

## Long Road to Recovery: Coronavirus Lessons from Supply Chain and Financial Data

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COVID-19 continues to disrupt global supply chains in unprecedented ways. Leveraging maritime shipping data from Panjiva, this report includes a review of trade and financial data to analyze the impact of the SARS-CoV-2 / COVID-19 coronavirus outbreak.

- The **impact on supply chains has been widespread** with autos, electronics, capital goods, commodities and apparel firms all facing headwinds from reduced availability of parts. By February, the logistics industry was already **experiencing a downturn**. U.S. seaborne imports from China fell by 21.5% year-over-year in February (Figure 1). Firms including Deere & Co. are using air- instead of sea-freight to maintain supply chain integrity.
- **Second order supply chain** effects are also emerging with the apparel industry now seeing a shortage of materials globally due to earlier outages in China. Many companies had already been **restructuring their supply chains** away from China. Coronavirus provides a further reason for accelerating the geographic diversification of supply chains.
- Retailers including Costco and Target are gaining from increased sales of health- and personal care products. Yet, **supply shortages** are rapidly emerging in part due to medical supply export restrictions in several countries. The U.S. meanwhile has **cut tariffs** to reduce consumer costs.
- There are signs **that normality is returning** in terms of Chinese exports according to firms including UPS and Hasbro. The global recovery is likely to take an extended period given the need to **untangle supply chains**, e.g. empty containers being in the wrong place could curtail export activities and inventory levels need to be rebuilt throughout supply chains.
- Our analysis considers the share of companies' U.S. supply chains sourced from Asia and their revenue exposure to Asia compared to the sector relative stock price performance. There is a **notable, but not statistically significant, relationship** with firms with higher exposure to Asia having seen a weaker sector neutral stock price performance.

Figure 1. China Led U.S. Import Drop in February

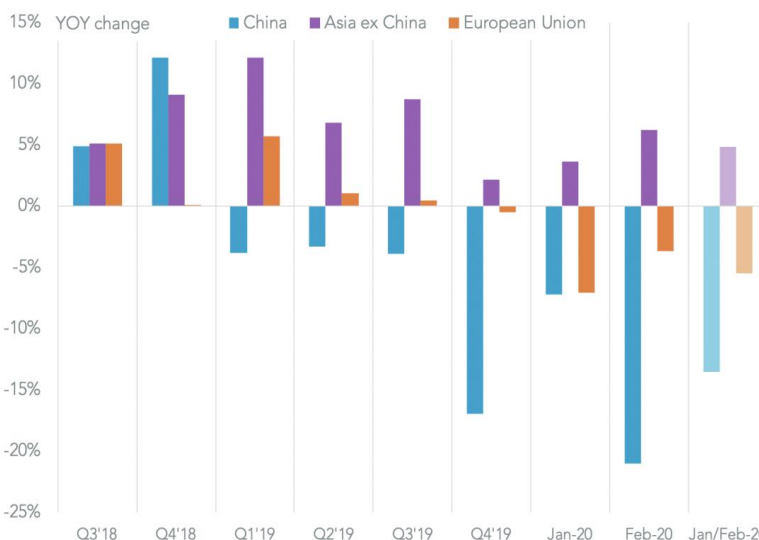


Chart segments change in U.S. seaborne imports by origin. Source: S&P Global Market Intelligence Quantamental Research. Data as of Feb. 29, 2020

## Introduction

This report takes two approaches to analyzing the fallout from the SARS-CoV-2 / COVID-19 coronavirus outbreak on global trade and corporate supply chains. The first part of the report identifies 11 themes emerging on an event-driven basis from over 50 Panjiva Research reports, available from Panjiva's [dedicated microsite](#). The second section considers the impact of exposures to Asia in firms' U.S. supply chains on sector-neutral stock returns since the start of 2020.

## 1. 11 lessons from the outbreak so far

### 1.1 The drag to supply chains has been widespread

Early disruptions were felt in the automotive sector with [Fiat-Chrysler](#), [Toyota](#), [Nissan](#) and [Tata](#) and others having to cut production. The autos sector is more exposed than many due to the lengthy, just-in-time nature of supply chains. The concurrent rise in "[force majeure](#)" support from the Chinese government - effectively indemnifying suppliers from the consequences of shutdowns - will reduce the ability of buyers to offset higher costs or lost profits.

The electronics industry was also [identified](#) early as a problem area in part due to the geographic length and complexity of supply chains and importance of the industry as a proportion of industrial activity in the initial outbreak region of Hubei province including Hon Hai and China Electronics Corp. [Nintendo](#) was one of the first firms importing from outside that region to report problems, though the challenge related more to peripherals than consoles.

Companies in the capital goods sector rapidly recognized the challenge and baked lost production into their earnings guidance. One example was [Illinois Tool Works](#) which included one week of lost production, relying on China for 46.6% of imports in 2019, according to analysis of Panjiva's seaborne import data. Another is [JCB](#) which has had to cut production in the UK due to parts shortage. Even though China represented just 3.8% of British intermediate capital goods imports one missing component can be enough to stop factory operations.

Sales in China have been disrupted as much as exports from China to the rest of the world. Exports of commodities from [Brazil](#) including soybeans and iron ore were already in decline before the shock. Similarly, [Mexican steel](#) output has started to decline and had already fallen by 8.4% year-over-year in January.

Apparel firms including [Adidas](#), [Puma](#) and [Under Armour](#) also warned of lost sales in China as well as facing downstream challenges to supply chains in U.S. and Europe. As shown in Figure 2 below however both have reduced their exposure to China as a proportion of their U.S. seaborne imports from prior years and are now lower than total U.S. imports. They still, however, have significant exposure to supplies from elsewhere in Asia where disruptions could yet occur.

**Figure 2. Sportswear Makers Less Dependent on China than Average**

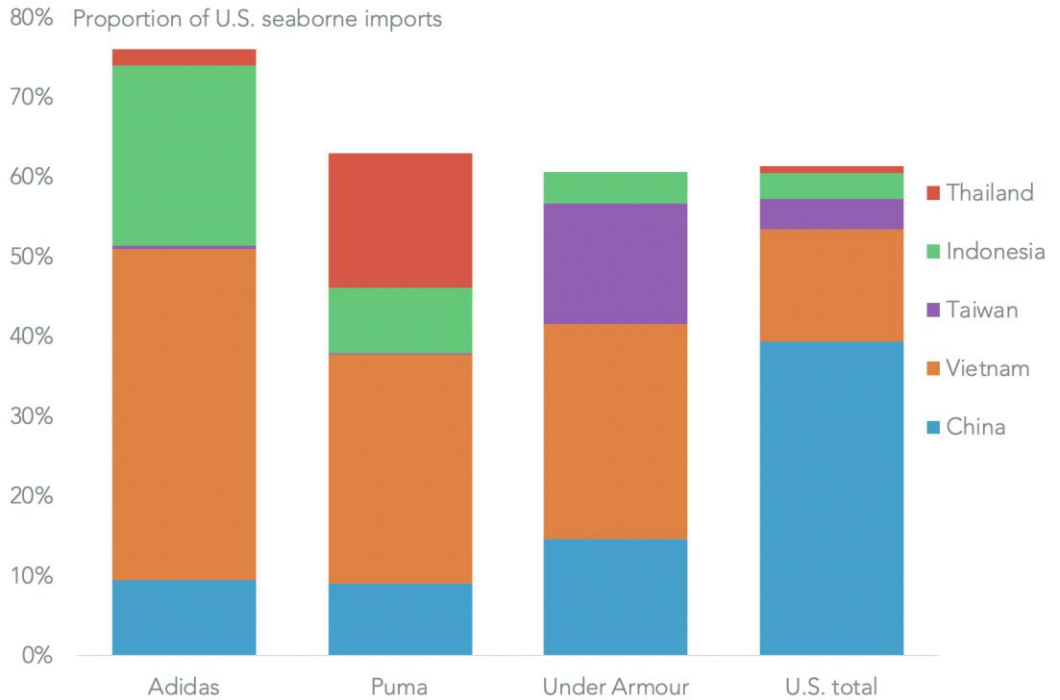


Chart compares mix of U.S. seaborne imports in 2019 by origin for [Adidas](#), [Puma](#), [Under Armour](#) and for all U.S. inbound shipments. Data as at Dec. 31, 2019 Source: S&P Global Market Intelligence Quantamental Research. Data as of Dec. 31, 2019

1.2 Logistics has slowed down rapidly

The slowdown in Chinese exports (Figure 3) has taken time to be appear in trade data given shipping times involved and latency of data publication. Yet, we've already started to observe a decline in [seaborne shipments](#) to the U.S. west coast while U.S. imports in total fell 7.5% year-over-year in February including a 21.0% drop in shipments from China. [Air freight](#) rates have also surged, exacerbated by a loss of belly-cargo capacity in passenger jets.

