 B in Q4 2022
- Pipeline construction: $0.9 B in Q4 2021 vs. $1.0 B in Q4 2022
- All other*: $0.6 B in Q4 2021 vs. $0.8 B in Q4 2022

* Other industry segments include petroleum and pet. product wholesalers, fuel dealers, lubricant mfg., asphalt mfg., industrial sand mining, nitrogenous fertilizer mfg., basic organic chem. mfg., plastics and resin mfg.

Sources: BEA; BLS
Texas’ energy consumption hinges on oil and natural gas

- **Oil & Gas Are Essential to Texas.** Since 2018, oil & natural gas supplied over 80% of the energy that powers Texas’ economy and enables Texans’ lives.
- **Texas Is The Heart of American Industry.** Nearly half of the primary energy consumed in Texas serves its industrial sector, which requires more than four times as much energy as California’s industrial sector.
- **The Largest Electricity Generating State.** Texas generates the most electricity of any U.S. state – and more than twice as much as Florida.

**Texas oil and natural gas consumption vs. GDP, 2010-2023e**

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Texas’ energy needs have continued to grow with its economy. Since 2010, Texans have increased their consumption of petroleum and natural gas each by about 30%, supporting consumers, industry including electricity generation, and transportation.

Although Texas’ economy and petroleum consumption decreased during the 2020 pandemic, the state’s natural gas consumption rose and offset 90% of the decrease, which underscores the essentiality of oil and natural gas to the state’s economy.

The Texas State Comptroller estimates GDP growth of 1.4% in 2023, which could correspond with record-high state consumption of oil and natural gas in 2023.

Sources: EIA; BEA; LLNL