US Economics Analyst

Strengthening Supply Chain Resilience: Reshoring, Diversification, and Inventory Overstocking (Walker)

- Two recent shocks have opened the eyes of US companies to the importance of supply chain resilience. The pandemic brought lockdowns, shipping gridlock, and shortages that resulted in the worst supply chain disruptions in decades and lost revenues for many affected companies. More recently, the Russian invasion of Ukraine has caused a sudden loss of foreign assets and trade relationships that has reminded companies of their exposure to geopolitical risk as well.
- Last cycle, the media hyped a "manufacturing renaissance" in the US that never amounted to much. But this time companies really are focused on strengthening supply chain resilience. We explore three forms that this could take: reshoring foreign production to the US, diversifying supply chains, and overstocking inventories.
- Reshoring appears limited so far. Construction of new domestic manufacturing facilities has mostly gone sideways, and imports of foreign parts and final goods have continued to grow faster than domestic manufacturing output. It might, however, simply be too soon to see the shift: the outperformance of US companies exposed to reshoring relative to US companies exposed to offshoring suggests that the market expects some eventual move in this direction.
- Supply chain diversification appears to be further along. We find that companies that relied more on suppliers in countries that imposed stricter virus restrictions had weaker revenue growth in 2020 and then became more likely to broaden their supplier base in 2021.
- Inventory overstocking is the strategy for improving supply chain resilience that is most clearly underway. Earnings call transcripts show that the share of companies that report plans to target a permanently high level of inventory has increased sharply, especially in durable goods sectors. Our manufacturing sector analysts corroborate this and report that companies in their coverage are targeting inventory-to-sales ratios roughly 5% higher than before the pandemic on average.
- Greater supply chain resilience comes at a price, and some investors worry that these trends will add to inflationary pressures. But the costliest of the three responses—reshoring production to the US—is also the least underway, suggesting that the shifts to date are a second-tier influence on the inflation outlook relative to key macroeconomic forces like labor market overheating.

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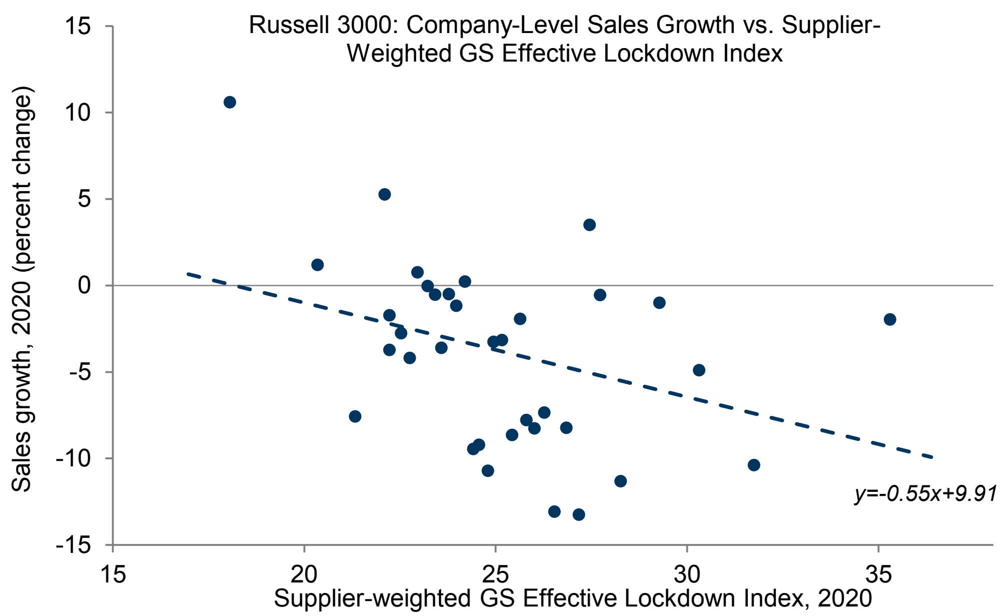
Strengthening Supply Chain Resilience: Reshoring, Diversification, and Inventory Overstocking

Two recent shocks have opened the eyes of US companies to the importance of supply chain resilience.

First, the pandemic brought lockdowns, shipping gridlock, and shortages that resulted in the worst supply chain disruptions in decades. Exhibit 1 shows that US companies whose suppliers were more affected by lockdowns—which we quantify by combining our global Effective Lockdown Indexes with data on suppliers collected by Factset from regulatory filings and company presentations—experienced sharper declines in revenues in the first year of the pandemic.

Exhibit 1: US Companies with Greater Exposure to Suppliers in Countries That Locked Down Heavily Experienced Larger Revenue Declines in 2020

