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US Economic Viewpoint

Inventories have normalized, but there is room for upside

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The inventory surge in 2H23

Inventories surprised to the upside again with another extremely strong print of $84.1bn in 4Q after $78.5bn in 3Q. It contributed 1.3pp to the surprisingly robust 4.9% annualized quarterly growth rate in 3Q and a modest 0.1pp to the strong 3.3% growth print in 4Q. While the contribution of inventories to growth was modest in 4Q, it went against expectations for a drag on growth.

Looking into the details, all the four main sources for the BEA's (Bureau of Economic Analysis) estimate of inventory accumulation made positive contributions in the fourth quarter, including manufacturing, retail trade, wholesale and "others". While the biggest contributor continued to be retail inventories, this was the first increase for wholesale inventories in 2023. This has raised some questions on the direction in which inventory accumulation is headed.

The ups and downs of inventory accumulation

The initial phase of the pandemic was characterized by a dramatic shift in relative demand toward goods, along with pandemic-related constraints on supply chains and large-scale layoffs (many of which took place in services-providing sectors). Hence inventory destocking through the early stages of the pandemic – where household demand for goods met supply chain constraints – was sizeable. This was followed by a period of inventory rebuilding when the economy re-opened and spending rotated towards services. Thereafter, with manufacturing in the doldrums, inventory accumulation slowed. Then came the sudden inventory build in 2H23. The effects of the pandemic continue to leave an imprint on inventory behavior.

Inventories have largely normalized

To evaluate inventories, we look at where inventories "should be" based on final sales. We find that the rebound in inventories in 2H23 puts their accumulation broadly in line with its long run relationship with final sales, although still slightly below it. Inventory-to-sales ratios tell a similar story. The exception is autos, where inventories have plenty of room to recover to pre-pandemic norms. That said, we think the industry prefers to carry less inventory than before and we have not penciled in a full recovery in auto inventories as a result.

Is this surge in inventories likely to continue?

The increase in inventories over the last two quarters has led some to conclude that the US may be on the verge of another restocking cycle. We take a different view. We think we are likely observing normalization following the shift in relative demand caused by the pandemic. Notwithstanding this view, ongoing strength of the US consumer, the rebalancing of spending shares, room for auto inventories to grow further, and uncertainty from Red Sea conflict could support further inventory accumulation.

Latest data: divergence between hard and soft data

Recent monthly data show a divergence between soft data, pointing to some bottoming in manufacturing and hard data, suggesting some weakness. Overall, we think business investment is likely to level off going forward in the higher for longer rate environment.

Refer to important disclosures on page 7 to 8.
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Inventories as a signal for capex: since when?

We do not normally spend much time thinking about inventory accumulation when discussing the outlook for capital expenditures since the former is usually driven by short-term fluctuations in activity and latter is associated with long-term decisions about the acquisition or upgrading of property, plant, and equipment by firms. Capital expenditures largely fall under equipment and structures spending in the National Income and Product Accounts, with these two components making up about 70% of total fixed investment. The remainder is comprised of spending on intellectual property products and residential fixed investment spending.

That being said, there is some evidence that periods of strong growth rates in structures and equipment spending coincide with persistent inventory accumulation. This relationship could be driven by demand factors, whereby firms need more property, plant, and equipment to meet growing demand. In turn, this brings greater inventory accumulation. However, it may also be supply driven, whereby the experience during the pandemic and broader de-globalization trends could be incentivizing additional capital spending and higher-than-normal inventory-to-sales ratios as firms seek redundancies and protection against supply chain disruptions.

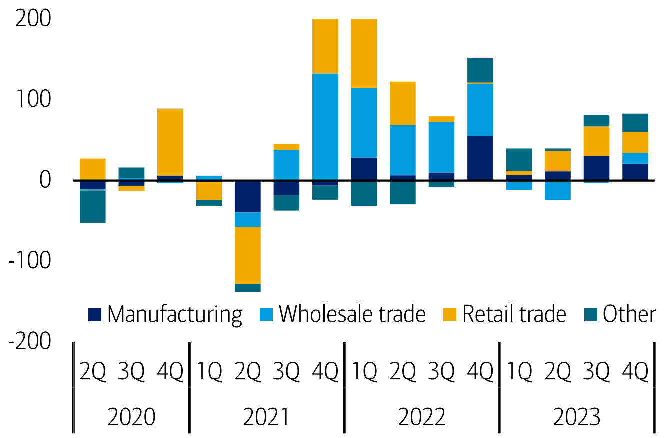
Either way, we think it is worth paying some attention to inventory accumulation and what, if anything, it says about the outlook for the economy and capital expenditures. In doing so, we find that inventories have largely normalized in the wake of the global pandemic: they appear in line with long-run growth in final sales. Prior over-shoots and under-shoots driven by the shift in relative demand during the pandemic have run their course. The exception is autos, where inventory-to-sales ratios continue to fall well below pre-pandemic norms. While this suggests there could be some further inventory accumulation at hand, we also think some of the behavior represents a structural shift by the sector to carry less inventory.

