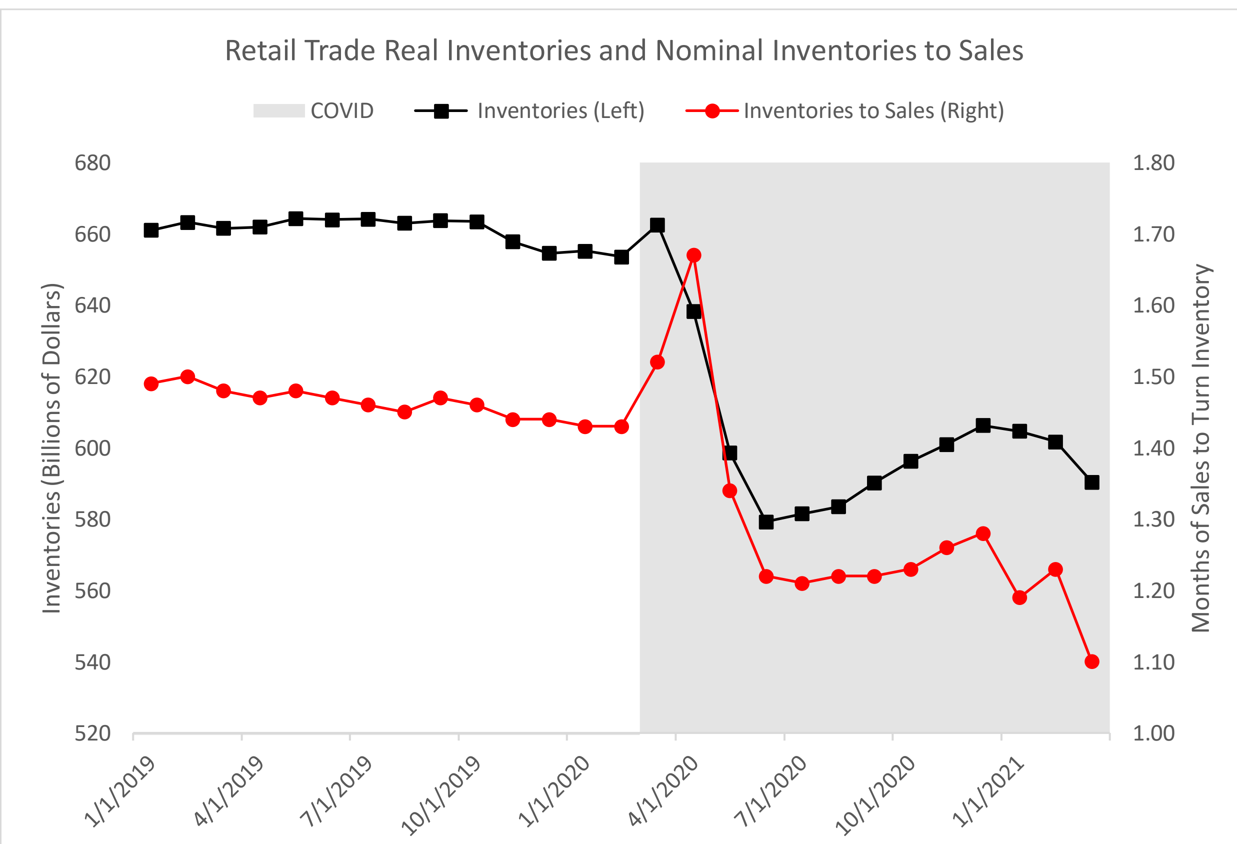
**Retail Inventories at the End of March 2021**

