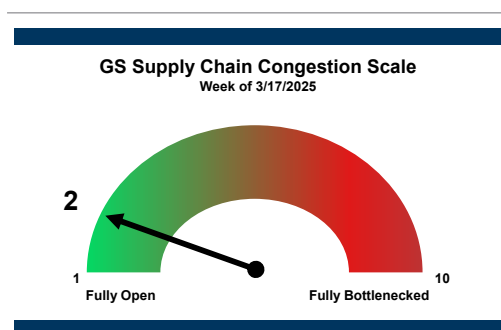


Tracking U.S. Supply Chain Congestion

GS Supply Chain Congestion Scale: Mar 17th; Weekly Scale Unchanged at '2'



Scale is based solely off weekly metrics to give more granularity on high frequency data indications; see Appendix for scale that combines weekly and monthly metrics

Source: Goldman Sachs Global Investment Research

Our weekly bottleneck scale remained at '2' this week as the absolute level of the congestion index was largely unchanged on a sequential basis (index -0.9% w/w; Exhibit 2).

For this week's scale and index, the number of container ships waiting to dock and unload goods along the West Coast increased from 0 to 1, while backlogs along the East Coast increased from 10 to 11 (Exhibit 6).

West Coast rail intermodal traffic

growth decelerated on average versus last week (up ~9% YoY; Exhibit 7), but rail service metrics were broadly improved. Chassis dwell times were mixed on average at US ports this week (Exhibit 9), while ocean container shipping rates (China to US West Coast) stood at -39% YoY versus last week's -29% level (Exhibit 10).

Net/net, this week's index was largely unchanged as slightly higher container ship backlogs and decelerated intermodal traffic growth was offset by improved rail service and decelerated ocean container rates.

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Exhibit 1: Our weekly composite index largely unchanged in the most recent week (-0.9% w/w), and the bottleneck scale remained at '2'; overall bottleneck levels remain well below peak congestion levels when scale was at '10'

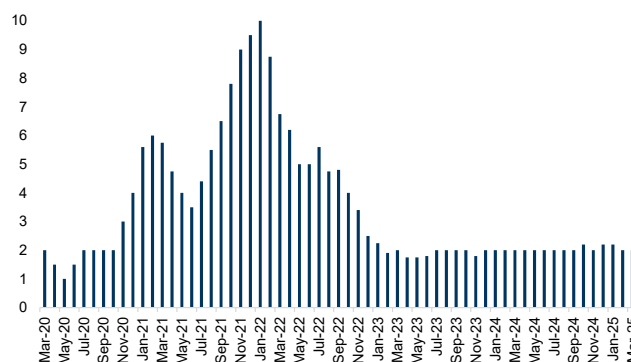
GS Weekly Bottleneck Index, Feb 2020 - Mar 2025



Source: Goldman Sachs Global Investment Research

Exhibit 2: Our average weekly bottleneck score in March is '2.0'; this result is down significantly from the Dec21/Jan22 peak of congestion

GS Weekly Congestion Scale, Scored by Month*



*Numbers reflect the average weekly score seen in each respective month

Source: Goldman Sachs Global Investment Research

As a reminder (and to help reiterate why and how we construct the index), please refer to the Appendix following [Exhibit 17](#). Additionally, for further clarity on tracked congestion metrics, please refer to the glossary following [Exhibit 19](#).

Transport Subsectors to Watch as Congestion Eases

The key question remains whether the last stumbling blocks around congestion ease in the US - notably the improving inventory situation as well as moderating East Coast port backlogs, and of course any potential strike-related work stoppages around US East/Gulf-Coast ports - as well as any potential demand pull forward related to potential tariffs. Should supply chain pressures broadly continue to mitigate, then it is conceivable we could see the index being back to a '1' in 2025. As we highlighted what could happen [when we first introduced the index](#), labor and equipment availability is improving alongside demand moderation, both helping the fall in the index. **With the dramatic easing that already took place over 2023/2024, we think from a transport subsector perspective we would look to the US Rails (NSC, UNP, CSX) and intermodal marketing companies (SNDR, JBHT) as being the prime beneficiaries** should congestion stay easier, as these networks were amongst the most adversely impacted by supply-chain problems – both from operational constraints and underperformance on volumes due to an inability to translate high consumer demand into actual throughput.

Indicator Updates

Of the metrics we track ([Exhibit 3](#)), we provide updates for the weekly and monthly variables below ([Exhibit 4](#) - [Exhibit 5](#)).

