USAA REAL ESTATE

SQUARE MILE CAPITAL

CONSTRUCTION MATERIALS SHORTAGES

DELAYED DELIVERIES AND ACCELERATING RENT GROWTH

JUNE 2021

Executive Summary

The pandemic has accelerated tenant requirements for modern industrial and logistics real estate. In response to this extraordinary demand, construction activity has proliferated. At the same time, the pandemic has exposed significant challenges for supply chains globally, disrupting the flow of raw materials and finished goods. **Research shows that ongoing disruption is driving a global shortage of raw building materials, resulting in increased input prices and extended lead times.** There are growing concerns that materials shortages could put the brakes on construction activity, leading to real rent growth and a scarcity of supply in 2022. This paper addresses these themes, and finds that:

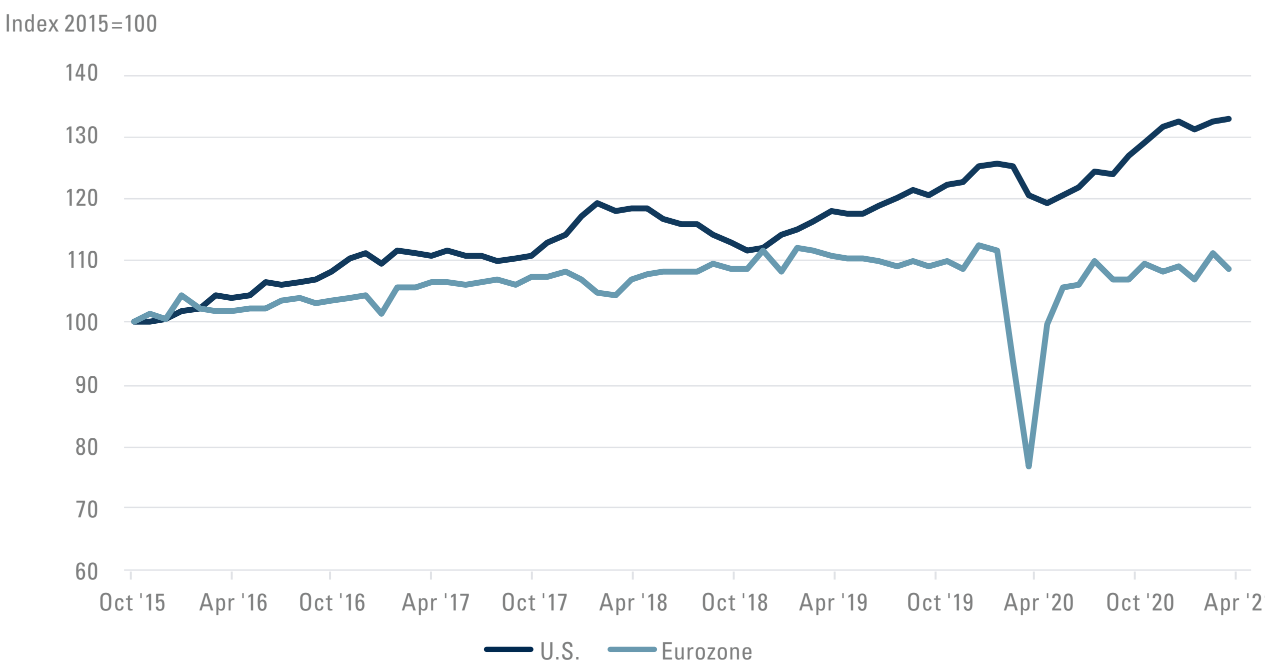
- Overall prices of construction materials are rising; however, headline data understates the severity of cost inflation, with some individual materials rising much more sharply.
- Longer delivery times can be traced back to disruptions in global transportation; notably, a shortage of shipping capacity.
- Increased materials pricing and required lead times are causing some property developments to be paused or delayed. Assuming demand remains robust, we could see historically low vacancy rates in 2022 as new supply will simply not be available.
- With continued strong demand and increased materials costs, industrial and logistics rents will likely continue to move up to align with the increased cost of development. This bodes well for the fundamentals of existing properties as well; increasing replacement costs may be a “rising tide lifting all boats” in the near-term.
- Elevated pricing and delays are possible throughout 2021 and potentially further into 2022 based on demand forecasts.