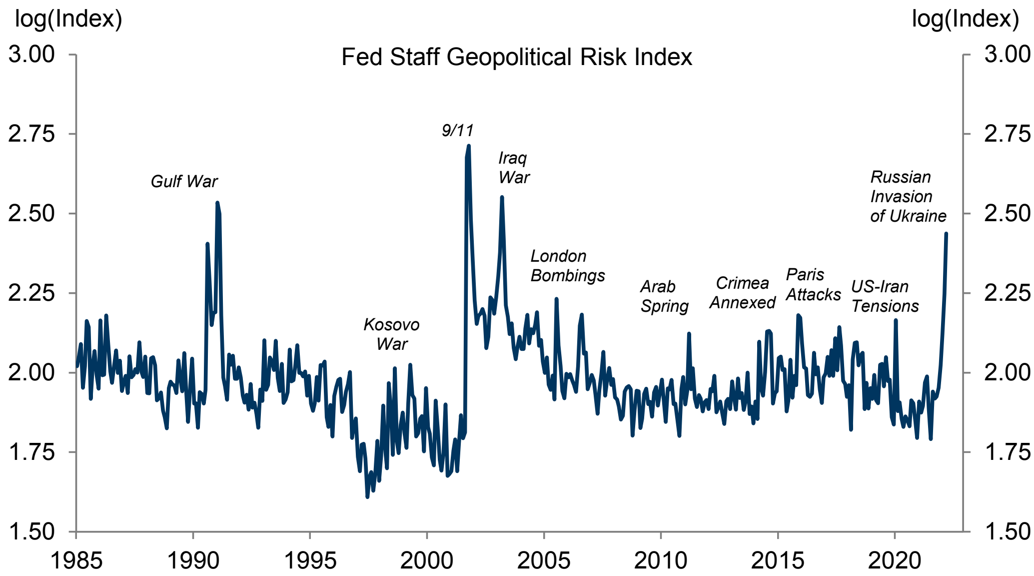


We trim the top and bottom 2.5% of sales growth observations. Scatter is binned, regression line is based on the full dataset.

Source: FactSet, Goldman Sachs Global Investment Research

Second, the Russian invasion of Ukraine has caused a sudden loss of foreign assets and trade relationships that has reminded companies of their exposure to geopolitical risk. While the direct financial linkages between the US and Russia are limited from an economywide perspective, the spike in geopolitical uncertainty shown in Exhibit 2 could cause companies to shift their supply chains away from countries they fear are at risk of becoming detached from the global value chain.

Exhibit 2: The Abrupt Loss of Foreign Assets and Trade Relationships Following the Russian Invasion of Ukraine Has Provided Western Companies with a Jarring Reminder of Geopolitical Risks

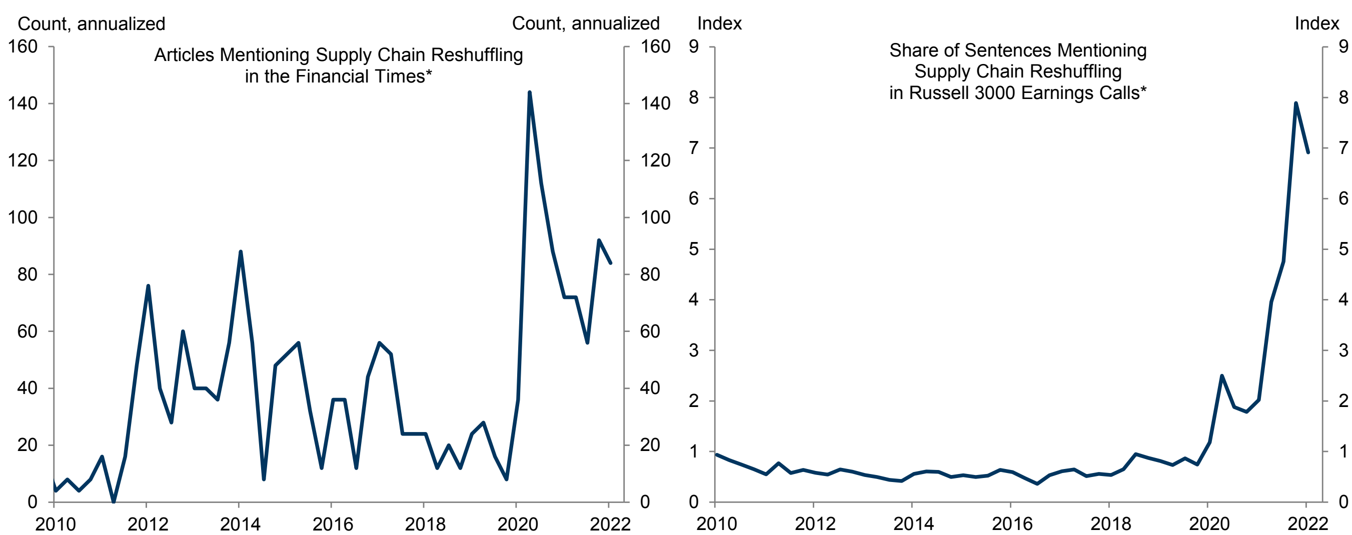


Source: Federal Reserve, Goldman Sachs Global Investment Research

Strengthening Supply Chain Resilience

Last cycle, the media hyped a "manufacturing renaissance" in the US that was never borne out in the official economic statistics and appeared to be more fiction than fact (Exhibit 3, left).[1] But this time, companies actually are actively discussing de-globalization, reshoring, and improving supply chain resilience (Exhibit 3, right).

Exhibit 3: The Alleged US Manufacturing Renaissance Last Cycle Was Mostly Media Hype, but Now Companies Really Are Focused on Improving Supply Chain Resilience



*Includes terms like "reshoring", "nearshoring", and "backshoring".

Source: GS DataWorks, Goldman Sachs Global Investment Research

[1] For example, see Lindsay Oldenski, "Reshoring by US Firms: What Do the Data Say," 2015 or "Kearney Reshoring Index," 2021.

