FREIGHTWAVES SONAR

KNOW MORE, FASTER.

Ocean markets drive the domestic freight markets

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WHITE PAPER

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We often demo SONAR to customers that want to see every domestic freight dataset we have to offer while showing little interest in our ocean data.

That has always been puzzling to us because we believe that the ocean shipping markets and the domestic freight markets are inextricably linked.

The most obvious linkage is that a rise in the volume of oceangoing imports portends a rise in domestic freight demand and a fall in import volume portends a drop in domestic freight demand.

But, the connection goes much further than that.

To fully understand the domestic freight markets, one must not just keep on top of overall import volume trends, but also:

- Seasonal ocean shipping patterns
- Ocean shipping rates
- Container ship capacity trends
- Container availability
- Port market share trends
- Inland international and domestic intermodal container flows
- Truckload market conditions at the port cities

Understanding those trends help market participants predict:

- The supply-demand dynamics of local freight markets
- Mode shifts between truckload and intermodal
- Which truckload lanes will become stronger headhaul or backhaul lanes
- Locations where equipment or driver availability issues are likely to become more severe.

Those insights help:

- Carriers to better position their assets and know which freight markets to most heavily target.
- Brokers to refine their rates and their negotiating tactics with carriers for changes in market conditions.
- Shippers to best manage their supply chains to avoid bottlenecks, manage their carrier networks and hold their carriers accountable for their rates and service levels.

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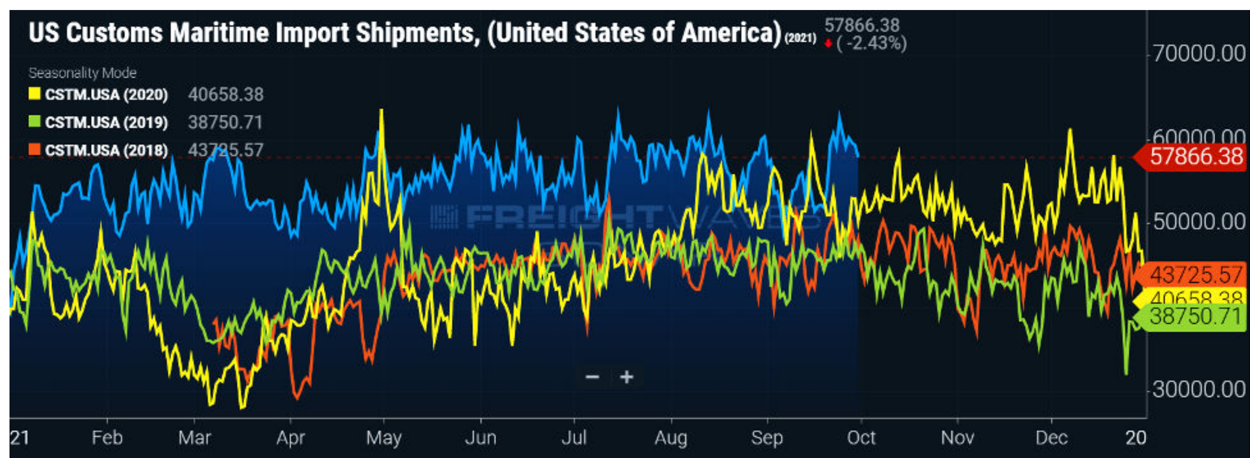
Imports - a major demand engine for domestic freight

As highlighted on the first page, using SONAR ocean shipping data as a leading indicator of domestic freight demand is the most obvious reason why participants in the domestic freight markets should pay attention to ocean shipping. Domestic freight market participants should pay attention to the magnitude of import volume, typical seasonal trends and any deviation from those trends.

The pandemic caused several changes in the global supply chain that deviated from typical seasonal trends, but factors like the Chinese New Year and the crunch associated with fall peak season remain. Peak shipping season occurs when retailers begin to push inventory into their supply chain to support back-to-school and holiday consumer shopping demand. The vast majority of the goods that end up on store shelves during these heavy shopping months are either manufactured or contain inputs produced in foreign countries, particularly China and, to a lesser extent, Southeast Asia.