Exhibit 3: Tracked Congestion Metrics

Tracked Metrics	
Weekly Variables	Monthly Variables
Container Ships Waiting to Dock at LA/LB	Container Weighted Average Dwell (San Pedro's Bay)
Container Ships Waiting Along to U.S. Gulf/East Coast	Containers Dwelling > 5 days (San Pedro's Bay)
UNP Intermodal Traffic	PMI Manufacturing Supplier Delivery Time
UNP Intermodal Velocity	Big Three' West Coast Ports' Inbound Loaded Containers
UNP Intermodal Dwell	LMI Transportation Capacity
BNSF Intermodal Traffic	LMI Warehousing Capacity
BNSF Intermodal Velocity	LMI Warehousing Utilization
BNSF Intermodal Dwell	Door to Door Shipping Days, China to US
Ocean Shipping Rates, East Asia to U.S. West Coast	Class 8 Trucking Driver Count Growth
Chassis Street Dwell, 20ft Containers	Rail Container Dwell (San Pedro's Bay)
Chassis Street Dwell, 40/45ft Containers	
Chassis Terminal Dwell Time, 20ft Containers	
Chassis Terminal Dwell Time, 40/45ft Containers	

Source: Goldman Sachs Global Investment Research

Exhibit 4: Bottleneck metrics indicated mixed results this week

	Dec 16 - Dec 22	Dec 23 - Dec 29	Dec 30 - Jan 5	Jan 6 - Jan 12	Jan 13 - Jan 19	Jan 20 - Jan 26	Jan 27 - Feb 2	Feb 3 - Feb 9	Feb 10 - Feb 16	Feb 17 - Feb 23	Feb 24 - Mar 2	Mar 3 - Mar 9
Container Ships Waiting to Dock at LA/LB	1	2	1	2	2	3	2	2	0	3	0	1
Container Ship Backlog (East and Gulf Coast)*	6	24	31	26	16	22	27	11	25	17	10	11
UNP Intermodal Traffic (YoY Growth)	23.5%	9.2%	17.3%	21.4%	36.1%	17.9%	16.4%	16.8%	12.7%	9.4%	14.7%	12.8%
UNP Intermodal Velocity (YoY Growth)	-1.9%	-4.8%	-6.3%	-2.7%	-3.0%	1.0%	-2.8%	-2.2%	0.3%	-1.6%	-1.6%	2.0%
UNP System Dwell (Hours)	21.0	21.5	24.8	20.9	20.4	21.1	23.3	21.6	21.9	22.7	23.2	22.3
BNSF Intermodal Traffic (YoY Growth)	15.0%	14.1%	8.2%	13.7%	29.5%	6.9%	10.7%	10.7%	8.8%	4.6%	9.1%	5.0%
BNSF Intermodal Velocity (YoY Growth)	-5.4%	-3.1%	1.1%	-4.0%	-2.3%	-1.8%	-9.5%	-7.7%	-0.6%	0.6%	0.3%	6.6%
BNSF System Dwell (Hours)	21.6	22.5	25.4	23.4	22.8	23.2	23.9	22.0	22.3	23.0	24.0	23.2
Ocean Shipping Rates, East Asia to U.S. West Coast (YoY Growth)	168.4%	206.2%	118.5%	128.9%	79.4%	19.2%	16.3%	0.9%	-2.6%	-9.3%	-25.2%	-39.1%
Chassis Street Dwell, 20ft Containers (Days)	4.6	6.6	7.0	5.2	5.0	4.9	5.6	5.9	6.5	6.3	5.6	4.9
Chassis Street Dwell, 40/45ft Containers (Days)	6.8	9.2	9.0	6.5	6.2	6.4	6.9	7.3	7.3	7.3	6.9	7.2
Chassis Terminal Dwell Time, 20ft Containers (Days)	6.6	9.3	8.8	5.8	5.8	5.9	7.1	8.0	9.1	8.4	8.7	7.5
Chassis Terminal Dwell Time, 40/45ft Containers (Days)	5.9	8.2	7.5	5.0	4.7	5.0	5.6	6.7	7.1	7.0	6.6	7.0

As of 3/28/22, we added and backdated our estimates for the East and Gulf Coast container ship backlog

Source: Marine Exchange of Southern California, AAR, STB, Freightos, Pool of Pools, Pacific Merchant Shipping Association, Port of Long Beach, Port of Oakland, Port of Los Angeles, LMI, US Bureau of Labor Statistics, IHS Markit, Refinitiv Eikon, compiled by Goldman Sachs Global Investment Research

