

Global trade in 2021: driving performance in a more complex world

Overview

Far-flung supplier networks and volatile consumer demand has introduced new levels of complexity into global trade. The return of protectionist politics in multiple global regions, followed by the coronavirus pandemic, drove even more unpredictable, stochastic behavior in supply chains. Despite—or perhaps because of—mounting complexity and in some cases increasing friction in global trade, the payoff for achieving operational excellence in supply chain, particularly in transportation and logistics, has never been greater.

In this piece, we examine the major trends that will shape global trade in 2021, including volatility on the trans-Pacific trade lane, the Regional Comprehensive Economic Partnership (RCEP) and the prospect of a multipolar Pacific Rim trade regime, Brexit, North American economic integration, and the biggest risks for global trade.

Multinational corporations must now understand global trade on a macro, thematic level as well as a granular, tactical level to design products, create go-to-market and distribution strategies, and build more resilient network-based supply chains. Companies must combine a global trade strategy with robust real-time analytics and deploy those insights in multiple business functions, from how new products are conceived, built, marketed to how they are sold, moved and – in some cases, returned.

Global trade as percentage of GDP

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1990	38.8%
2000	51.01%
2010	57.03%
2019	60.4%

Export values in USD by country (in billions)

China	\$2,641.3
United States	\$2,504.3
Germany	\$1,806.2
Japan ¹	\$917.9
United Kingdom	\$891.7

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¹ 2018 level



(Chart:

Global trade as a percentage of global GDP. World Bank.)

The global trade and supply chain challenges that have emerged over the past five years are not going away. Renewed geopolitical tensions between the U.S. and China, between Russia and the E.U., Brexit, and the contest for a dominant Pacific Rim trade regime will be with us for years to come. While the U.S. administration may execute a different approach to trade policy, enduring rivalries will continue to pose challenges to firms which must think globally when it comes to product design, production, marketing, and distribution.

Covid-19 disrupted global freight flows in 2020 in a myriad of unforeseen ways, casting light on vulnerabilities that had hitherto been unnoticed or taken for granted. We offer a few examples here.

The linkage between passenger airline traffic and air cargo capacity for medical supplies is suboptimal: the same crisis that generated urgent needs for large amounts of personal protective equipment (PPE) also grounded the same aircraft that would move the freight. Meat processing and packing facilities, with their refrigerated airflows and crowded workspaces, proved to be ideal breeding grounds for the coronavirus, creating labor supply issues in the protein industry just as grocery demand spiked. The complex supply chain orchestration required to keep automotive assembly plants running broke down when different parts of the world experienced disruptions at different times: in February, for example, [Jaguar Land Rover shipped auto parts in suitcases from China](#) to the U.K. for lack of air cargo capacity.

In other words, while the layer of complexity that Covid-19 added to global trade may prove to be temporary, especially now that multiple vaccines with 90%+ efficacy rates are in production and distribution, the underlying vulnerabilities it revealed will persist. Even if the specific constraints and points of failure change in the next series of crises, the general pattern of unpredictable, cascading effects is likely to repeat itself.

What we have learned is that global trade itself is becoming more *complex*, and that's not to say it is simply more *complicated*. Rather, the global trade system shows stochastic attributes that have made it harder to predict the outputs that will be generated by a given input, and indeed, the same input might result in different outputs given small variations in the current system state.

The world's largest, most successful companies—from Amazon and Dole Food Company to Johnson & Johnson and Unilever—have turned supply chain operations from a cost center to a competitive advantage. Replicating, not to mention extending, that playbook now requires a higher degree of visibility, predictive analytics, and network design than in years past.

First, companies must understand what they are optimizing their supply chains for. Key performance indicators like volume growth, cost, resilience, responsiveness, and even carbon impact all imply different areas of focus and considerations. To prioritize volume growth might mean that a company overbuilds and in-sources some logistics capabilities, like a private trucking fleet, large distribution centers, or chartered air capacity. A strategic focus on cost control would use slower, inexpensive modes like ocean and rail intermodal as a kind of rolling inventory. Resilience requires additional contingency planning, including redundant supplier relationships and flexible distribution channels—think of the pop-up e-commerce fulfillment centers Walmart installed inside its distribution centers for the 2020 peak season.

The first step in designing a more responsive supply chain is to accelerate the flow of information upstream, from real-time consumer demand signals to distribution centers, production facilities and planning departments. Consider how Uber is merging data from its new Uber Direct offering, which does last-mile delivery fulfillment from businesses—order from a local drug store chain to a home, for example—with Uber Freight, its full truckload freight brokerage. Real-time consumer ordering and fulfillment data on specific SKUs can be fed directly into the 3PL's customer relationship management system, prompting a sales call or consultation with a CPG customer:

“Hi, [retail pharmacy chain]: today we're seeing elevated demand for your disinfecting wipes in these stores.”

