

Bloomberg

How to Research Supply Chain Exposures for Coronavirus and More

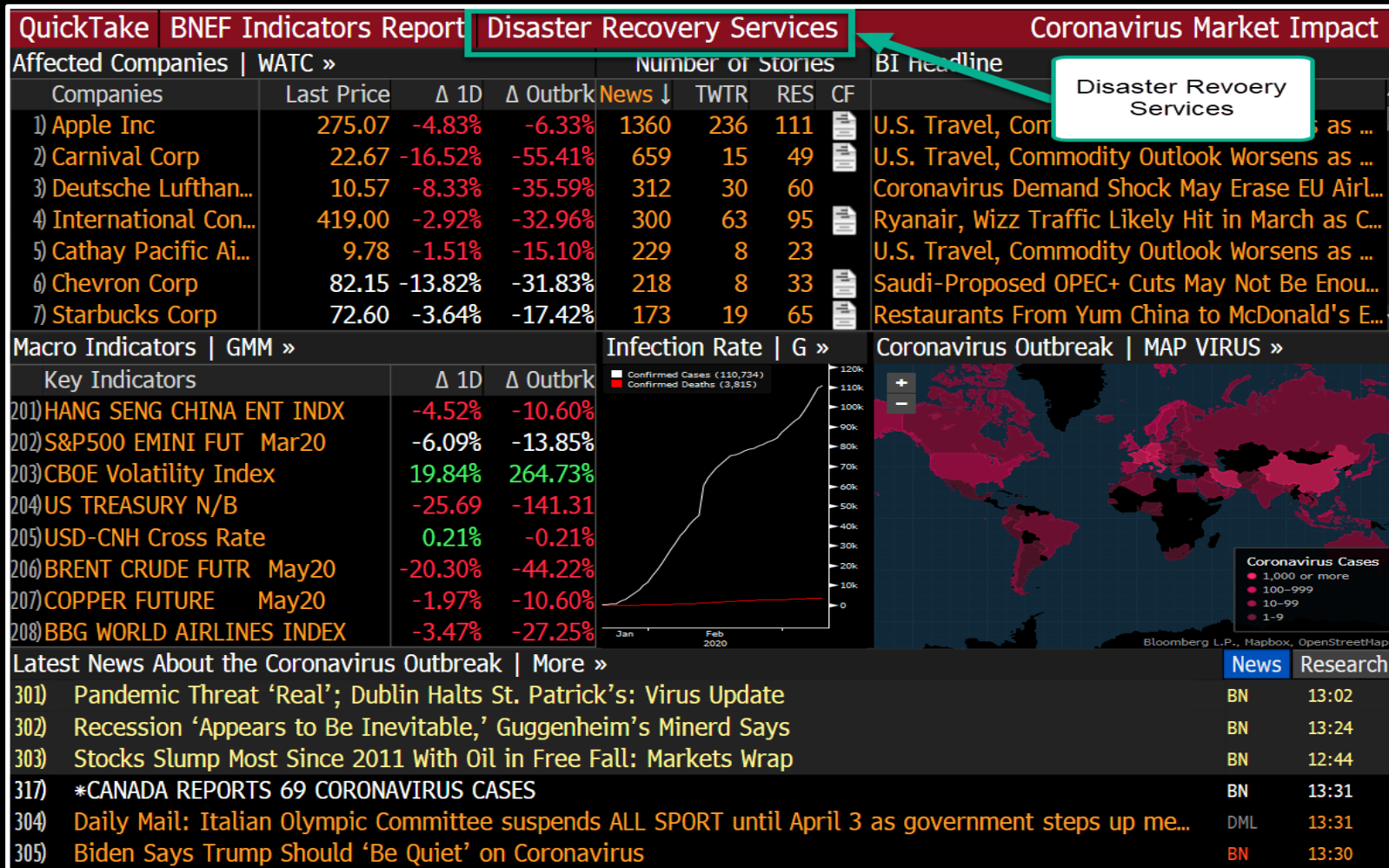
March 12, 2020

The Importance (and Urgency) of Supply Chain Insights

- **Coronavirus, Upstream and Downstream impacts**
 - Production impacted
 - Potential product shortages and waterfall impacts
- **Geopolitical Tensions, Trade War and Tariffs**
 - Understand geographic concentration of supply chains for companies and industries
- **Concentration Risk and Supply Chain Dependencies**

Bloomberg Coverage of Corona Virus – VRUS

- **VRUS <GO>** allows you see all relevant companies, news topics and content on Coronavirus in one place