Exhibit 5: Monthly bottleneck metrics for January indicated mixed results vs December

Monthly Variables	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
Container Weighted Average Dwell (Days)	2.7	2.9	2.8	2.6	2.5	2.5	2.7	2.8	3.0	3.2	3.2	3.1	3.1	3.3
% of Containers Dwelling > 5 days	7%	5%	6%	6%	4%	4%	5%	6%	8%	8%	8%	8%	8%	8%
Rail Container Dwell (Days)	5.0	4.7	6.3	7.0	4.6	6.4	4.7	5.7	8.2	9.3	9.9	7.7	6.5	6.2
Big Three Inbound Loaded Containers (YoY)	18.2%	19.5%	45.0%	16.1%	17.8%	-3.1%	20.2%	42.5%	26.3%	13.8%	27.5%	19.8%	23.8%	23.6%
LMI Transportation Capacity	63.3	54.5	60.9	59.6	61.4	57.3	50	50.9	56.7	50	50.8	52.6	53.2	52.6
LMI Warehousing Capacity	55.1	54.1	52.8	44.6	54.0	55.6	52.6	54.5	59.5	55.9	55.8	56.7	56.9	51.7
LMI Warehousing Utilization	60.2	58.7	66.3	63.6	55.1	64.0	52.6	57.9	57.6	60.9	62.9	58.9	61.7	68.3
Door to Door Shipping Days, China to US	49	56	53	52	53	48	48	49	49	49	52	53	51	50
Class 8 Driver Count	1534.6	1531.9	1530.5	1531.0	1528.5	1521.6	1518.2	1516.6	1516.4	1515.8	1514.5	1517.8	1518.1	1521.9
PMI Manufacturing Supplier Delivery Time (YoY)	-4.5	3.0	-1.6	8.4	10.7	14.2	6.5	7.8	2.0	1.5	3.9	4.2	7.0	0.8

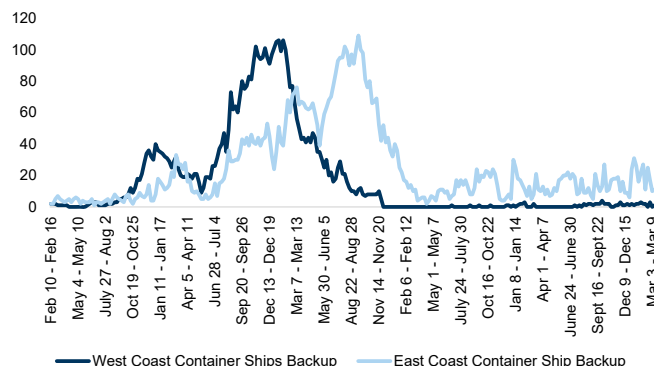
Source: Marine Exchange of Southern California, AAR, STB, Freightos, Pool of Pools, Pacific Merchant Shipping Association, Port of Long Beach, Port of Oakland, Port of Los Angeles, LMI, US Bureau of Labor Statistics, IHS Markit, compiled by Goldman Sachs Global Investment Research

Weekly Indicator Update**Anchored Container Ships**

- **West Coast container ship backlogs increased from 0 to 1 in the most recent week, while East Coast backlogs increased from 10 to 11.**

Exhibit 6: 11/1* container ships backed up this week on the East/West Coast

West vs. East Coast Container Ship Backlog, Weekly Average, Feb 2020 - Mar 2025



*East Coast is estimated via satellite data - includes container ships sitting for more than 3 days within 140 miles of US ports to the right of longitude 100 (i.e., Gulf and East Coast)

Source: Marine Exchange of Southern California, Refinitiv Eikon, Goldman Sachs Global Investment Research

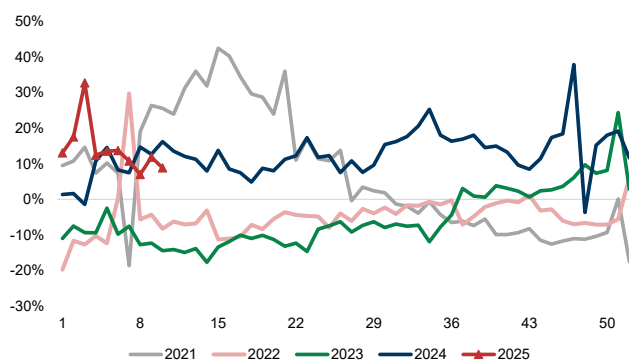
Rail Intermodal Trends

■ West Coast Class 1 Rails' (Union Pacific and Burlington Northern Santa Fe) average intermodal traffic growth decelerated in reporting week 9 of 2025 (average up ~9% YoY).