Container-line [Matson](#) warned that there's been reduced port activity, closed forwarding operations, and reduced shipping volumes. [Maersk](#) has also cited "significantly lowered visibility" but expects a "strong rebound" - more on which below.

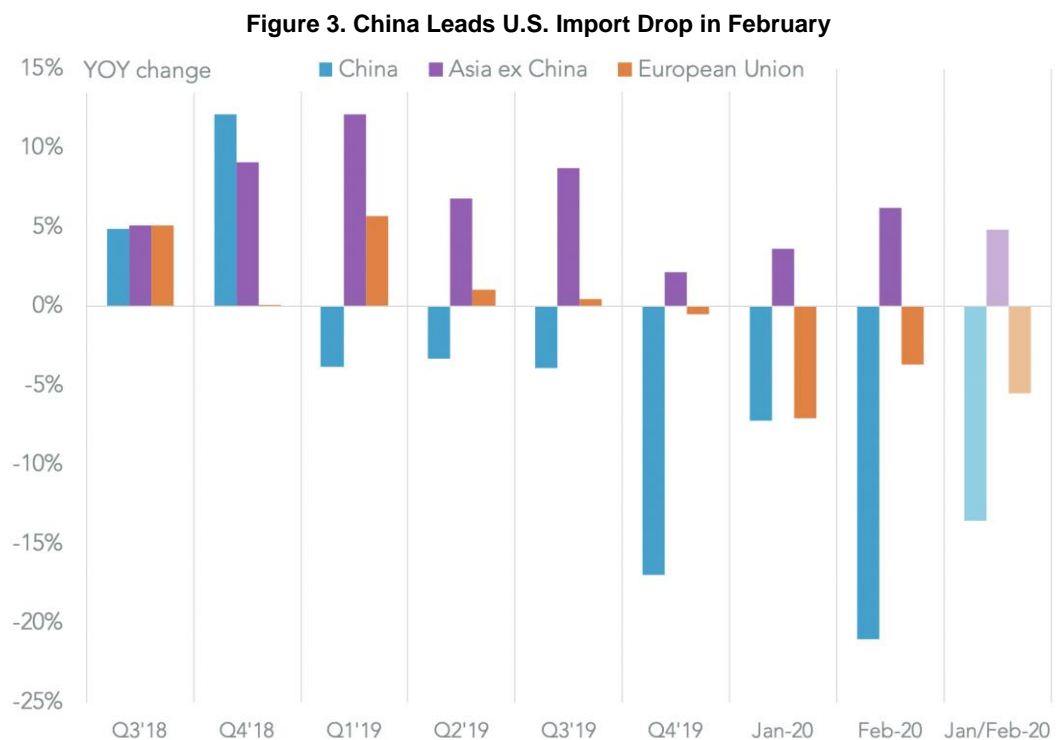


Chart segments change in U.S. seaborne imports by origin between China, Asia ex-China and the EU.

Source: S&P Global Market Intelligence Quantamental Research. Data as of Feb. 28, 2020

1.3 Many firms don't yet know the impact

Our [review](#) of over 6,000 company conference calls from Jan. 20 to March 4 shows 42.3% of firms mentioned coronavirus. The chemicals sector had the highest proportion of firms discussing coronavirus at 77.1%, followed by autos and tech hardware at 72.4% and 69.3% respectively. The latter two are not a surprise given earlier analysis on the sensitivity of just-in-time supply chains. The preoccupation in the chemicals sector may reflect the specificity of products and business-to-business nature of the industry.

Broadly, U.S. corporations expect a significant slowdown in activity. The latest [ISM survey](#) had an import expectation reading of 42.6 (below 50 indicates a decline) which was the lowest since at least 2010 - a respondent in the electronics industry noted there's been a "mad dash to dual source".

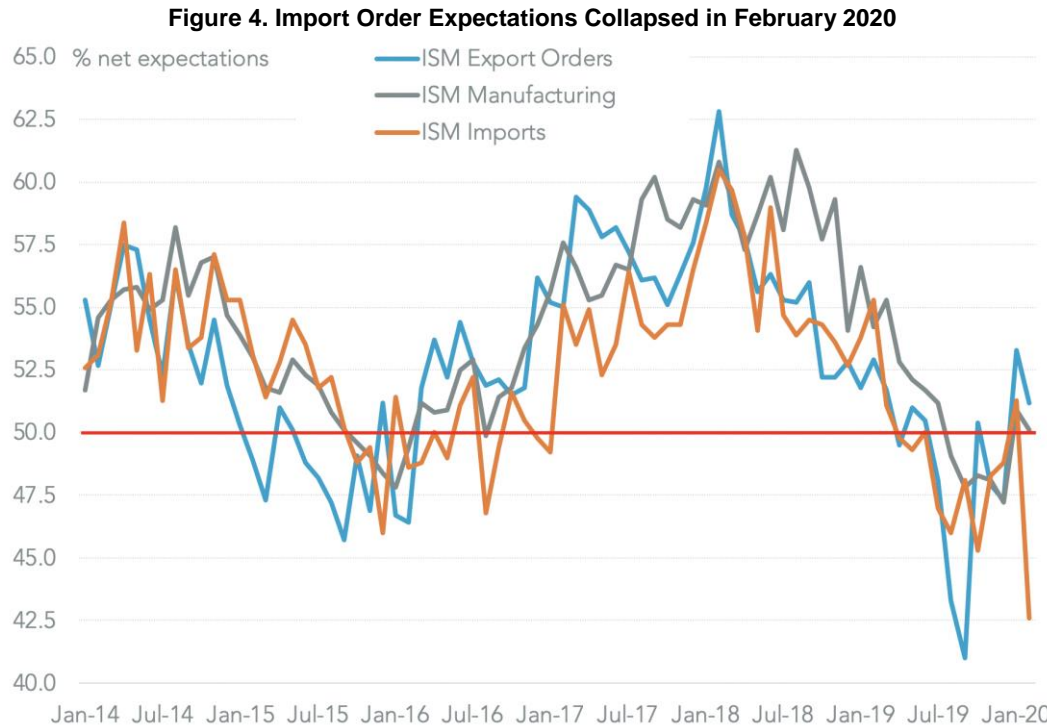


Chart segments manufacturing order sentiment by order type. Calculations based on [ISM survey](#) data. Source: S&P Global Market Intelligence Quantamental Research. Data as of Jan. 31, 2020

1.4 Previous lessons come in useful

Apparel retailer [Stitch-Fix](#) is one example of a firm that has already restructured its supply chain away from China in response to U.S. tariffs. Panjiva data shows China represented 4.7% of U.S. seaborne imports linked to the firm in 2019 from 13.2% in 2018. Yet, its increased reliance on the rest of Asia means it is not out of the woods yet.

[Lego's](#) in-market, for-market approach – where manufacturing is located close to larger demand centers - has cut its exposure to globalized supply chain risks, though it will still lose sales in Asia. U.S. retailer [Target](#) meanwhile has "made some slight adjustments" in response to coronavirus and has already cut its imports from China to 85.2% of total U.S. seaborne imports linked to the firm in 2019 from 95.8% in 2020.

Other firms may [further accelerate](#) existing plans, initially put in place to deal with tariffs, to restructure their supply chains with Google, Microsoft and Hon Hai all following that pattern. Lenovo is [another example](#) of a firm reducing reliance on Chinese manufacturing, evinced by the decline in the percentage of their US imports that are China-sourced from 80.1% in 2016 to 65.4% in 2019, shown in Figure 5.