Bloomberg Coverage of Coronavirus – Bloomberg Intelligence

- **BI BSKT <GO>**

- BI has created theme baskets for critical topics including coronavirus

The screenshot displays the Bloomberg Intelligence BI Theme Baskets Dashboard (BI BSKTG). The interface includes a top navigation bar with 'Actions', 'Directory', 'Export', and 'Settings'. A search bar is present with the text '<Search BI Research and Data>'. The main content area is titled 'BI Theme Baskets Dashboard (BI BSKTG)' and features a sidebar on the left with a list of theme baskets: '5G', 'Carbon Neutral', 'Coronavirus' (highlighted), 'IMO 2020', and 'US-CH Tariffs'. The main content area shows the 'Coronavirus' theme basket details, including a 'Primer' tab, 'Constituents', 'Composition', 'Curr Perf', 'Hist Perf', and 'Base Year 2019'. The 'Primer' tab is active, displaying the title 'Coronavirus Impact by Company and Industry' and a sub-header '101) Consumer-Facing Industries Most Jarred by February Covid-19 Rout'. The text describes the impact on the basket, noting a loss of over \$500 billion in market cap and declines in consumer-related industries. A line chart titled 'Global BI Coronavirus Theme Basket' shows the performance of the basket from February 18 to March 18, 2020, with a peak in late February followed by a sharp decline and then a recovery. The chart is dated 02/20/20.

The screenshot displays a Bloomberg Intelligence report titled 'Consumer-Facing Industries Most Jarred by February Covid-19 Rout'. The report is dated 03/03/20 and is authored by David Dwyer, BI Director of Research, and David Russell, BI Associate Analyst. The report provides a detailed analysis of the impact of the coronavirus pandemic on consumer-facing industries, noting a loss of over \$500 billion in market cap and declines in consumer-related industries. It also mentions that tech hardware suffered the least, with a 6% fall. The report includes a section titled 'Industry Focus' with links to 'Weekly Performance Table', 'Hardware', 'Restaurants', and 'Airlines'. A 'Weekly Performance Table' is also visible, showing the performance of the BI Coronavirus theme-basket constituents on an industry basis. The report is dated 03/03/20.