Inventory accumulation has largely normalized

The pandemic and its aftershocks, in our view, continue to influence inventory behavior. This includes the 2H23, when inventory accumulation surprised to the upside again and posted another strong print of $84.1bn in 4Q after $78.5bn in 3Q. It contributed 1.3pp to the surprisingly robust 4.9% annualized quarterly growth rate in 3Q and a modest 0.1pp to the strong 3.3% growth print in 4Q. While the contribution of inventories to growth was modest in 4Q, it went against expectations for a drag on growth.

Looking into the details, all the four main sources for the BEA's estimate of inventory accumulation made positive contributions in the fourth quarter (Exhibit 1), including manufacturing, retail trade, wholesale and "others". While the biggest contributor continued to be retail inventories, this was the first increase for wholesale inventories in 2023. Additionally, within retail inventories, the biggest positive driver of change in inventories, it looks like autos potentially played a big role in the accumulation in this quarter (Exhibit 2).

Exhibit 1: Change in private inventories (SAAR, bn chained 2017$)
The four main sources for the BEA's estimate of inventory accumulation made positive contributions in the fourth quarter



Source: Bureau of Economic Analysis, Haver Analytics
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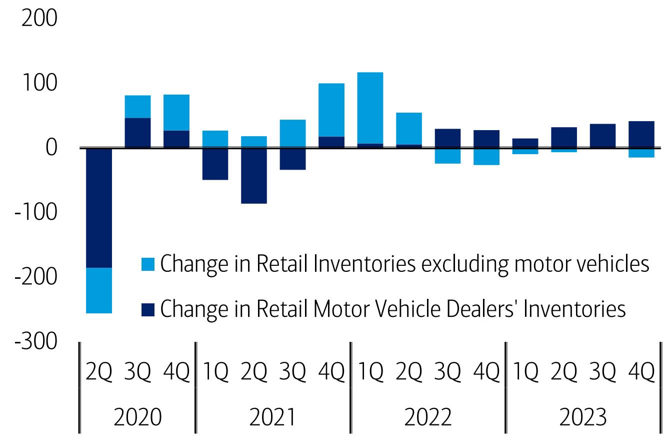
Exhibit 2: Change in retail trade inventories (SAAR, bn chained 2017$)
Within retail inventories, the biggest positive driver of change in inventories, it looks like autos potentially played a big role



Source: Bureau of Economic Analysis, Haver Analytics
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The destocking phase at the start of the pandemic....

The initial phase of the pandemic was characterized by a dramatic shift in relative demand toward goods, along with pandemic-related constraints on supply chains and large-scale layoffs (many of which took place in services-providing sectors). Hence inventory destocking through the early stages of the pandemic – where household demand for goods met supply chain constraints – was sizeable. Nonfarm inventories declined by a massive $262bn (the change in private nonfarm inventories in chained 2017$) in 2Q20 and by another $136bn in 2Q21 (Exhibit 1).

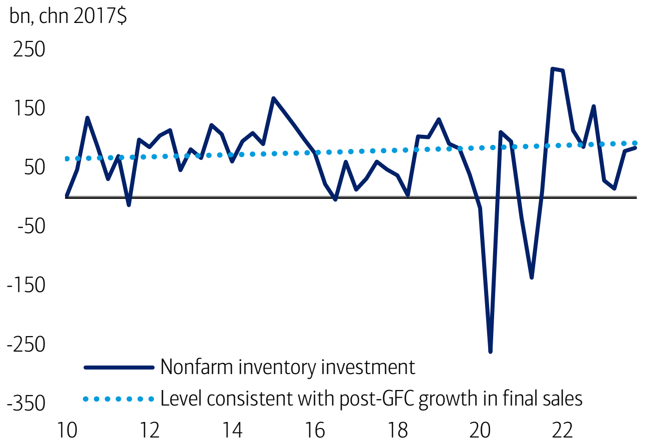
...was followed by sizeable restocking during re-opening

When vaccines became plentiful and the economy emerged from the pandemic, the US experienced a shift in relative demand away from goods-producing sectors toward services-providing sectors. Supply chain constraints eased as well. As the US household shifted its spending toward services, the popular news was full of stories about a consumer engaging in "revenge spending" on experience-oriented leisure and hospitality services.

