




Executive
Perspectives

A close-up, low-angle shot of several glass vaccine vials with silver caps, arranged diagonally across the frame. The lighting creates strong highlights and shadows, emphasizing the metallic and glass textures.

Navigating the Delta Variant and the Future of COVID-19

August 2021



BCG Executive Perspectives

IN THIS DOCUMENT

OBJECTIVE: The highly transmissible Delta variant of COVID-19 has taken over as the dominant strain in many areas around the world. This document aims to present key facts, dispel myths, and help leaders evaluate their policies as the COVID-19 fight enters its next phase.

VACCINES ARE EFFECTIVE AGAINST FAST-SPREADING DELTA

While the Delta variant does have relatively higher antibody resistance than the wild type¹, vaccines are still proving to be highly effective in preventing severe disease and limiting spread. Headlines often focus on breakthrough cases of COVID-19 among the vaccinated and concerns over waning immunity among the elderly and vulnerable, but vaccines continue to be the best tool for managing disease. They provide a promising path out of the pandemic.

VACCINATION IS CRUCIAL FOR LONG-TERM CONTAINMENT

Actions taken in the next year can dictate consequences in the longer term. While the immediate ambition is to control the spread of the Delta variant, vaccination is essential to reduce the risk of dangerous future variants. Public health leaders must keep a global view in mind to prevent worldwide resurgences. Across the public and private sectors, increasing numbers of employers have implemented stronger measures to drive vaccination.

1. Original strain of COVID-19. Sources: BCG analysis and case experience.

Rapid global spread fuels concern for Delta variant; vaccines remain crucial

Increasing cases

~650k

New global cases per day and growing, which is **~80% of peak cases**

Dominant variant

>90%

Of new cases are **coming from the Delta variant** in most countries

Global challenge

130+

Countries have experienced Delta variant's spread

Infection danger

2.5-3x

Increased transmissibility of Delta versus the original strain

Vaccine efficacy

~25x

Reduction in severe cases after vaccination¹, taking into account new variants such as Delta