Bloomberg Supply Chain Analysis

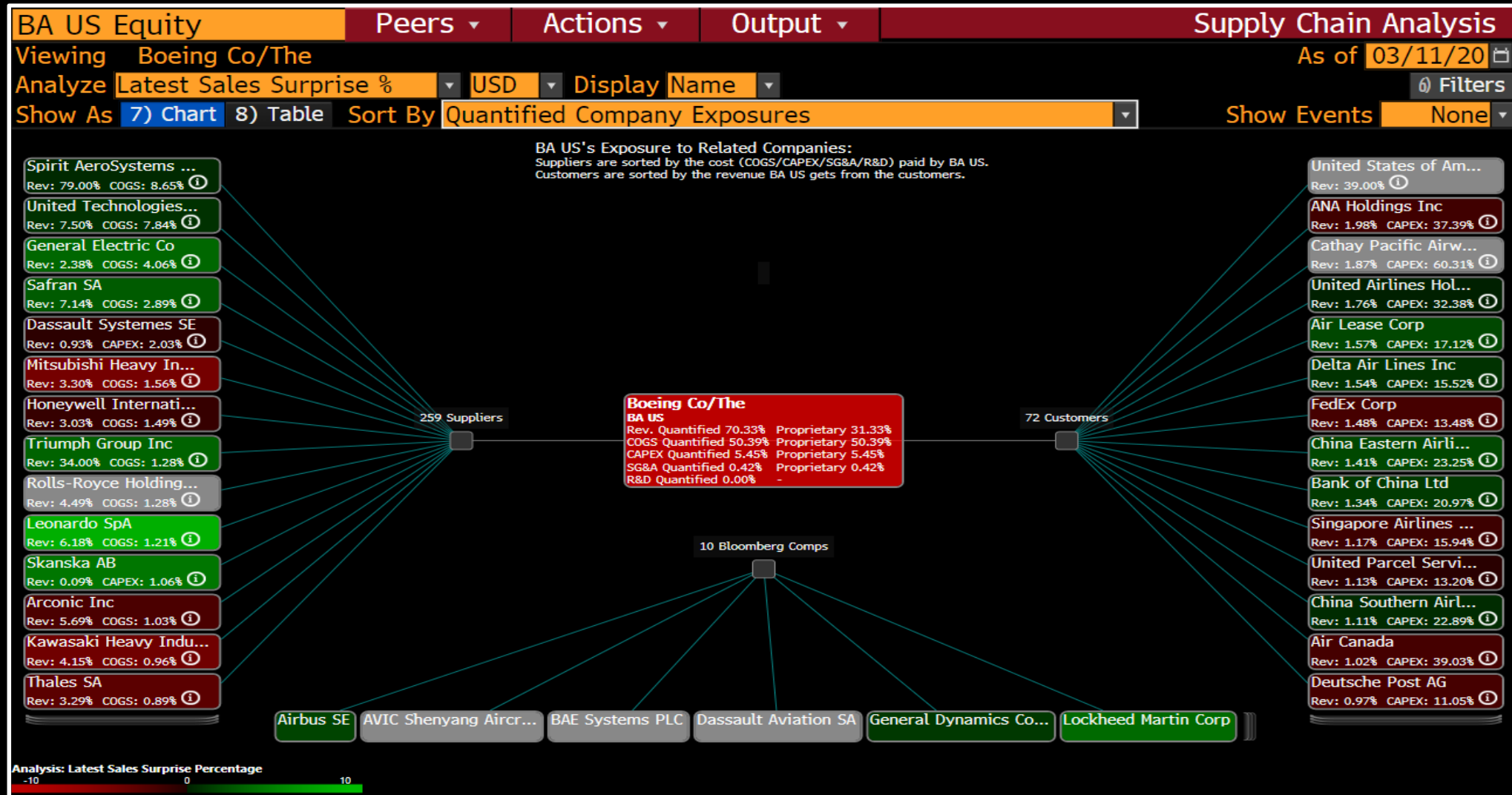
Bloomberg Supply Chain Data

- **Global Data Set**
 - 900,000 customer/supplier relationships
 - 23,000 public companies
 - 96,000 private companies
 - 360,000 relationships ingested from US Government Contracting Data
- **Investigate reputable, public data sources for evidence of supply chain relationships**
 - Annual Reports, SEC Filings
 - Investor Presentations
 - Conference Call Transcripts
 - Press Releases
 - Company Websites

Quantifying Supply Chain Relationships

- **SEC requires companies must disclose customer representing over 10% of revenues**
 - “As reported data”
- **Bloomberg Proprietary estimates**
 - Global research team of industry experts
 - Proprietary algorithm
 - “worryingly accurate”
- **Each relationship contains a revenue percentage for supplier and cost percentage for customer**
- **200,000 quantified relationships in the data set**

Bloomberg Supply Chain Function (SPLC)



Bloomberg Supply Chain Transparency

Spirit AeroSystems ...
Rev: 79.00% COGS: 8.65% ⓘ

Transparency Icon

Net revenues by prime customer are as follows:

<u>Prime Customer</u>	Twelve Months Ended		
	December 31, 2019	December 31, 2018	December 31, 2017
	(\$ in millions)		
Boeing	\$ 6,237.2	\$ 5,677.7	\$ 5,527.5
Airbus	1,250.6	1,180.8	1,123.5
Other	375.3	363.5	332.0
Total net revenues	\$ 7,863.1	\$ 7,222.0	\$ 6,983.0