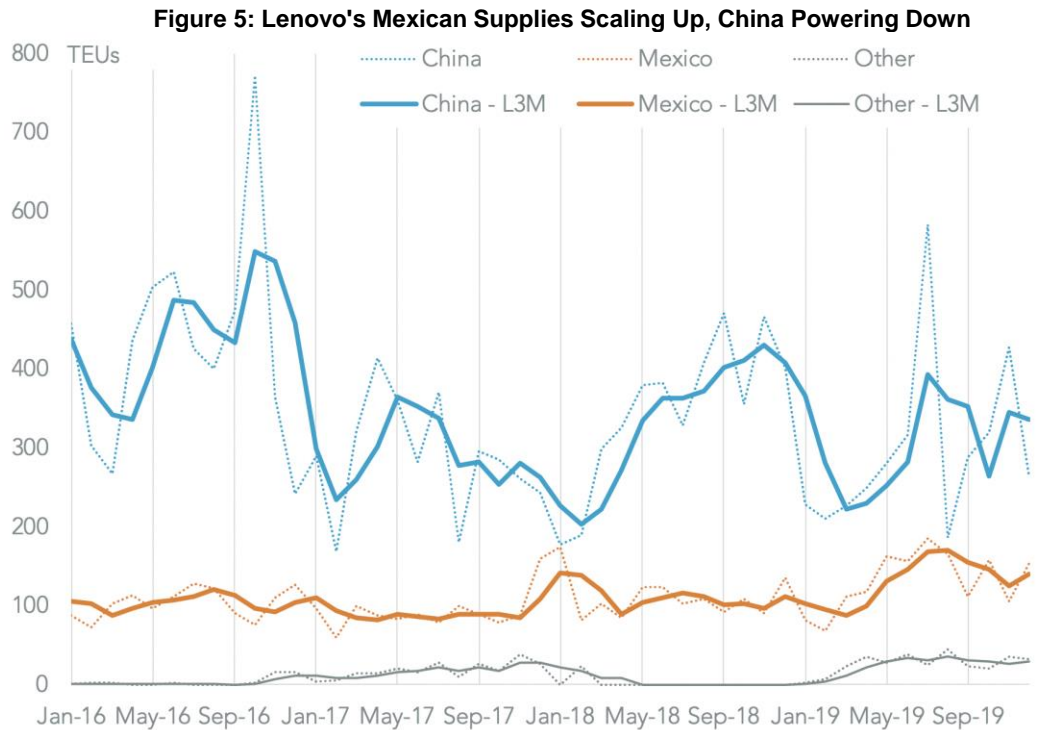


Chart segments U.S. imports associated with Lenovo by origin including U.S. seaborne imports and Mexican exports by all transportation modes on a monthly and three-month average basis. L3M denotes last three-month average. Source: S&P Global Market Intelligence Quantamental Research. Data as of Jan. 31, 2020

1.5 Expedited deliveries becoming more important

Where supply chain switching isn't possible there's been a move to expedited deliveries via air to restart supply chains as soon as factories reopen. Indeed, the Indian government has committed to supporting [airfreight](#) costs to maintain the electronics industry - China represented 42.7% of Indian electrical and electronics imports in the 12 months to Nov. 30.

At the corporate level, [Deere & Co.](#) allocated \$40 million in the first quarter for expedited freight even though just 8.5% of its U.S. seaborne shipments came from China. The low ratio comes after the firm slashed its imports from China while modestly scaling up its shipments from Japan, as Figure 6 illustrates.

[Magna International](#) meanwhile has flagged that the decision to expedite deliveries is up to its customers. The firm has nonetheless also been reducing its shipments from China to the U.S. in favor of those from Mexico. China represented 47.0% of its U.S. imports in Q4 while Mexico accounted for 23.6%.

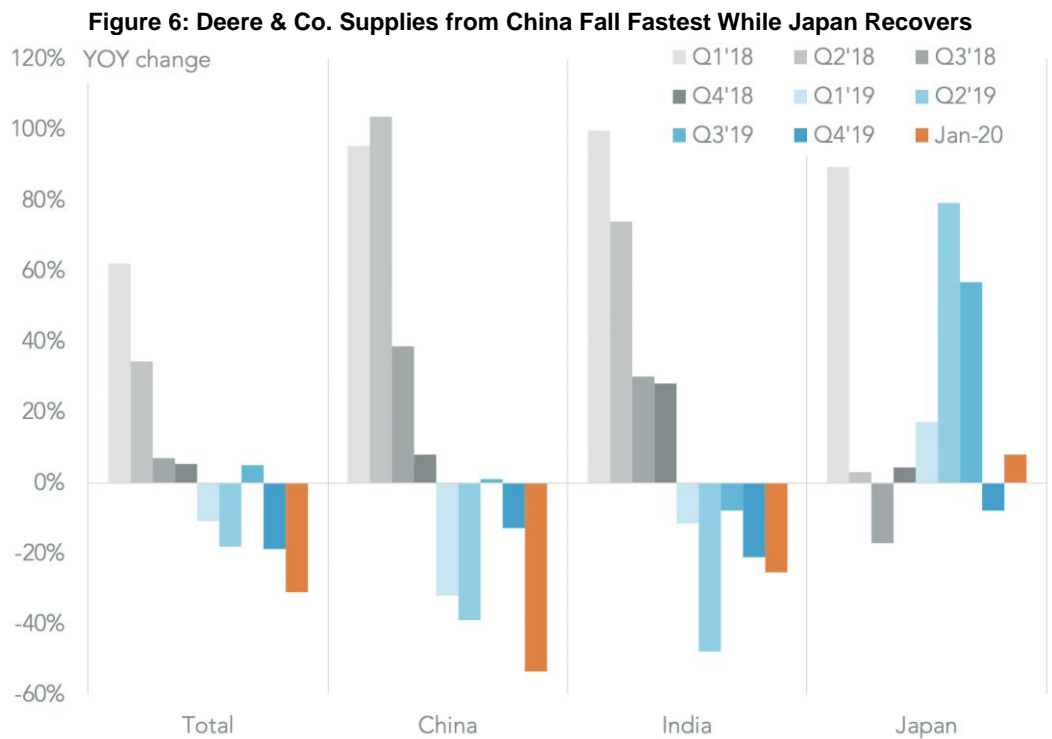


Chart segments U.S. seaborne imports linked to Deere & Co. by origin. Source: S&P Global Market Intelligence Quantamental Research. Data as of Jan. 31, 2020

1.6. Second order effects are beginning to be felt

Firms are facing both direct and indirect challenges to their supply chains. At a high level the Cambodian government has warned about a second-order effect for customers of local factories resulting from [fabric shortages](#) from China. Levi Strauss and Adidas have rapidly increased their imports to the U.S. from Cambodia recently (Figure 7). While their sourcing of completed goods is diversified, they may not be so in fabrics.

[Fast Retailing](#) has already seen a slip in shipments of at least two weeks despite aggressively moving its sourcing to Vietnam from China.

There's also been surprising downstream impacts. Housebuilder [Toll](#) has warned that a shortage of lighting - where seaborne imports fell 13.6% year-over-year in the first three weeks of February – has impeded its ability to complete homes.

**Figure 7: Levi's Leads Recent Expansion in Purchasing From Cambodia**

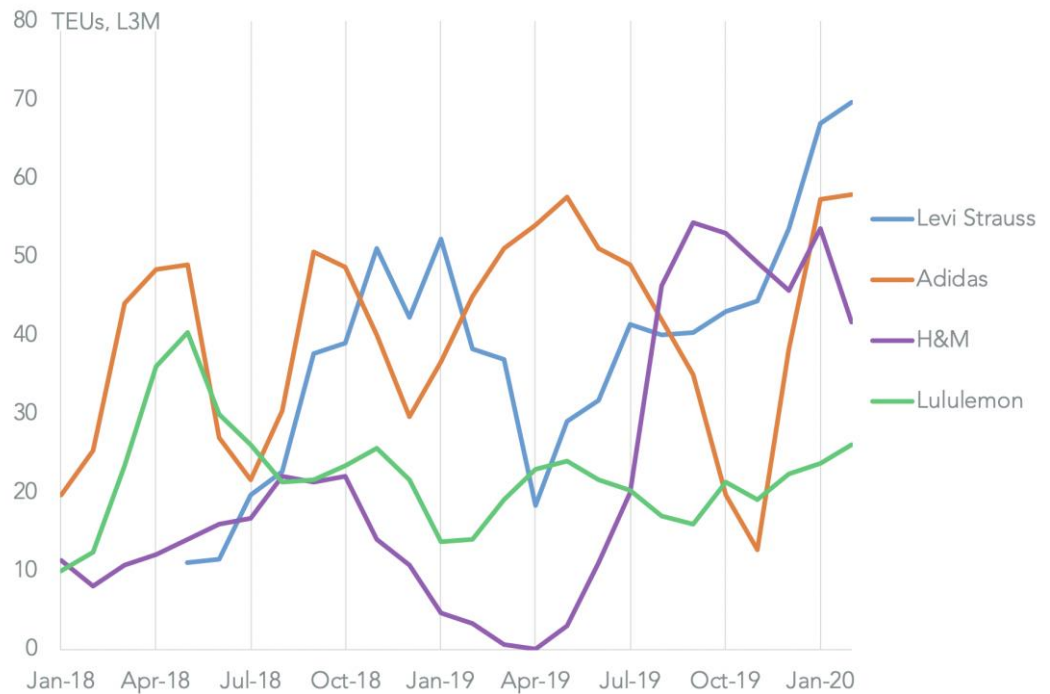


Chart segments U.S. seaborne imports of apparel and textiles by consignee from Cambodia on a three-month trailing average basis. Source: S&P Global Market Intelligence Quantamental Research. Data as of Feb. 29, 2020



1.7 Retailers winning on sales, may lose in supplies

Retailers of health and personal care products have unsurprisingly done well. There's a limit to the gains though given likely availability constraints. [Costco](#) has stated it has started to look for "other sources where possible" which has taken a few weeks to resolve - there was already a 31.3% year-over-year drop in imports from China linked to the firm in February.