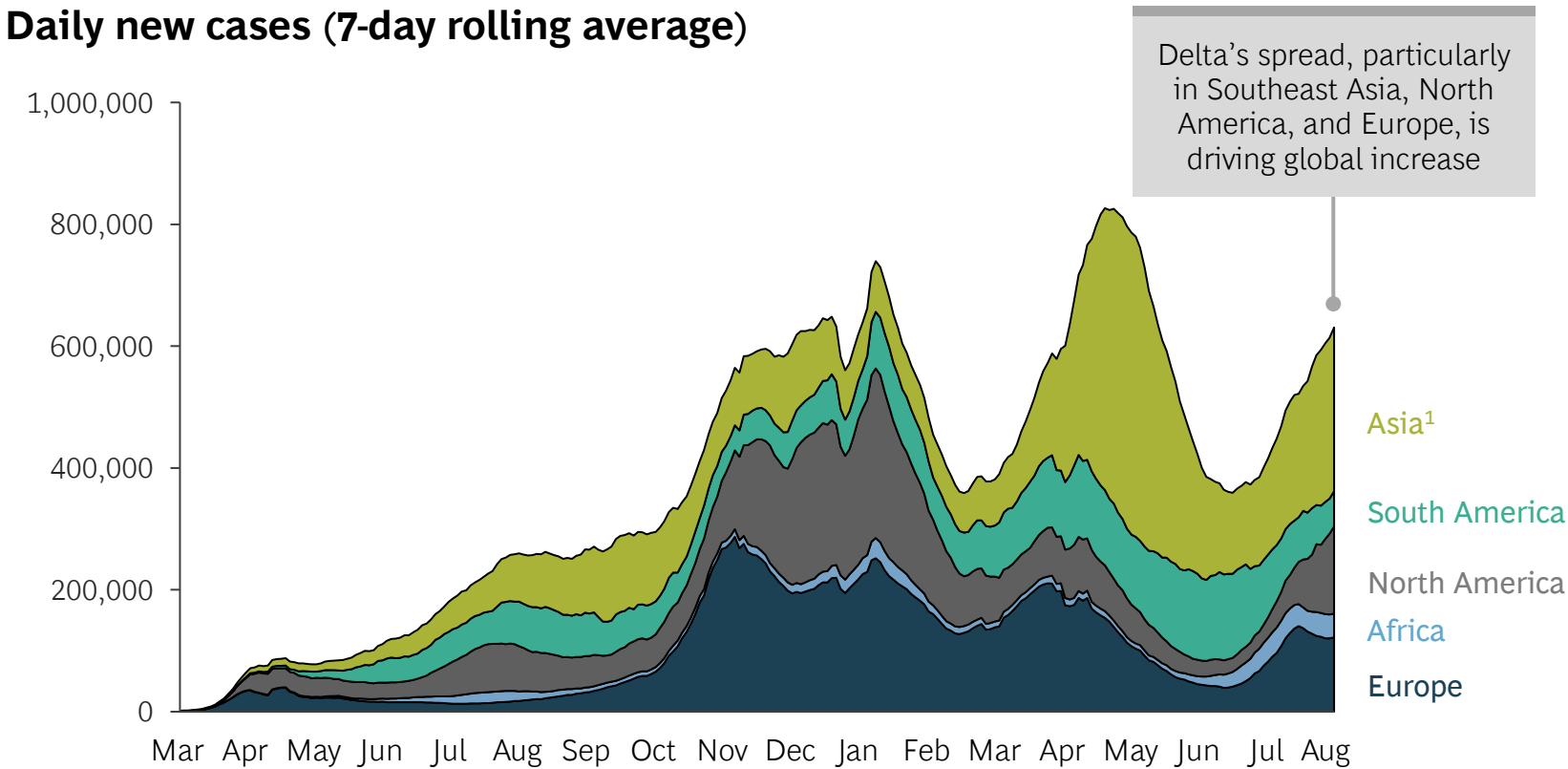
1. Based on estimates from US CDC and Public Health England among vaccinated versus unvaccinated people. Reductions in hospitalization rates due to vaccination differ across age groups. For example, the reduction in hospitalization rates for those aged 65+ is likely even greater than 25X, based on preliminary data from the US CDC. Sources: Our World in Data; Nextstrain; Public Health England; US CDC.

Global cases are rising, with the Delta variant proliferating and difficult questions resurfacing

As of 09 Aug 2021

Epidemic Progression

Daily new cases (7-day rolling average)



Month-on-month growth of new cases ²	215%	15%	50%	60%	10%	10%	40%	45%	10%	0%	(35%)	20%	60%	(15%)	(55%)	30%
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Leaders are reconsidering key questions:

- What is the employer's role in driving vaccinations?
- Should reopening or return to office plans be delayed?
- What should the approach be for safely gathering in public areas (e.g., masking, testing)?
- What public health measures should schools implement?

While the answers may vary in each situation and country, decisions should be fact-based and risk-weighted

1. Includes Oceania (Australia, New Zealand, Papua New Guinea, and surrounding island nations of the Pacific ocean). 2. Calculated monthly as average of daily cases compared with previous month's daily cases and rounded to nearest 5%. Sources: Johns Hopkins CSSE; Our World in Data; Worldometer; press search; BCG.

Summary

Navigating the Delta Variant and the Future of COVID-19

1	DELTA VARIANT FACT BASE AND TRENDS	<ol style="list-style-type: none">1 The Delta variant has become the predominant variant due to its very high transmissibility2 Vaccines offer very strong protection against Delta, but that protection may decrease over time depending on vaccine and individual context3 As vaccination rates increase, hospitalizations will drop significantly even as the proportion of breakthrough cases increases4 High community vaccine protection helps lower risk of Delta variant across all age groups5 Vaccines decrease Delta's transmissibility by shortening contagious period in breakthrough cases
2	IMMEDIATE IMPLICATIONS FOR LEADERS	<ol style="list-style-type: none">1 Public health: Accelerate efforts to expand vaccination within and across countries2 Private sector: Require employee vaccinations as much as possible; trending to stronger mandates
3	LONGER-TERM SCENARIOS	<ol style="list-style-type: none">1 Increasingly dangerous variants may surface in the future among unvaccinated populations2 Long-term course of pandemic depends on actions in the next year—crucial to act now