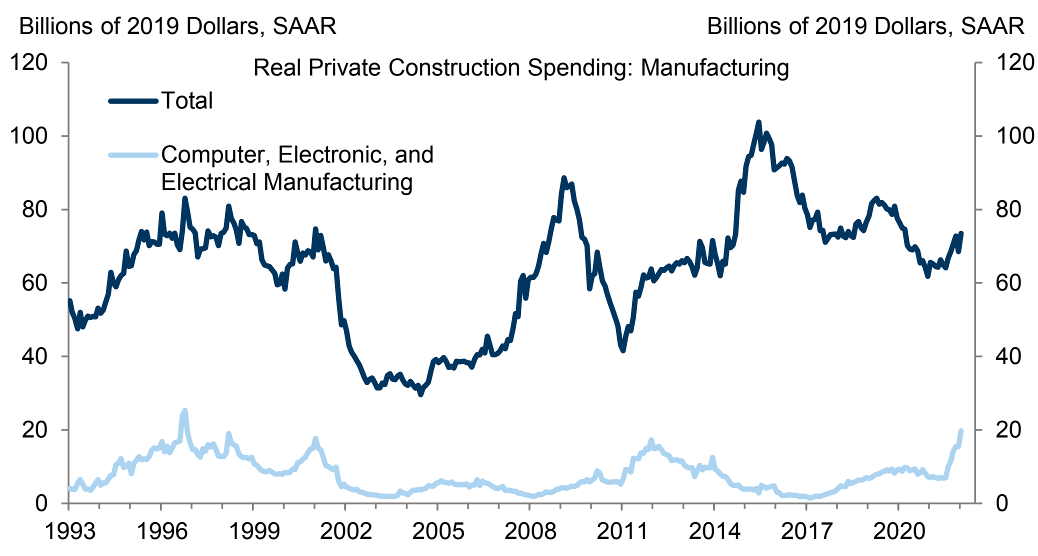
In this week's *Analyst*, we use a combination of official data, alternative data, and a survey of our sector analysts to explore three forms that attempts to strengthen supply chain resilience could take: reshoring production from abroad to the US, diversifying supply chains away from an excessive dependence on particular suppliers or countries, and overstocking inventories to guard against production disruptions.

Response #1: Reshoring

A disproportionate amount of media attention has been devoted to the reshoring of production, or the transferring of manufacturing activities back to the US from abroad.[2] While reshoring reduces exposure to international shipping, it is not obvious that it would improve supply chain resilience on net, as domestic production can suffer from many of the same issues that are cited as motivation for reshoring[3] as well as its own shortages of warehousing and ground transportation.

Evidence of meaningful reshoring remains quite limited so far. Construction of new domestic manufacturing facilities has increased over the last few months, but is still slightly below pre-pandemic levels (Exhibit 4). And while construction of computer-related manufacturing facilities is now running at double the pre-pandemic pace, the magnitude of investment is relatively modest: the $20bn average annualized pace over the past six months is equivalent to what Intel plans to spend constructing two large semiconductor facilities in Ohio over the next few years.

Exhibit 4: Construction Spending on Domestic Manufacturing Facilities Has Gone Sideways, Though Investment in Computer-Related Manufacturing Has Jumped Recently



Source: Department of Commerce, Goldman Sachs Global Investment Research

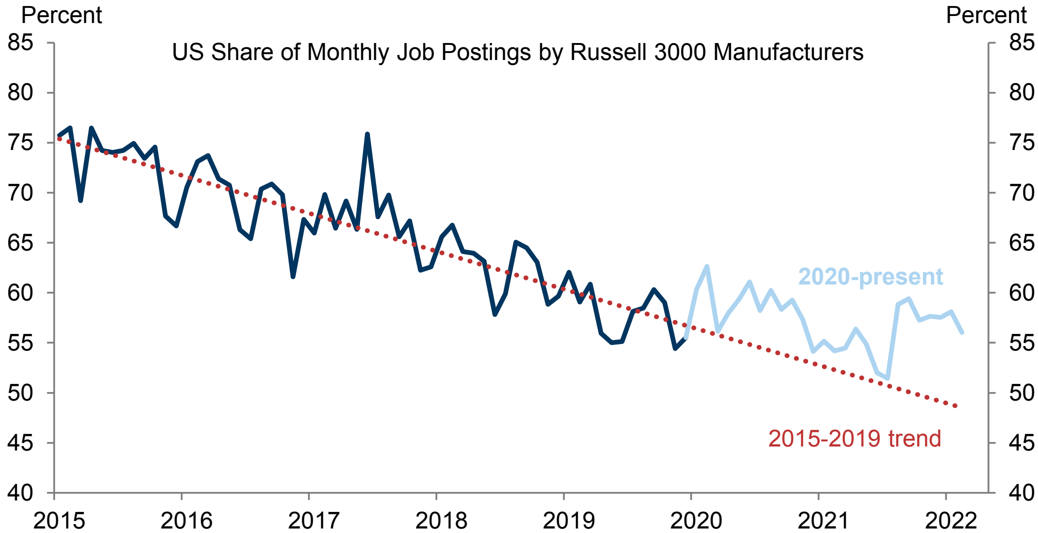
Job advertisements suggest that the share of manufacturing activity US companies plan to do domestically rather than abroad has at least stopped falling. Using data on

[2] Some definitions limit "reshoring" to the transfer of intracompany activities back to the US from abroad (see Koen De Backer et al., "Reshoring: Myth or Reality?" 2016), but we use a wider definition that allows for intercompany sourcing (which is sometimes also referred to as "backshoring").

[3] For examples, see Robert Lighthizer, "The Era of Offshoring U.S. Jobs Is Over," 2020.

individual job listings from LinkUp, Exhibit 5 shows that the share of jobs in the US posted by Russell 3000 manufacturers has halted its multi-year downtrend and moved roughly sideways since the start of the pandemic. However, the recent stabilization could be the result of differences in local demand (i.e. foreign demand for manufactured goods has been weaker than demand in the US, so hiring at foreign affiliates that primarily serve foreign markets could be weaker), and not due to a decreased reliance on foreign production by domestic companies.

