



How to View US Oil Inventories Post Builds

US oil inventories provide fundamental insight. Comparing stocks against the five-year average was part of the analysis, but historic builds have distorted that figure for the time being. This paper discusses an alternative approach.

Oil prices have recovered from the crash triggered by the unprecedented build in US crude inventories (2014-16) as stocks have begun to normalize. But the legacy of this period lives on. Those

massive builds have skewed the historical average of weekly inventory changes frequently used for analysis purposes.

Comparing stocks against the five-year average was a popular method, but can no longer be seen as a reliable guide for the foreseeable future.

US oil inventory data remains critical to informing the market about fundamentals. What should be the basis for measuring stocks? Looking at stock

movements in absolute terms over the short run isn't very meaningful because of seasonality. Crude inventories usually rise and fall at certain times of year thanks to refinery schedules. Planned maintenance typically lasts between September-October and January-March, reducing crude demand and causing stock builds. Refiners push hardest from spring to early summer which leads to stock draws. Seasonality can be seen by plotting weekly inventory changes from 1984-2018 (Figure 1).

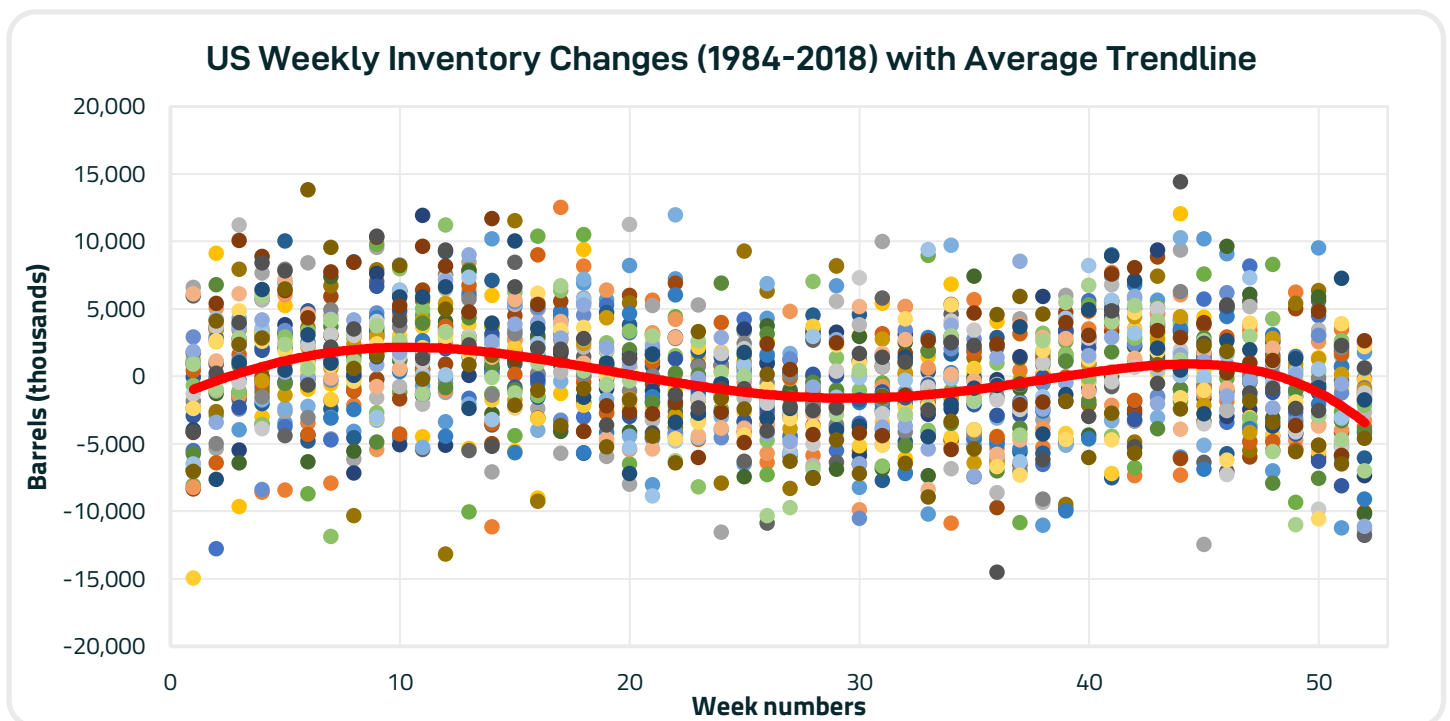


Figure 1 (Source: Energy Information Administration)