(Chart:FreightWaves SONAR. Containerized and non-containerized import shipment volumes typically ramp up in late summer to early fall, as retailers rush to fill their inventory levels for peak demand)

The peak shipping impacts all freight modes, but is kicked off each year with increasing eastbound trans-Pacific ocean volumes. The timing and duration of this uptick in shipments can vary each year depending on market conditions, but usually fits into the August to October window. We saw peak season volumes move forward this year as shippers rushed to get goods stateside amid the shortage of ocean shipping capacity. However, many industry participants would say that ocean shipping has been in something resembling a peak season since the middle of last year (see surge in import shipments on yellow line above). The peak season import volume is dominated by the largest ports that also happen to be close to the largest consumption centers, with 50%-55% of import volume coming through the ports of Los Angeles, Long Beach and New York/New Jersey.

An additional, and less severe, peak comes in January and February, in anticipation of Chinese New Year. During this time, many factories and manufacturers that support U.S. importers shut down for more than a week in celebration of the holiday. Prior to the

shutdowns, shippers book their ocean capacity in advance to mitigate any effects of the scheduled and lengthy lack of production support.

(Chart: FreightWaves SONAR, Import shipments clearing U.S. Customs in the LAX market, which encompasses the ports of LA and Long Beach {Blue} compared to outbound dry van volumes from the same market {Green})

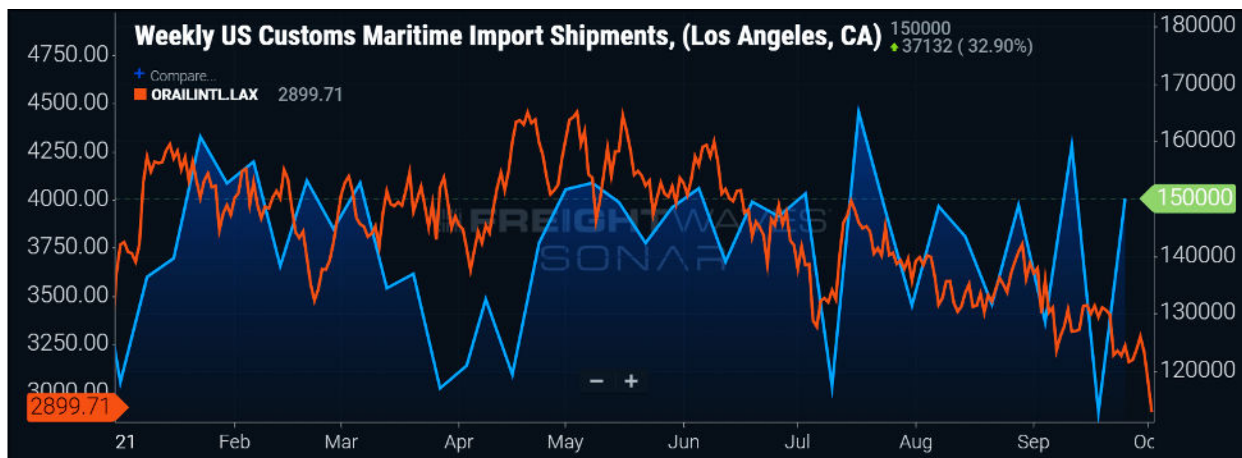
As port markets are bombarded with import shipment volumes, there is a subsequent call for transloading capacity and truckload capacity as shippers attempt to get their goods to consumption centers. As a result of this, there is a tight correlation between shipments clearing U.S. Customs and outbound dry van volumes at their respective port-side markets. The effect of the volume surge sends ripples through surface transportation, as truckload and intermodal capacity tightens for loads moving outbound from those markets.

While individual port markets are most affected, the capacity crunch gradually begins to impact additional U.S. freight markets, with the severity dependent upon volume demand requirements and the duration of the peak period. Elevated import volume can lead to lower service levels and a lack of capacity can force shippers to use the spot market more heavily.

There is a strong correlation between inbound ocean TEU volumes from China (white) and dry van outbound tender volumes (orange), indicating that peak season levels of demand will keep truckload capacity incredibly tight in the near-term

National dry van outbound tender volumes are typically preceded by inbound ocean TEU volumes from China, the largest overseas trading partner of the U.S. A spike in Inbound TEU volumes is typically followed by a spike in dry van tender volumes. In the past year, that subsequent spike has come around a month and a half later due to congestion issues at/near the ports. If a spike in truckload demand is not yet present in outbound truckload volumes from a port-side market that has just seen a surge in imports, it is a good indication one is coming.