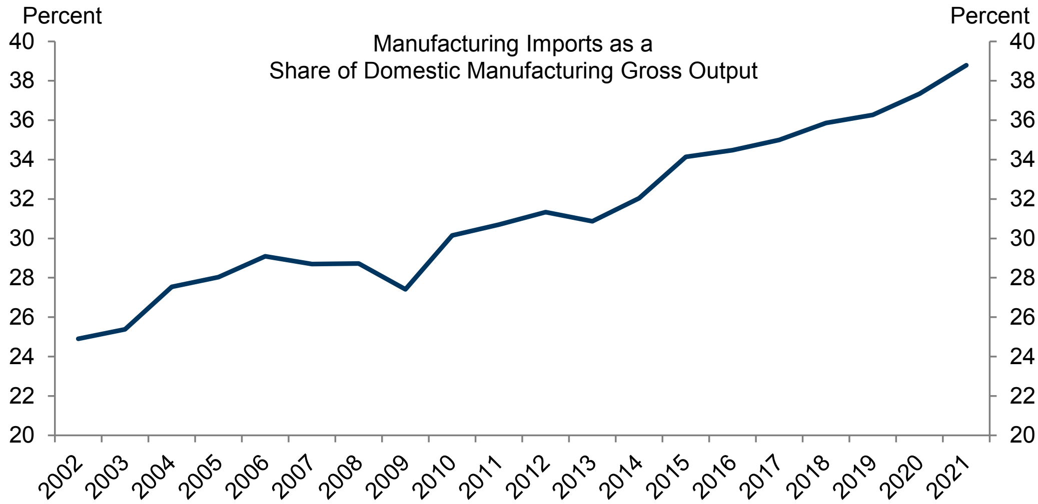
Exhibit 5: The Share of Jobs in the US Posted by US Manufacturers Has Stopped Falling Since the Pandemic Began



Source: LinkUp, Goldman Sachs Global Investment Research

The clearest evidence that there has not been meaningful reshoring—or at least that any reshoring has been outweighed by increases in offshoring—is that imports of foreign intermediate and final manufactured goods have continued to grow faster than domestic manufacturing output (Exhibit 6).

Exhibit 6: Manufacturing Imports Have Continued to Grow as a Share of Domestic Production



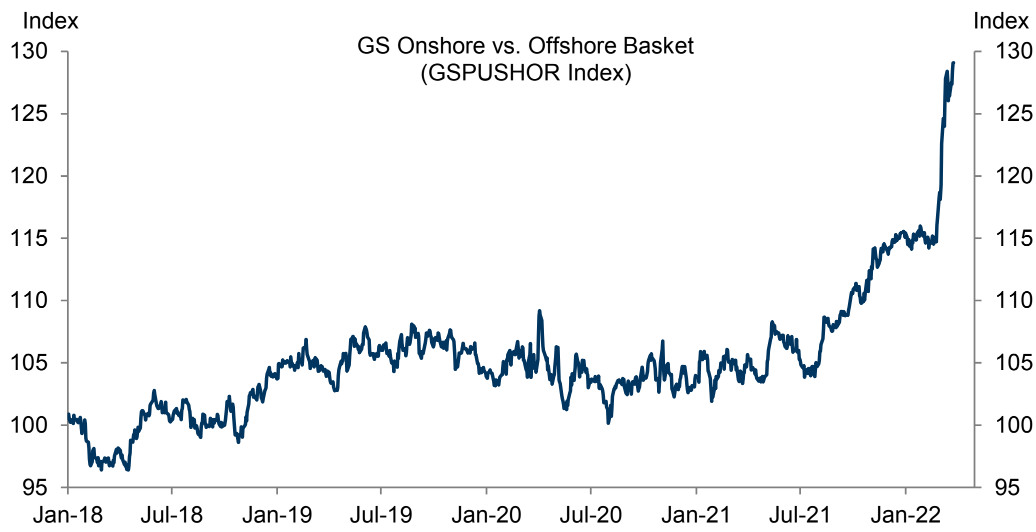
Source: Department of Commerce, Goldman Sachs Global Investment Research

Why might we not be seeing any reshoring today? It could be because most of the things that made offshoring more attractive in the first place, such as lower labor costs, are still relevant today. While companies might now be well aware of the risks posed by foreign shocks, it is not necessarily economical—or, in a competitive market, even feasible—to be the first company to bear higher production costs in normal times in return for possible insulation against potential future crises.

Or it could be that it's just too soon to see any shift. Supply chains are sticky and typically evolve gradually, [4] and supply chain disruptions themselves could be limiting companies' ability to invest in resilience. The outperformance of US companies exposed to onshoring relative to companies exposed to offshoring, captured by the stock basket shown in Exhibit 7, suggests that the market does expect some amount of reshoring in the years ahead.

4 Trang Hoang, "The Dynamics of Global Shipping," 2022.

Exhibit 7: The Equity Market Expects Reshoring-Exposed US Companies to Outperform in Coming Years