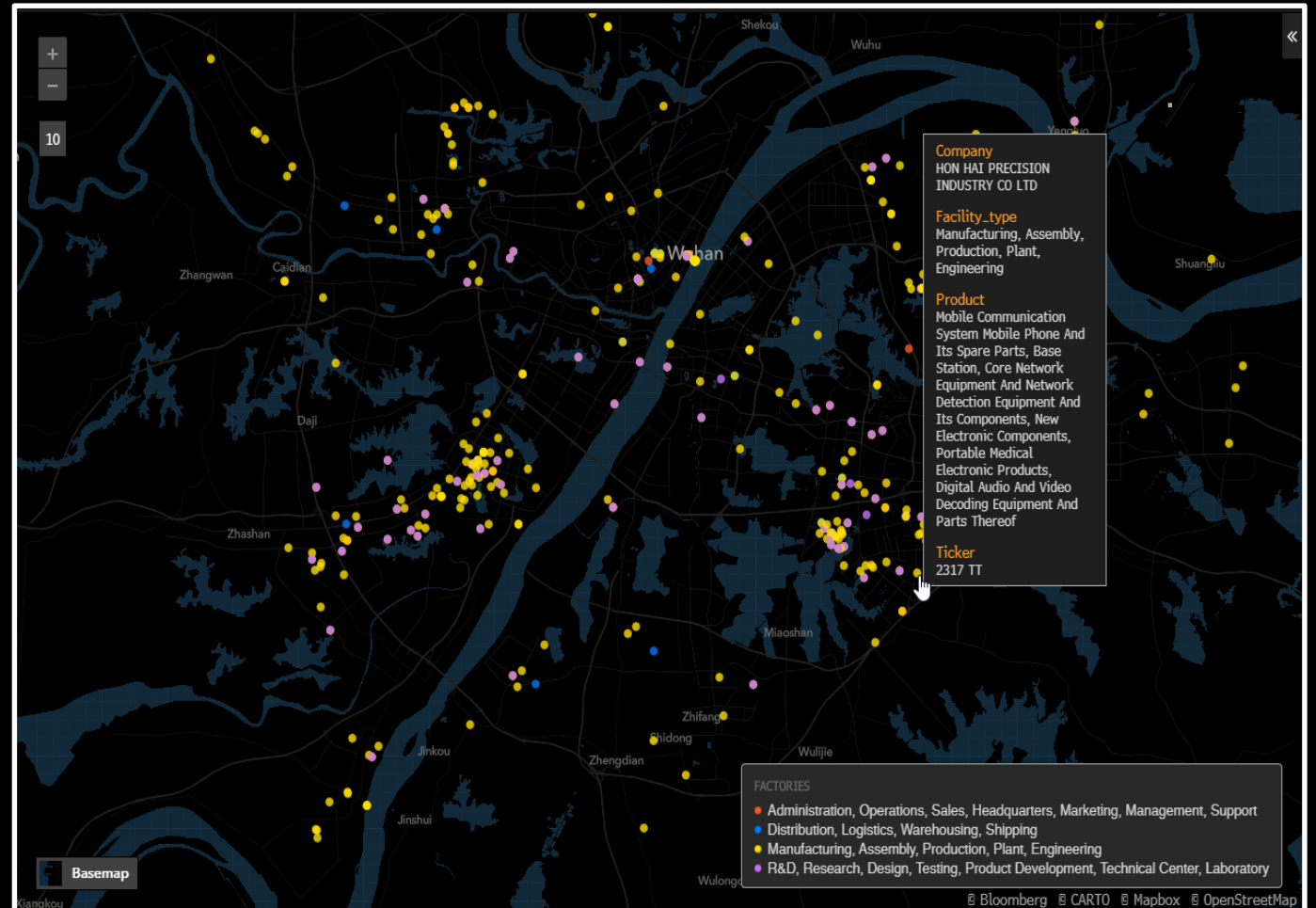
Bloomberg Supply Chain Function

BA US Equity		Peers	Actions ▾	Output ▾	Supply Chain Analysis				
Viewing BA US				As of 03/05/20					
Analyze	Latest Sales Surprise % ▾	USD ▾	Display Name ▾			Filters			
Show As	7) Chart 8) Table View Quantified Suppliers ▾								
Add Column						12) Fields			
Group By	Group (BICS) ▾		94) Stats...						
Name	Country	Market Cap	Sales	%Revenue	Relationship Value (Q)	Account As Type	%Change	Source	As Of Date
33) ▶ Electronics (27 securities)									
34) ▶ Engineering&Construction (8 securities)									
35) ▶ Environmental Control (1 security)									
36) ▶ Food Service (2 securities)									
37) ▶ Hand/Machine Tools (3 securities)									
38) ▶ Healthcare-Products (1 security)									
39) ▶ Home Furnishings (3 securities)									
40) ▼ Iron/Steel (8 securities)									
41) Allegheny Technologies ...	US	2.15B	2.43%	4.66%	47.13M	COGS	0.2	Estimate	02/03/2020
42) Carpenter Technology C...	US	1.82B	-0.56%	3.58%	21.28M	COGS	0.1	Estimate	02/07/2020
43) AMAG Austria Metall AG	AT	1.10B	2.32%	3.55%	11.07M	COGS	0.0	Estimate	01/27/2020
44) Universal Stainless & All...	US	100.10M	-3.72%	1.18%	652.52k	COGS		Estimate	02/03/2020
45) VSMPO-AVISMA Corp PJSC	RU	3.86B	--	0.38%	1.60M	COGS	0.0	Estimate	08/14/2019
46) thyssenkrupp AG	DE	5.53B	-0.06%	0.30%	31.90M	COGS	0.1	Estimate	02/25/2020
47) Reliance Steel & Alumin...	US	7.27B	-1.37%	0.15%	4.39M	COGS	0.0	Estimate	08/14/2019
48) voestalpine AG	AT	4.02B	-2.47%	0.09%	3.38M	COGS	0.0	Estimate	08/14/2019
49) ▶ Machinery-Constr&Mining (3 securities)									
50) ▶ Machinery-Diversified (13 securities)									

Group suppliers by industry or country of domicile for targeted Supply Chain Analysis