Construction Activity

Restrictions introduced to stop the spread of the coronavirus temporarily closed economies and severely disrupted global supply chains in the first half of last year. **The construction industry has proven surprisingly resilient in the face of multiple national lockdowns, public health restrictions, and temporary supply chain breakdowns.** The industrial/logistics sector was generally considered an essential service, so, for the most part, construction was not interrupted. As shown in **Exhibit 1**, the value of construction in the U.S. increased 9.8% year-over-year in the twelve months to April 2021.[1] Similarly, as of April 2021, Europe had almost fully regained pre-crisis construction levels, after an unprecedented 30.0% decline in the construction of buildings last year.[2]

Construction within certain segments has been notably robust. As a result of the pandemic and the rising demand for goods bought online, the industrial and logistics sector is booming. New sources of demand are also being driven by increased inventory levels, advocacy of new sourcing practices, and more widespread adoption of technology. The U.S. industrial market posted record in-process development activity of 376 million square feet in Q1 2021.[3] This trend is also replicated in markets across Europe. In the U.K., inventory under construction space increased 44% year-over-year to 6.7 million square feet, the highest level seen in two years, as a response to extraordinary demand.[4] However, challenges are emerging, which suggests it may be challenging in the near-to medium-term to sustain construction at these levels. **Disruption to the labor supply, increased materials prices, and longer lead times could lead to development cost increases and project delays in the industrial sector.**

EXHIBIT 1: Construction Activity in the U.S. and Europe



Source: US Census Bureau, Eurostat, USAA Real Estate Research

1. U.S. Census Bureau, May 2021
2. Eurostat, June 2021
3. CBRE, U.S. Industrial & Logistics Figures, Q1 2021
4. CBRE, U.K. Logistics Market Summary, Q1 2021

Confidence has grown markedly in construction activity in recent months as vaccine rollout continues and restrictions are eased. **As the focus shifts from managing the crisis towards stimulating the recovery, this is likely to be reflected in increased construction activity across other sectors.** Demand for infrastructure, as well as housing, will likely be a big beneficiary. We may also see work resume on delayed office and hotel projects, which could see demand for construction materials creep up and lead to further price increases in the short-term.

Rising Materials Costs

Currently there is a global shortage of raw building materials, as the pandemic disrupts supply chains and the construction sector enjoys a boom. The shutdown last spring of raw materials processing plants, followed by a robust global recovery in construction, made it difficult to rebuild depleted stocks of materials in winter. Substantial global monetary and fiscal stimulus measures have also increased demand. The JPMorgan Global Manufacturing PMI hit the highest level in over 11 years in May, driven by an influx of orders. Despite rising sharply, production growth continued to lag demand to the extent that backlogs of uncompleted orders grew at a rate not seen since May 2004.[5] The combination of surging demand and supply shortages meant that average prices paid globally for inputs rose at the steepest rate since March 2011.[6]

U.S.

Exhibit 2 shows the change since 2010 in the price of all materials used in nonresidential construction. **Over the last year alone, input costs for nonresidential construction have soared 24%.**[7] Construction materials prices have risen so sharply in 2021 that the Associated General Contractors of America issued a Construction Inflation Alert at the end of March, which the group has not done since 2008, citing a significant jump in input costs for projects since the pandemic began.[8]

5. JPMorgan Global Manufacturing PMI, May 2021
6. JPMorgan Global Manufacturing PMI, May 2021
7. Bureau of Labor Statistics, May 2021
8. Associated General Contractors, March 2021

EXHIBIT 2: Change in U.S. Construction Input Costs

Source: Bureau of Labor Statistics, USAA Real Estate Research
PPI Inputs to nonresidential construction, goods, not-seasonally adjusted

Exhibit 3 shows price changes as of May 2021 for various base materials used in commercial construction. Most notably in the data, steel mill products gained 76%, and Diesel fuel, used to power the heavy equipment needed to build major projects, surged 199% year-over-year. Lumber also increased 114% year-over-year through May 2021.[9] Although the active price of lumber started to decline in June, it remains high compared to normal levels.[10] Anecdotal evidence from the U.S. indicates many of the materials used on typical industrial projects are experiencing sharp daily price increases and procurement delays. Some of the largest increases are for roofing materials, structural concrete, and steel. **Materials availability issues are hitting lead times with delays of 12 months or more for some products. This compares with lead times of 4-6 weeks, prior to the pandemic.**[11] These increases can be traced to increases in demand as well as supply chain issues. While this trend is likely to persist in the short-term, it is important to note that this inflation may be transitory.