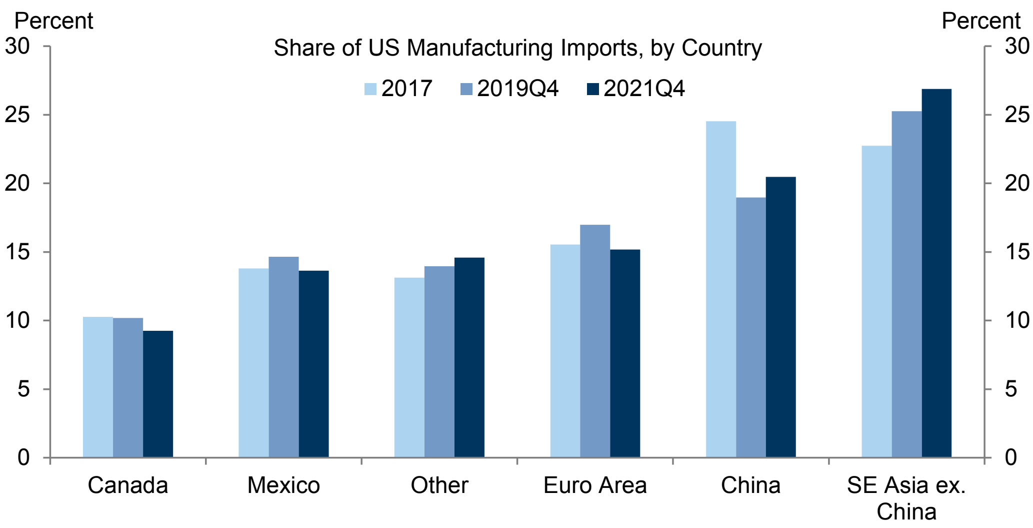
Source: Goldman Sachs

Response #2: Supplier Diversification

Another way to build supply chain resilience is to diversify suppliers. Both US retailers purchasing foreign and domestic finished goods and US producers purchasing foreign and domestic intermediate inputs might see advantages in relying on both a broader set of individual suppliers and suppliers from a wider variety of countries because supply chain disruptions can arise both at the company and regional level.

We start at a high level by looking at trends at the country level. Exhibit 8 shows that over the last five years, manufacturing imports have shifted away from China and toward the rest of Asia. As we and our Asia economics team have written before, part of the shift likely reflects diversion related to the US-China trade war and rising wages in China motivating manufacturers to seek out opportunities to produce in lower-wage countries, but it could also reflect concerns about such heavy exposure to a single country.

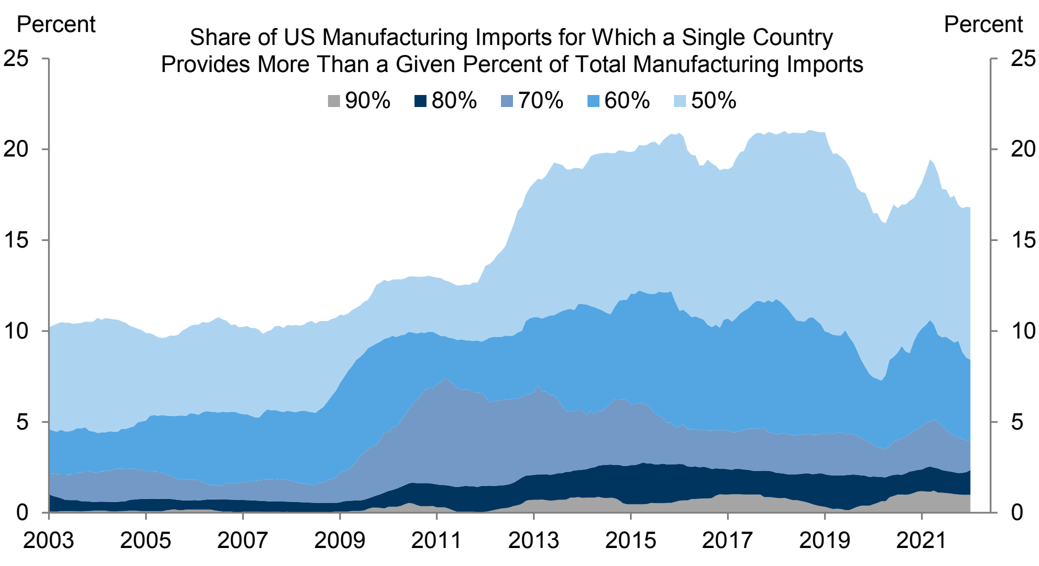
Exhibit 8: Manufacturing Imports Have Shifted Away from China and Toward the Rest of Asia



Source: Department of Commerce, Goldman Sachs Global Investment Research

In the event of a country-level supply disruption, a high reliance on the afflicted country for a single good likely limits the scope for other countries to make up for the missing production because sufficiently developed production chains are unlikely to already be in place. Exhibit 9 shows that the share of manufacturing imports (measured at the six-digit NAICS code-level) for which a single country provides the majority of goods has declined on net over the last five years, but is roughly in line with pre-pandemic levels today. We note that the import shares of manufacturing goods where a single country makes up more than 80% of imports has remained relatively stable over the last decade, although those goods account for just 2% of manufacturing imports.

Exhibit 9: The Share of Imports That Comes From a Limited Number of Countries Has Declined Over the Last Few Years