- BNSF intermodal traffic at +5% YoY this week vs. +9% YoY last week; UNP intermodal traffic at +13% YoY vs. +15% YoY last week.
- Note that intermodal volume declines first moderated to flat YoY growth in September 2023 before inflecting more positively in October and remaining positive through year-end 2023 into 2024 ([Exhibit 8](#)); so we started to lap tougher YoY growth comparables as of September 2024.

Exhibit 7: West Coast Class 1 Rails' Intermodal Volume Growth, Week 1 - Week 52

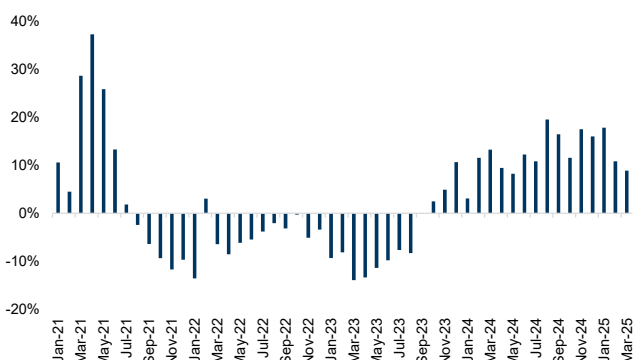
YoY % growth



Source: AAR, Data compiled by Goldman Sachs Global Investment Research

Exhibit 8: Intermodal volume declines (UNP and BNSF) moderated to flat YoY growth in September 2023 and have now remained positive for >1 year

West Coast Class 1 Rail Intermodal Traffic YoY % Growth



Source: AAR, Data compiled by Goldman Sachs Global Investment Research

■ West Coast Class 1 Rail intermodal train speed and terminal dwell

performance were broadly improved in the most recent week.

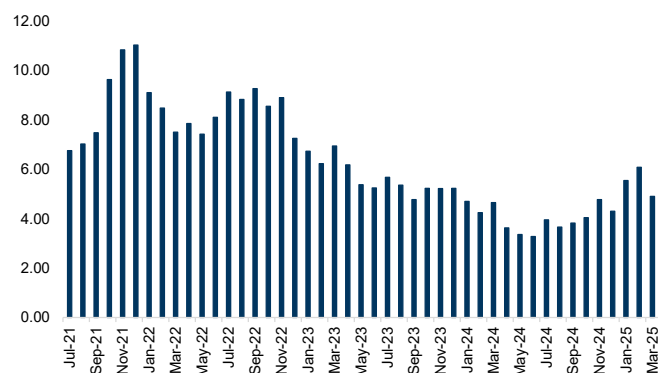
- UNP terminal dwell decreased from 23.2 hours to 22.3 hours last week; BNSF dwell decreased from 24.0 hours to 23.2.
- On intermodal train speed, BNSF was at +6.6% YoY vs. +0.3% YoY last week; UNP was at +2.0% YoY vs. -1.6% last week.

Chassis Dwell Time

■ **Chassis dwell is down significantly when comparing March to peak congestion levels – as per Exhibit 9; dwell data for the most recent week implied mixed results on average vs last week.**

- Average street dwell time for 20ft shipping container chassis was at 4.9 days for week 10 of 2025, down slightly versus 5.6 days in week 9.
- Street dwell for 40/45ft container chassis was 7.2 days in week 10, up versus 6.9 days in week 9.
- Chassis terminal dwell time for 20/40ft containers was at 7.5/7.0 days in week 10 versus 8.7/6.6 days in week 9.

Exhibit 9: Dwell for the more typical 20ft container chassis is well off peak congestion levels, but up MoM into January
Chassis Street Dwell Time (20ft Containers)



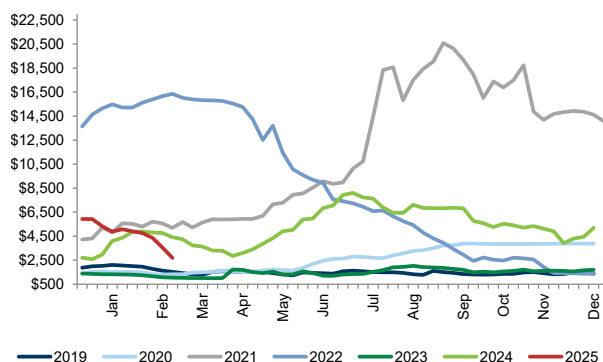
Dwell time shown in days

Source: Pool of Pools

Ocean Shipping Rates

- Week 10 saw ocean container rates at ~\$2.69k (-39% YoY) vs ~\$3.56k last week (-25% YoY).