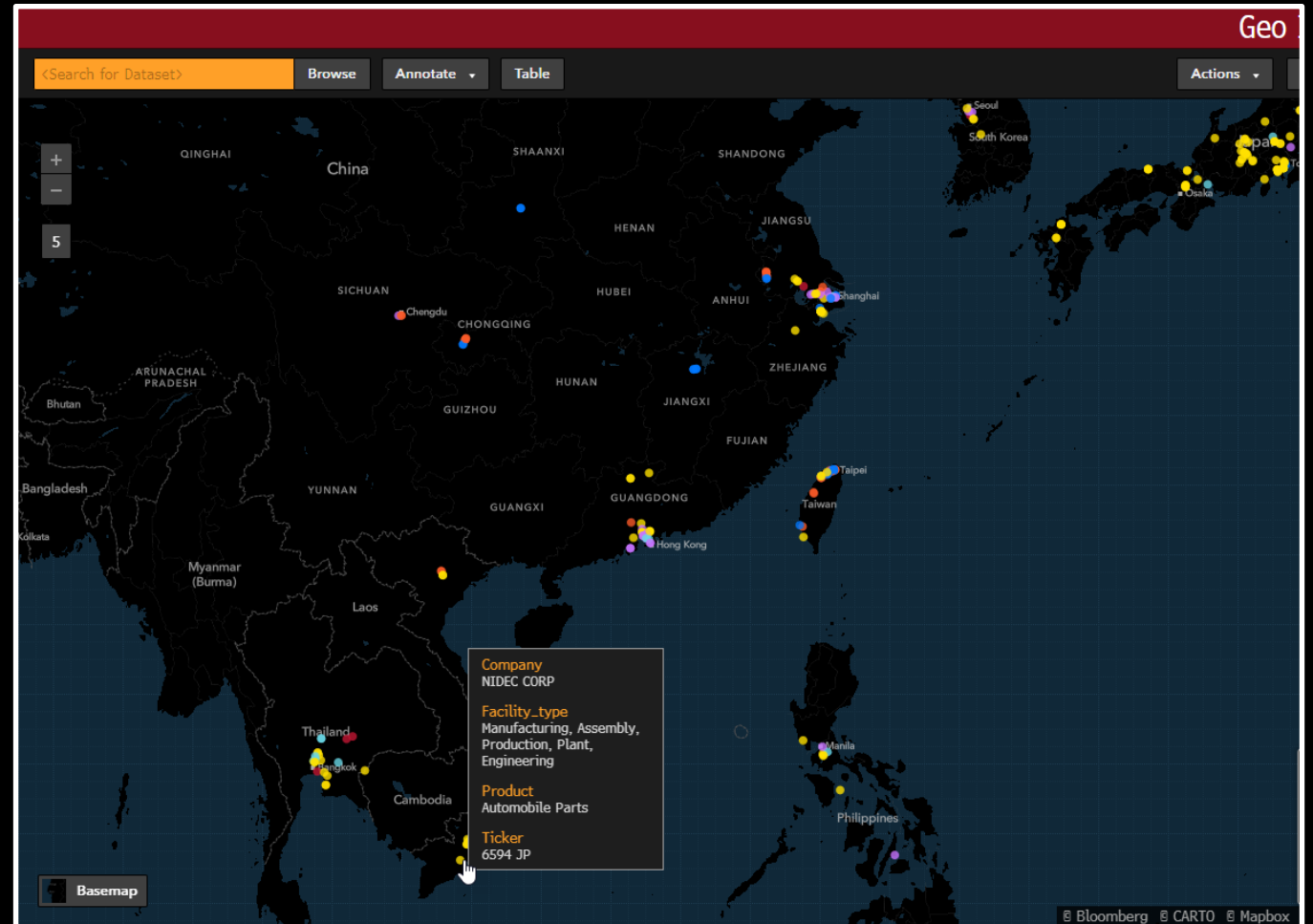
Bloomberg Physical Asset Data (CMAP or MAPS)

- 11,000 companies
- Over 200,000 locations globally
- Facility Types
 - Manufacturing
 - Distribution
 - Research & Development
 - Administrative
- Product-level data captured if disclosed by the company



Bloomberg Physical Asset Data (CMAP or MAPS)

- Utilize SPLC To Identify Suppliers to a given company or industry
- Utilize MAPS to analyze supply chain footprints of suppliers and customers