Building the infrastructure to move large data sets, merge them, and construct engines that can then make decisions based on that data is no easy task, but it is critical for companies who need their supply chains to respond to dynamic changes in trade, consumer, and freight market conditions. This management of large data sets has to be supported by watertight data security that uses automated technology, such as machine learning, to recognize unusual activities and defend companies from malicious attacks across their supply chains.

Finally, carbon impacts and especially Scope 3 emissions, or those emissions generated in the supply chain, are a new priority for large corporations with ambitious sustainability initiatives. Visibility upstream into supplier operations, dynamic intelligence about modal shifts, and analytics around shipping schedules to maximize load factors and eliminate empty miles all play a role in mitigating supply chain carbon impacts. Sustainability is rarely the sole factor that companies optimize for, but it is now a widely shared core value in large corporations.

A company's ability to optimize its supply chains for these factors—more likely, a blend of these factors tailored to specific times of year, regions, and products—depends on its ability to generate clean structured data, integrate it with partners including suppliers, 3PLs, and customers, and produce robust analytics that deliver the right recommendation to the right person at the right time.

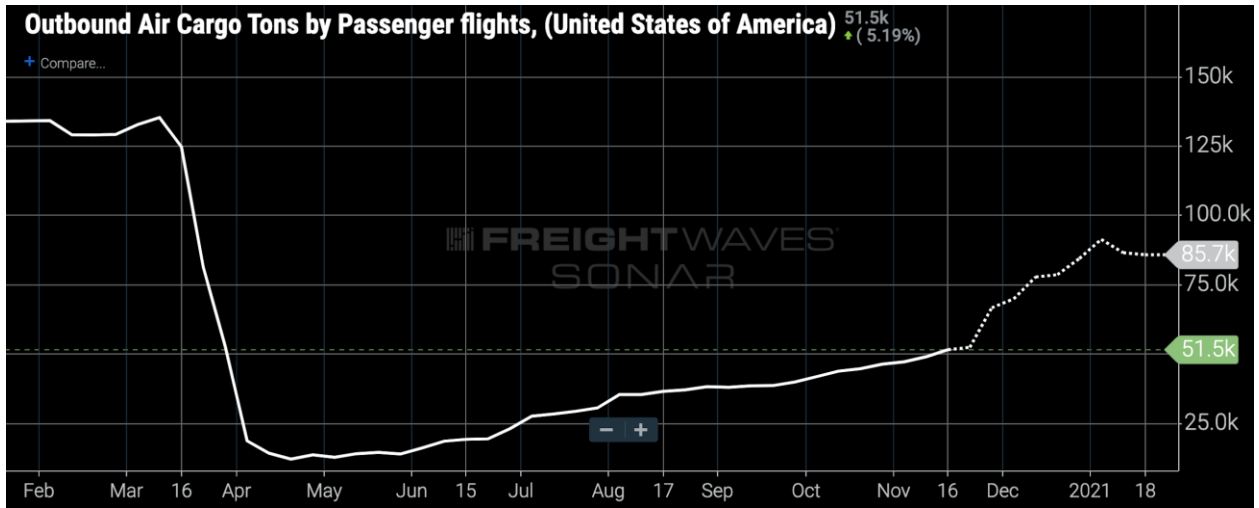
Global trade has become more complex, but supply chain outperformance is still possible. The stakes may be higher than ever before.

A choppy trans-Pacific

The trans-Pacific trade lane is one of the world's most important global freight flows, connecting China and the United States, the world's two largest economies. The trans-Pacific has experienced waves of disruption, beginning in 2018 with the U.S.'s imposition of tariffs on many Chinese goods. That caused shippers to pull import volumes forward, raising ocean rates and straining warehouse capacity onshore.

The trans-Pacific was the epicenter of Covid-19 related disruptions, affecting manufacturing and import and export operations. Spending on goods shot up as Americans stopped traveling, staying in hotels, eating in restaurants, or going to sporting events. But ocean and air rates skyrocketed due to under-capacity.