EXHIBIT 3: U.S. Price Changes Selected Construction Inputs

Input	% change Feb 2021-May 2021	% change May 2020-May 2021
Steel mill products	**43%**	**76%**
Lumber	**32%**	**114%**
Iron and steel	**30%**	**63%**
Fabricated structural metal products	**18%**	**23%**
Diesel	**23%**	**199%**

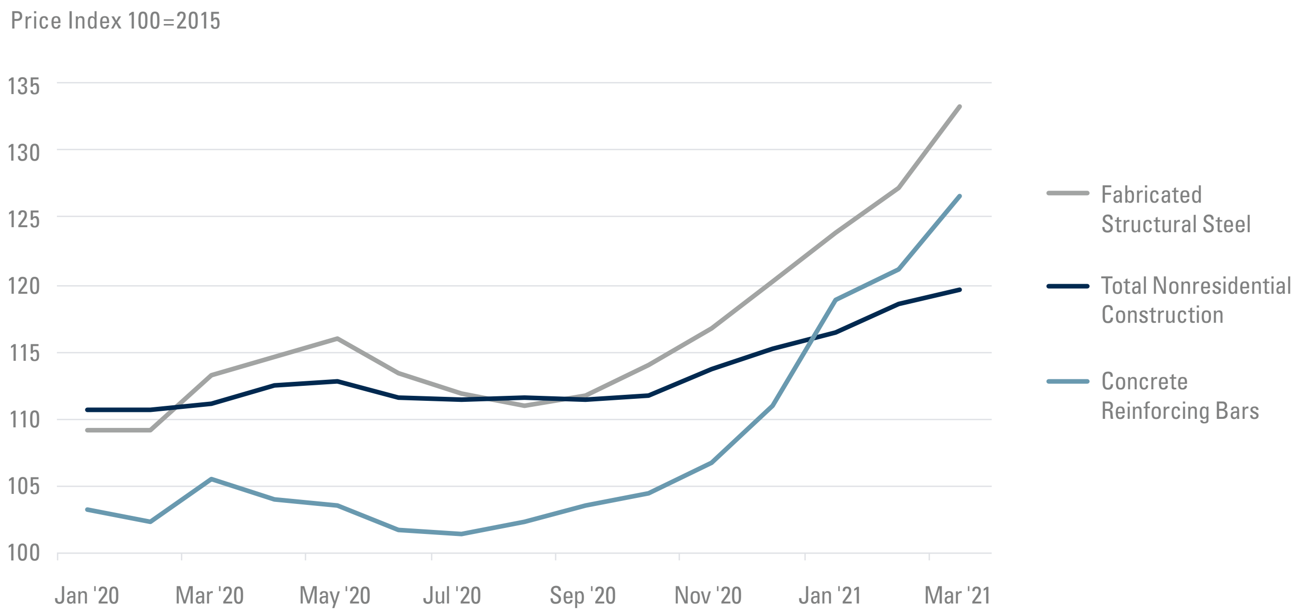
Source: Bureau of Labor Statistics, USAA Real Estate Research. Producer Price Indices, May 2021, Non-seasonally adjusted

EUROPE

Europe is further behind the U.S. in terms of economic recovery, due to the slower vaccine rollout and lower levels of fiscal stimulus. **Demand has not exacerbated supply shortages to the same extent or led to such widespread price increases.** Nevertheless, price increases have started to show up in some building materials as a result of the knock-on effects from the U.S. The Central Association of the German Construction Industry has warned of dynamic price development for various materials. Timber has become 15 to 20% more expensive since September and reinforcing steel has increased by 30%.[12] **U.K. data also show the overall cost of materials for new nonresidential construction has risen 7.6% from March 2020 to March 2021.** Some individual materials have risen much more sharply. Fabricated structural steel prices have risen by 18% in the past twelve months, while concrete reinforcing bars have escalated by 20% (see **Exhibit 4**).[13]

9. Bureau of Labor Statistics, Producer Price Indices, May 2021
10. Bloomberg, June 2021
11. USAA Real Estate Research
12. Die Zeit, Preise für Baumaterialien stark gestiegen, April 2021
13. Office for National Statistics, March 2021