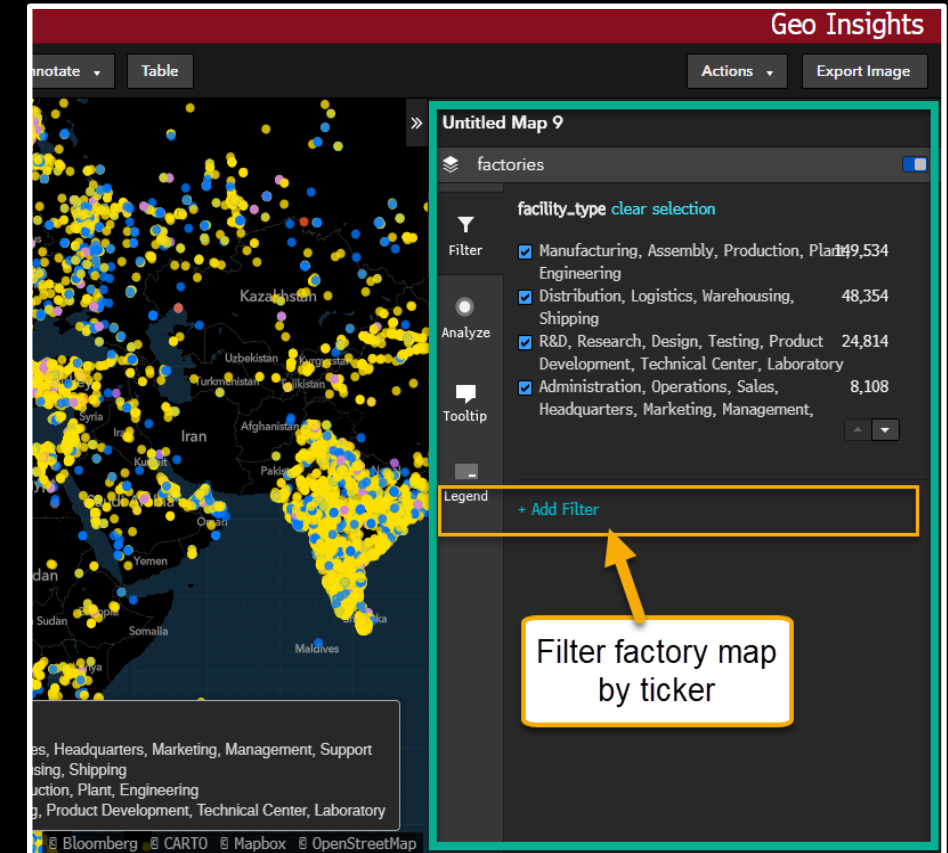
Instructions for Creating a Factory Map

- Run MAPS <GO>
- Click the 'Datasets' button in the top left
- In the amber box at the top of the screen, search for 'factories'
- Check the box next to factories to add it to your map
- Click 'Open In Map' button at the top (next to 'Datasets' button)

Now your map is open, you can filter the map down by:

- Open the filters panel using arrows icon in the top right of the screen
- Select the blue '+ Add Filter' link at the bottom
- Select 'ticker' to filter by company ticker
- Input your company tickers into the filter box, use the composite ticker
- *(Optional) Uncheck the 'facility type' boxes, only select manufacturing
- Change your 'Color by' option to 'ticker'

Now you'll have a map of the facilities for each company you added in step 4, color coded by the company that owns the facility. You can save and name the map when you are done, allowing you to build multiple maps for different industries & supply chains.



FA GEO – Geographic Exposures Of Companies

2317 TT Equity	96) Actions ▾	97) Export ▾	98) Sett
Hon Hai Precision Indus...	IFRS 16 ?	BQL Acct	Consolid
1) Key Stats	2) I/S	3) B/S	4) C/F
5) Ratios	6) Segm		
11) By Measure	12) By Geography	13) By Segment	
In Millions of TWD except Per Share	2018 Y		
12 Months Ending	12/31/2018		
▮ Revenue	5,293,803.0	100.0%	
▮ Revenue by Origin	–		
▮ Assets	–		
▮ Long-Term Assets	340,564.1	100.0%	
▮ Asia Pacific	268,491.4	78.8%	
▮ Mainland China	253,572.7	74.5%	
▮ Taiwan	12,208.1	3.6%	
▮ Singapore	2,692.9	0.8%	
▮ Japan	17.7	0.0%	
▮ Others	54,559.6	16.0%	
▮ The Americas	17,512.8	5.1%	

AAPL US Equity	96) Actions ▾	97) Export ▾	98) Sett
Apple Inc			ASC 84:
1) Key Stats	2) I/S	3) B/S	4) C/F
5) Ratios	6) Segm		
11) By Measure	12) By Geography	13) By Segment	
In Millions of USD except Per Share	2020 Q1		
3 Months Ending	12/28/2019		
▮ Revenue	91,819.0	100.0%	
▮ Americas	41,367.0	45.1%	
▮ Europe	23,273.0	25.3%	
▮ Greater China	13,578.0	14.8%	
▮ Rest of Asia Pacific	7,378.0	8.0%	
▮ Japan	6,223.0	6.8%	

Document Search (DSCO)

Search for text, keywords across an entire portfolio, index, or equity screen

Document Search: Advanced Search

search ☒ Filings All ☒ Presentations ☐ Press Releases

/DD/YY MM/DD/YY Language All

4) Filings
5) Industries
6) Regions
7) Research
8) Tags
9) Teams
10) Author
Company
NXPI US
ON US
MRVL US
MRVL US
MRVL US
MRVL US
TXN US
TXN US
CCMP US
SWKS US
CCMP US
XLNX US

Favorites
Recents
List Sources
Security Worksheets
Portfolio
Indices
Equity Screen
NW Monitor
Trade Ideas (TMSG)
Fund Screen (FSRC)
EMS Orders
Funds
Benchmark

Ticker	Name	Fav
1) SPX	S&P 500 Index	☆
2) INDU	Dow Jones Industrial Average	☆
3) SX5E	EURO STOXX 50 Price EUR	☆
4) DAX	Deutsche Boerse AG German Stock ...	☆
5) NKY	Nikkei 225	☆
6) UKX	FTSE 100 Index	☆
7) HSI	Hong Kong Hang Seng Index	☆
8) SXXP	STOXX Europe 600 Price Index EUR	☆
9) CCMP	NASDAQ Composite Index	☆
10) NDX	NASDAQ 100 Stock Index	☆
11) SHCOMP	Shanghai Stock Exchange Composit...	☆
12) CAC	CAC 40 Index	☆
13) TPX	Tokyo Stock Exchange Tokyo Price...	☆