U.S. imports of [soap and hand sanitizers](#) had previously been in a decline with a 30.9% year-over-year drop in imports from Germany and an 18.7% slide in shipments from China in the three months to Jan. 31. Not all importers have seen a decline though, with a surge in shipments linked to Procter & Gamble and Johnson & Johnson in February (Figure 8).

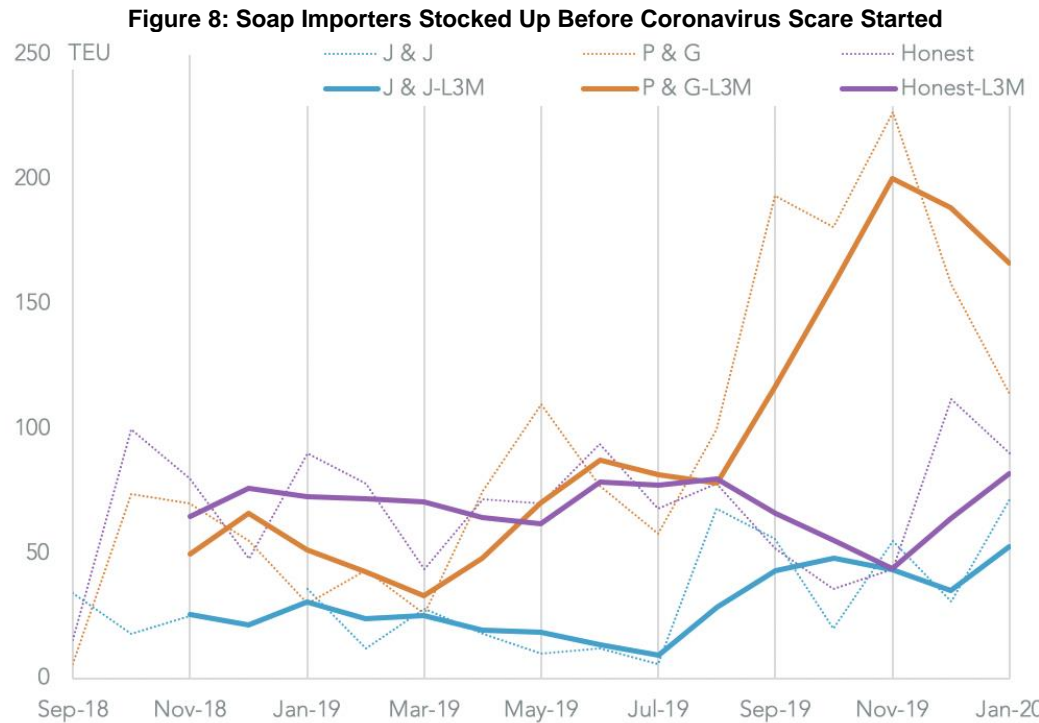


Chart compares imports of soap and cleaning products to the U.S. by Johnson and Johnson, Procter and Gamble, and Honest on a monthly and three month basis. Source: S&P Global Market Intelligence Quantamental Research. Data as of Jan. 31, 2020

1.8 Healthcare drawbridges drawn up

The governments of [Turkey](#), [India](#) and others have reduced exports of healthcare products. That will increase the reliance of other countries on a smaller pool of still freely available resources, e.g. Mexico in case of the US, but again there is only finite supply on a short term basis.

The potential for increased costs has led the U.S. government to [remove tariffs](#) on medical supply imports from China. The exemptions cover 10 products where imports from China were worth \$3.68 billion in 2019. That may help imports associated with Cardinal Health and Brady Corp who rely on China for 59.4% and 31.6% respectively of their U.S. seaborne imports (Figure 9).

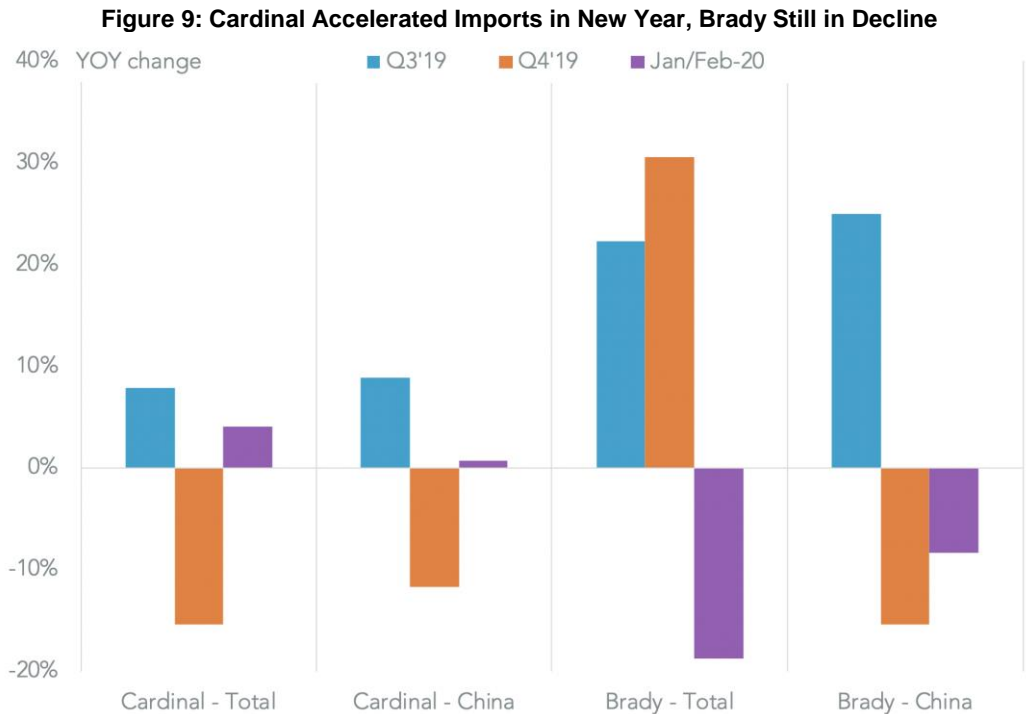


Chart compares change in U.S. seaborne imports of products exempted from list 4A tariffs by consignee and origin for [Cardinal Health](#) and [Brady Corp](#). Source: S&P Global Market Intelligence Quantamental Research. Data as of Dec. 31, 2019

1.9 Earlier shortages will reverberate for weeks or months

The port of [Baltimore](#) has cut two days of activity in March in response to anticipated reduced shipping. There have been similar warnings from [New York](#), [Los Angeles](#) and the [American Association of Port Authorities](#). The latter has warned the drop in shipping during Q1 could be 20% compared to 2019.

Similarly [Kansas City Southern](#) warned of disruptions in shipments into Mexico with the automotive sector a particular concern. General Motors accounted for 23.7% of shipments into the port of Lazaro Cardenas in 2019.

[Hapag-Lloyd](#) meanwhile indicated that there will only be an "extended period or recovery". The downturn and recovery will vary significantly by port. Panjiva's data, illustrated in Figure 10, below shows that imports from Ningbo and Yantian ports to the U.S. handled by Hapag-Lloyd fell by 29.4% and 20.3% respectively in 2020 through Feb. 29.

From a technical perspective there are also challenges caused by a lack of [empty containers](#) in the U.S. to allow for exports back to China. The most recent data from the [west coast U.S. ports](#) has shown a 25.1% year-over-year slump in empty [container handling](#) in February while at the national level the decline may have been as much as 15.1%.