BCG Executive Perspectives

AGENDA

DELTA VARIANT AND THE FUTURE OF COVID-19: TRENDS AND ACTIONS



Delta variant fact base and trends

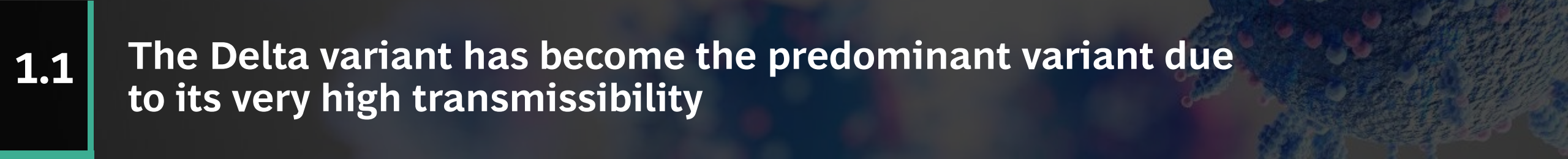


Immediate and longer-term implications for leaders

UPDATED ANALYSES AND IMPACT

Epidemic progression and virus monitoring

Economic and business impact

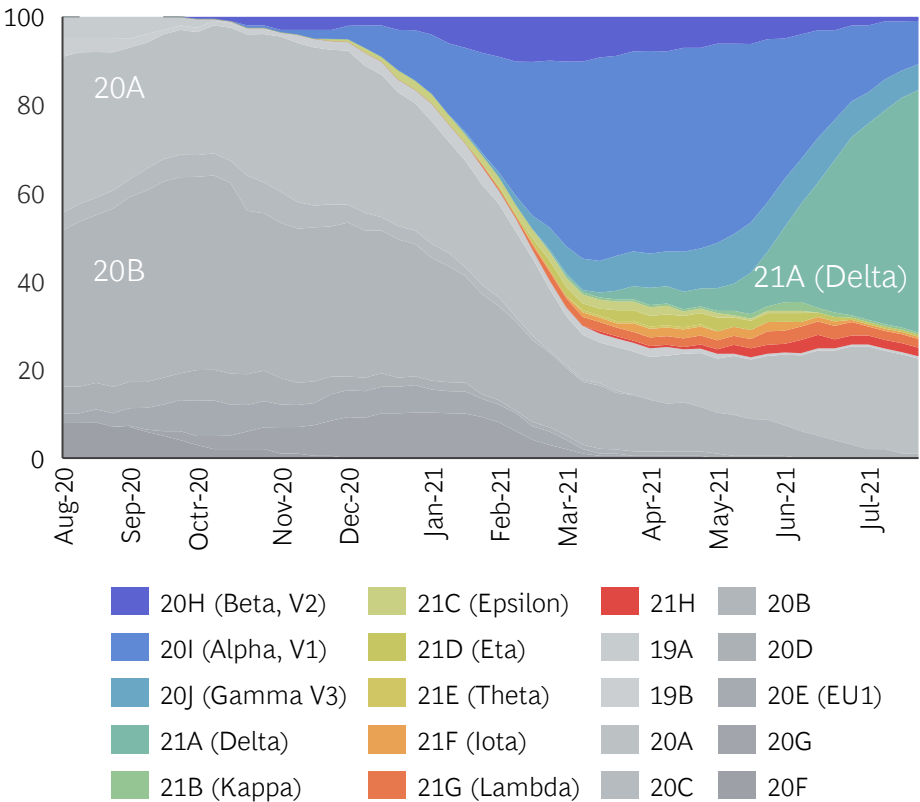


1.1

The Delta variant has become the predominant variant due to its very high transmissibility