Close

Shareholder Mtg C... Annual General Meeting
8-K Skyworks Solutions Inc: 8-K 2020/03/04
8-K Cabot Microelectronics Corp: 8-K 2020/03/04
Conf Presentation ...Morgan Stanley Technology, Media & Telecom Conference

Date
08:46
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Document Search (DSCO)

Smart autocomplete searches for "coronavirus", "2019-NVOC" and other synonyms

Company Document Search

TICKER LIST: SOX Index x KEYWORDS: "CORONAVIRUS" x All Dates

Hide Filters « Trend: +

Document Types	Company	#	Sour...	Upload	Period	Language	Size	Reporting
<input checked="" type="checkbox"/> Transcripts	NXP Semiconducto...	8-K	08:46:54	03/05/20	English	178k	NXP SEM	
<input type="checkbox"/> Research	Marvell Technolog...	Earni...	03/04/20	English				
<input checked="" type="checkbox"/> Filings	Marvell Technolog...	8-K	03/04/20	03/04/20	English	915k	MARVELL	
<input checked="" type="checkbox"/> Presentations	Marvell Technolog...	Finl ...	03/04/20	02/01/20	English	733k	MRVL US	
<input type="checkbox"/> Press Releases	Texas Instruments...	Conf ...	03/04/20	English				
	Cabot Microelectro...	Shar...	03/04/20	English				
▼ Companies	Skyworks Solution...	8-K	03/04/20	03/04/20	English	190k	SKYWOR	
<input type="checkbox"/> ENTG US Equity <10	Cabot Microelectro...	8-K	03/04/20	03/04/20	English	181k	CABOT M	
<input type="checkbox"/> NXPI US Equity <10	Xilinx Inc	Conf ...	03/04/20	English				
<input type="checkbox"/> CCMP US Equity <10	Lam Research Corp	Shar...	03/03/20	English				
<input type="checkbox"/> AMAT US Equity <10	Qorvo Inc	Conf ...	03/03/20	English				
<input type="checkbox"/> ADI US Equity <10	Qorvo Inc	8-K	03/03/20	03/03/20	English	184k	QORVO, I	
More...	Microchip Technol...	M&A ...	03/02/20	English				
	Analog Devices Inc	Conf ...	03/02/20	English				

Document Search (DSCO)

Actions Data Opti...

Transcript

As we start fiscal 2021, we are excited about a number of product ramps but are also trying to assess the near-term impact from the [coronavirus](#).

In addition, we experienced strong booking trends in networking, before the recent [coronavirus](#) impact clouded the outlook.

Please note that this growth outlook includes the negative impacts currently known from [coronavirus](#) related issues.

Please note, we have built into the guidance, a 5% reduction in revenue due to the risks associated with the [coronavirus](#).

And then certainly understanding now we're dealing with the [coronavirus](#) situation, but it certainly hasn't diminished at all our longer-term outlook, especially as we look through later this year, with

I mean, just as my follow-up, I wanted to go back to kind of your guidance around the [coronavirus](#) caveat it by saying, I appreciate the fact it's very fluid and any question I asked is going to be best

Links take you to specific mentions of the text in the document

Implementing all the key learnings from the Cavium acquisition, our IT and operations team did an amazing job in completing the ERP integration of Aquantia in one day and Avera within five days of closing the transactions. In information, we want a number of key designs in fiscal 2020, which we expect will fuel growth for the company. In wireless infrastructure, we started ramping our first at Samsung, when their next generation 5G baseband processor, and yesterday we collaboration with them.

During the last year we also want to front-haul interface chip and entered into the radio head with processors for massive MIMO. Equally exciting earlier today, Nokia announced an expanded relationship with Marvell on 5G infrastructure solutions, which I will discuss later in the call. In Ethernet connectivity, we want a number of designs at leading networking OEMs with our switch and PHY solutions.

In storage, we started to ship and ramp -- pre-amps and controllers in the high capacity 16 terabyte near line drives and secured the follow-on controller for the next generation platform, targeting higher capacity points well into the 20 plus terabyte range. We released our NVMe over Fabric Ethernet SSD controller, and a family of PCIe Gen4 NVMe SSD controllers which are also powering our first major DIY win.

As we start fiscal 2021, we are excited about a number of product ramps but are also trying to assess the near-term impact from the [coronavirus](#). Clearly the safety and well-being of our employees is our highest concern. And I want to express my sincere support for all our people in China who have been the most impacted. Prior to the outbreak gaining intensity, our bookings and backlog we're getting stronger going into fiscal year 2021, driven by our own product cycle, such as the start of our 5G product ramp, our success in near line drives and a recovery in our core business.