**Figure 10: Ningbo and Yantian Routes Fall Fastest in Hapag Lloyd's U.S. Inbound Shipping from China**

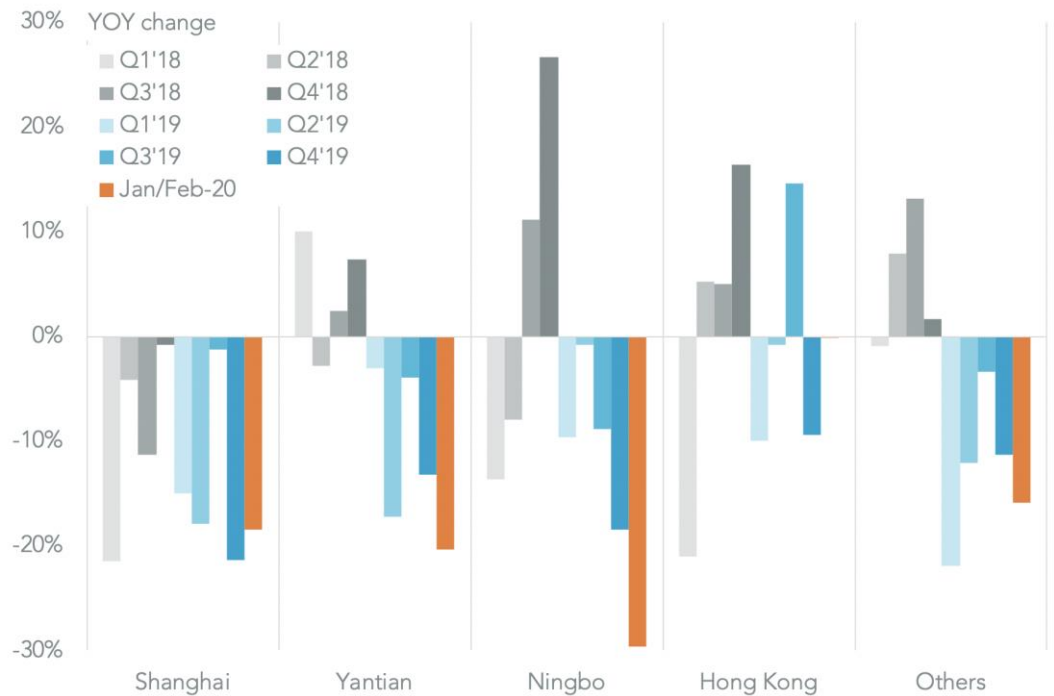
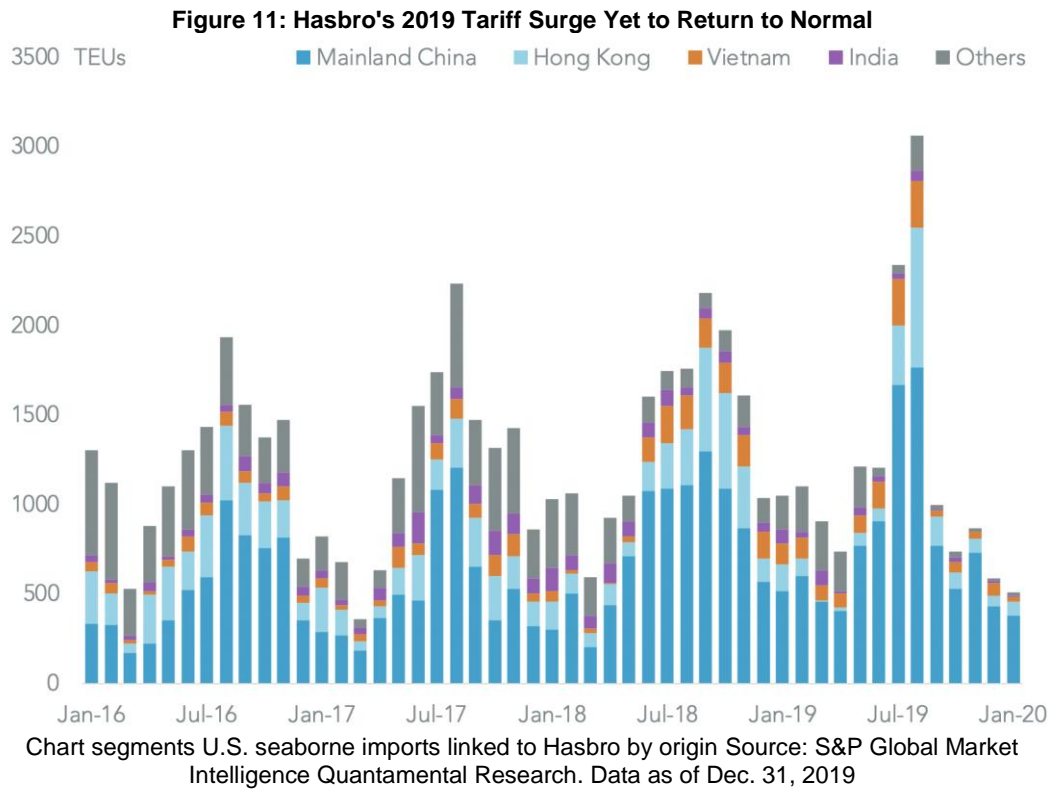


Chart segments U.S. seaborne imports from China handled by Hapag-Lloyd by port of lading. Source: S&P Global Market Intelligence Quantamental Research. Data as of Feb. 29, 2020

1.10 It's starting to get better, in places

There's was already a reopening of Chinese business and ports in mid-March with evidence from freight forwarders including [K+N](#), [DP-DHL](#), [UPS](#) and [CMA-CGM](#) citing the move into a recovery phase. That's important for UPS and CMA-CGM whose U.S. seaborne businesses were particularly exposed to China at 61.5% and 48.7% of inbound shipping respectively in 2019.

Outside logistics, toymaker [Mattel](#) has flagged that factories have reopened but are still scaling up while Hasbro is still "working to mitigate the impact" (Figure 11). The industry is particularly exposed given China accounted for 84.0% of U.S. toy imports in 2019, though at least the disruptions are occurring outside the peak season.



1.11 Post-Coronavirus bounce-back could mark a return to the same old problems

While, as of mid-March, it is too early to discern "post-coronavirus" conditions, there may be a hangover for global trade policy. [Chinese steel](#) exports may surge as a result of excess inventories built up while downstream demand in China has been limited. For example shipments by Baosteel to the U.S. already surged 44.0% year-over-year in January and February combined. Once the current economic turbulence has cleared, the U.S. may decide to implement a new round of U.S. tariffs.

Similarly China may miss its [commitments](#) to increase purchasing in 2020 from the U.S. as part of the phase 1 trade deal. Indeed, imports of products covered by the commitments were 59.0% lower than they should be in January as illustrated in Figure 12. The recent crash in energy prices also pitches a [curveball](#) by making it harder for China to meet its dollar commitments for a given volume of oil purchased.

Figure 12: China Missed the 2020 Purchase Target in January



Chart segments U.S. exports to China compared to the phase 1 purchase commitment target on a monthly basis for 2020. **Source:** S&P Global Market Intelligence Quantamental Research. Data as of Jan. 31, 2020

## 2. Low Supply Chain Exposure May Explain Outperformance

This section compares the performance of companies with a high exposure to Asia to those with minimal exposure. The analysis, summarized in Table 1, is based on company returns between Jan. 1, 2020 and March 6, 2020. The supply chain measure is calculated as the number of TEUs (20-foot equivalent unit) of containerized freight imports from Asia per million dollars of cost of goods sold in the most recently reported full year. The revenue measure is based on companies' self-reported geographic segmentation data, which identifies the revenue generated from sales in a particular geography. Because these values are reported voluntarily in most cases, data are available for fewer companies.

$$TEU \text{ per Million COGS} = \frac{\text{Asian Imports (TEU)}}{\text{Cost of Goods Sold (Millions)}}$$

$$\text{Asian Revenue Exposure} = \frac{\text{Reported Asian Revenue}}{\text{Reported Total Revenue}}$$

The examples drawn below have been selected from the results of the analysis to provide a series of interesting in-sector comparisons. In this context, a positive (negative) return indicates a company over- (under-)performed the sector mean. See the appendix for more information on the methodology, including source code.

**Table 1: Asia Supply Chain Exposure Just One Reason for Sector Neutral Performance**

Sector	Company	Sector Normal Returns	Asian Imports to COGS
Retail Apparel	RALPH LAUREN CORP	14.6%	1.55
Retail Apparel	VERA BRADLEY INC	-14.2%	12.41
Consumer Electronics	GARMIN LTD	14.1%	0.08
Consumer Electronics	SONOS INC	-10.6%	2.87
Materials	BALL CORP	36.3%	0.02
Materials	KRATON CORP	-45.2%	1.82
Consumer Staples	COSTCO WHOLESALE CORP	16.5%	0.29
Consumer Staples	PRICESMART INC	-13.3%	1.43
Health Care	MASIMO CORP	23.5%	0.05
Health Care	PENUMBRA INC	19.8%	0.00
Health Care	GLAUKOS CORP	-24.6%	0.69
Health Care	ORTHOFIX MEDICAL INC	-25.8%	0.27

Chart compares share price performance in Jan. 1, 2020 to March 6, 2020 period relative to sector performance to U.S. imports from Asia compared to cost of goods sold. Asian Imports to COGS ratio denominated as TEU of containerized seaborne imports from Asia divided by million dollars of cost of goods sold. **Source:** S&P Global Market Intelligence Quantamental Research. Data as of March 6, 2020

## 2.1 Retail apparel – Vera Bradley vs. Ralph Lauren

The retail apparel sector has been beset by a loss of sales in Asia as well as downstream disruptions to U.S. supply chains from factory closures in China. As shown in Table 1 above, Ralph Lauren outperformed the consumer durables and apparel sector by 14.6% with a relatively low 1.55 TEU per million COGS and Asian revenue exposure of 16.5%, as opposed to Vera Bradley which underperformed by 14.2% with zero reported Asian exposure and 12.41 TEU per million COGS.