Delta variant has become the leading variant globally (%)

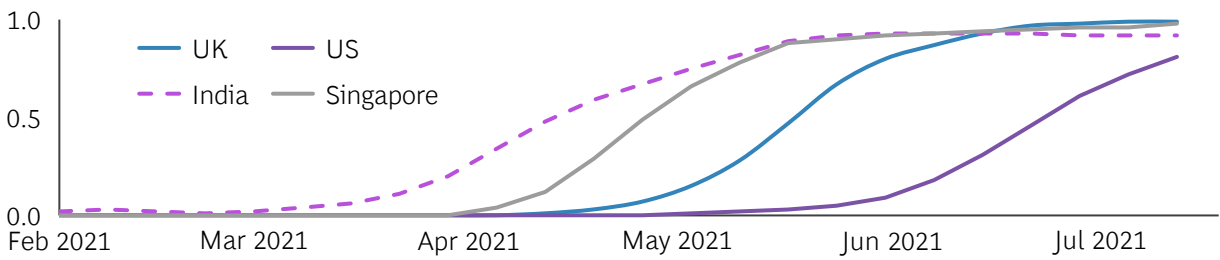
As of July 28, 2021



Delta has become a prominent concern in many countries because of its high transmissibility

First identified in India but already present **in 130+ countries** and accounts for **>90% of new cases** in many countries

Frequency of the Delta variant in new cases through July 30, 2021



Highest transmissibility (2.5-3x wild type) of all variants combined with **shorter incubation period¹** (3-5 days vs. 5-8 days for wild type) allows Delta to spread very quickly. Each Delta infection spreads to **6-7 other people on average compared with only 2 others** for wild type²

3-6x antibody resistance compared with Alpha/wild strain³

Potential for **higher severity⁴**

1. Period of time before virus is detectable. 2. Comparison for spread assumes unvaccinated individuals. 3. As measured by reduction in the binding efficiency of neutralizing antibodies. 4. Severity determines COVID-19 hospitalizations and deaths. Sources: Nextstrain; CoVariants; US CDC; Nature, Reduced sensitivity of SARS-CoV-2 variant Delta to antibody neutralization (July 2021); Lancet, SARS-CoV-2 Delta VOC in Scotland: demographics, risk of hospital admission, and vaccine effectiveness (June 2021); press search; BCG analysis.

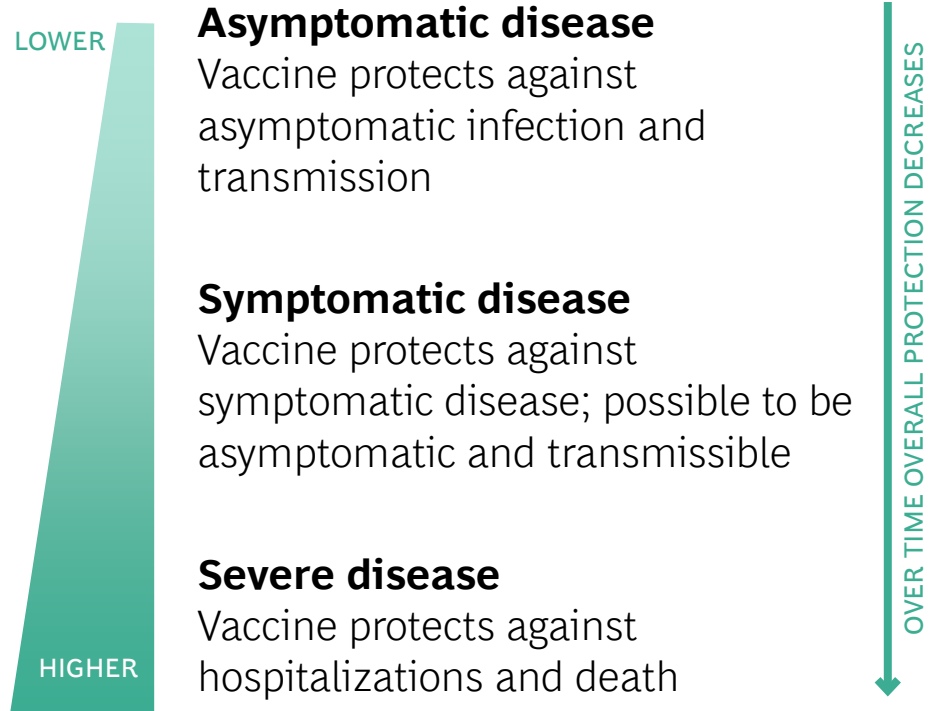
1.2 Vaccines offer very strong protection against Delta, but that protection may decrease over time depending on vaccine and individual context