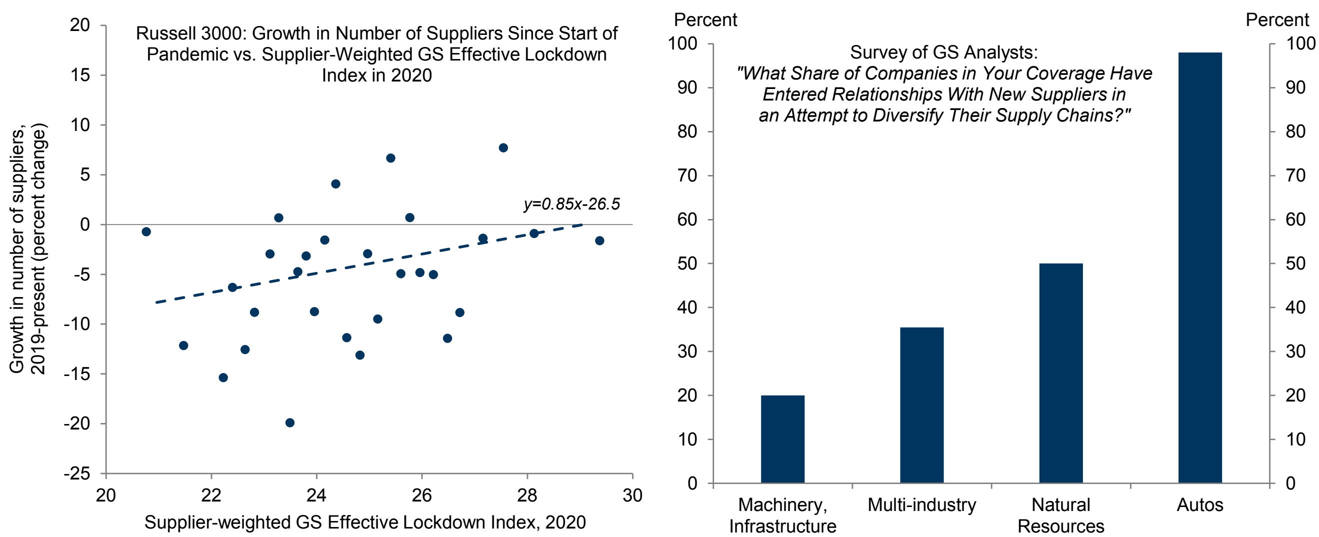


Source: Department of Commerce, Goldman Sachs Global Investment Research

Returning to the company-level data on supplier-customer relationships, we find that companies whose suppliers were more exposed to lockdowns in 2020 grew their number of suppliers by more in 2021 (Exhibit 10, left). In other words, companies that relied more on suppliers in countries that imposed stricter virus restrictions had weaker revenue growth in 2020 and then became more likely to broaden their supplier base in 2021. However, we find no relationship between supplier exposure to lockdowns and subsequent changes in a company's share of input costs that come from their top suppliers (e.g. suppliers that provide more than 5% or 10% of a company's inputs, as reported in regulatory filings), suggesting that companies have not yet reduced their dependence on their key suppliers.

Our sector analysts who cover manufacturing companies also report that substantial shares of their coverage have entered relationships with new suppliers in an attempt to diversify their supply chains (Exhibit 10, right).

Exhibit 10: Firms with Greater Exposure to Suppliers That Were Hit by Lockdowns Were More Likely to Expand The Number of Suppliers They Depend On



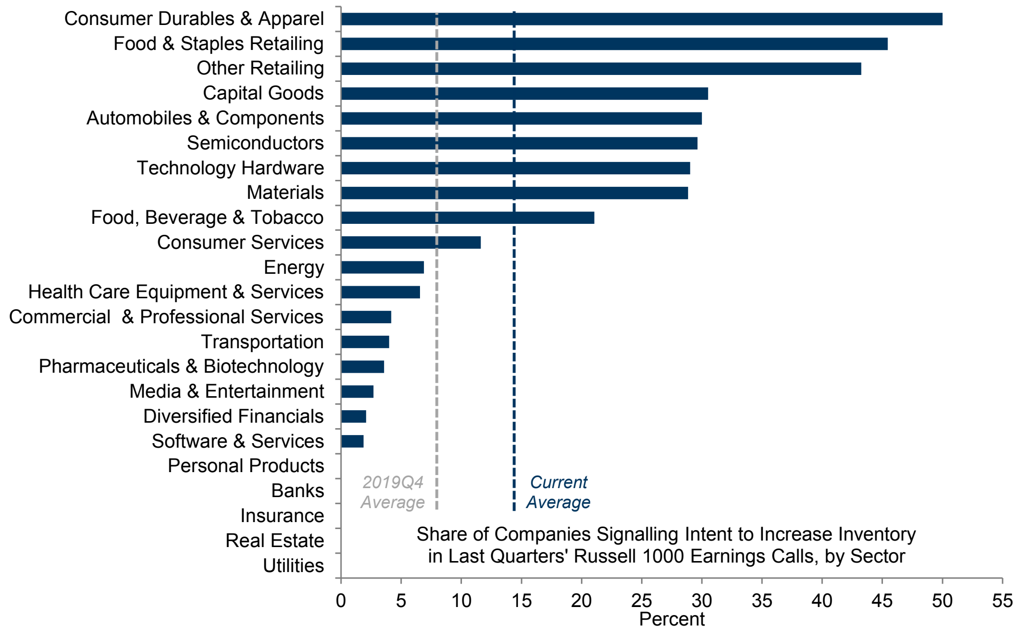
For the left panel, we trim the top and bottom 2.5% of y-variable observations, the scatter is binned, and the regression line is based on the full dataset.

Source: FactSet, Goldman Sachs Global Investment Research

Response #3: Inventory Overstocking

Inventory overstocking is the strategy for improving supply chain resilience that is most clearly underway. Last quarter's Russell 1000 earnings call transcripts show that the share of companies that report plans to target a permanently high level of inventory has doubled relative to before the pandemic, especially in durable goods sectors (Exhibit 11). Our manufacturing sector analysts corroborate this and report that companies in their coverage are targeting inventory-to-sales ratios roughly 5% higher than before the pandemic on average.