Other reasons for the divergent performance may include Ralph Lauren's import mix, which has also changed over the past two years. Panjiva's data shows seaborne imports linked to the firm [observed in 2020Q1] were 25.4% lower than the same quarter in 2019 and 34.6% lower than the same quarter in 2018.

## 2.2 Consumer electronics – Sonos vs. Garmin

The impact of Asian supply chain exposure in the consumer durables sector can be seen in the electronics segment. Smart speaker manufacturer Sonos had a 2.87 TEU per million COGS ratio and underperformed the sector by 10.6%. Garmin meanwhile only had 0.28 TEU per million COGS and outperformed by 14.1%. [Sonos](#) also faces the challenge of a high proportion of imports from China, which represented 84.1% of seaborne imports linked to the firm, and as such faces tariffs on most of its imports. That may have been a driver of the decline in its U.S. seaborne imports in February (Figure 13).

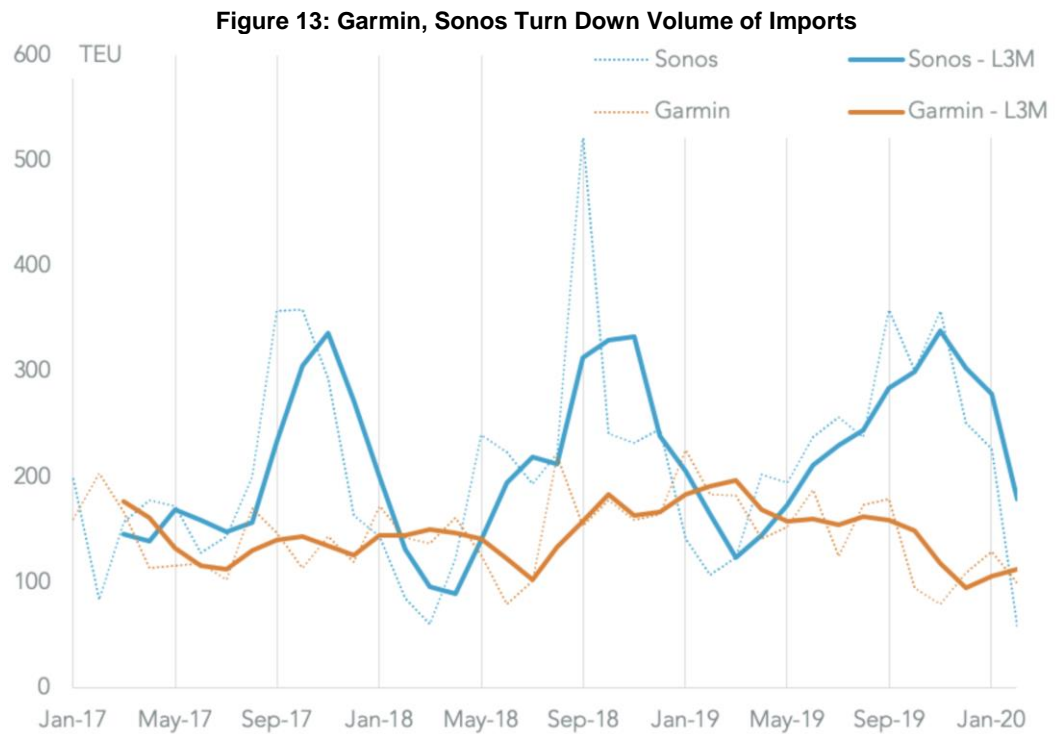


Chart segments imports to the U.S. associated with Sonos, and Garmin on a monthly and three month average basis. **Source:** S&P Global Market Intelligence Quantamental Research. Data as of Feb. 29, 2020

### 2.3 Materials - Ball Corp vs. Kraton

The comparison of Ball Corp and Kraton Corporation are an example in the highly diverse packaging materials sector, with Ball Corporation making jars and packaging, and Kraton making synthetic rubbers. As already shown in Table 1, Ball Corp. has a relative low exposure to Asia with a TEU / COGS ratio of just 0.02 and an outperformance versus the materials sector of 36.3%.

Kraton meanwhile has one of the higher supply chain scores in the sector at 1.82 TEU / COGS, perhaps providing one reason for its 45.2% underperformance. Kraton has specifically indicated that it expects the disruptions caused by COVID-19 to cut demand for its turpentine and tall oil products in 2020 in its recent [earnings conference](#) call.



2.4 Consumer staples – PriceSmart vs. Costco

Costco Wholesale, a retailer in the consumer staples sector, had an import rating of 0.29 TEU / COGS and an Asian revenue exposure of 0.09% (Figure 14). This is typical of an American retailer with little business in China, and Panjiva data shows that imports from Asia were already decreasing before the pandemic. Imports associated with the company from Asia fell 10.7% year-over-year in the three months to Feb 29. Costco performed well year to date, showing sector neutral returns of 16.5%. As flagged in the [report](#) above the firm has likely benefited from consumer stockpiling of HPC products.

In contrast, while PriceSmart had no revenue exposure to Asia, the company had a higher supply chain exposure at 1.43 TEU / COGS. The latter partly explains PriceSmart's 13.3% stock price decline relative to the consumer staples sector.

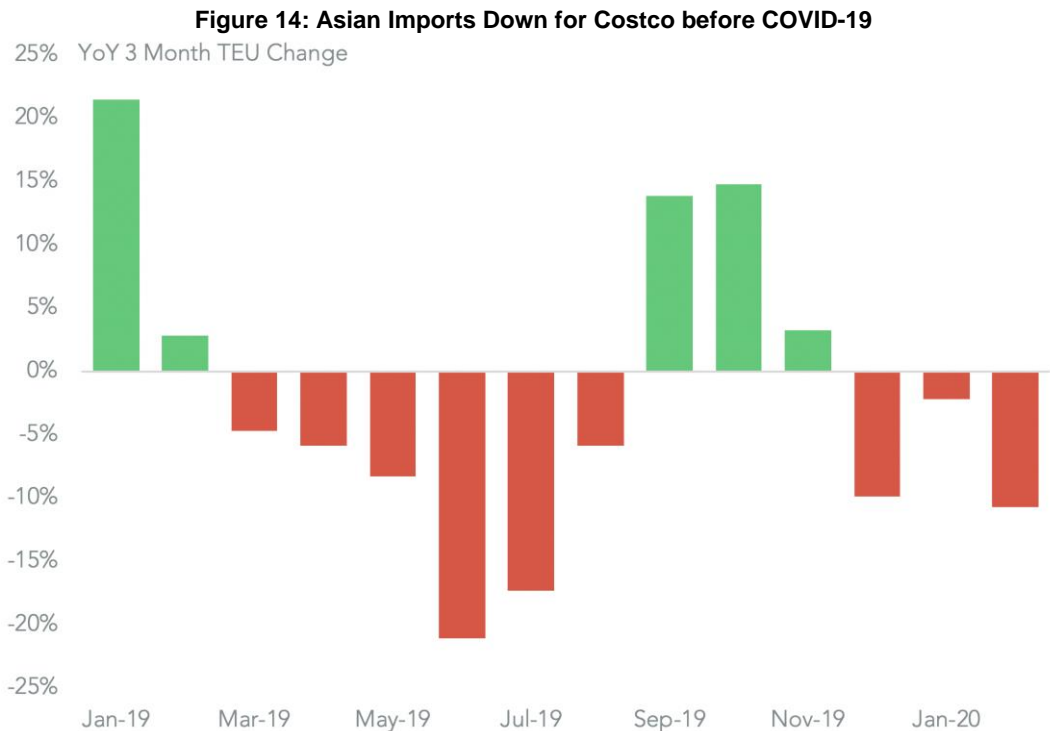


Chart shows U.S. seaborne containerized freight imports from Asia associated with Costco on a three monthly year-over-year basis. **Source:** S&P Global Market Intelligence Quantamental Research. Data as of Feb. 29, 2020

2.5 Consumer durables – Funko vs. Hasbro

The toy industry is heavily reliant on China from a supply chain perspective. Funko and Hasbro performed true to that form with sector relative share price declines of 38.9% and 12.5% respectively. Funko had a higher exposure to Asia with 14.3 TEU / COGS compared to Hasbro's 4.56 TEU / COGS as shown in Figure 15.