Exhibit 10: Ocean Container Shipping Rates, China/East Asia to North America West Coast

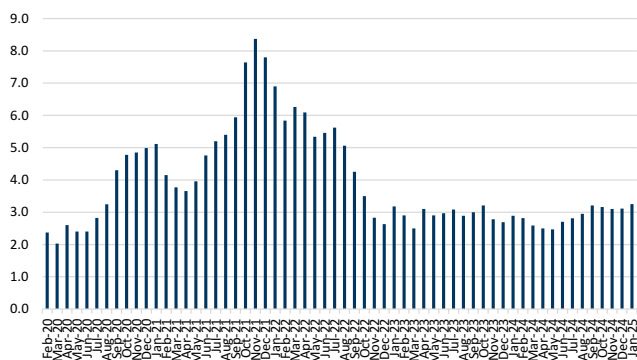


Lagged Monthly Indicators (January Data)

San Pedro's Bay Container Dwell

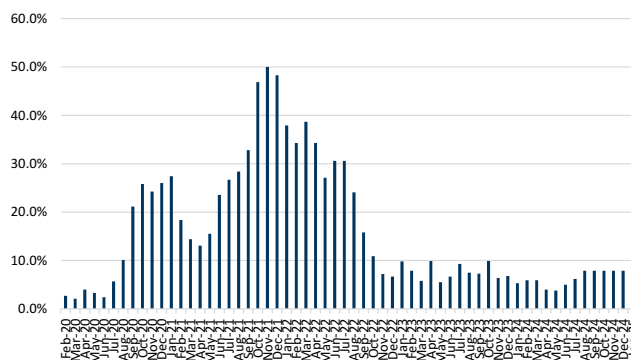
- Container weighted average dwell time remained largely unchanged at 3.3 days in January.
- ~8% of the San Pedro's Bay containers were dwelling for more than 5 days in January – this is down from ~50% at peak congestion level.
- Rail container dwell decreased to 6.2 days in January from 6.5 days in December; this result for dwell remains far below 2022's peak rail container dwell of ~16 days.

Exhibit 11: Container Weighted Average Dwell Time at San Pedro's Bay, Days



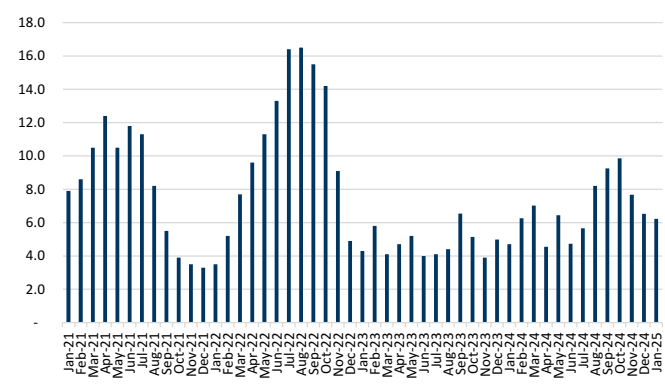
Source: Pacific Merchant Shipping Association

Exhibit 12: % of Containers Dwelling More than 5 Days



Source: Pacific Merchant Shipping Association

Exhibit 13: Rail Container Dwell Time, Days

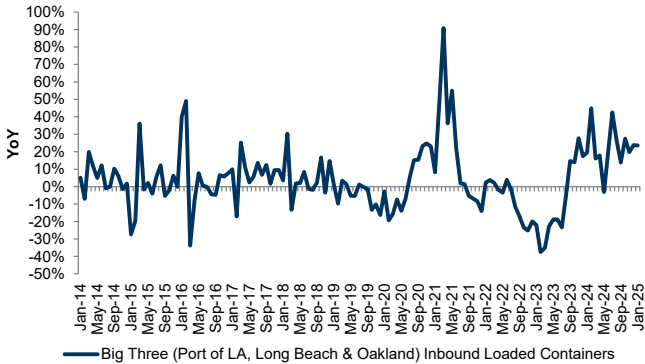


Source: Pacific Merchant Shipping Association

“Big Three” West Coast Ports’ Inbound Loaded Containers

- Total inbound containers for the Ports of LA, Long Beach, and Oakland +24% YoY in December.