The level of protection from antibodies¹ may decrease over time, eventually protecting against only severe disease ...

Protection stems from **high count of neutralizing antibodies** that have **high stickiness** to the virus variant

Vaccination often **starts with protection from all disease, including asymptomatic**, but may wane over time

CHANCE OF PROTECTION FROM...



... however, this varies by vaccine and individual

6 months later, some vaccine types **continue to show high** antibody counts, while **others have fallen** significantly, raising efficacy concerns

People with **autoimmune conditions and the elderly** are experiencing the fastest antibody losses over time and may need booster shots the most to increase antibodies



1. Antibody protection is just one of the immune responses but is also the most measurable.
Sources: WHO; US CDC; *Nature*, Neutralizing antibody levels are highly predictive of immune protection from symptomatic SARS-CoV-2 infection (May 2021); press search.

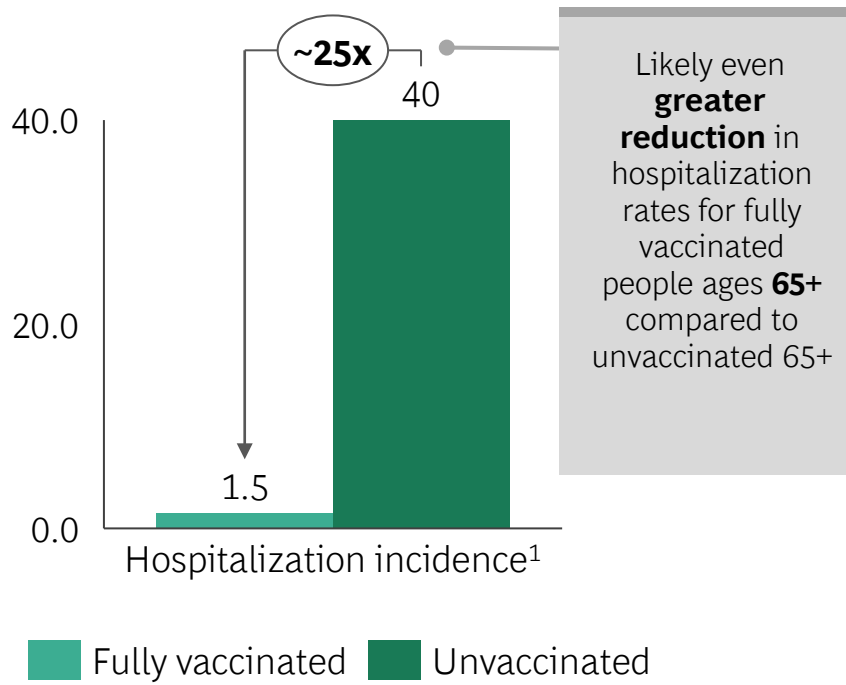


1.3

As vaccination rates increase, hospitalizations will drop significantly even as the proportion of breakthrough cases increases

25x reduction in hospitalizations for fully vaccinated people

Weekly COVID-19 incidence per 100K (US CDC data)
August 2 - August 8, 2021



1. Hospitalization rates remain constant in both scenarios and are based on actual US hospitalization data (on left). Sources: US CDC COVID Data Tracker; BCG analysis.