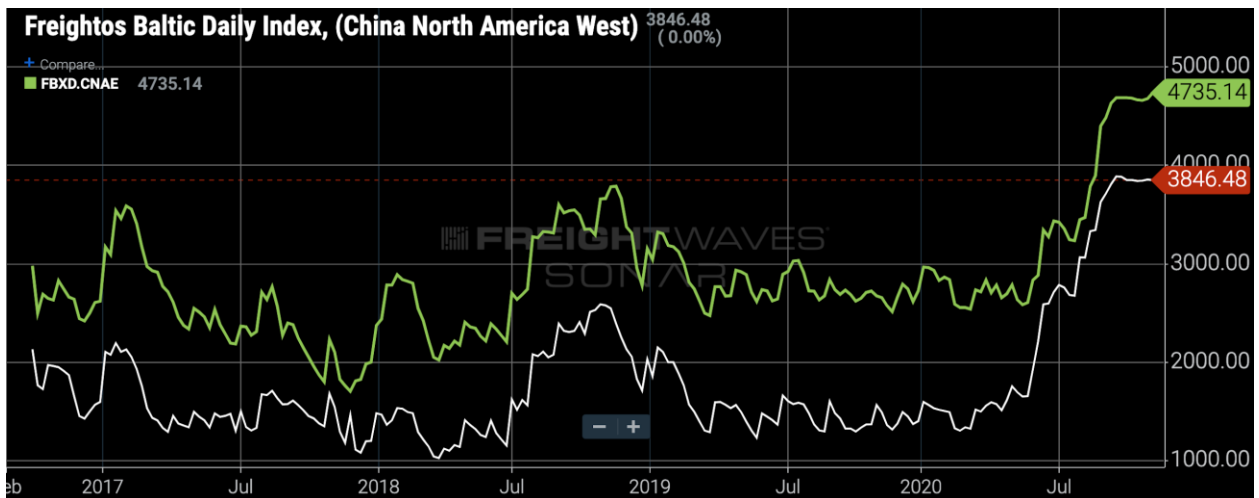
Outbound air cargo tons by passenger flights cratered in the middle of March as consumers abandoned travel plans and flights were cancelled during the first wave of the coronavirus pandemic. According to [TSA data](#), at the trough, total traveler throughput was down 96.17% year-over-year (y/y).



(Chart: FreightWaves SONAR.)

According to FreightWaves bookings data, outbound air cargo tons by passenger flights will be suppressed but will strengthen throughout the remainder of the year. It should be noted that outbound air cargo tons by freighter flights has been relatively unchanged since the pandemic started.

With positive news from ongoing vaccine trials, we expect outbound air cargo to begin to normalize in the first half of 2021. In our view, this development will help restore passenger airline demand and with it, air cargo capacity.



(Chart: FreightWaves SONAR. 40' container spot rates from China to North America West Coast [white] and from China to North America East Coast [green] in USD).

One form of transportation that has benefited tremendously from the lack of air capacity is ocean container shipping. Box rates from China to the East and West Coast move in lockstep with one another, but it is consistently more expensive to ship from China to the East Coast due to increased mileage along with more fees (ex. Panama Canal).

Ocean rates from China to the two U.S. coasts were fairly constant for the majority of 2019 through the beginning of 2020. Starting in June, rates to both of these destinations started their ascent to the highest level in our dataset. A positive for shippers is that rates have stagnated at current albeit extremely high levels.

The catalyst for these moves was a lack of air capacity combined with a surge in demand from consumers following a period of lockdowns. Strong consumer demand is likely to expand throughout the end of the year, which will lead to demand to restock retail stores and warehouses which in turn will put additional pressure on shipping capacity.

We expect that as air capacity returns to pre-pandemic levels, the steamship lines will face headwinds in relation to rates. It will be increasingly difficult to adjust capacity to fit the new levels of demand because shippers will have the option to ship by air more frequently. It is important to note that rates from China to the U.S. East Coast ports have spiked by 134% since late May whereas rates from China to West Coast ports have soared by 83% during the same period.

The RCEP and the search for a dominant Pacific trade regime

One way of thinking about free trade agreements (FTAs) is that they are legal instruments that establish a formal trade superstructure over a pre-existing geopolitical base. In other words, although trade negotiators perform valuable work and the details of policy are important, to some extent FTAs merely ratify an underlying political reality—they recognize common interests that already exist.

Such a view of FTAs illuminates recent developments in Asia Pacific trade agreements. The United States withdrew from the Trans-Pacific Partnership (TPP) in January 2017, while negotiations for the RCEP, a China-centric—[but not China-led](#)—alliance, were already well underway. In November 2019, India pulled out of the RCEP; but in November 2020, it was signed by China, South Korea, Japan, Australia, New Zealand, and all ten members of ASEAN.

The United States may seek to rejoin the more comprehensive TPP, which includes provisions on child labor, unions, and environmental protections. Meanwhile, India may seek to form its own regional trade agreements.



Pacific trade is shaping up as a multi-polar world, then, divided between China, the United States, and India; assuming the RCEP gets ratified.