The red line in Figure 1 shows the average movements for each week during the year. By using a metric that accounts for this seasonality you can answer the more pertinent question: how are inventories moving relative to normal levels for the same time of year? The five-year average served as such a

metric and was appropriate until 2015 when rising US shale oil production led to persistent builds (Figure 2). US crude inventories peaked at 535 million barrels in March 2017. Before 2015, the highest stocks had ever been was 372 million barrels in July 1990.

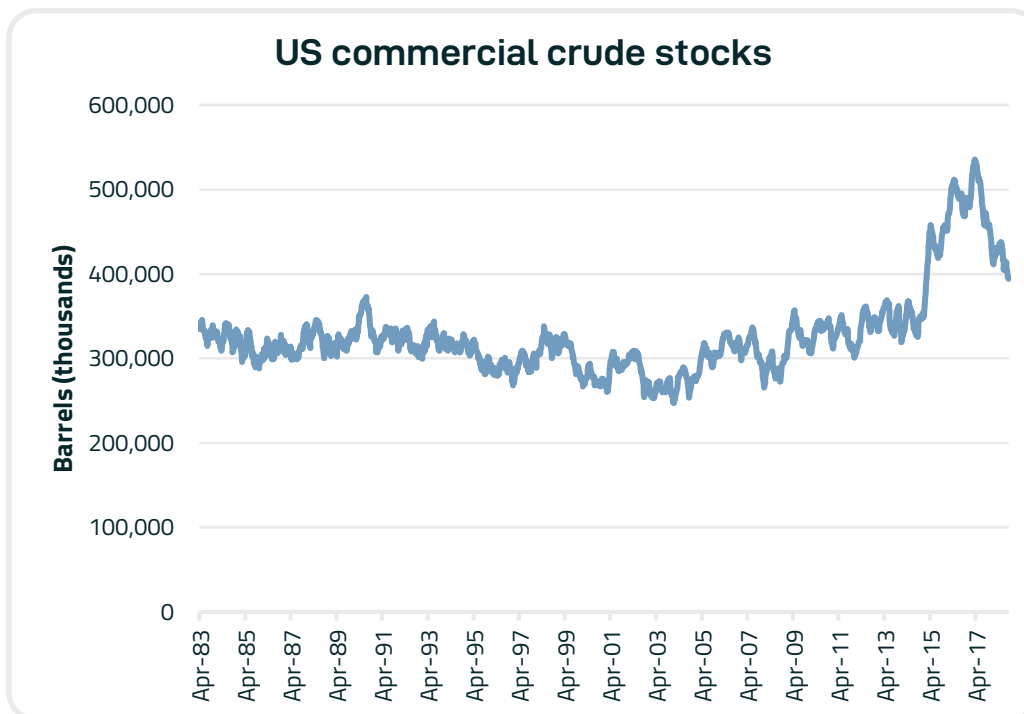


Figure 2 (Source: EIA)

The magnitude of builds was so unheard of the comparison with the five-year average was rendered meaningless. The bigger question was *how much further* stocks would rise. Yet the groundwork was already laid for inventories to come down. The historic agreement between OPEC and non-OPEC members to reduce production by 1.8 million barrels per day starting January 2017 removed a significant amount of supply from the global market. This created an imbalance between the US and the rest of the world. Global benchmarks eventually adjusted creating an incentive for US exports, putting

downward pressure on inventories. With the cuts proving effective, the onus was placed back on OPEC to explain its next steps. How much longer will production cuts remain in place? Asked about the objective, Saudi Arabia oil minister Khalid al Falih said in May 2017 there was still unfinished business. The OPEC + coalition now wanted to lower global inventories to the five-year average, he said. US inventories were around 510 million barrels at the time, a surplus of 104 million barrels to the average from 2012-16 for the same time of year. Al Falih pledged Saudi Arabia would slash crude exports to US refiners. That began to happen a few months later accelerating the drawdown in stocks. US crude inventories kept falling (Figure 3). By March 2018, the surplus to the five-year average was eliminated.