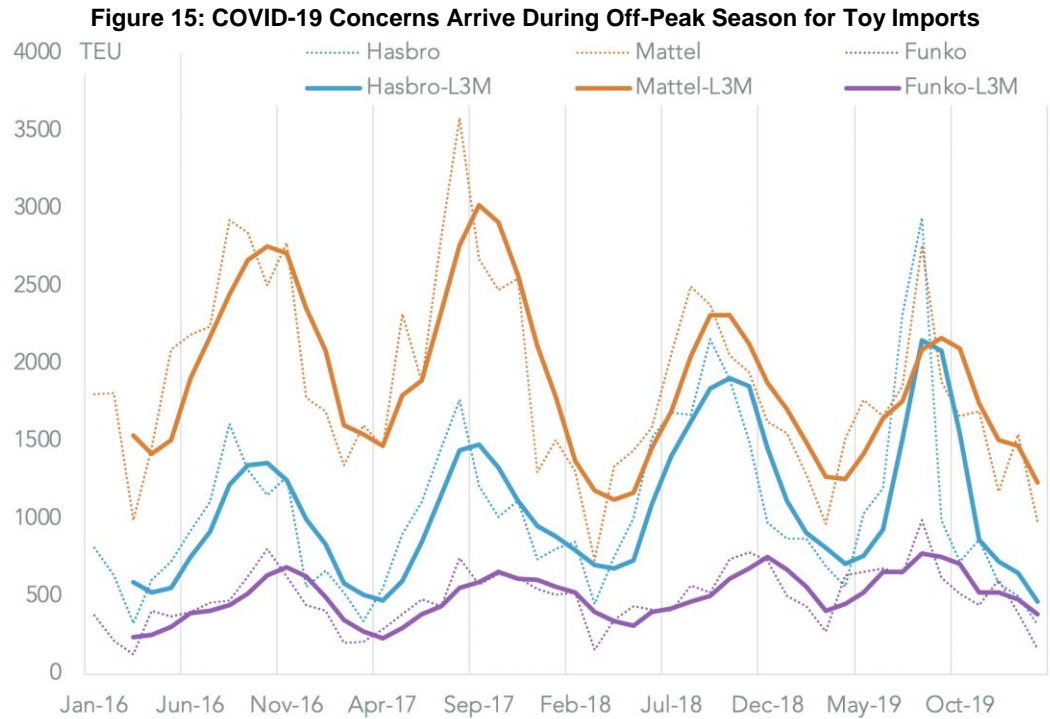


Chart shows U.S. seaborne containerized freight imports from Asia associated with Hasbro, Mattel and Funko on a monthly and three-month average basis. **Source:** S&P Global Market Intelligence Quantamental Research. Data as of Feb. 29, 2020

## 2.6 Health care – Glaukos and Orthofix vs. Masimo and Penumbra

The health care sector should in theory see a wide range of winners during a global health emergency. Yet, upstream supply shortages can curtail the ability of firms to actually benefit from the increased demand.

While the healthcare industry covers a wide range of firms from pharmaceuticals to supplies and devices, there are signs of outperformance from US firms with low exposure to Asia. By way of example – as shown in Table 1 above - monitoring systems maker Masimo and surgical access system producer Penumbra outperformed the sector by 23.5% and 19.8% respectively and have minimal exposures to Asia.

By contrast Glaukos and Orthofix underperformed by 24.6% and 15.8% respectively. Glaukos' had a 0.69 TEU / COGS and a product focus on eye disease become a lower priority in terms of healthcare spending. Orthofix's ratio was lower at 0.27 TEU / COGS but also has a business - musculoskeletal healing products - that is not directly coronavirus related.

## 2.7 Home & personal care: what you sell matters more than where you sell or source it

What a firm sells may be more important than any supply chain or revenue considerations. Within the home and personal care sector Edgewell and Clorox, which produce sanitizing products, saw outperformance of 28.8% and 28.2% while luxury goods firms Revlon and Interparfums saw declines of 4.9% and 14.0% respectively. Yet, all four have Asia TEU/COGS of similar magnitudes (Figure 16).

The highest Asia-TEU figure in the HPC group is Spectrum Brands which has a diverse set of products across hardlines and pest control, yet it has performed broadly in line with the sector.

One conclusion, therefore, is that a layering of quantitative and fundamental analysis is needed to fully understand the state of markets at times of significant upheaval.

**Figure 16: Home and Personal Care Performance Linked More to What than Where**

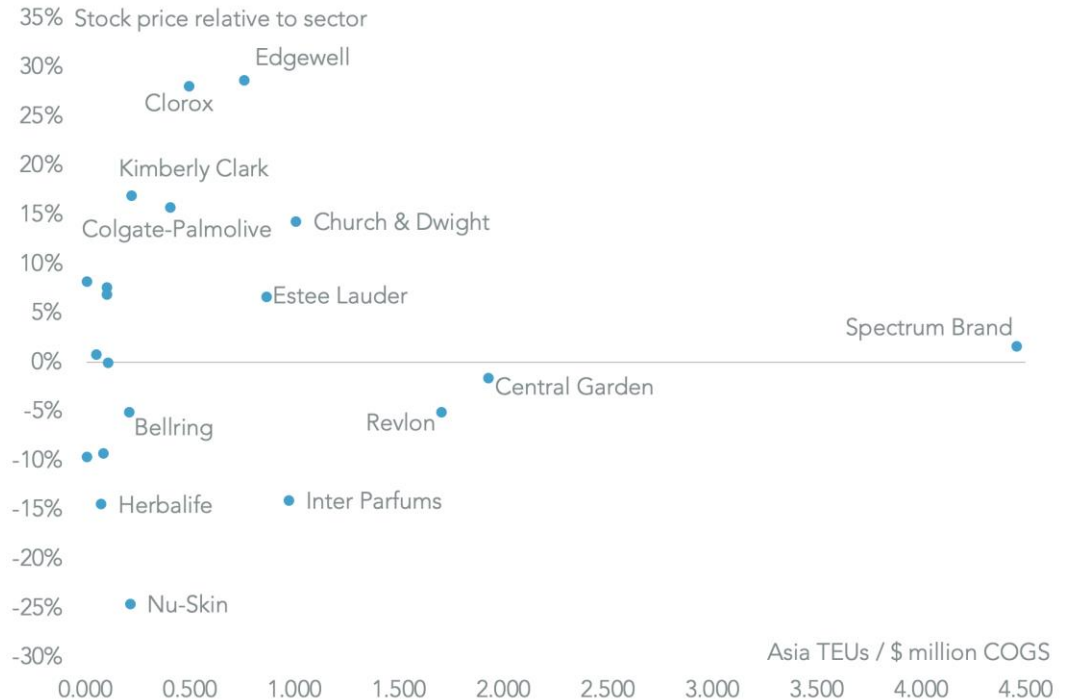


Chart compares U.S. supply chain exposure to Asia (U.S. seaborne import TEUs over cost of goods sold in millions of U.S.\$) to stock price performance relative to sector (Jan. 1, 2020 - March 6, 2020). **Source:** S&P Global Market Intelligence Quantamental Research. Data as of March 6, 2020

## Conclusion

COVID-19 continues to disrupt global supply chains in unprecedented ways – supply chain data combined with financial data can provide a more complete way to analyze the impacts.

The drag to supply chains has been widespread with autos, electronics, capital goods, commodities and apparel firms all experiencing a reduced availability of parts. Within sectors the ratio of a firm’s U.S. seaborne imports from China compared to its cost of goods sold is one element of recent sector-neutral stock price performance.

The logistics industry has already experienced a decline in volumes shipped in February, but there are signs of recovery. Corporations are further accelerating supply chain restructuring plans put in place to deal with the U.S.-China trade war, particularly given second order effects are now being felt.

The recovery, when it comes, is more likely to take an extended period given the need to untangle supply chains, e.g. empty containers being in the wrong place could curtail export activities and inventory levels need to be rebuilt throughout supply chains.

## Appendix 1. Combining financial and trade data to identify coronavirus exposures - methodology

Panjiva data gives unique insights into companies supply chains. One way to look at this is to take imports from Asia as a proportion of total imports. That shows the proportion of international trade from Asia, but may overestimate the effect on companies that do a relatively small amount of international trade in general.

$$\text{Asian import exposure} = \frac{\text{Asian imports}}{\text{Total imports}}$$

A more nuanced measure is to measure containerized freight imports (measured in 20-foot equivalent units, or TEUs) from Asia against a total measure of a company's supply chain - in this case cost of goods sold provides a clear scaler across businesses.

The Asian TEU / cost of goods sold metric can be restated as Asian TEU per dollar of goods sold. The metric should be lower for companies that engage in less international trade. For example, a company that imported 10 TEU's from Asia against a COGS of \$100 would receive a score of 0.1 TEU / dollar, as opposed to a company that imported 50 TEU from Asia with the same COGS receiving a score of 0.5 TEU per dollar.

Revenue exposure to Asia is found by taking geographic revenue segments from S&P Global Market Intelligence's database and dividing the sum of the Asian revenue segments by total reported revenue. It is important to note that geographic segments are not consistently reported, and so not all companies have usable data.