The RCEP rationalizes and standardizes a number of bilateral FTAs into a common framework with relatively light country-of-origin rules (40% regional value content to avoid tariffs) and principles designed to facilitate foreign direct investment. While, for example, Vietnam added provisions to its Schedule in Annex III to limit foreign ownership of aircraft and railway car manufacturers, RCEP’s foreign investment framework is expected to ease investors’ access to transportation and clean energy infrastructure and healthcare investments.

(Map: RCEP signatories, public domain. ASEAN countries in blue, East Asian members of ASEAN Plus Three in purple, Oceanian members of ASEAN Plus Six in green).

In our view, those infrastructure investments—if appropriately studied and executed—could be critical drivers of ASEAN economic growth. In several countries, including Vietnam and Indonesia, highway and airport infrastructure constrains the growth of trade more than available labor or logistics expertise.

To date, the European Union has pursued bilateral FTAs with Asian countries, such as those with Vietnam, signed June 2019, and Singapore, signed November 2019. RCEP’s ratification could create a simpler mechanism for further developments in European - Asian trade.

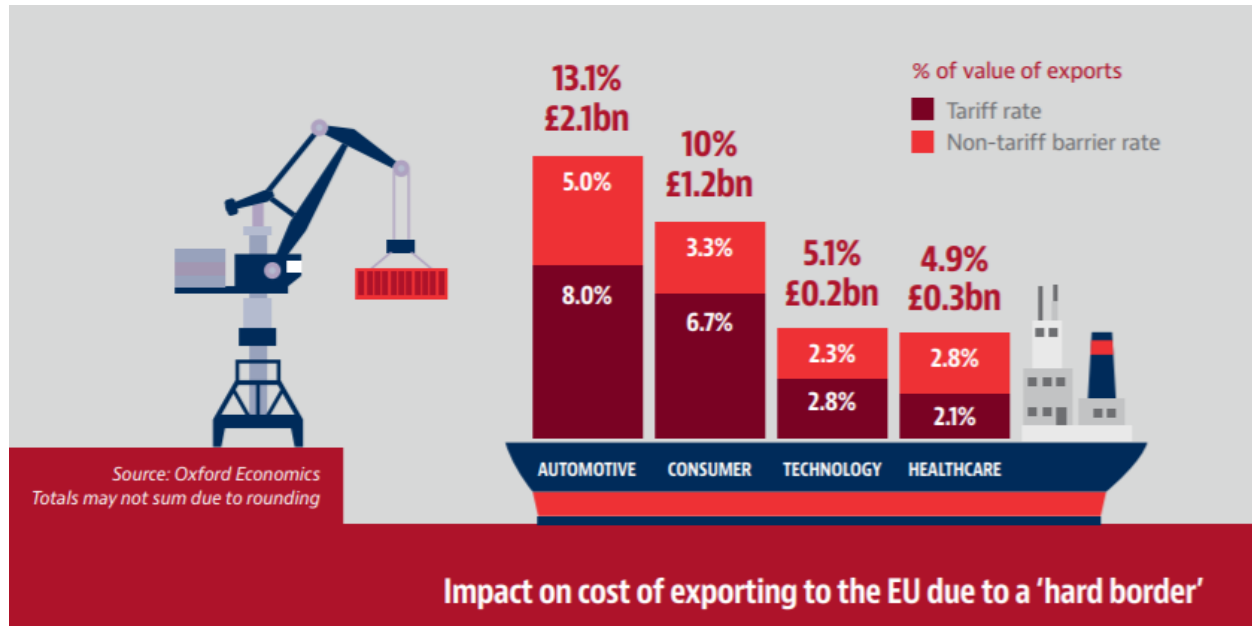
The next few years will see a further sorting out of the political and economic fault lines that run through the Asia - Pacific region as both India and the United States find their way toward international free trade agreements and shore up their relationships with regional partners. In our view, during the next five years, FTAs will continue to evolve in a competitive direction, as capital competes for access to emerging markets and emerging markets compete for capital.

Those competitive dynamics will contribute to a shifting landscape for Asian and Pacific trade as dozens of countries’ trade agreements come to resemble Venn diagrams that overlap in complicated ways. Navigating multiple layers of international FTAs will be crucial to operating effectively in the region.

Brexit: introducing friction

Brexit is one of the largest challenges facing European supply chains in 2021. The continuing uncertainty with regards to the nature of ongoing trade nearly five years after the Brexit vote itself is forcing exporters in both the U.K. and the European Union (EU) to adjust rapidly to changing conditions. The faster the exporters are able to shift, the better off the companies will be. Potential changes to customs compliance regulations along with increased transportation costs enhances the need to be nimble across the supply chain.