Exhibit 14: West Coast Ports’ Inbound Loaded Containers +24% YoY in January

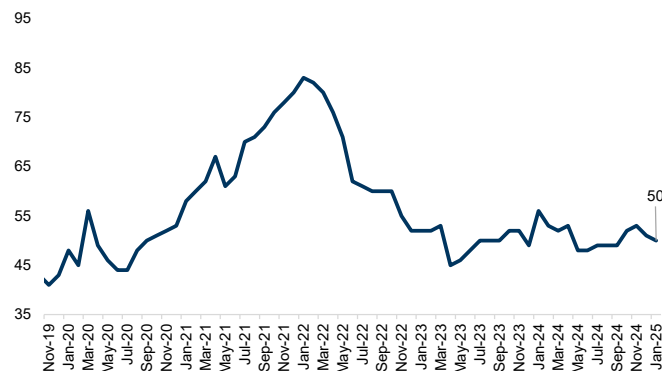


Source: Port of Long Beach, Port of Los Angeles, Port of Oakland

Door to Door Shipping, China to US

- It was taking an average of 50 days to ship (door-to-door) from China to the US in January, much closer to average pre-pandemic transit times when compared to peak congestion at 80+ days, and down slightly MoM.

Exhibit 15: Door to Door Shipping Days, China to US

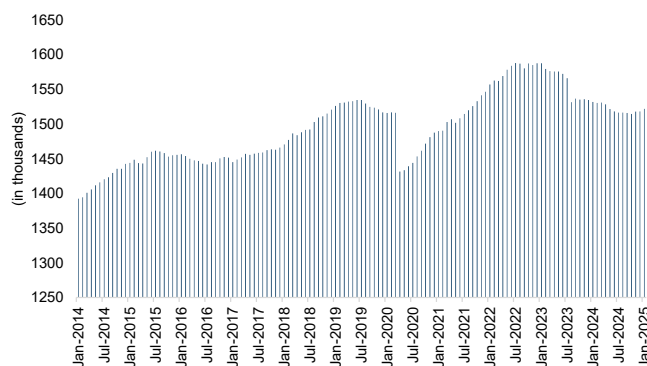


Source: Freightos

Trucking Employee Count

- Truck transportation employee count was implied to be below pre-pandemic highs in January (-0.8% below pre-Covid) as YoY growth has averaged -1.1% over the past six months. January's employee count was +0.3% sequentially.

Exhibit 16: Total Truck Transportation Employee Count, Seasonally Adjusted



Source: US Bureau of Labor Statistics

LMI Capacity and Utilization

■ LMI Transportation Capacity Index

- Transportation capacity expanded slightly in January given the 52.6 reading, but the rate of expansion fell slightly relative to December's 53.2 reading.

■ LMI Warehouse Capacity Index

- Warehouse capacity remained expansionary in January, but the 51.7 reading indicated a slower rate of expansion versus December's reading of 56.9.

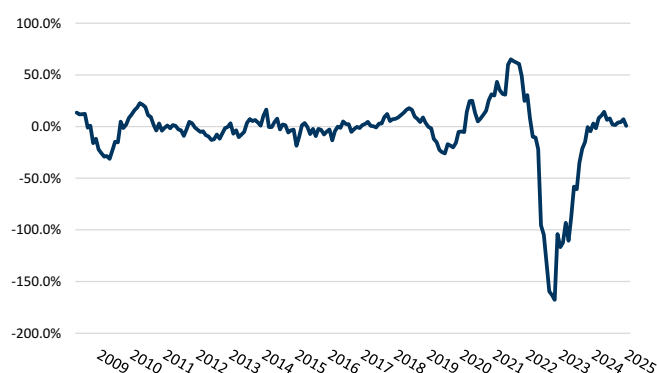
■ LMI Warehouse Utilization Index

- Warehouse utilization expanded at a faster pace in January with a 68.3 reading compared to 61.7 in December.

PMI Supplier Delivery Times

- Delivery times were largely unchanged on an absolute basis albeit expanding slightly (i.e., below 50 indicates expanding delivery times) in January given the 48.3 reading. Delivery time contraction first began to occur sustainably as of January 2023, so we were beginning to normalize delivery times on a YoY basis as of 1Q24; January supplier delivery PMI index was +1 % YoY.