EXHIBIT 4: U.K. Prices Indices of Construction Materials



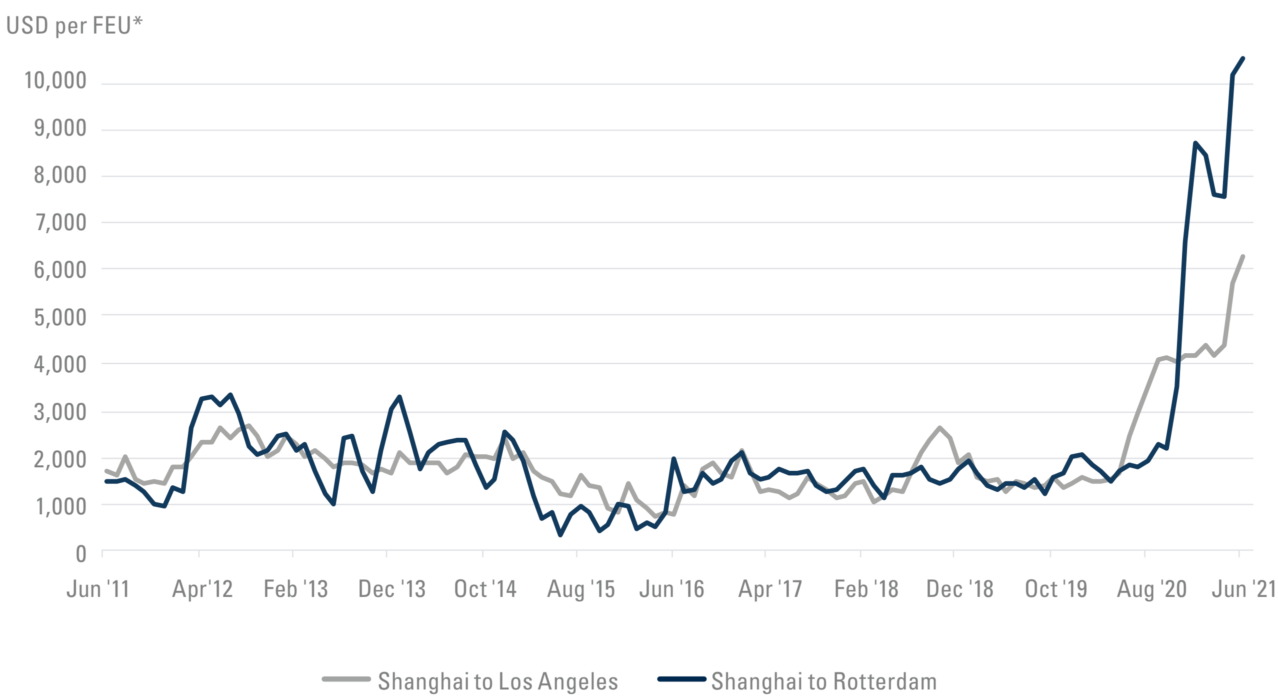
Source: Office for National Statistics, USAA Real Estate Research

Extended Lead Times

The shortfall of production and the resulting emergence of accumulated backlogs of work could be traced in many instances to supply chain delays. As measured by the global PMI's supplier delivery times index, lead times for inputs supplied to factories lengthened to the greatest extent since records began in 1998.[14] Longer delivery times were most commonly linked to a shortage of global transportation, notably shipping, in many cases attributed to a lack of available containers and to port congestion.

Limited space on ships to send goods has led to a record increase in global shipping costs and delayed freight deliveries. As shown in **Exhibit 5**, the price for a container of goods from China to the U.S. West Coast and European ports has hovered near record highs for several months. The higher shipping costs have been triggered by multiple factors, including soaring demand amid record levels of stimulus, limited availability of freight containers, and inundated ports with insufficient labor supply. The impacts are clear—higher prices and extended lead times.