Exhibit 11: Companies Intend to Hold More Inventory, Especially in Durable Goods Industries



Source: Goldman Sachs Global Investment Research

The Cost of Resiliency

Greater supply chain resilience comes at a price—like any form of insurance—and some investors worry that these trends will add to inflationary pressures. There is probably some truth to this—carrying more inventory will raise costs, for example, and some or much of that cost will be passed along to consumers. However, the fact that the costliest of the three responses—reshoring production to the US—is also the least underway, suggests that the shifts to date are a second-tier influence on the inflation picture at the moment relative to key macroeconomic forces like labor market overheating. Indeed, the potentially inflationary impact of strengthening supply chain resilience is the main reason why many companies in competitive markets might find it difficult to take these steps.

Ronnie Walker

The US Economic and Financial Outlook

THE US ECONOMIC AND FINANCIAL OUTLOOK
(% change on previous period, annualized, except where noted)

	2020	2021	2022 (f)	2023 (f)	2024 (f)	2025 (f)	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4
OUTPUT AND SPENDING														
Real GDP	**-3.4**	**5.7**	*3.0*	*2.2*	*1.9*	*1.9*	*0.5*	*2.3*	*2.8*	*2.3*	*2.0*	*2.0*	*2.0*	*2.0*
Real GDP (annual=Q4/Q4, quarterly=yoy)	**-2.3**	**5.6**	*1.9*	*2.0*	*1.9*	*1.9*	*4.1*	*3.0*	*3.1*	*1.9*	*2.3*	*2.2*	*2.1*	*2.0*
Consumer Expenditures	**-3.8**	**7.9**	*2.5*	*2.1*	*1.9*	*1.9*	*0.6*	*2.0*	*2.5*	*2.3*	*2.0*	*2.0*	*2.0*	*2.0*
Residential Fixed Investment	**6.8**	**9.1**	*1.6*	*2.5*	*2.0*	*2.0*	*8.9*	*3.0*	*3.0*	*2.5*	*2.5*	*2.3*	*2.0*	*2.0*
Business Fixed Investment	**-5.3**	**7.4**	*4.6*	*3.3*	*3.5*	*3.6*	*8.5*	*3.2*	*3.0*	*3.2*	*3.4*	*3.4*	*3.4*	*3.4*
Structures	**-12.5**	**-8.1**	*-1.9*	*1.4*	*2.6*	*3.0*	*2.5*	*0.0*	*0.0*	*1.0*	*2.0*	*2.0*	*2.0*	*2.0*
Equipment	**-8.3**	**13.0**	*4.3*	*2.5*	*2.8*	*3.0*	*9.8*	*3.0*	*2.5*	*2.5*	*2.5*	*2.5*	*2.5*	*2.5*
Intellectual Property Products	**2.8**	**10.2**	*8.2*	*5.0*	*4.7*	*4.5*	*10.0*	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*
Federal Government	**5.0**	**0.6**	*-2.5*	*-0.8*	*-0.1*	*0.0*	*-1.2*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*0.0*	*0.0*
State & Local Government	**0.9**	**0.4**	*1.8*	*1.6*	*1.0*	*1.0*	*2.0*	*2.5*	*2.5*	*2.5*	*1.0*	*1.0*	*1.0*	*1.0*
Net Exports ($bn, '12)	**-943**	**-1,282**	*-1,402*	*-1,384*	*-1,362*	*-1,382*	*-1,356*	*-1,397*	*-1,423*	*-1,432*	*-1,412*	*-1,389*	*-1,374*	*-1,359*
Inventory Investment ($bn, '12)	**-42**	**-38**	*148*	*109*	*60*	*60*	*100*	*140*	*175*	*175*	*145*	*120*	*100*	*70*
Industrial Production, Mfg.	**-6.6**	**6.2**	*2.9*	*2.0*	*1.6*	*1.6*	*0.8*	*2.2*	*2.8*	*2.4*	*1.7*	*1.8*	*1.7*	*1.4*
HOUSING MARKET														
Housing Starts (units, thous)	**1,397**	**1,605**	*1,679*	*1,726*	--	--	*1,687*	*1,661*	*1,640*	*1,728*	*1,713*	*1,724*	*1,729*	*1,740*
New Home Sales (units, thous)	**828**	**773**	*897*	*934*	*928*	*919*	*894*	*882*	*865*	*946*	*946*	*916*	*906*	*967*
Existing Home Sales (units, thous)	**5,638**	**6,127**	*6,276*	*6,365*	*6,443*	*6,520*	*6,233*	*6,262*	*6,291*	*6,317*	*6,336*	*6,356*	*6,374*	*6,395*
Case-Shiller Home Prices (%yoy)*	**9.5**	**18.8**	*9.0*	*2.7*	*3.5*	*3.8*	*12.5*	*11.3*	*10.1*	*9.0*	--	--	--	--
INFLATION (% ch, yr/yr)														
Consumer Price Index (CPI)**	**1.3**	**7.1**	*5.6*	*2.8*	*2.6*	*2.4*	*7.9*	*8.1*	*7.5*	*6.1*	*4.6*	*3.1*	*2.7*	*2.8*
Core CPI **	**1.6**	**5.5**	*4.4*	*2.7*	*2.6*	*2.5*	*6.4*	*5.8*	*5.5*	*4.7*	*3.8*	*3.1*	*2.8*	*2.7*
Core PCE** †	**1.5**	**4.9**	*3.9*	*2.4*	*2.3*	*2.2*	*5.4*	*5.0*	*4.7*	*4.2*	*3.4*	*2.9*	*2.6*	*2.5*
LABOR MARKET														
Unemployment Rate (%)^	**6.7**	**3.9**	*3.5*	*3.2*	*3.2*	*3.2*	*3.8*	*3.5*	*3.5*	*3.5*	*3.4*	*3.3*	*3.3*	*3.2*
U6 Underemployment Rate (%)^	**11.7**	**7.3**	*6.6*	*6.3*	*6.2*	*6.0*	*7.0*	*6.8*	*6.6*	*6.6*	*6.5*	*6.4*	*6.3*	*6.3*
Payrolls (thous, monthly rate)	**-774**	**562**	*249*	*138*	*87*	*70*	*470*	*200*	*177*	*150*	*150*	*147*	*133*	*120*
Employment-Population Ratio (%)^	**57.4**	**59.5**	*60.5*	*60.6*	*60.5*	*60.3*	*60.0*	*60.2*	*60.4*	*60.5*	*60.5*	*60.5*	*60.6*	*60.6*
Labor Force Participation Rate (%)^	**61.5**	**61.9**	*62.6*	*62.6*	*62.5*	*62.3*	*62.3*	*62.4*	*62.5*	*62.6*	*62.6*	*62.6*	*62.6*	*62.6*
Average Hourly Earnings (%yoy)	**4.9**	**4.2**	*5.3*	*4.7*	*4.1*	*3.9*	*5.4*	*5.4*	*5.3*	*5.0*	*4.9*	*4.8*	*4.6*	*4.4*
GOVERNMENT FINANCE														
Federal Budget (FY, $bn)	**-3,129**	**-2,772**	*-1,100*	*-1,050*	*-1,150*	*-1,300*	--	--	--	--	--	--	--	--
FINANCIAL INDICATORS														
FF Target Range (Bottom-Top, %)^	**0-0.25**	**0-0.25**	*2.25-2.5*	*3-3.25*	*3-3.25*	*3-3.25*	*0.25-0.5*	*1.25-1.5*	*1.75-2*	*2.25-2.5*	*2.5-2.75*	*2.75-3*	*3-3.25*	*3-3.25*
10-Year Treasury Note^	**0.93**	**1.52**	*2.70*	*2.80*	*2.70*	*2.65*	*2.40*	*2.50*	*2.60*	*2.70*	*2.75*	*2.80*	*2.80*	*2.80*
Euro (€/$)^	**1.22**	**1.13**	*1.17*	*1.25*	*1.30*	*1.30*	*1.10*	*1.10*	*1.13*	*1.17*	*1.19*	*1.21*	*1.23*	*1.25*
Yen ($/¥)^	**103**	**115**	*116*	*110*	*105*	*105*	*122*	*117*	*117*	*116*	*115*	*113*	*112*	*110*