Exhibit 17: PMI: Manufacturing Suppliers' Delivery Times, YoY, Seasonally Adjusted



Source: IHS Markit

Appendix

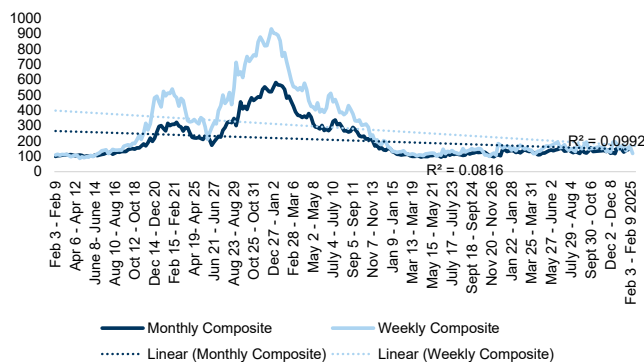
Given the importance supply chain fluidity has on retailers, consumer goods companies, inflationary pricing, etc., we think this scale's importance is tied most directly to the pace at which supply chain congestion is on the mend. To this end, we look at a variety of variables that we think tie directly, or in some cases indirectly, to overall congestion; including ships at anchor, days to deliver, various dwell times, intermodal volume and velocity statistics amongst others. Aggregating this data, we create the Supply Chain Congestion Scale – an attempt to quantify the balance between supply chains being “Fully Bottlenecked” and “Fully Open,” relative to the pre-pandemic benchmark we chose as Feb 3rd, 2020. Basically, how fluid is the overall transport logistics network.

To determine the position of the Legacy Congestion Scale (1-10), we calculate growth or decline in each category (monthly and weekly variables) relative to pre-congestion levels, overweighting certain categories we deem most directly tied to supply chain bottlenecks (i.e., ships anchored off the ports of LA and Long Beach, shipping container and chassis street dwell times, door-to-door shipping days from China to US), and scale it based on our Composite Scale ([Exhibit 19](#)).

We publish the weekly scale on Monday PM/Tuesday AM to relay leading edge data that

will inform the roughly one month lagged composite (i.e., we will update the weekly scale every week and the legacy scale will be updated monthly). Looking at the two charts, it is generally clear that the weekly composite should have good predictive ability as to the eventual direction of the monthly composite (which includes more encompassing variables than pure weekly ones to provide strong confirmation on congestion direction), and this is confirmed by the similarly high R^2 values seen in Exhibit 18.

Exhibit 18: The weekly composite index (light blue) leads the monthly (dark blue); expect future monthly updates to confirm recent weekly trends

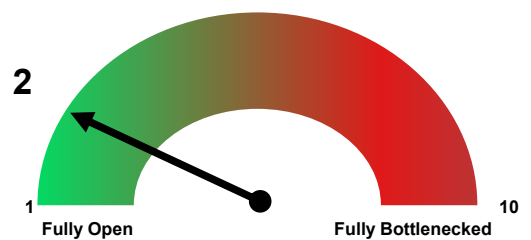


Source: Goldman Sachs Global Investment Research

Exhibit 19: Our combined scale averaged '142' in January, indicating a bottleneck score of '2' when looking at all metrics (weekly and monthly combined)

Weekly + Monthly Combined Congestion Scale*

GS Legacy Supply Chain Congestion Scale Monthly Data Updated Through January



*We rescaled our index on 3/28/2022 to account for higher-than-anticipated peak bottleneck levels

Source: Goldman Sachs Global Investment Research

Exhibit 20: GS Legacy Supply Chain Congestion Scale (incorporates monthly and weekly data)

Composite Scale	Fluidity Scale
<101	1
101-153	2
154-206	3
207-259	4
260-313	5
314-366	6
367-419	7
420-472	8
473-526	9
>526	10

Source: Goldman Sachs Global Investment Research

Exhibit 21: GS Weekly Supply Chain Congestion Scale (High-Frequency Data)

Composite Scale	Fluidity Scale
<101	1
101-192	2
193-284	3
285-376	4
377-468	5
469-560	6
561-652	7
653-745	8
746-837	9
>838	10

Source: Goldman Sachs Global Investment Research

Glossary:

- 1. West Coast container ship backlog:** tracks the number of container ships waiting to dock at the ports of LA and Long Beach; we add the number of ships anchored within 40 miles of the coast to the number of ships slow-steaming to port (AKA: ships loitering farther offshore) to get a better depiction of the true container ship backlog.