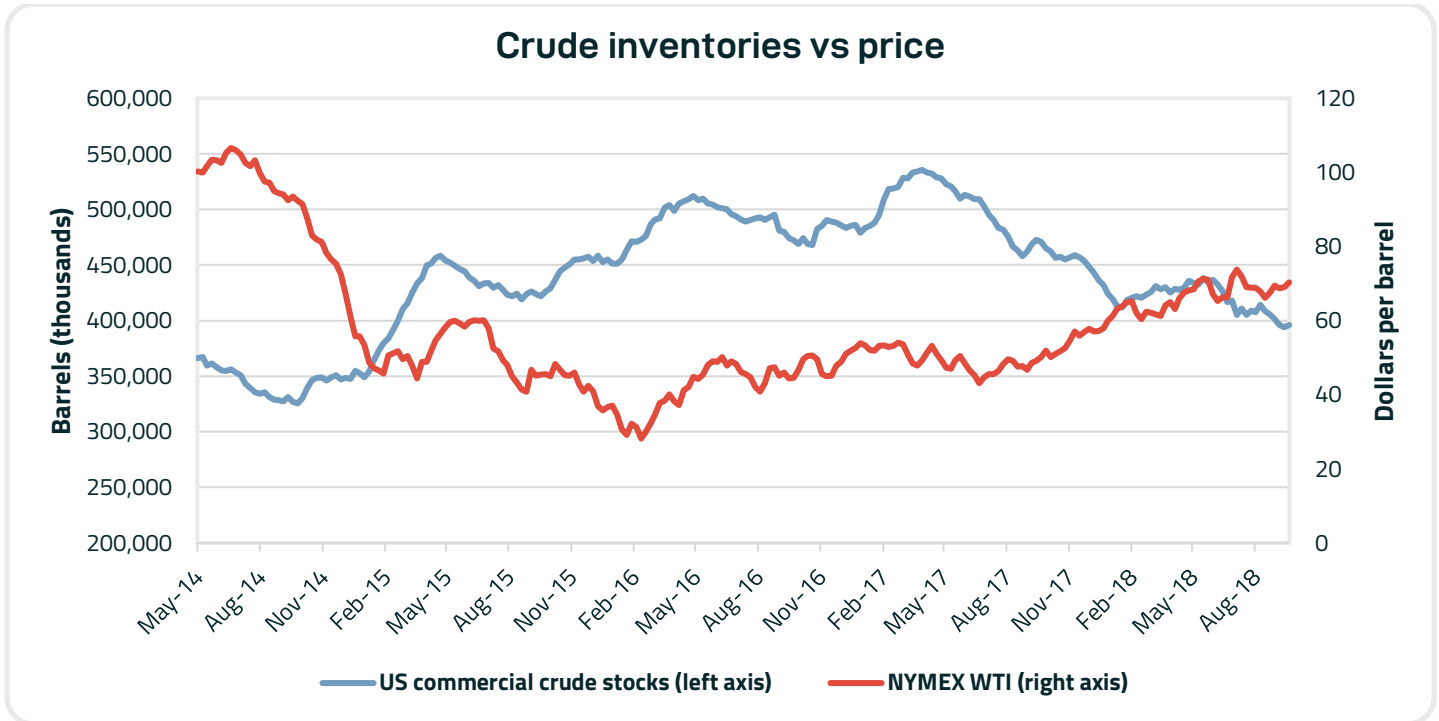


Figure 3 (Source: EIA)

Even after erasing the surplus, the OPEC-led coalition has kept the cuts in place. Al Falih reframed the issue by arguing the cuts were necessary to ensure adequate capital investment. Moving the goalposts as such lent an air of insincerity. The more probable target was an oil price high enough to please officials back home but not too high to anger customers. Whatever the objective, the political will to alter course hasn't materialized. The status quo has contributed to falling US crude inventories. Stocks fell below 400 million barrels September 2018 for the first time since February 2015. Stocks have returned to more familiar territory removing the focus on absolute levels. The market is once again interested in

comparing weekly stock movements against "normal" levels. However, the builds from 2014-16 were so large that the five-year average has become a proxy for an oversupplied market. The five-year average for 2013-17 shows a net increase of 19.2 million barrels. The ideal benchmark would represent weekly inventory changes that when summed over a year is approximately zero. Total builds and total draws cancel out leaving stocks unchanged. In other words, the market can be said to be balanced. How can this benchmark be derived? One option is by using historical data from 1984-2013 which excludes the extreme volatility of 2014-17 and allows for a better model (Figure 4).