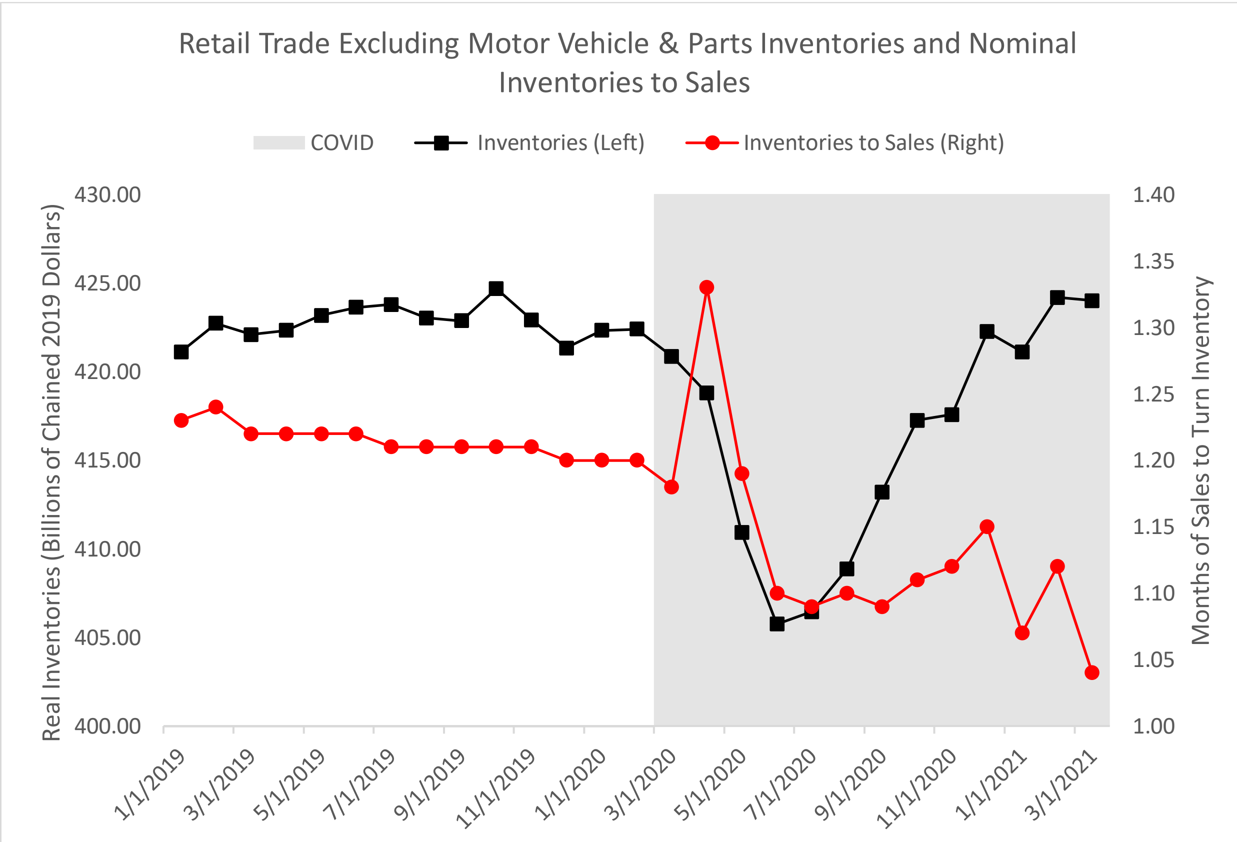
The Census Bureau's release of the Monthly Retail Trade Report for March 2021 provides more detail regarding the current inventory situation in the retail trade sector. Retail inventories have come into focus throughout the COVID-19 pandemic due to robust consumer spending. A few things to keep in mind when interpreting the numbers:

First off, ignore the inventory figures for the entire retail trade sector. Most analysts quote the headline seasonally adjusted retail trade inventories figure and the seasonally adjusted inventories to sales figure. The problem with interpreting this figure is that the Motor Vehicle & Parts Dealers subsector (NAICS 441) has an outsized role in shaping industry-level inventory figures. Using the nominal seasonally adjusted inventories data, Motor Vehicle & Parts Dealers' inventories composed 36% of all retail trade inventories in 2019. This poses a major problem because Motor Vehicle & Parts Dealers' inventories are down tremendously at present due to strong consumer spending on trucks and SUVs coupled with motor vehicle production being curtailed by the shortage of semiconductors (see https://fred.stlouisfed.org/series/IPG33611S for production data).