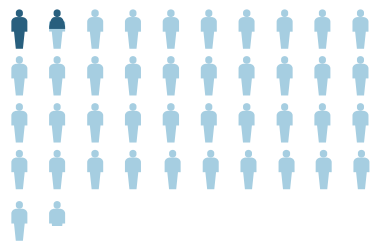
Vaccines reduce overall hospitalizations in a population despite more breakthrough cases

As more people get vaccinated, **overall hospitalizations will decrease due to vaccine protection**. With fewer remaining unvaccinated people, a larger proportion of hospitalizations will come from breakthrough vaccinated cases

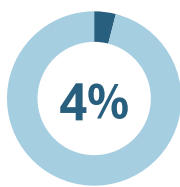
Illustrative example—2M population¹

Scenario A - 50% vaccinated

Weekly hospitalizations: **415**



Proportion of hospitalized that are vaccinated



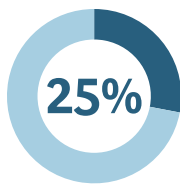
Increasing vaccination rate can move Scenario A to B

Scenario B - 90% vaccinated

Weekly hospitalizations: **107**



Proportion of hospitalized that are vaccinated

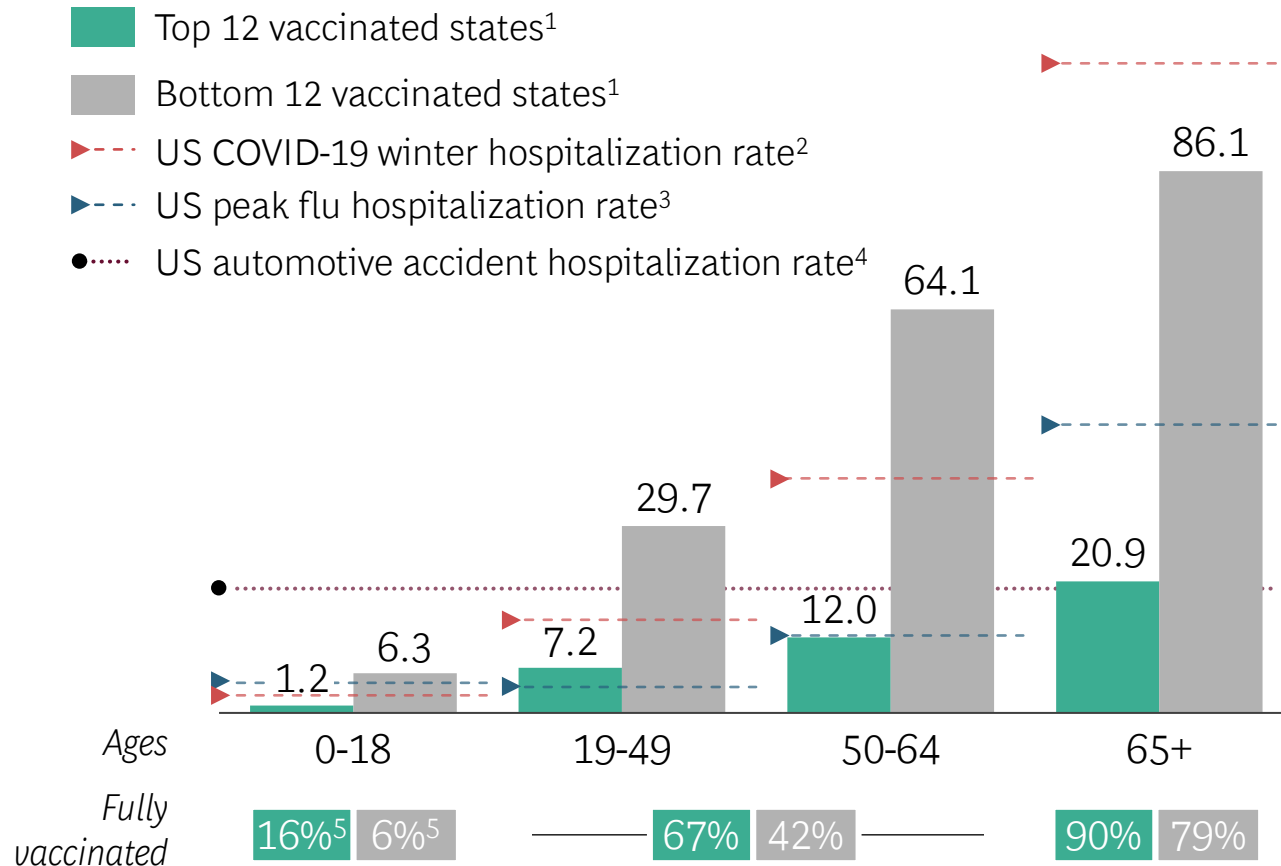


= 10 vaccinated hospitalizations

= 10 unvaccinated hospitalizations

High community vaccine protection helps lower risk of Delta variant across all age groups

New weekly hospital admissions per 100k (US CDC data)
Average August 9th - August 15th, 2021



1. Measured by fully vaccinated %. Top States (56.8%-67.0% fully vaccinated), in order: VT, MA, ME, CT, RI, MD, NJ, NH, WA, NY, NM, OR, Bottom States (35.4%-41.6% fully vaccinated), in order: AL, MS, WY, ID, LA, AR, WV, GA, TN, ND, OK, SC. 2. Based on 6 weeks hospitalizations from Dec 21, 2020 to Jan 31, 2021. 3. Estimated based on 2018-2019 data when only 49.2% of people got flu vaccines. 4. Based on 2018 emergency department visit rates for motor vehicles. 5. Percent of total population 0-18 though only 12-18 is eligible in US. For ages 12-17. Sources: US CDC Covid Data Tracker; Mayo Clinic Vaccine Tracker; US Census estimates 2019; CDC Flu Burden 2018-19; National Center for Health Statistics; BCG US Vaccine Sentiment Survey (May 2021)



Despite **low youth** vaccination rates across the country, states with **higher overall** vaccination rates and thus greater **community protection** are seeing youth hospitalizations **well below peak flu season levels**