New customs compliance practices will add costs to the exporters, sometimes exceeding what the costs of the tariff on the goods will be. Baker McKenzie estimates that four manufacturing sectors make up roughly 45% of exports from the U.K. to the EU: automotive, consumer goods, technology, and health care. The average added costs of goods exported to the EU for both tariffs and non-tariffs is an additional 6.2%. The added costs for automotive will approach 15% as the current EU tariff rate for automotive vehicles from outside countries is 10% and non-tariffs costs could reach an additional 5%.



(Infographic: Baker McKenzie)

Healthcare equipment and supply export costs could increase up to ~5%, with more than half of that cost increase coming from the non-tariff costs. The EU has temporarily suspended the tariffs on healthcare supplies due to the ongoing COVID-19 pandemic, which will keep export costs muted until the suspension is lifted.

The table below illustrates the fact that, as a proportion of total exports, the U.K. is more exposed to the EU than the EU is exposed to the U.K.; thus it stands to reason that the EU would have negotiating leverage in any EU-U.K. trade deal. Thus far, the U.K.'s strategy to deal with this structural disadvantage has been to pursue bilateral agreements with individual countries.

	EU total exports (£bn)	EU exports to UK (£bn)	UK total exports (£bn)	UK exports to EU (£bn)
Automotive	445	49	36	16
Consumer	392	34	21	12
Healthcare	226	18	20	10
Technology	409	29	12	5

Automotive is the largest component of exports for both the EU and U.K.. EU to U.K. automotive exports only account for 11% of all EU automotive exports, but U.K. to EU auto exports represent 44% of total U.K. automotive exports. Ross Denton, EU, Competition and Trade Partner at Baker McKenzie, stated that “as a percentage of their trade, you can clearly see that the EU exports a lot more broadly, to a whole host of other markets, and consequently, it is far less dependent on the U.K. as a market than the U.K. is on it.”

On the other hand, the U.K. will implement phases to imported goods, meaning that full customs checks for imports from the EU will begin in July 2021, and most importers will be able to defer customs declarations (and subsequent payments) for up to six months from the time of import.

The first stage will focus on critical goods like medicine and live animals, which will be subject to import checks starting on January 1. Starting in April, the customs declarations will expand to other agri-food imports, which some importers have stated that they will start full declarations in January to avoid the changes in the middle of the year.

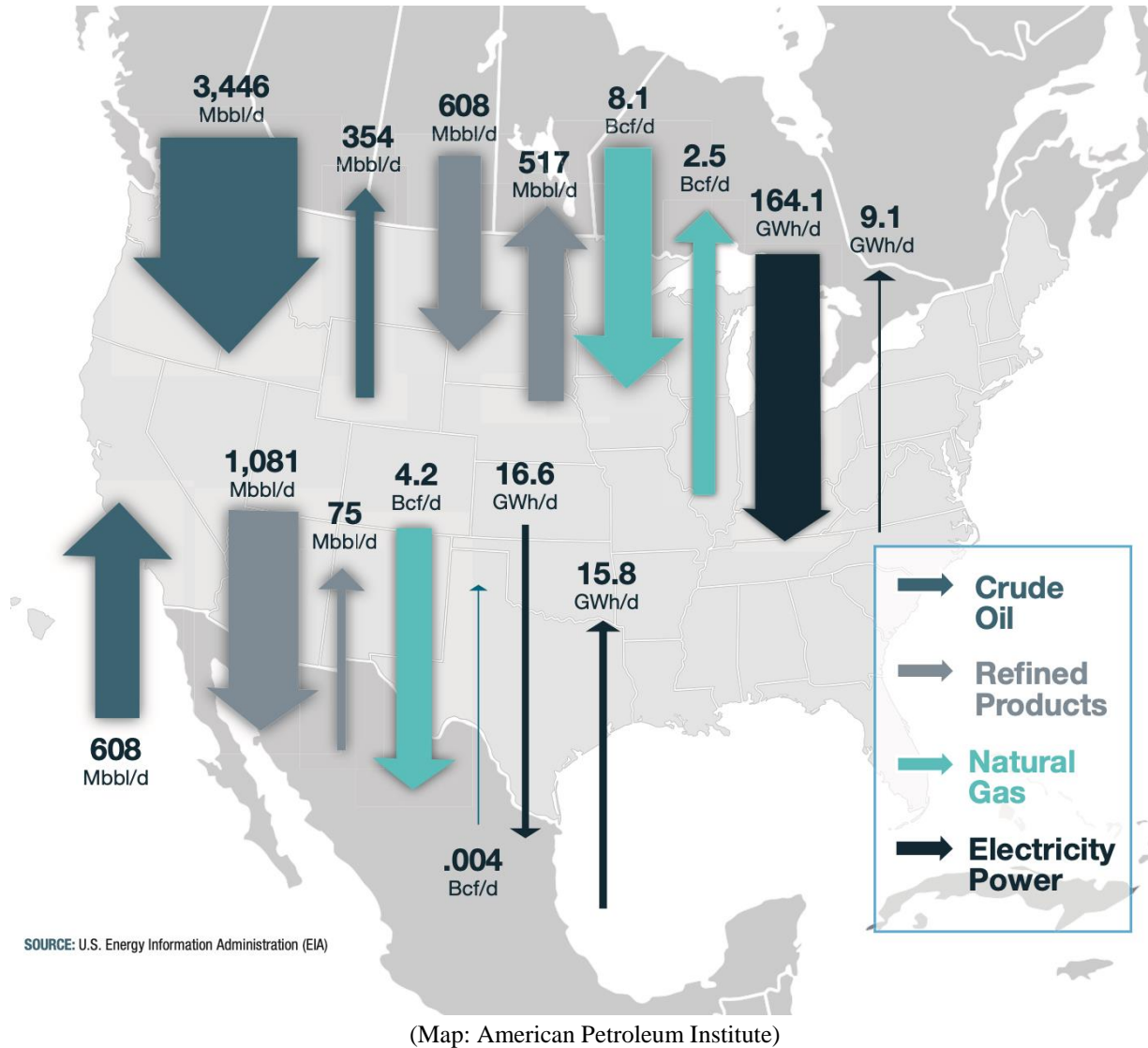
The smaller ports are struggling to build the infrastructure needed for full customs declarations on imports starting in July. The government has provided funding for the construction of the infrastructure but the costs of expedited construction may prove too much for the smaller ports, which may risk project delays. Some traders, both importers and exporters, may look at using smaller ports to avoid delays through customs at larger ports like the Port of Felixstowe and the Port of London, and the lack of infrastructure may cause delays, though traffic is lighter than the large ports.