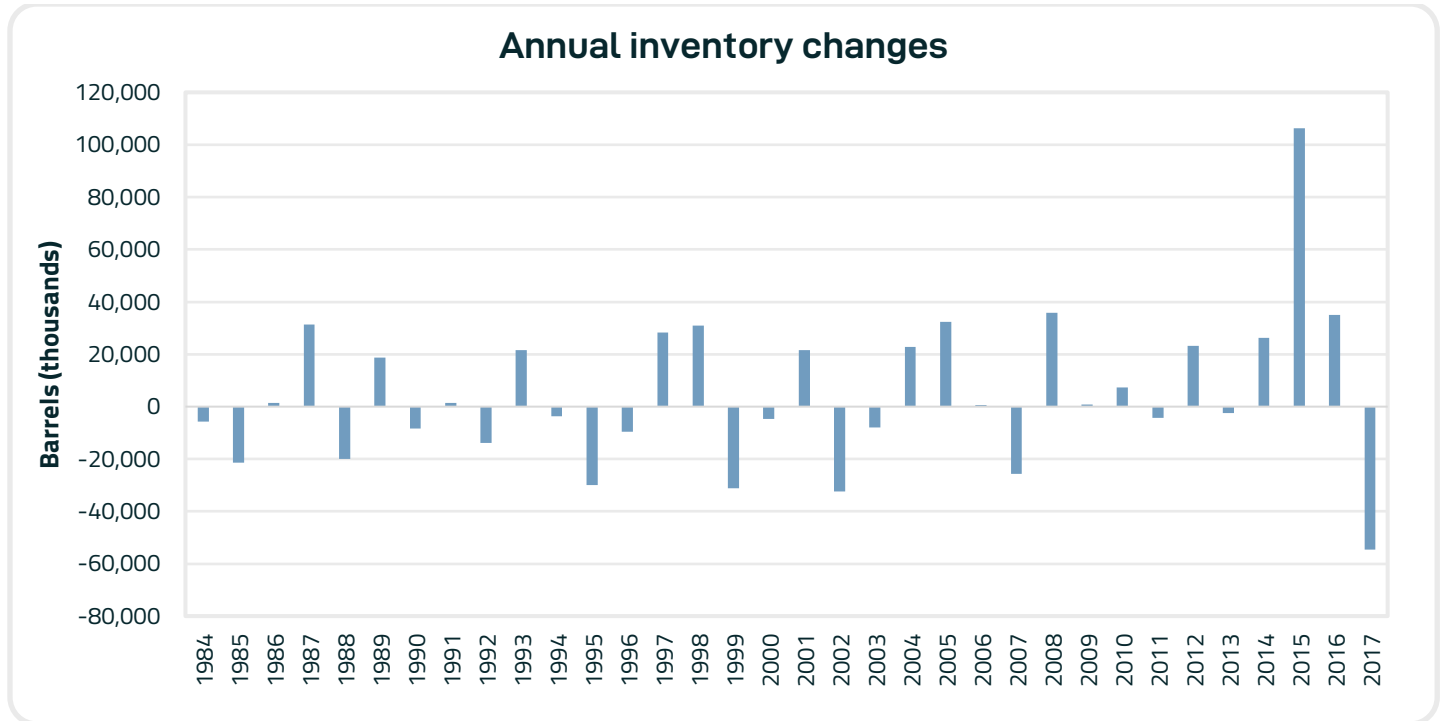


Figure 4 (Source: EIA)

Calculating the average weekly inventory changes (1984-2013) results in a line that still resembles seasonal trends. Moreover, the accumulative builds and draws are close to zero (Figure 5). The implication for stock changes that are consistently above this benchmark would be that the market

is oversupplied, and vice versa. Oil prices should respond though the extent could depend upon other factors. The price impact will be probably be larger in instances where inventory moves were directionally inconsistent with seasonal norms.