As Delta spreads in US, **states with highest vaccination levels have seen lessened impact of Delta wave** to date. Additionally, Pfizer's vaccine was **>97%** effective against **symptomatic disease** in youth trials⁵, implying significant benefit for **younger people to get vaccinated when eligible**

Headlines focus on rising youth hospitalizations, but protecting children and the vulnerable **varies by local context**. Clarifying perceived versus actual risks is critical to painting a holistic picture (e.g., **>30%** of vaccinated adults continue to perceive outsized COVID-19 risk, even as actual risk is lower in many communities)

Vaccines decrease Delta's transmissibility by shortening contagious period in breakthrough cases

Vaccines help reduce transmission of both symptomatic and asymptomatic cases

As of August 2, 2021

3x

Reduction in **asymptomatic cases** for vaccinated versus unvaccinated based on a UK study

8x

Reduction in **symptomatic cases** for vaccinated versus unvaccinated based on a US study

3x figure can also be attributed to the different **vaccine mix** in UK (which includes Oxford/AstraZeneca vaccine), but vaccines still offered **high immunity by protecting against asymptomatic Delta cases**

Vaccine decreases transmission by reducing infectious time



Delta appears to carry **similar viral load in vaccinated and unvaccinated cases at time of diagnosis**, a departure from previous variants where vaccinated people had lower viral loads...



...But vaccinated case viral loads decrease much faster than unvaccinated case viral loads do (**~10-14 days shorter** infectious period), reducing possible infectious time for breakthrough cases¹

1. July 31, 2021 study based in Singapore looking at breakthrough cases compared with unvaccinated cases. Ct threshold of 35 was around day 10-12 for vaccinated and day 22-24 for unvaccinated.
Sources: US CDC COVID Data Tracker; Imperial College London.

