

# Taking the Bullwhip by the Horns: Inventory Examined



Prologis Park Shanghai Qingpu, Shanghai, China.

News of overstocked stores and warehouses has dominated recent headlines which, on the surface, could be concerning. Prologis Research took a deeper dive to understand the data and implications for U.S. logistics real estate demand. We found that:

- **Inventories have grown but are far from calibrated for sales or resilience.** In the wake of the pandemic, logistics users need 800 million square feet (MSF) or more to accommodate inventory growth.
- **Wide variation exists by store type and product category.** Retailers that benefited from strong sales and had the resources to order extra goods are now above pre-pandemic benchmarks for inventories relative to sales; others, however, have not yet recovered. Specifically, general merchandise stores have an inventory-to-sales ratio that is 15% greater than it was in 2019; for context, the ratio for all other retailers is -8% below.<sup>1</sup> For all retailers excluding auto, the I/S ratio was 1.16 in May, -5% below 2019's average of 1.22.
- **Historic supply chain lead times amplify risks from changing consumer behavior.** Prologis expects volatility to last well into 2023, which will make it more challenging to secure the right inventory in response to real-time shifts in consumer preferences.
- **Safety stock remains in focus; cyclical momentum will impact the timeline.** In the event of a softening economic landscape, we would expect a pause in planning and implementation until economic volatility subsides.

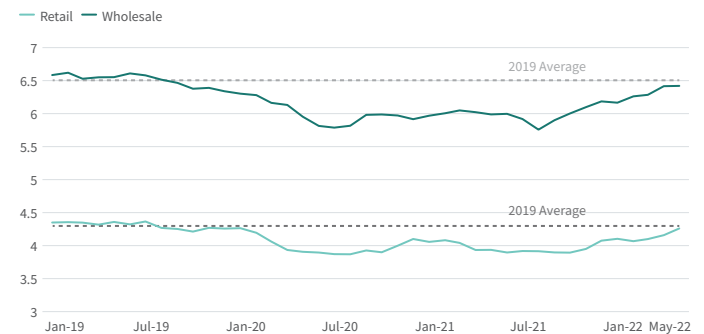
Prologis Research maintains our call for the inventory-to-sales ratio to stabilize 5-10% above pre-pandemic levels, adding resilience to supply chains and generating the need for 800 MSF of more space in the wake of the pandemic.

- **How we look at the data.** Nominal inventories are amplified by high inflation and a volatile auto sector. To better reflect the flow of goods from warehouses to consumers, we exclude autos (which reside on lots, not in warehouses), adjust for the Producer Price Index (PPI), and calibrate for demographics [see Exhibit 1]. Adjusted for merchant cost inflation, retail inventories per household are 1.2% below 2019, and real wholesale inventories are 1.4% below 2019 averages.
- **Inventory growth has been recent. Inventory increases are relatively new.** In the last six months, they're up 7% on a net basis for wholesale and retail.
- **Warehouse utilization reflects growing inventories.** Prologis' proprietary IBI™ survey shows that utilization of warehouse space rose to 85.6% as of June 2022 but remains below a functional ceiling in the 86-87% range [see Exhibit 2]. Further inventory build should necessitate additional logistics real estate.
- **Inventories continued to lag sales.** Nominal retailer inventories (excluding auto) are up 26%, while retail sales are up 33%, leaving the May inventory-to-sales ratio 5% below 2019 levels [see Exhibit 3].
- **Sentiment indicates that inventories are too low.** Customers remain focused on building inventory, reducing stock outs, and reintroducing product variety. Even as inventory levels have risen, earnings call transcripts routinely note the following: “in-stock position not back”; “focused on carrying more product”; “continue to improve the supply chain”; and “customer service starts with being in-stock.” Taking the broad view, the [ISM® PMI® asks about inventory levels](#); sentiment was significantly below 50 as of June, pointing to the need for more robust inventories [see Exhibit 4]. Given recent progress in building inventories, this could also reflect not having the right inventory for today's demand trends.

Exhibit 1

### INFLATION-ADJUSTED INVENTORIES PER HOUSEHOLD, U.S.

(seasonally adjusted, 2022 \$M)

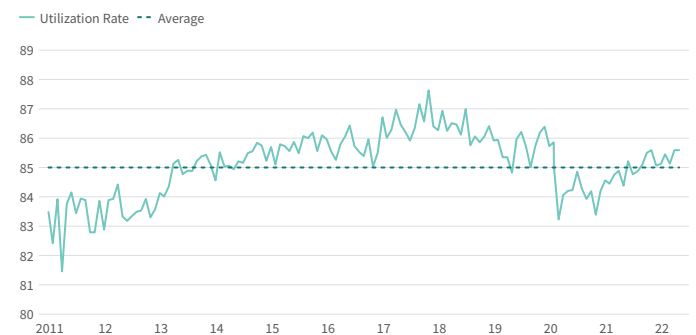


Note: Series adjusted by the PPI for Wholesale Trade and Retail Trade, respectively  
Source: U.S. Census Bureau, U.S. BLS, Prologis Research

Exhibit 2

### IBI™ UTILIZATION RATE

(%, seasonally adjusted)



Source: Prologis Research

Exhibit 3

### INVENTORIES-TO-SALES RATIO, U.S. RETAILERS

(seasonally adjusted, excludes auto)