The rotation in spending provided for a period of inventory rebuilding. As shown in Exhibit 1, nonfarm inventories rose by $218bn and $215bn, respectively, in 4Q21 and 1Q22. If that wasn't enough, nonfarm inventories rose by another $113bn in 2Q22. Another way to see the restocking effect is to compare the change in private inventories against inventory accumulation that would be consistent with growth in final sales. We plot this in Exhibit 3. This shows inventory accumulation in relation to where it "should have been" based on the post GFC (Great Financial Crisis) average. That inventory accumulation surged well above its long-run trend points to substantial restocking effects.

Exhibit 3: Change in private non-farm inventories (SAAR, bn chained 2017$)

The rebound in inventories in 3Q and 4Q puts the US roughly in line with its longer run average, although still slightly below it



Source: BofA Global Research, Bureau of Economic Analysis, Haver Analytics

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Exhibit 4: Nonfarm inventories to final sales ratio (SA)

In 4Q, this ratio ticked down a few hundredth, now only slightly above its pre pandemic level

Source: BofA Global Research, Bureau of Economic Analysis, Haver Analytics

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Manufacturing entered the doldrums in 2022

In our view, it made sense for goods-producing sectors to restock heavily after a period of inventory depletion and supply chain constraints. Producers feel comfortable with a certain level of inventory on hand to meet demand and reduce delivery times. In addition, concerns over just how long supply chain disruptions would last may have incentivized further restocking.

That said, as the economy moved further into 2022 and 2023 and consumer spending rotated back toward services, demand for goods waned. Both soft and hard indicators of manufacturing output suggested the sector moved into a mild recession and stayed there for many months. In addition, many private sector forecasters (including us) and corporate executives turned negative on the outlook for domestic demand.

Hence, after the initial surge in restocking during the initial re-opening phase of the pandemic, the pace of inventory accumulation began to slow. Since the change in the change in inventories is what contributes to GDP growth, the slowdown in inventory accumulation meant inventories were a drag on growth for much of 2022 and early 2023. By mid-2023, inventory investment was below the level consistent with the post-GFC growth in final sales, setting the stage for the surprising rebound in inventory accumulation in 2H23, as noted above.

Is the surge in inventory accumulation likely to continue?

The increase in inventories over the last two quarters has led some to ask whether the US is in the early stages of another substantial restocking cycle. We believe it is too early to definitively say yes as we see the signal from the most recent data flow on output, retail sales, employment, and industrial production, among others, as pointing to resiliency over reacceleration (see: US Economic Weekly: Whipsawed).

Where should inventories be?

What we are likely observing is the normalization of behavior following the shift in relative demand brought on by the COVID-19 global pandemic. In other words, as the shift in relative demand toward goods, and later toward services, runs its course, consumption shares have moved back in the direction of their pre-pandemic averages. This has led to a recovery in inventories that is now more of less in line with long-run growth in final sales, albeit slightly below it (Exhibit 3). Inventory accumulation is currently in its own “goldilocks” phase: not too hot and not too cold.

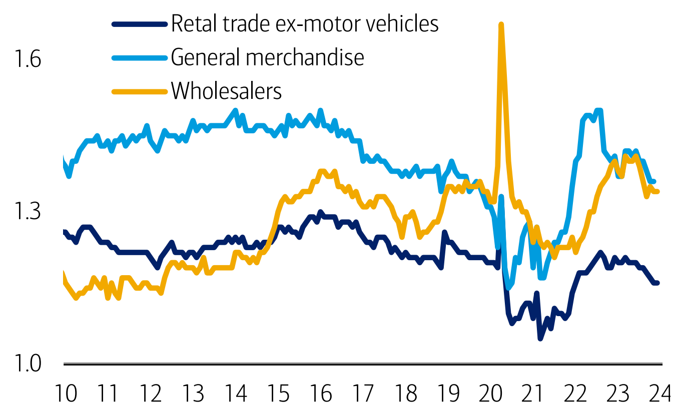
While a re-acceleration in the US economy is not our baseline, the surprising consumer led strength in the US economy in the second half of 2023, geopolitical uncertainty and the difficulty of moving goods through the Red Sea, and lack of rainwater that is hindering transit through the Panama Canal could incentivize further inventory accumulation above that consistent with recent long run growth in final sales.

Are inventory to sales ratios back to pre-pandemic levels?
Another way to examine whether inventories are at an appropriate level is to look at the behavior of inventory-to-sales ratios. In Exhibit 4, we look at the overall nonfarm inventory to sales ratio. In 4Q, this ratio ticked down a few hundredths. It is now only slightly above its pre pandemic level.