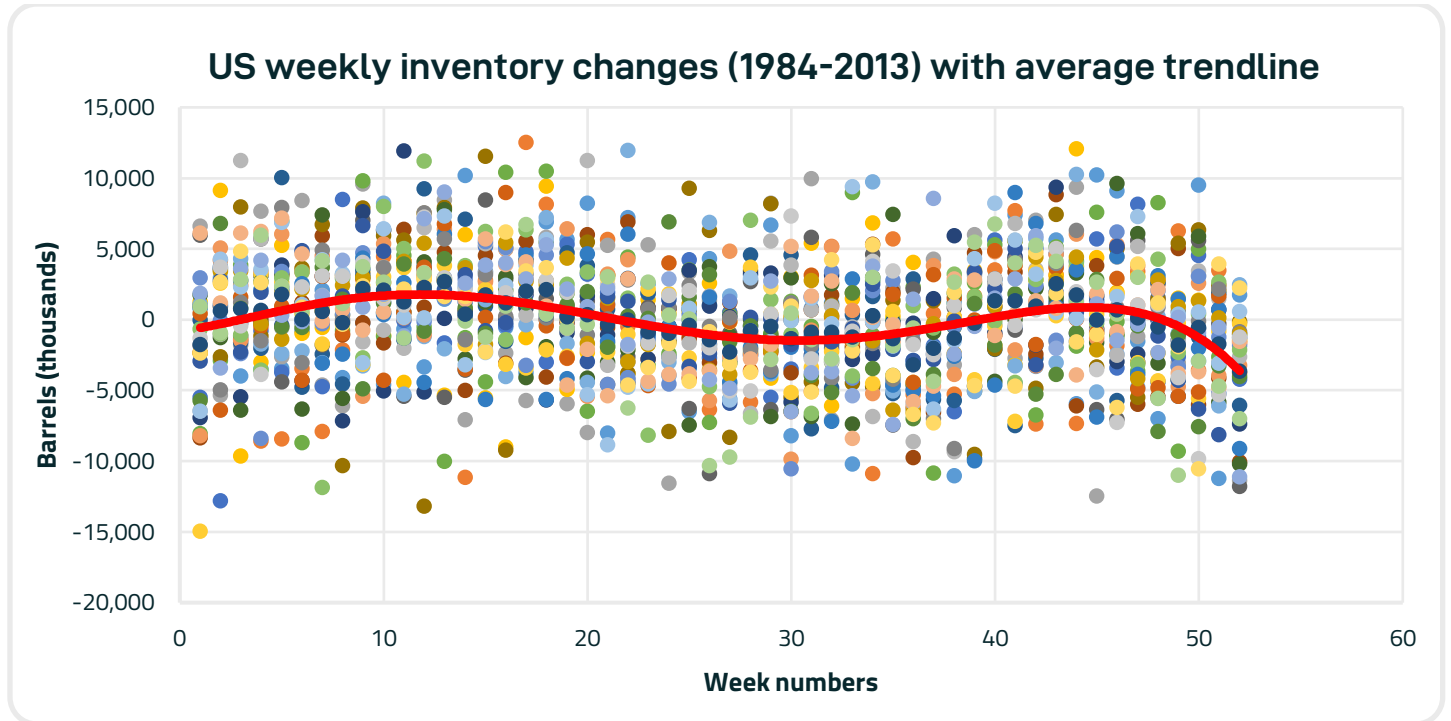


Figure 5 (Source: EIA)

For example, stocks typically draw during the spring/early summer. That means builds – regardless of the size – typically catch traders by surprise, all else being equal. In the same example, inventory draws would be noteworthy only if they are particularly large. We can draw bands above and below the benchmark that capture this logic. When the trendline is

positive (i.e. showing builds) the upper bound is 0.5 standard deviations higher, whereas the lower bound is the horizontal axis, and vice versa (Figure 6). Inventory changes that fall within the shaded area could be viewed as “close enough” to the benchmark while those outside the bands are more exceptional.