Continual peak season-like import demand fuels intermodal congestion, leading to an uptick in truckload volume outbound from port cities



(Chart: FreightWaves SONAR, weekly ocean shipment volumes clearing customs in the LAX truckload market, which includes the ports of LA and Long Beach {Blue} compared to loaded outbound international rail container volumes leaving the LAX market {Orange})

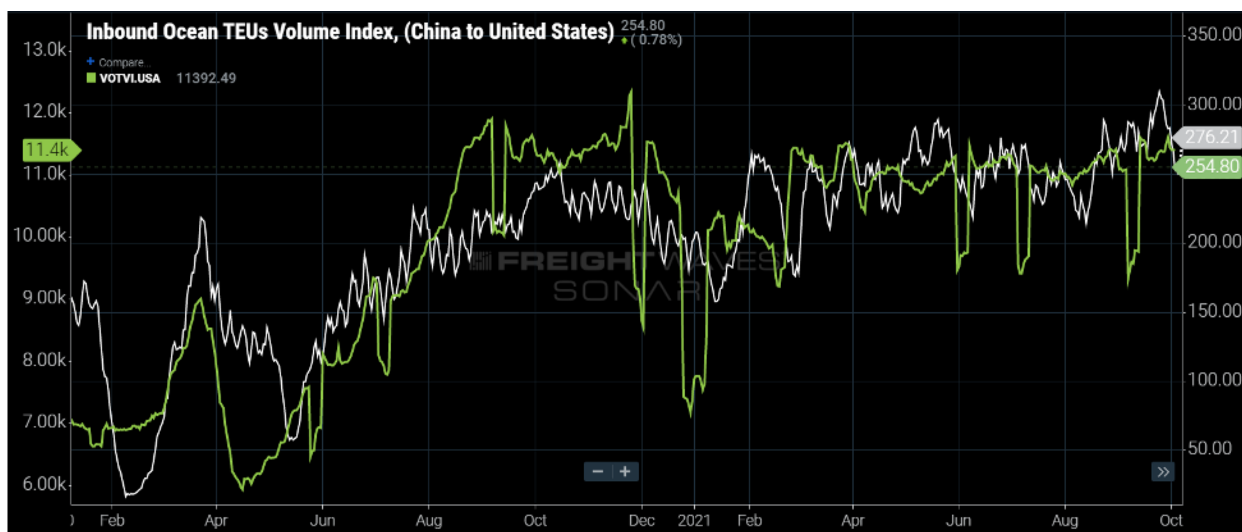
Under normal market conditions, seasonal lulls in import demand give intermodal networks a chance to recover. No such situation exists this year, as prolonged peak season-like levels of import demand have persisted for the entirety of the calendar year. With booking levels remaining historically high and 70+ vessels sitting at anchor in San Pedro Bay, congestion within ports and along rail networks will likely remain for the foreseeable future. Ports, terminals and drayage will be operating at maximum capacity for months to come in an effort to push the substantial volume through their channels.

Elevated levels of import demand continue to translate into terminal congestion, as well as shortages of chassis and containers. These factors have impaired intermodal network capacity and fluidity. Despite reopening terminals and leasing industrial space, rail carriers are losing share to the highway when shipments are highly time-sensitive. With weekly import shipment volumes near all-time highs in the Los Angeles market (blue line above), and decreasing outbound loaded international container volumes (around 450/day less than average), truckload demand should continue to be called upon at increasing levels to move cargo inland from Southern California.

6 weeks – the traditional length of time from when shipments leave China before truckload volumes pick up

Containers that are flowing through the ports don't end up in the truckload market immediately. The ports of L.A. and Long Beach have the advantage of having a relatively short (~2 week) sailing distance from China and also are home to the second-largest consumption center in the U.S. So, a large portion of the freight goes no further than Southern California.

Before hitting the truckload market, imports often make an intermediate stop at a warehouse or transloading facility. As a result, upticks in volume typically take four to six weeks from the time a shipment leaves China until the time it enters the truckload market.