In addition, the signing of the Phase 1 trade deal between the U.S. and China was helpful in erasing trade tensions which has affected our business last year. But recently as the virus impact has become broader, we have started to see supply chain related impacts to our business. It is impossible for us to fully quantify the effect of this situation, as our business -- on our business as it remains fluid. However, our revenue guidance for the first quarter includes a 5% reduction, based on what we know so far. In addition, given the ongoing uncertainty, we've also temporarily widened our guidance range on revenue from plus or minus 3% to plus or minus 5%.

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Transcript

Company News Search (CN)

Search News

Actions ▾

Custom Searches

Translate ▾

Key Themes

Page 1

News Feed

Match All ▾

Apple Inc ×

Coronavirus ×

"guidance" ×

BBG Only ↺

All Dates

Time

AI News Importance

Lower

Higher

Top Ranked News | More »

1) ✓ iPhone Maker Expects Return to Normal in China by End-March (1)

2) Apple iPads, Facebook VR Headsets in Short Supply Amid Virus

Time Ordered News

3) Coronavirus Disruptions to Leave Mark on Financial Reports

4) Apple's Warning to Retail; Roku Rebuffs Report: N.A. TMT Wrap

5) TRANSPORTATION BRIEFING: U.S. Plans More Travel Restrictions

6) Dialog Says Coronavirus to Cut Up to 15% Off First-Quarter Sales

7) Microchip Cuts Outlook; Disney Target Lowered: N.A. TMT Pre-Mkt

8) ✓ iPhone Maker Expects Return to Normal in China by End-March (1)

9) Apple iPads, Facebook VR Headsets in Short Supply Amid Virus

10) Apple's Cook Sees Minor Supply Chain Changes in Wake of Virus

11) Microsoft Falls as Wall Street Digests Coronavirus Warning Shot

12) Microsoft Joins Apple, HP in Scrapping Outlooks on Virus

13) Virus-Induced Shift in EPS Makes S&P 500 Recovery a U, Not V

14) Bob Iger Taps Chapek as CEO; Comcast Buys Xumo: N.A. TMT Wrap

15) Banks, on Edge, Flirt With Unflattering Position: Taking Stock

16) Best of BI Research -- Asia Morning Note

17) Intel in Talks to Sell Unit; MSG CEO Trims Stake: N.A. TMT Wrap

BN

03/03

BN

03/02

BLW

11:45

BFW

03/04

BGV

03/04

BN

03/04

BFW

03/03

BN

03/03

BN

03/02

BN

02/28

BN

02/27

BN

02/26

BI

02/26

BFW

02/25

BN

02/19

BI

02/18

BFW

02/18

Filter news topics based on source, keywords, and topic

News Alerts (NLRT)

Actions ▾

Custom Searches

News & Research Menu: Advanced Editor

Include ▾

Enter a search term to add to query.

Browse

Source Suggested ▾

Relevance Medium ▾

My Languages ▾

MM/DD/YY

__:_ - MM/DD/YY

__:_ Pgs. - ▾

Search Builder

Manual Editor

Type	Search Terms
11) Keywords	
12) Security Lists	(PHILA SEMICONDUCTOR INDX)
13) Companies	
14) Topics	Coronavirus
15) People	
16) Regions	
17) Industries	
18) Sources	(Bloomberg News)

Preview Results (~1 Stories/Day)

101)	Marvell Jumps Most Since 2017 After Outlook Bodes Well for 5G	BN	10:33	
102)	*SKYWORKS REVISED OUTLOOK REFLECTS EXPECTED IMPACT OF COVID-19	BN	03/04	
103)	*CABOT MICRO NOT SEEN A SIGNIFICANT IMPACT FROM COVID-19	BN	03/04	
104)	*QORVO CUTS 4Q REV GUIDANCE TO ABOUT \$770M ON CORONAVIRUS IMPACT	BN	03/03	
105)	Microchip Is Latest Chipmaker to Foresee Earnings Hit From Virus	BN	03/02	
106)	*MICROCHIP TECHNOLOGY CUTS GUIDANCE ON CORONAVIRUS	BN	03/02	
107)	*MICROCHIP TECHNOLOGY CUTS GUIDANCE ON CORONAVIRUS	BN	03/02	
108)	*NVIDIA SHIFTS DEVELOPER EVENT GTC TO ONLINE ONLY	BN	03/02	
109)	Nvidia Cut at Nomura on Coronavirus Risk to End Markets (1)	BN	02/25	
110)	Micron Cut as BofA Warns of Earnings Risk From Coronavirus (1)	BN	02/25	
111)	Chipmakers Sink as Spreading Virus Deepens Supply-Chain Risk	BN	02/24	

Save

1) Run

Build Alerts when there's news related to the coronavirus published & tagged to specific companies

19

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QUESTIONS?

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