2. **East Coast container ship backlog:** estimates the number of container ships waiting to dock at the East and Gulf Coast ports in the US; based on satellite image data technology (Eikon), we add the number of container ships sitting for at least three days within 140 miles of a US port (accounts for ships to the right of 100 degrees of longitude to account for East Coast).
3. **Intermodal traffic:** tracks Y/Y intermodal carload volume growth for West Coast Class 1 Rails (BNSF and UNP). Accelerating volumes would indicate a more fluid supply chain for our purposes as more goods get moved through the system.
4. **Intermodal velocity:** tracks the average speed of the intermodal railcars (BNSF and UNP).
5. **Intermodal dwell:** tracks the average number of hours an intermodal railcar is idle (i.e., how long the car spends waiting at a terminal).
6. **Chassis dwell:** refers to the average time for chassis waiting on-terminal and on-street.
7. **Rail container dwell:** refers to the number of days a container waits to depart from a rail facility after being unloaded from an ocean carrier.
8. **Container weighted average dwell:** refers to the number of days a container stays at a marine terminal after being unloaded from an ocean carrier and taken off the premises by a truck.
9. **Ocean shipping rates:** refers to the average cost of shipping a container by ocean; we specifically track the cost of shipping from East Asia to the US West Coast via the FBX01 index from Freightos.
10. **Big Three West Coast Ports' inbound loaded containers:** refers to the Y/Y growth that the Big Three West Coast ports (LA, Long Beach, and Oakland) see in inbound loaded containers (i.e., how many more goods are moving through the port versus the same period last year).
11. **PMI manufacturing supplier delivery time index:** readings of 50 indicate no change in delivery times versus the prior month; readings above 50 indicate delivery times improved (faster supply chain) and readings below 50 indicated delivery times deteriorated sequentially (more delayed supply chain). The index is a result of IHS Markit's PMI business survey which asks purchasing managers, "Are your suppliers' delivery times slower, faster or unchanged on average than one month ago?"
12. **China-to-US door-to-door shipping transit time:** sourced from Freightos, this metric tracks the number of days it takes for a good to reach final destination (on average) once an order is placed and accepted (i.e., door-to-door shipping is not necessarily port-to-port as it also captures delivery times from port to final destination).

GS Data Works leverages alternative data sources and advanced analysis techniques to create unique data-driven insights across Global Investment Research. GS Data Works analysis (East Coast container ship backlog estimates) provided by Dan Duggan, Ph.D., Aditi Singh, and Parag Agrawal.

Disclosure Appendix

Reg AC

We, Jordan Alliger, Andrzej Tomczyk, CFA and Paul Stoddard, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

GS Factor Profile

The Goldman Sachs Factor Profile provides investment context for a stock by comparing key attributes to the market (i.e. our universe of rated stocks) and its sector peers. The four key attributes depicted are: Growth, Financial Returns, Multiple (e.g. valuation) and Integrated (a composite of Growth, Financial Returns and Multiple). Growth, Financial Returns and Multiple are calculated by using normalized ranks for specific metrics for each stock. The normalized ranks for the metrics are then averaged and converted into percentiles for the relevant attribute. The precise calculation of each metric may vary depending on the fiscal year, industry and region, but the standard approach is as follows:

Growth is based on a stock's forward-looking sales growth, EBITDA growth and EPS growth (for financial stocks, only EPS and sales growth), with a higher percentile indicating a higher growth company. **Financial Returns** is based on a stock's forward-looking ROE, ROCE and CROCI (for financial stocks, only ROE), with a higher percentile indicating a company with higher financial returns. **Multiple** is based on a stock's forward-looking P/E, P/B, price/dividend (P/D), EV/EBITDA, EV/FCF and EV/Debt Adjusted Cash Flow (DACF) (for financial stocks, only P/E, P/B and P/D), with a higher percentile indicating a stock trading at a higher multiple. The **Integrated** percentile is calculated as the average of the Growth percentile, Financial Returns percentile and (100% - Multiple percentile).

Financial Returns and Multiple use the Goldman Sachs analyst forecasts at the fiscal year-end at least three quarters in the future. Growth uses inputs for the fiscal year at least seven quarters in the future compared with the year at least three quarters in the future (on a per-share basis for all metrics).

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