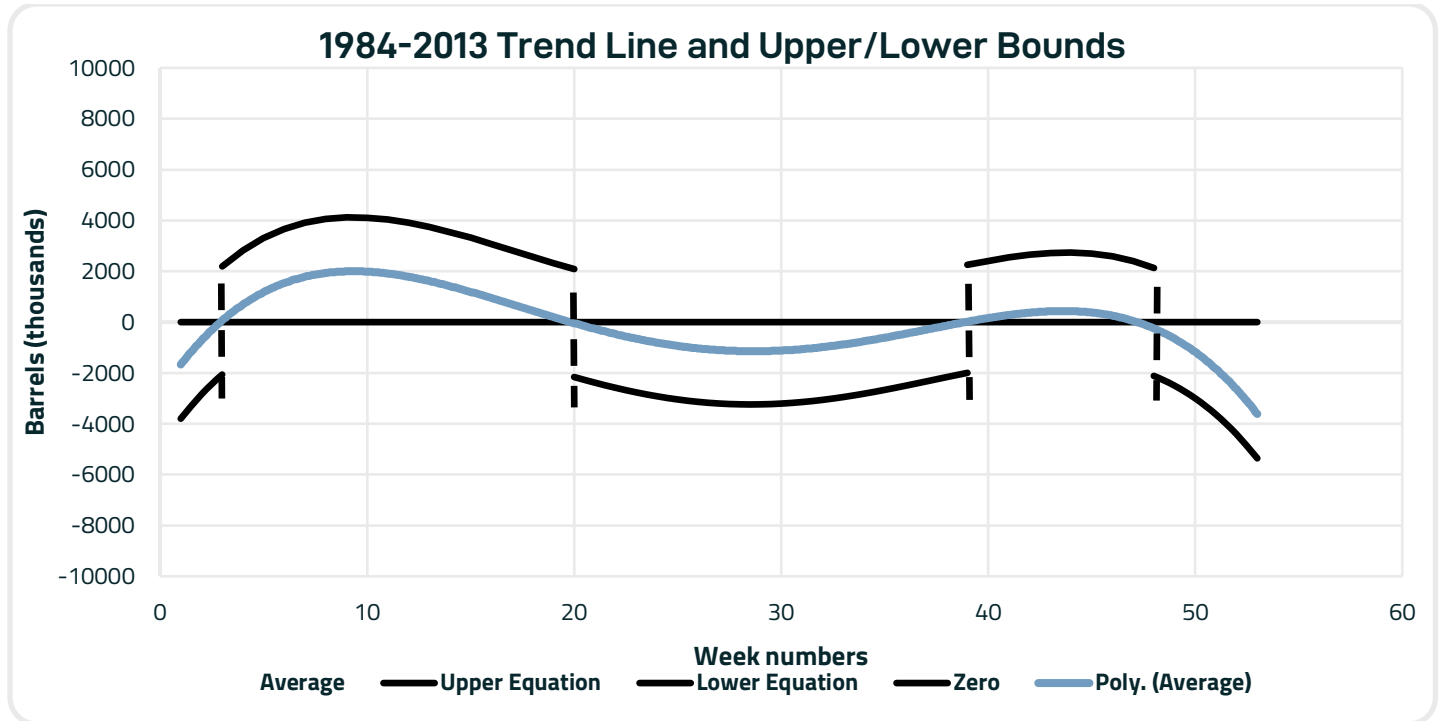


Figure 6 (Source: EIA)

"One week doesn't make a trend," the saying goes. Enough time needs to elapse with data pointing in the same direction to establish a pattern. During the inventory builds of 2014-16, the pattern of oversupply was obvious. In 2015, weekly inventory changes exceeded this benchmark's upper bounds 32 times, the most of any year going back to 1984. Market conditions have since changed, reducing the likelihood of persistent builds. Even though US production keeps climbing,

more pipelines are coming online to move supply out of shale basins to newly constructed export terminals on the US Gulf Coast. Inventory data has been demonstrating a pattern of draws from January-September 2018, which has helped drive oil prices to four-year highs. There have been 19 weeks below the lower bounds, 12 weeks above the upper bounds and eight weeks in the shaded area. Traders seem convinced inventory data is signaling an undersupplied market.