Regional case study: North American economic integration

Faced with a mandate to become more cost-efficient, resilient, and responsive, some supply chains are shortening and becoming more regional than global, while still maintaining considerable cross-border activities. In this section, we treat the trade of food, chemicals, and automotive parts between Canada, the U.S., and Mexico as a case study for regional economic integration.

In brief, our thesis on the North American cross-border trade in goods is simple. A more integrated energy infrastructure has powered the growth of U.S. chemicals and Mexican automotive, while growth in cold chain warehousing capacity has spurred growth in cross-border food supply chains. Those three industries – automotive, chemicals and food – are deeply embedded in the North American region and are crucial factors in driving economic integration across the continent.

To oversimplify what has become a dynamic market, the most important energy and power flows on the continent are the crude oil and electricity exports from Canada to the United States and the gasoline and natural gas exports from the United States to Mexico.



Two direct effects of the energy trade flow were an historic boom in the U.S. petrochemicals industry and an acceleration of Mexican electricity demand, which is up 29% since 2010. Cheaper power in Mexico enables industrial production, particularly automotive production, and makes it easier for Mexican consumers to buy U.S.-made consumer items that use electricity.

As stated above, three of the most important verticals for the North American goods trade are automotive, chemicals and food.

The automotive supply chain, which includes assembly plants as well as multiple tiers of parts suppliers, is concentrated in a north-south corridor that runs from the Canadian province of Ontario through the Great Lakes states, the American Southeast, and then down into the Bajío region of central Mexico. Automotive assembly’s center of gravity has migrated southward from the industry’s traditional home in Detroit and Ohio, but Michigan still produces more cars than any other U.S. state – 1.8 million in 2018.

But in 2019, Mexico produced 3.75 million cars, and the year before the automotive industry officially became the largest contributor to Mexico’s manufacturing GDP.

The USMCA included regulations for the automotive industry designed to encourage re-shoring of automotive parts production in North America. Under NAFTA, 62.5% of a car’s parts (by value) had to originate from North America in order to exempt

the car from import duties; USMCA raises that requirement to 75%. Further, 70% of a producer's steel and aluminum purchases must originate in North America.

The U.S. chemical industry is gigantic: as the world's second-largest producer of chemicals, the value of the U.S. industry amounts to \$565 billion annually. Capital expenditures including structures and equipment in the U.S. chemical industry totaled \$35 billion in 2019 alone; \$10 billion was invested in research and development.

The United States exported \$136 billion of chemicals in 2019; its two largest markets were Canada (\$22 billion) and Mexico (\$21 billion). The North American trade flow of chemicals – primarily on railcars and specialized tractor trailers – is primarily from the United States to Canada and the United States to Mexico. Canada and Mexico's chemical industries are quite small compared to the U.S., at \$58 billion and \$20 billion, respectively.