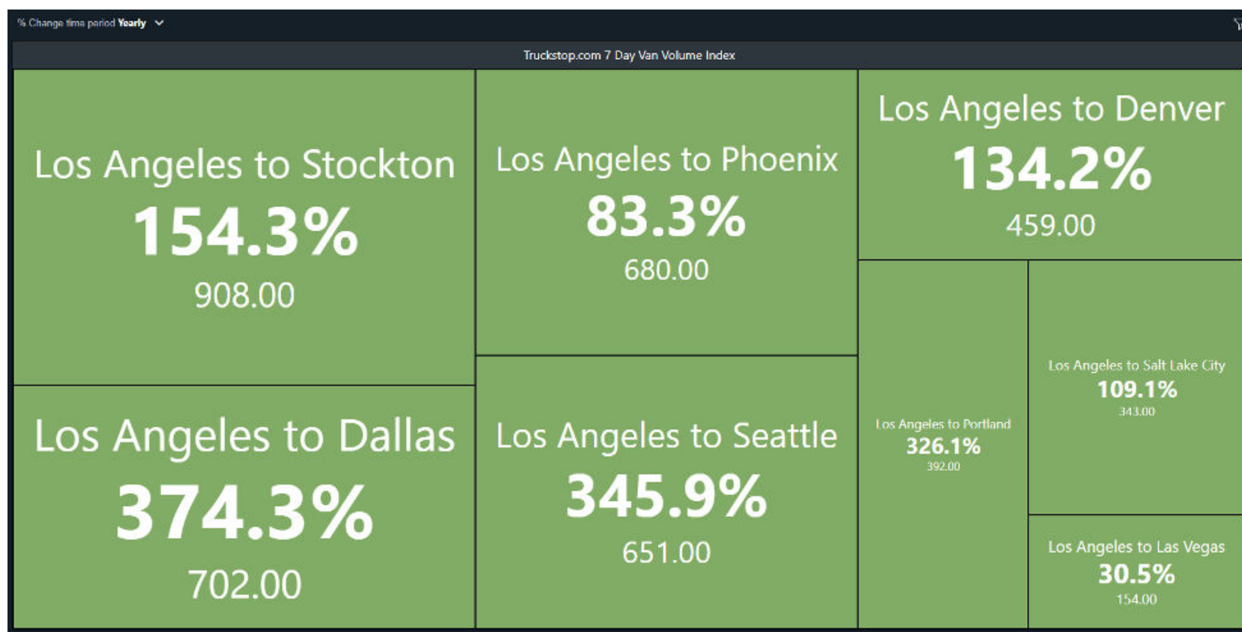
Looking back over the past 18 months, dry van truckload volumes have been tightly correlated with SONAR's Inbound Ocean TEU Volume Index from China to the U.S. In February 2020, the fall off in TEUs leaving China due to both Chinese New Year and the onset of COVID-19 contributed to a collapse in freight volumes that started in March 2020.

TEU volumes then started to recover late in the second quarter of 2020, helping to lead in a surge in freight volumes that hasn't eased since.

In early 2021, the pre-Chinese New Year surge in TEUs destined for the U.S. led to growth in truckload van volumes shortly thereafter. Granted, that snapback was around the same time the winter storm threw transportation networks into a tizzy.

In the past month, inbound Ocean TEU volumes from China to the U.S. reached the highest point of all time, but truckload volume levels have yet to take the substantial tick higher. The lengthening transit times from China to the U.S. have contributed to the lag in imports clearing Customs and increases in van volumes.

Additionally, looking at just the contracted side of the market may not tell the entire story. Over the past year, van volume levels in Los Angeles are currently down 14%, while import levels are running consistently ~10% above year-ago levels. Van volumes (VOTVI) are shippers' requests for capacity. With the influx of freight clearing Customs and capacity constraints on the railroads, more shippers are moving freight directly into the spot market, compared to traditional shifts into the contract market.



The result is spot volume levels out of Los Angeles are exploding on a year-over-year (y/y) basis. The chart above shows dry van volume levels on Truckstop.com's load board compared to a year ago. Nearly every lane out of Los Angeles is up triple digits with the exception of Los Angeles to Phoenix, which is up 83% y/y and Los Angeles to Las Vegas, which is up 30.5% y/y.

Seeing the growth on a yearly basis shows that freight is moving into the spot market faster than it was before, given that contracted van volumes and rejection rates have been steady.

As freight continues to flow through the ports at a breakneck pace, look for load board volumes to pick up within the next month as shippers bypass the contract market altogether, in order to ensure that freight reaches shelves by the peak holiday season.

The problem currently being faced by all freight market participants is that there is nothing traditional or normal happening in the freight market. The lag between shipments leaving overseas until they hit the truckload market is increasing. Transit times have doubled in most cases, which means the lag between shipments headed for the U.S. and the uptick in dry van freight volumes (both spot and contract) is going to lengthen as well.

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