Empty trucks are so hard to come by right now that Dean Foods Co., one of North America’s largest milk suppliers, cut its full-year earnings outlook in part because it simply can’t move its goods for anything close to what it expected to pay this year.

“Industry capacity for truck drivers remains extremely tight. This is driving third-party hauling rates to record levels, up 26% versus prior year,” Chief Executive Ralph Scozzafava said in a Tuesday call with investors.

The warning from the Dallas-based dairy processor puts Dean in a growing line of U.S. businesses struggling with the tightest freight market in recent memory. Distribution channels that carry goods to retailers, factories and consumers are struggling to keep up with the fast-growing U.S. economy as more companies caution that the strains in the transport sector are holding back their ability to grow.

With shipping costs rising and freight volumes outpacing the supply of available trucks, many companies are resetting their supply chains for what some believe is a new, more expensive era in freight transport.

July is typically a slow month for shipping. But last month rates on the spot market, where shippers buy last-minute truck transportation, rose 29% for the most common type of big rig compared with July 2017, extending an unprecedented stretch of year-over-year gains to 17 straight months. It is the longest sustained period of pricing growth for truckers since the industry was deregulated in 1980, according to online freight marketplace DAT Solutions LLC.

As rising transportation costs and scarce trucking capacity threaten to crimp growth, businesses including heavy-equipment maker Caterpillar Inc. and Hershey Corp. are reshaping
their supply chains to adjust to a changed market. Some, including Kraft Heinz Co., Sealed Air Corp. and Coca-Cola Co., are raising prices to offset higher freight expenses and rising costs for raw materials.

“Nobody has a crystal ball, but if I had to place a bet I would say this is structural, not cyclical” change, said Lee Clair, managing partner at Transportation and Logistics Advisors LLC, a supply-chain-strategy consulting firm.

The trucking squeeze has hit the food industry particularly hard, adding complications and costs to businesses already adjusting to changing competition and shifting consumer tastes. Food distributor US Foods Holding Corp., cereal-maker Kellogg Co., and Fresh Del Monte Produce Inc. all said higher transportation and logistics costs weighed on earnings in the most recent quarter. Tyson Foods Inc. expects “freight to be about $270 million more this year compared to last year,” the company said in an earnings call on Monday.

“The increases aren’t coming as fast as they were a year ago, but it took us a solid nine months to realize...that these increases are indeed being permanently secured with metal bolts to our costs,” J&J Snack Foods Corp. Chief Executive Gerald Shreiber said in an earnings call last month.

Dean Foods, which operates a large fleet of its own refrigerated trucks, plans to bring more of its freight operations in-house. The company is also trying to strike deals with trucking companies to get lower rates and working to get better use out of its shipping operations by “making sure that we have full trucks that are going out, particularly when we have internal freight that we’re moving either plant to plant” or from plants to distribution centers, Mr. Scozzafava said.

The worry over trucks marks a big reversal from recent years, when truck capacity was plentiful and retailers and manufacturers rushed to lock in low rates. Many carriers trimmed their fleets, and orders for new heavy-duty trucks plunged.

That meant trucks were harder to find when the freight market began to rebound in the second half of 2017, as industrial activity expanded and retailers replenished stocks after strong holiday sales. Carriers now are ordering new equipment at record levels, but many report trouble hiring additional drivers.

A new federal rule requiring drivers to track their hours behind the wheel with electronic logging devices, or ELDs, appears to have contributed to the difficulties, boosting prices for some routes that now take two days instead of one because of stricter timekeeping.

At the same time, e-commerce is triggering upheaval in many retail supply chains, pushing companies to ship more of their goods in smaller loads as they try to move more quickly to meet consumer demand.

“Those increases are indeed being permanently secured with metal bolts to our costs.’

—J&J Snack Foods CEO Gerald Shreiber

That flexibilit y carries a price.
Last year transportation costs rose 7% for U.S. businesses, far ahead of the 4.2% average growth rate over the five years ended in 2017, according to the Council of Supply Chain Management Professionals’ annual State of Logistics Report.

Now, trucking companies swamped with demand are turning down freight and raising contract rates by 10% or more, with further increases expected next year. Many are boosting pay to recruit drivers in a tight labor market and say the price increases are justified after rates remained stagnant for many years.

Covenant Transportation Group Inc., a large trucking company based in Chattanooga, Tenn., said last month it had raised rates as much as 14% this year, and expects to see increases of 7% to 8% in 2019.

Knight Transportation, a division of Knight-Swift Transportation Holdings Inc., the largest U.S. truckload company, said its revenue per loaded mile, a measure of pricing strength, soared 21% in the second quarter from the same quarter a year earlier. The company is getting customers that now are paying high spot-market rates to sign long-term contracts with rate increases to ensure they can get trucks.

“We screamed from the mountain top during all those years about how this isn’t sustainable and it will bounce back and eventually...it’s going to get ugly, and ugly is here,” Derek Leathers, chief executive of Omaha, Neb.-based Werner Enterprises Inc., one of the largest U.S. trucking companies, said at an investor conference in late June.

“If you have a supply chain that was built heavily on taking advantage of transactional interactions with your carrier base, you’re paying a pretty penny right now,” said Mr. Leathers.

Still, some experts say a turn in the business cycle or broader adjustments in distribution strategies could quickly swing leverage away from truckers, leaving them once again cutting prices to fill empty trucks.

“I envision an equal and opposite attempt of the buyer side, the shipper community, to go back and say, we’re going to go back and put everything in line with the market,” said Matthew Harding, a vice president at Atlanta-based research and consulting group Chainalytics. “I think the pushback's going to be very pronounced.”

—Heather Haddon contributed to this article.

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