EXHIBIT 5: Global Shipping Costs



Source: World Container Index/Drewry, USAA Real Estate (*FEU is 40 foot equivalent unit container)

14. JPMorgan Global Manufacturing PMI, May 2021

Industrial & Logistics Market Fundamentals

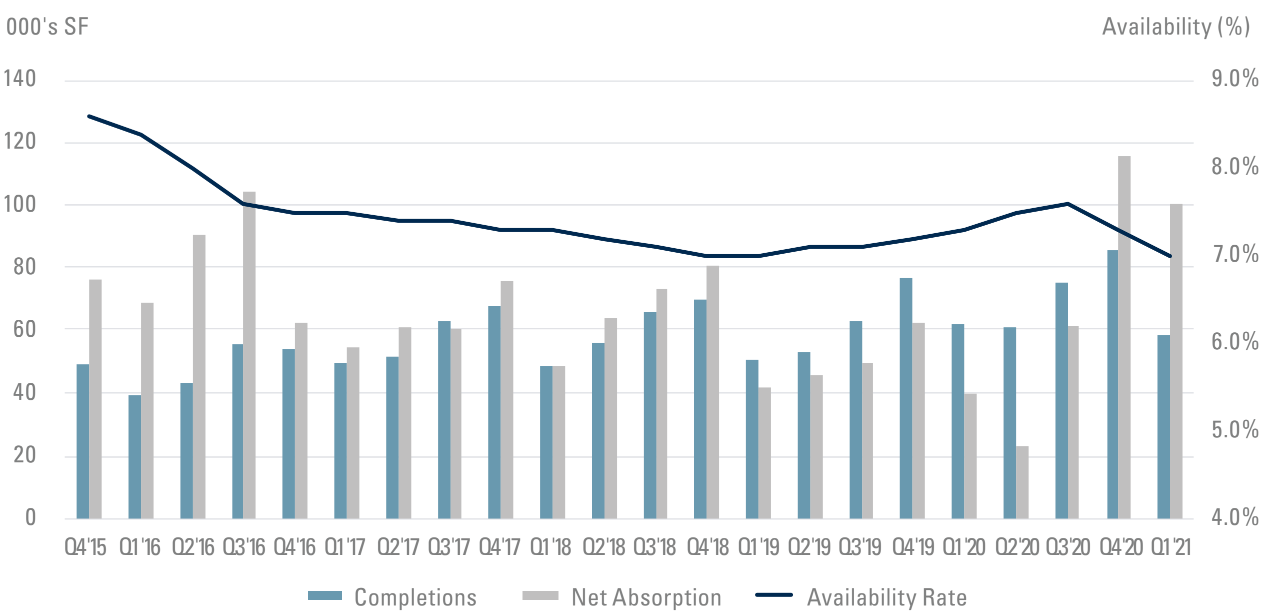
Insatiable demand for industrial and logistics space is driving construction activity across markets. **However, there are growing concerns that materials price escalations and shortages could hamper construction activity, leading to a significant spike in rent growth due to limited supply.** Notably, U.S. industrial construction completions fell by 32.4% in Q1 2021, marking the slowest quarter for completions in seven of the past eight years (see **Exhibit 6**).[15]

Companies on both sides of the Atlantic are leasing industrial and logistics space at a historically robust pace to satisfy the significant increase in demand. New sources of demand are being driven by supply chain optimization, the growth of e-commerce as well as on-shoring and re-shoring activity.[16] Positive fundamentals have lowered overall vacancy rates to near record lows, resulting in the rapid absorption of new development projects.

U.S.

In the U.S. this has resulted in record-high net asking rents for industrial and logistics properties, which rose 7.1% year-over-year through Q1 2021.[17] Assuming demand remains robust, we could see historically low vacancy rates in 2022 as new supply will simply not be available. Materials shortages are already resulting in development cost increases and project delays in the U.S. industrial sector. **Material shortages mean that development projects may take more than a year to be delivered due to the extended lead times being quoted. This compares with a typical project timeline of between 8-10 months**. With continued strong demand and increased materials costs, tenant competition for limited new supply will likely fuel further growth in rental rates. This bodes well for the fundamentals of existing U.S. industrial properties as well, as replacement costs rise. With a shortage of new supply, there will be less space available for prospective tenants, but there will also likely be fewer new projects available for investors. With a significant amount of capital targeting the industrial sector, this could well lead to further cap rate compression.