Source: U.S. Census Bureau, Prologis Research

### Inventory varies by store type and product category.

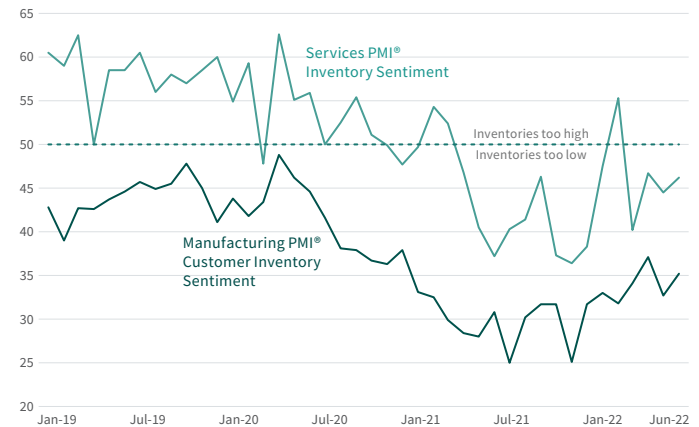
For all retailers excluding auto, the I/S ratio was 1.16 in May, -5% below 2019's average of 1.22. Data reveals that general merchandise stores have an inventory-to-sales ratio 15% greater than in 2019. Excluding this category, the ratio for all other retailers is -8% below 2019 [see Exhibit 5]. Public commentary from retailers suggests a mismatch concentrated in products related to housing (furniture, electronics/appliances). Housing has faced recent headwinds due to 1) consumers' desire to get out of the house; and 2) rapidly rising interest rates dampening home sales. This suggests the problem may be isolated to certain companies and product lines versus being a widespread issue.

**Persistently long supply chain lead times could alter consumer behavior.** Consumer preferences have never changed as dramatically as what we now see. At the same time, ocean transit times were [more than double pre-pandemic levels](#), and sentiment on deliveries and shortages reveals ongoing stress on supply chains. Conditions are improving, but reliability is not yet a given (and [may remain elusive through the longer term](#)). Prologis reaffirms that supply chain volatility will extend into 2023.

**Resilient inventories are still the goal.** Comparisons are tough in this unique environment of the past 2+ years, and business and consumer sentiment has recently turned negative. Inventory growth has been rapid—a natural response to persistent stock-outs, unreliable supply chains and rapidly rising prices. Yet, pandemic-driven scarcity (and related pricing power for retailers) was unsustainable and, ultimately, we have anticipated a return to the imperfect inventories and resulting discounts of pre-pandemic times. **However, the end goal is the same: logistics customers planning for the long-term are building the capacity to shield their businesses from disruption; cyclical momentum will determine the speed of this build-out.**

Exhibit 4

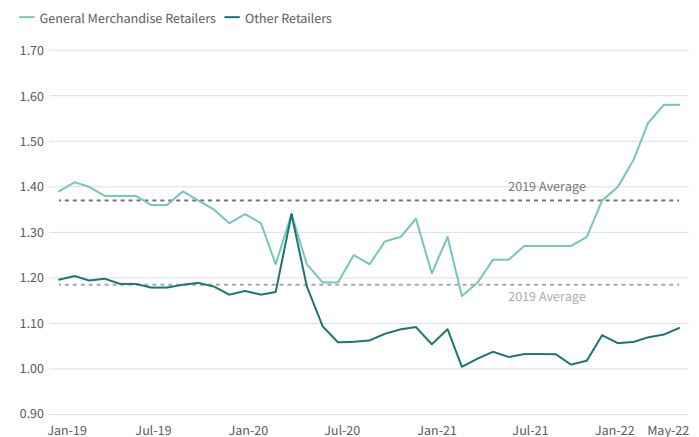
### ISM® PMI®, SELECT INVENTORY SENTIMENT INDICATORS (seasonally adjusted, 50 = neutral)



Note: used with express permission of the Institute for Supply Management®  
Source: Institute for Supply Management, Prologis Research

Exhibit 5

### INVENTORIES-TO-SALES RATIO, SELECT U.S. RETAILERS (seasonally adjusted, excludes auto)



Source: U.S. Census Bureau, Prologis Research

## Forward-Looking Statements

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Prologis' Research department studies fundamental and investment trends and Prologis' customers' needs to assist in identifying opportunities and avoiding risk across four continents. The team contributes to investment decisions and long-term strategic initiatives, in addition to publishing white papers and other research reports. Prologis publishes research on the market dynamics impacting Prologis' customers' businesses, including global supply chain issues and developments in the logistics and real estate industries. Prologis' dedicated research team works collaboratively with all company departments to help guide Prologis' market entry, expansion, acquisition and development strategies.

## About Prologis

Prologis, Inc. is the global leader in logistics real estate with a focus on high-barrier, high-growth markets. As of June 30, 2022, the company owned or had investments in, on a wholly owned basis or through co-investment ventures, properties and development projects expected to total approximately 1.0 billion square feet (93 million square meters) in 19 countries.

Prologis leases modern logistics facilities to a diverse base of approximately 5,800 customers principally across two major categories: business-to-business and retail/online fulfillment.

Prologis  
Pier 1, Bay 1  
San Francisco, CA 94111  
United States  
+1 415 394 9000

[www.prologis.com](http://www.prologis.com)

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