In Exhibit 5, we plot inventory-to-sales ratios for retail trade (ex motor vehicles), general merchandise, and wholesalers. Following the substantial restocking that took place during the reopening phase of the pandemic, inventory-to-sales ratios across the three major categories are broadly in line with their pre-pandemic averages. In our view, it is hard to argue inventory-to-sales ratios suggest that inventory accumulation is fundamentally out of line with respect to final sales. Inventories are more or less in line with their 2019 levels.

That said, the recovery in inventories has not been uniform across sectors. In particular, inventory-to-sales ratios for autos and trucks remain well below their pre-pandemic norms. As can be seen in Exhibit 6, inventories of new autos remain low and potentially point to a structural change in inventory behavior.

Exhibit 5: Inventory to sales ratio (SA)
Here as well, the ratios are more or less in line with 2019 levels



Source: Bureau of Economic Analysis, Haver Analytics

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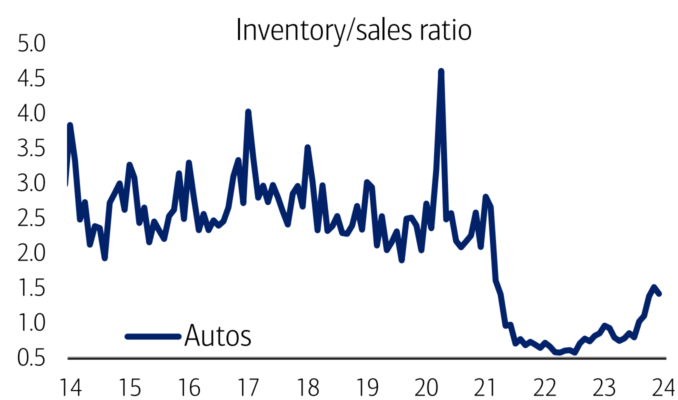
Exhibit 6: Domestic auto inventory to sales ratio (NSA)
The exception is autos, where inventories of new autos remain low and are continuing to increase gradually



Source: Bureau of Economic Analysis, Haver Analytics

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Autos provide room for upside?

While autos played a large part in the initial decline in inventories during the onset of the pandemic, they did not add much to the initial restocking phase as the US economy re-opened. In our view, and in the view of our auto analysts, the slow recovery in auto inventories was likely the result of a complex global supply chain that was slower to unclog and a change in behavior from the auto industry, which preferred to carry less inventory on hand relative to pre-pandemic norms. Whatever the case, autos have been late to catch up, only playing a large role in inventory accumulation in the third and fourth quarter of 2023.

Whether auto inventories still have room for upside depends, in part, on whether industry preferences about the appropriate level of inventories have changed structurally. We put credence in this view and do not expect inventory-to-sales ratios for autos to fully recover to pre-pandemic averages anytime soon. That said, there is room for some upside in overall inventory accumulation from the autos sector, but we have not been penciling in a full rebound for some time.

Upside surprise from the US consumer

But given the continued upside surprises from the US consumer, we believe that consumer spending would continue to remain strong in at least the first half of this year and moderate only slightly going forward. And, given the robust demand forecast that we have penciled in, we think inventories might still have some upside room, given their closeness to pre-pandemic levels, to keep the inventory to sales ratios from falling too low. This is true across the board for manufacturing, wholesale and retail inventories (Exhibit 5).

Wildcard: uncertainty from the Red Sea conflict

Another factor that could lead to pre-emptive inventory accumulation is the conflict in the Red Sea. Even though geopolitics still represent a minor risk to the US outlook given the small share of US trade that transits the Red Sea, developments remain on our radar. Red Sea developments have been playing out in line with our view of ongoing acute disruptions to shipping costs and supply chains that could persist (see Global rate cuts lost at (Red) Sea?). Up until now, the low-rate long term shipping contracts from last year have been a helpful factor on this front. But these contracts usually renew in the spring and that could lead to an increase in shipping costs as well as delays for US producers and sellers if the conflict persists, amidst robust consumer demand at home. Also, lack of rainwater that is hindering transit through the Panama Canal could incentivize further inventory accumulation.

Inventories have normalized, but room for upside remains

The strength in US consumer demand, rebalancing of consumer spending shares in the direction of pre-pandemic norms, and the recovery in auto production have left inventories broadly in line with growth in final sales. We believe the large swings in inventories are likely behind us and inventories look well aligned to our soft landing outlook. That said, some leftover room for auto inventories to rise, forecasts of continued strength of the US consumer plus uncertainty regarding the Red Sea conflict and its effect on supply chains could lend to some further upside in inventory accumulation in the coming quarters.

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