EXHIBIT 6: U.S. Logistics Market Fundamentals



Source: CBRE Econometric Advisors, USAA Real Estate (12-month rolling totals)

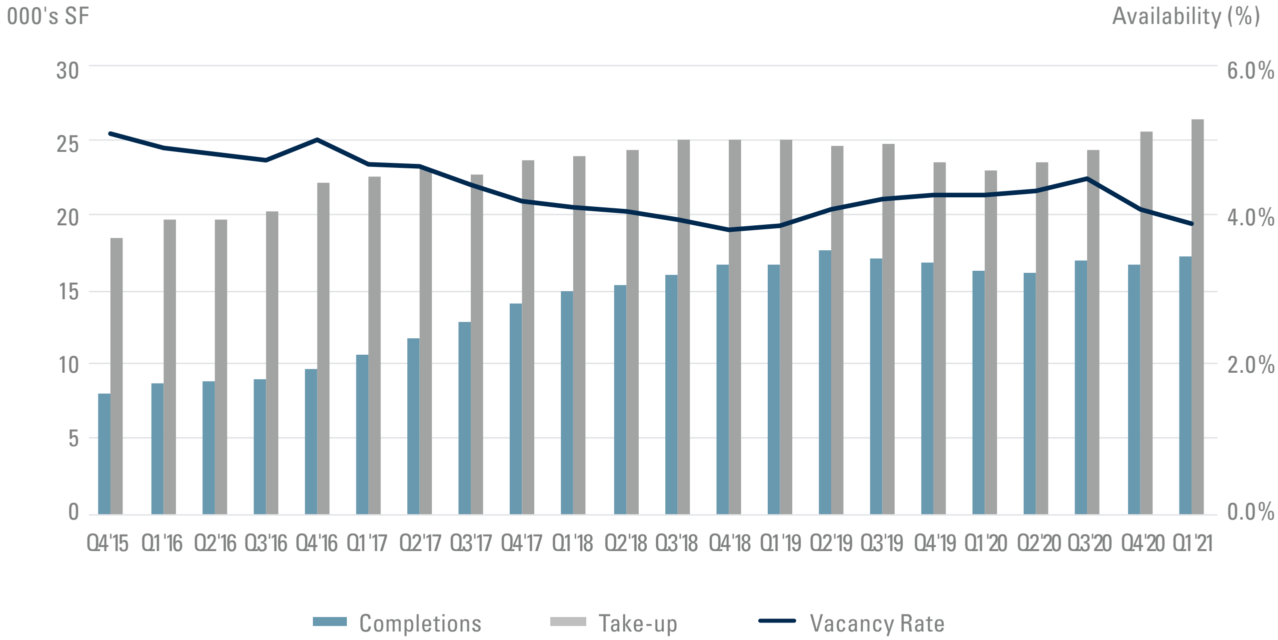
15. CBRE, Q1 2021 U.S. Industrial & Logistics Figures
16. A desire for more resilient supply chains could add impetus to plans to diversify sourcing practices, including on- and re-shoring.
17. CBRE, Q1 2021 U.S. Industrial & Logistics Figures

EUROPE

Europe has typically seen lower rent growth in the last economic cycle, as compared with the U.S., but here too, market fundamentals have begun to shift the dynamics. Tenant competition for modern, well-located logistics facilities and increased land costs have brought new record highs for rents in several markets across Europe. With continued strong tenant demand and increased construction costs, logistics rents will likely move up to align with the increased costs of development. Land values are not expected to decline as a result of recent construction cost escalations, however, the disruption could result in land value increases leveling out. **In the meantime, liquidity and investment appetite are increasing, so higher construction costs may be partly offset by continued cap rate compression.** The key difference in Europe is there is a greater degree of confidence that this inflationary pressure will be transitory. This is largely due to the existing slack in the labor market and lower level of government stimulus, as compared with the U.S.[18]

18. Capital Economics Briefing, May 2021.

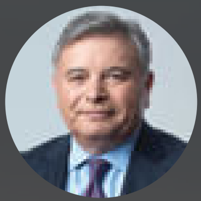
EXHIBIT 7: European Logistics Market Fundamentals



Source: CBRE, USAA Real Estate Research (12-month rolling totals)

Conclusion

The strength of occupier demand for industrial and logistics space during the pandemic has continued to fuel new development. Sector fundamentals, notably the expansion of e-commerce, will continue to drive demand for space in 2021 and into 2022. **Competition for modern, well-located facilities combined with increased construction costs, suggests rents will continue to accelerate.** The good news is that rising prices should encourage additional production. As the pandemic disruption fades, suppliers will be in a better position to respond to demand, so this may alleviate some of the pressure on materials. This will help to moderate increases, although, in the short-term, additional price escalation and longer lead times are expected. **The speed with which cost pressures fade will be contingent on how quickly logistics disruptions are resolved and capacity is rebuilt to help resolve supply and demand imbalances.**



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