Together, mineral fuels, chemicals and plastics make up a large volume of U.S. exports to Mexico: machinery's prominence in export statistics is skewed by the high value of the goods. Industrial production growth in Mexico and Canada, including manufacturing in Mexico and oil and gas exploration and production in Canada, will generate further demand for U.S. chemicals.

Canada and Mexico are the United States' largest and second-largest agricultural export markets, respectively. The United States is Canada's largest agricultural export market by far (\$30 billion in 2017 compared to the next-largest market, China, at \$7 billion). Sixty percent of Mexico's agricultural exports go to the United States.

Therefore the food supply chains of the North American countries are tightly linked. The U.S. exports processed foods and fruits and vegetables to Canada and imports snack foods and red meats from Canada. The U.S. imports fresh fruits, vegetables and beer from Mexico and exports corn, soybeans and dairy products to Mexico. The value of those agricultural trade relationships in 2018 totaled \$93 billion. Those relationships are becoming more important, not less – in 2018, the avocado unseated the banana as the United States's most valuable imported fruit.

Food supply chains are dynamic not because production centers are shifting but because of seasonal harvest cycles and growing cold chain warehouse storage capacity. Transportation capacity must adapt to the moving targets of produce seasons that generate surges of fresh food, beginning in Mexico in March/April, then southern California and Florida and working its way further north. McAllen, Texas is an important border crossing for Mexican produce and lights up with refrigerated truckload volumes before California's Imperial Valley, Lakeland, Florida, and then California's San Joaquin Valley.

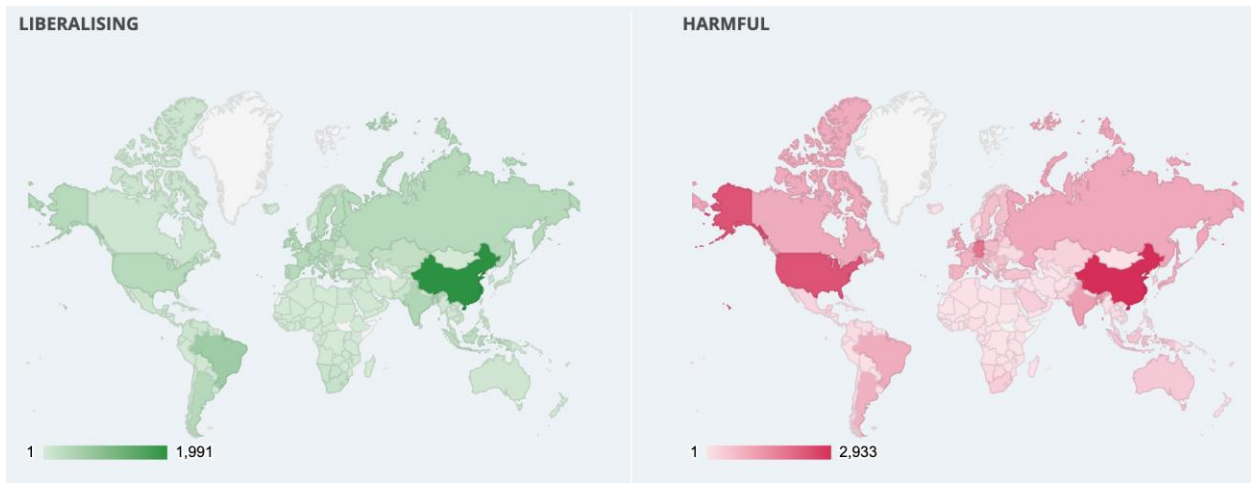
We believe that North American food supply chains will grow in value, enabled by strong growth in cold chain warehouse capacity. U.S. cold chain warehouse capacity grew by 43% from 2000 to 2018. The USDA found that in 2019, total U.S. refrigerated warehouse capacity amounted to 3.65 billion cubic feet; up from 2.9 billion cubic feet in 1999. The top five states in terms of capacity were California, Washington, Florida, Wisconsin and Texas: all border states.

The biggest risks for global trade in 2021

The biggest risks for global trade in 2021 include the prospect of protectionist impulses resuming around the world, cyberattacks growing in frequency and severity, and chaotic, non-linear modal disruptions in transportation markets including air, ocean, rail, and trucking.

Protectionist impulses continue to affect global trade. Beyond the borders of the United States, the potential for pushback against China's Belt and Road Initiative (BRI) remains a live issue and one that could reignite as the new trade agreement, the RCEP, goes for ratification. Brexit, of course, is a further warning that the European Union may be entering a centripetal cycle where protectionist and isolationist forces could potentially overpower integrationist trends.

The map below, created by the Center for Economic and Policy Research, displays the number of state interventions, both liberalizing and protectionist (‘harmful’), since the Great Financial Crisis.