* Weighted average of metro-level HPIs for 381 metro cities where the weights are dollar values of housing stock reported in the American Community Survey. Annual numbers are Q4/Q4.
** Annual inflation numbers are December year-on-year values. Quarterly values are Q4/Q4.
† PCE = Personal consumption expenditures. ^ Denotes end of period.
Note: Published figures in bold.

Source: Goldman Sachs Global Investment Research

Economic Releases

Date		Time (ET)	Indicator	Estimate GS	Consensus	Last Report
Mon	**Mar 28**	**8:30**	**Advance Goods Trade Balance (February)**	**-$112.0bn**	**-$106.3bn**	**-$107.6bn**
		8:30	Wholesale Inventories (February preliminary)	n.a.	+1.2%	+0.8%
		10:30	Dallas Fed Manufacturing Index	n.a.	10	14
Tue	**Mar 29**	**9:00**	**S&P/Case-Shiller Home Price Index (January)**	**+1.4%**	**+1.50%**	**+1.46%**
		9:00	FHFA House Price Index (January)	n.a.	+1.3%	+1.2%
		10:00	**Consumer Confidence (March)**	**105.5**	**107.0**	**110.5**
		10:00	JOLTS Job Openings (February)	n.a.	11,000k	11,263k
Wed	**Mar 30**	**8:15**	**ADP Employment (March)**	**+475k**	**+450k**	**+475k**
		8:30	**Real GDP (Q4 third)**	**+7.0%**	**+7.1%**	**+7.0%**
		8:30	**Personal Consumption (Q4 third)**	**+3.1%**	**+3.1%**	**+3.1%**
Thu	**Mar 31**	**8:30**	**Personal Income (February)**	**+0.5%**	**+0.5%**	**flat**
		8:30	**Personal Spending (February)**	**+0.5%**	**0.5%**	**+2.1%**
		8:30	**PCE Price Index (February)**	**+0.62%**	**+0.6%**	**+0.6%**
		8:30	**Core PCE Price Index (February)**	**+0.40%**	**+0.4%**	**+0.5%**
		8:30	**Initial Jobless Claims**	**200k**	**200k**	**187k**
		8:30	Continuing Claims	n.a.	1,350k	1,350k
		9:45	**Chicago PMI (March)**	**58.3**	**57.0**	**56.3**
Fri	**Apr 01**	**8:30**	**Nonfarm Payrolls (February)**	**+575k**	**+490k**	**+678k**
		8:30	**Private Payrolls (February)**	**+575k**	**+495k**	**+654k**
		8:30	**Unemployment Rate (February)**	**3.7%**	**3.7%**	**3.8%**
		8:30	**Average Hourly Earnings (February)**	**+0.4%**	**+0.4%**	**flat**
		8:30	Labor Force Participation Rate (February)	n.a.	62.4%	62.3%
		9:45	S&P Global US Manufacturing PMI (March final)	n.a.	58.5	58.5
		10:00	**Construction Spending (February)**	**+0.7%**	**+1.0%**	**+1.3%**
		10:00	**ISM Manufacturing Index (March)**	**59.1**	**59.0**	**58.6**
		17:00	**Lightweight Motor Vehicle Sales (March)**	**12.9M**	**13.90M**	**14.07M**

Source: Bloomberg, Goldman Sachs Global Investment Research

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