It's worth noting that it is unlikely to see companies with high supply chain and high revenue exposure as that would represent either (a) US manufacturers selling in Asia using China components or (b) in-market for-market assembly using globally sourced components. Offshoring trends over the past two decades have made it increasingly unlikely that raw or intermediate goods are produced in the U.S.

**Appendix 2: Replicating this analysis in S&P Global Market Intelligence Xpressfeed™**

Asian imports in Panjiva can be found in the Panjiva U.S. import dataset for 2019. We then create a subquery for company resolution from Capital IQ id to Panjiva Id, then join that subquery to Panjiva imports. The data is then filtered for Asian shipment origins and desired fields are selected.

**Asian Imports SQL Snippet**

```

WITH comps AS (
  select DISTINCT ccr.identifierValue
  from panjivaCompanyCrossRef ccr
  join XFL_CIQ.dbo.ciqCompanyUltimateParent ul on ul.companyId = ccr.companyId
  where ul.ultimateParentCompanyId in (select ultimateParentCompanyId
    from XFL_CIQ.dbo.ciqCompanyUltimateParent where companyId = '<CapitalIQId>')
)
SELECT '2019-12-31' AS arrivalDate, sum(volumeTEU) AS teu
FROM XFL_PANJIVA.dbo.panjivaUSimport2019 imp
JOIN comps ON comps.identifierValue = imp.conPanjivaId
WHERE conPanjivaId is not Null
and shpmtOrigin in ('China', 'Hong Kong', 'North Korea', 'South Korea',
'Indonesia',
'Philippines', 'Vietnam', 'Sri Lanka', 'Myanmar', 'Taiwan', 'Japan',
'Kyrgyzstan',
'Turkmenistan', 'Malaysia', 'Thailand', 'Bangladesh', 'India', 'Laos',
'Singapore')

```

To find revenues, join the Capital IQ segment collection, financial collection, financial instance, financial period, and segment tables together on the below fields. Filter for the data item 3515, geographic segmentation, and the flags for period type, latest period, and form types. Restrict the query to the relevant Capital IQ id, and then filter for various Asian countries in the free text descriptions. The filter shown uses a mix of the like operator and exact matches to cover a wide range of options.

**Asian Revenue SQL Snippet**

```

SELECT '2019-12-31' as FilingDate, sum(dataItemValue)
FROM ciqSegCollectionAsRptdData cscr
JOIN ciqFinCollection cfc ON cscr.financialCollectionId =
cfc.financialCollectionId
JOIN ciqFinInstance cfi ON cfi.financialInstanceId = cfc.financialInstanceId

```

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```
JOIN ciqFinPeriod cfp ON cfp.financialPeriodId = cfi.financialPeriodId
JOIN ciqSegment cseg ON cseg.segmentId = cscr.segmentId
where cscr.dataItemId = 3515
and cfi.latestForFinancialPeriodFlag = 1
and cfp.periodTypeId = 1
and cfp.latestPeriodFlag = 1
and cfi.formType = '10-K'
and cfp.companyId = '<CapitalIQId>'
and (segmentName in ('Japan', 'South Korea', 'Vietnam', 'Greater China',
'Bangkok',
'Bangladesh', 'Chinese Mainland', 'Hong Kong', 'Indonesia', 'India',
'India, Middle East and Africa', 'Pakistan', 'Pakistan & India',
'Philippines', 'Philippines and Other')
or segmentName like '%Asia%' or segmentName like '%APAC%'
or segmentName like '%China%' or segmentName like '%Japan%'
or segmentName like '%Pacific%' or segmentName like '%PRC%')
```

More SQL snippets for use with Xpressfeed™ and other code-enabled papers can be found at the S&P Global Quantamental [GitHub](#) page.

## Our Recent Research

### February 2020: [Ship to Shore: Mapping the Global Supply Chain with Panjiva Shipping Data in Xpressfeed™](#)

World merchandise trade accounted for an estimated \$19.7 trillion in 2018, about 90% of which is by sea. While financial data tells us “how a company has done in the past,” shipping data provides a closer-to-real time indicator of “what a company is doing now.” Panjiva’s shipping data allows investors to track trends, identify anomalies, and assess risks for companies engaged in international trade. This paper illustrates how to find investment insights in Panjiva’s US seaborne and Mexican datasets using the US auto parts industry as a case study.

Findings include:

- Shipment trends often lead fundamentals: Rising shipments amid flat or declining fundamentals may signal future financial trend reversal
- Growth in the number of a company’s suppliers and in the types of products it imports may signal strengthening demand and/or product line diversification.
- Tracking industry-level product-line trends can help identify companies with significant exposure to rising or declining product lines.

### January 2020: [Natural Language Processing – Part III: Feature Engineering Applying NLP Using Domain Knowledge to Capture Alpha from Transcripts](#)

Unstructured data is largely underexplored in equity investing due to its higher costs. As a result, the information content remains largely untapped and offers an investment edge for investors. One particularly valuable unstructured data set is S&P Global Market Intelligence’s machine readable earnings call transcripts. This newest publication, the third in the series (NLP I, NLP II), introduces new stock selection ideas in the areas of I) Topic identification, II) Call transparency and III) Call sentiment using more advanced NLP techniques.

- Topic Identification – Firms that referenced the most positive descriptors around their financials outperformed historically.
- Transparency – Firms that provided greater call transparency exhibited by executives’ behaviors and decisions outperformed historically.
- Weighted Average Sentiment – Quantifying call sentiment using a weighted average construct led to better returns and less volatility historically.
- Additive Forecasting Power – The newly introduced signals demonstrated additive forecasting power above commonly used alpha and risk signals historically.

### December 2019: [The “Trucost” of Climate Investing: Managing Climate Risks in Equity Portfolios](#)

Does sustainable investing come at a “cost”, and is the fear of investors around the performance concessions of “green” portfolios warranted? Our latest research suggests investors’ fears are misplaced – carbon-sensitive portfolios have similar returns and significantly better climate characteristics than portfolios constructed without carbon emission considerations. Other findings include:

- Highly profitable firms are likely to be leaders in reducing their carbon emission levels.



- There is no degradation in fundamental characteristics for the carbon-sensitive portfolios compared to the baseline portfolio, even though the difference in constituents can be as high as 20%.
- Carbon-sensitive portfolios were observed as having significant reductions in water use, air pollutants released and waste generated.

**October 2019: #ChangePays: There Were More Male CEOs Named John than Female CEOs**

This report examines the performance of firms that have made female appointments to their CEO and CFO positions. Our research finds that firms with female CEOs and/or CFOs:

- Are more profitable and generated excess profits of \$1.8 trillion over the study horizon.
- Have produced superior stock price performance, compared to the market average.
- Have a demonstrated culture of Diversity and Inclusion, evinced by more females on the company's board of directors.

**June 2019: Looking Beyond Dividend Yield: Finding Value in Cash Distribution Strategies**

Examines the relationship between yield-oriented strategies (dividend yield, buyback yield, and combined shareholder yield) and future stock return, across multiple countries/regions. Also provides insights into two additional topics:

- Which company fundamental characteristics support and enhance future shareholder payouts?
- Under which interest rate environment should investors favor yield-oriented strategies?

**June 2019: The Dating Game: Decrypting the Signals in Earnings Report Dates**

The first part of this report focuses on companies that deviate from a historical reporting pattern, while the second part examines a related topic – the market's reaction to companies that postpone a previously scheduled (announced) earnings release date.

- “Advancers” (companies that advance their earnings report date by at least 6 days) are likely to report improving year-year on sales, better earnings surprises, and more positive conference call sentiment readings than their industry group peers and “delayers” (companies that delay their earnings report date by at least 6 days).
- Advancers outperform delayers by over 7% on an annualized basis (Russell 3000). This return rises to 8.80% (Russell 2000) and falls to 2.21% (Russell 1000).
- The annualized return to stocks identified as buy candidates and tagged as advancers is 10.77%, compared to 6.29% for buy candidates tagged as delayers.
- Companies that postpone a previously announced earnings release date underperform the broad market by 2.44% in the 3 days surrounding the announcement. These companies are also likely to report deteriorating fundamentals.

**May 2019: Bridges for Sale: Finding Value in Sell-Side Estimates, Recommendations, and Target Prices**

**February 2019: U.S Stock Selection Model Performance Review**

**February 2019: International Small Cap Investing: Unlocking Alpha Opportunities in an Underutilized Asset Class**

**January 2019: Value and Momentum: Everywhere, But Not All the Time**

November 2018: [Forging Stronger Links: Using Supply Chain Data in the Investing Process](#)

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August 2015: [Point-In-Time vs. Lagged Fundamentals – This time i\(t\)'s different?](#)

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February 2015: [U.S. Stock Selection Model Performance Review - The most effective investment strategies in 2014](#)

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## WE'RE NOT THERE YET - CORONAVIRUS LESSONS

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