(Map: Center for Economic and Policy Research.)

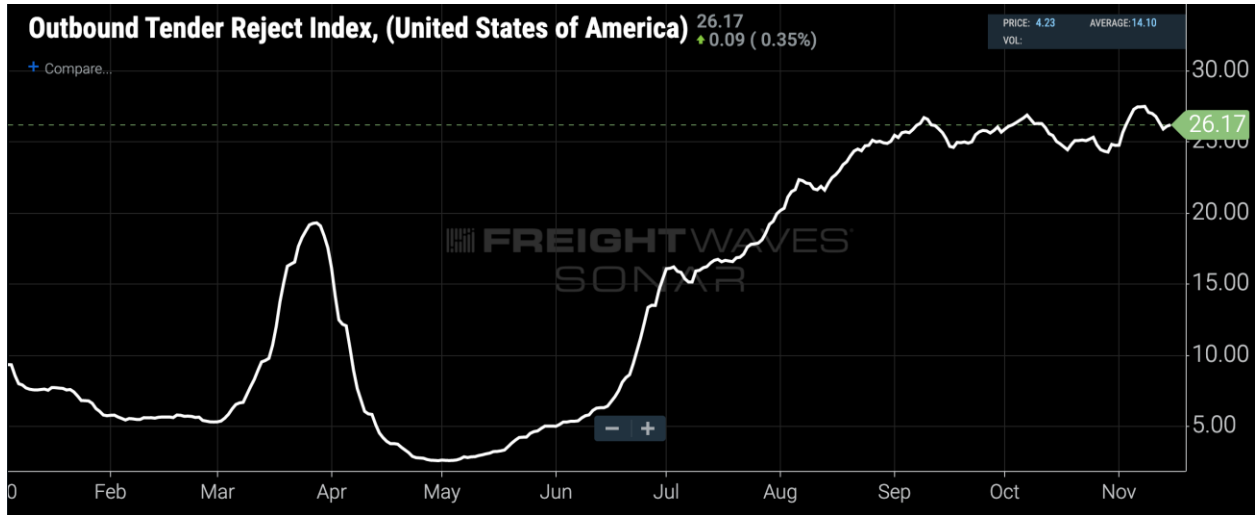
Coordinated and even state-sponsored cyber attacks pose a growing threat to global trade. These attacks are not existential risks that would permanently damage economies or trade alliances, but rather represent an increasing cost of doing global business and a threat at the operational level.

In September 2020, French containership line CMA CGM was hit by the Ragnar Locker ransomware attack, making it the last of the four largest containership lines to be affected by a cyber attack in the past four years. First, in 2017 Not Petya crippled Maersk’s operations, destroying the Danish line’s visibility into its own fleet and its vessels’ ability to communicate with onshore facilities for weeks. In the final week of July 2018, a cyber attack shut down Chinese line COSCO’s U.S. operations, though COSCO’s previous efforts to partition its networks limited the damage. Then, in April 2020, MSC’s Geneva data centers were shut down by a malware attack for about five days; digital tools on the line’s website were unavailable during that period.

As the number of parties to global trade proliferates and software integrations between partners deepens, cybersecurity risks become more difficult to manage. Again, we do not view cybersecurity risks as existential in nature, but companies engaging in global trade will be increasingly exposed to the costs, service disruptions, and potential data breaches resulting from these attacks.

Finally, the increasing complexity of the global trade system heightens the risk of chaotic, cascading failures in multiple modes of transportation. We find one trenchant example in U.S. transportation markets in 2020. Despite a global recession and pandemic that suppressed economic activity almost across the board, rates for transportation capacity in all modes (air, ocean, intermodal, trucking, and parcel) spiked dramatically in the second half of 2020.

The volatile rate rally was set up and touched off by unique factors like a weak trucking market in 2019 that bled the industry dry of excess capacity and consumer spending patterns that suddenly shifted toward goods. By August, trucking carriers were rejecting one out of every five loads tendered to them by shippers, and spot rates doubled.



(Chart: FreightWaves SONAR. The percentage of truckload tenders sent by shippers which were rejected by trucking carriers and 3PLs).

Intermodal networks on the U.S. West Coast were congested, railroads imposed onerous surcharges to disincentivize incremental volume, and parcel carriers were overwhelmed by a deluge of B2C e-commerce deliveries.

The same kinds of unpredictable non-linear modal disruptions caused in North America by Covid-19 could also be caused by energy blockades, wars, a sudden shift in trade policy, or a natural disaster. The growing complexity and extent of the global supply chain has not been matched by a concomitant improvement in resilience, increasing the risk of supply chain disruptions that affect companies and consumers across the world.

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