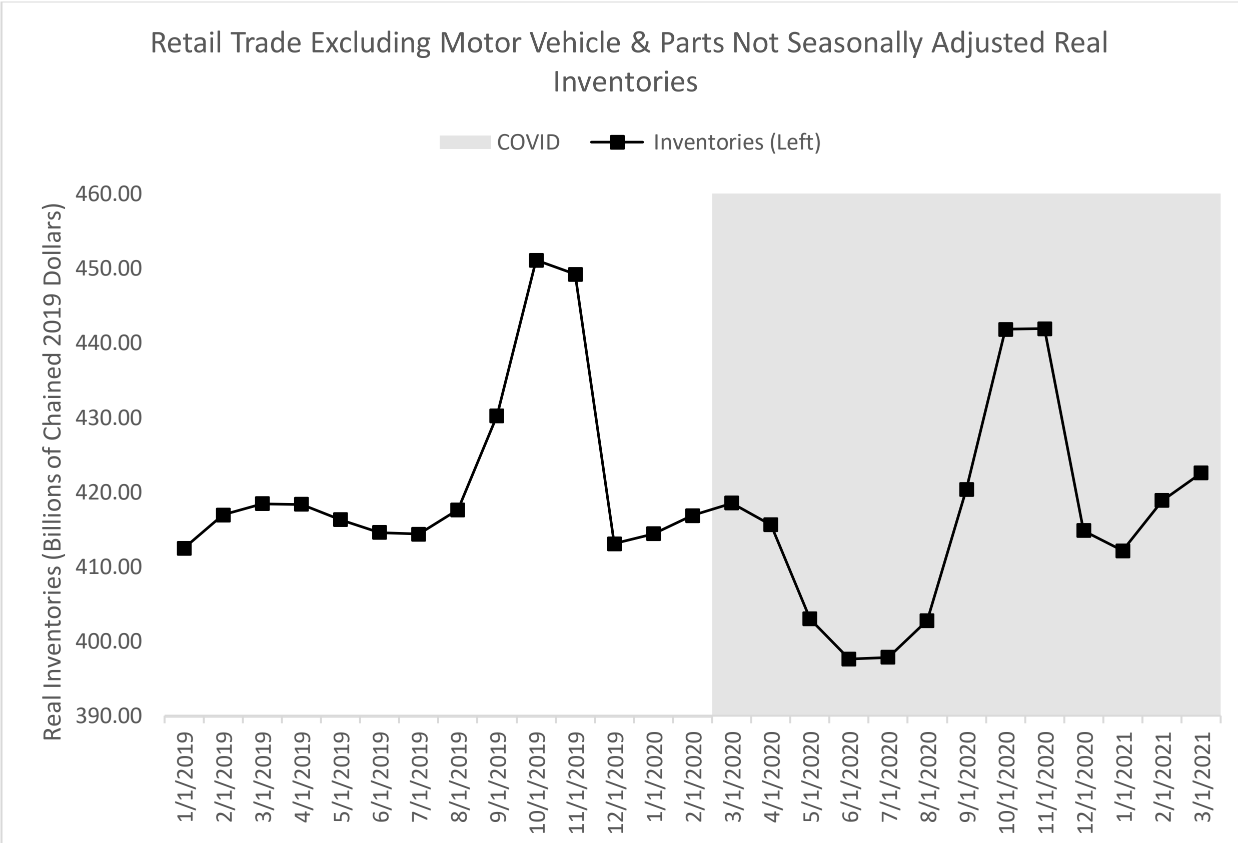
To illustrate, below I've plotted real retail trade inventories—calculated by deriving implicit price deflators from the Bureau of Economic Analyses current and constant value inventories data—and nominal inventories to sales [since retailers like to maintain a target gross margin percentage, they try to increase retail prices by the same proportion as their product acquisition costs increase].



Looking at this figure, it is clear that real inventories have declined tremendously from pre-COVID levels. However, when the Motor Vehicle & Parts Dealer sector is removed, the conclusion changes: inventories are back at pre-COVID levels, but inventories to sales are still down substantially due to strong consumer spending.




This raises the question: how much inventories do retailers need to add? For this analysis, I will exclude Motor Vehicle & Parts Dealers. To arrive at this figure, I assume that retailers want to bring their inventories to sales back to the long-term average, which as ~1.217 for 2019 (as of March 2021 the figure was 1.04, and the figure as has averaged just 1.099 for July 2020 – March 2021). Working on nominal terms for simplicity and assuming the seasonally adjusted average sales for July 2020 – March 2021 continue through the rest of 2021, retailers would need to build inventory levels to 467.72 billion dollars on a seasonally adjusted basis. As of the end of March 2021, retailers' nominal seasonally adjusted inventories were 437.10 billion dollars, implying the need to add 30.62 billion dollars of inventory on a seasonally adjusted basis. However, that figure belies that retailers need to build up their inventory levels by October to be prepared for peak holiday shopping. This can be seen in the figure below where I've plotted not seasonally adjusted real inventories.




To calculate the amount of inventory build necessary to bring the 2021 inventories-to-sales ratio to the 2019 average by the October peak, I first calculated a seasonal factor for each month of 2019. October levels are 7.05% above the yearly average. I then multiplied the seasonally adjusted target inventory of 467.72 billion dollars by 1.0705 to arrive at a not seasonally adjusted target of 500.69 billion. Calculating the difference between the not seasonally adjusted March 2021 inventory level of 435.58 billion and this target suggests an inventory build of 65.11 billion dollars is necessary for retailers to enter the 2021 holiday season in the same condition that they were in 2019.

How does this compare to prior times? Using 2019 as a benchmark, retailers increased inventories by 35.12 billion between March 2019 and October 2019. This implies that the necessary inventory build in 2021 is 29.98 billion dollars greater than in 2019, or 85.4% more. Even if we trim a few dollars off of this figure to account for inflation, this is still an incredible figure.

Implication: there will be tremendous demand for inventory replenishment over the coming months through October. Carriers should plan accordingly.