The Delta variant continues to make news, but vaccination within and across countries remains an important lever to control against impacts

As of 13 August 2021



Delta variant is ravaging the world, but it is pushing Southeast Asia to breaking point



Europe struggles to break free of COVID-19 restrictions as Delta variant surges



Delta variant slams US youth who are vaccine hesitant, spreading through unvaccinated segments quickly



Delta variant widens gulf between 'Two Americas': vaccinated and unvaccinated



Why COVID-19 vaccines work well against Delta variant



The Delta variant is slowing office reopenings. It could slow the economic recovery too



The US FDA authorized a third dose of COVID-19 vaccines for immunocompromised people



WHO head seeks vaccine booster moratorium to ensure doses are available for low-income countries

Public health: To combat Delta variant, need to increase efforts to expand vaccination within and across countries



Public health leaders should look for ways to rapidly expand vaccination

EXPAND ELIGIBILITY

Regulators should assess necessity of emergency authorization to expand eligibility as **safely and quickly as possible** (e.g., ages <12, boosters, etc.)

GAIN AUTHORIZATION

Dedicate sufficient resources to review vaccine applications **beyond emergency use**. **1/3¹** of unvaccinated awaiting full approval and more data

PROVIDE UPDATED EDUCATION

Provide ongoing communication of vaccines' importance, even with breakthrough cases, to **keep statistics in perspective**

ENCOURAGE DISCUSSION

Encourage people to speak to friends, family, and doctors. **1/4¹** got vaccinated after seeing others close to them do so



Push for redistribution through COVAX and support throughput for LMICs²

SUPPORT COVAX TO ENSURE SUPPLY

COVAX shipped **~177M** doses of COVID-19 vaccines to **138** nations by beginning of August

610M+ more doses have been announced for donation from the EU, US, UK, Japan, and others through 2022

COLLABORATE TO DELIVER TO LMICs²

Higher-income nations and manufacturers should **collaborate** to develop a global donation schedule, incorporating excess doses

Establish funding and logistics support to help build **infrastructure to deliver and administer** doses

Other public health measures:

While vaccination is the primary lever to end the pandemic, other public health measures (e.g., masking, distancing) **should not be released** until vaccination rates are sufficiently high. This is especially important for health departments in countries **early in the vaccination journey**

1. Kaiser Family Foundation US COVID-19 Monthly Vaccine Monitor (July 13, 2021). 2. Low-to-middle income countries, defined by the World Bank as countries with GNI per capita below \$12,695 (July 2021). Sources: KFF; STAT; press search; BCG analysis.

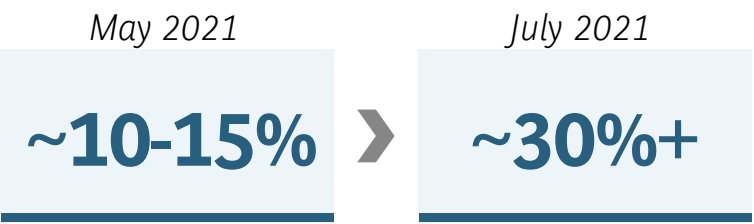
Private sector: Require employee vaccinations as much as possible; leaders moving to stronger mandates

Employer vaccination efforts range from honor codes to hard mandates

HONOR CODE	VACCINATE OR TEST	HARD MANDATES
<i>Requests disclosure but no proof</i> Financial institution requires masking for all unvaccinated people to enter office, although proof of vaccination is not required	<i>Requires vaccination or weekly testing</i> All US federal employees must be vaccinated or submit to regular testing , distancing, masking, and travel restrictions	<i>Requires proof of vaccination</i> Media company requires vaccination proof for return-to-office as “ condition of employment ”
STRENGTH OF MANDATE		

Trend is moving toward stronger mandates ➡

As Delta variant proliferates, employers are reaching an inflection point and increasingly requiring employee vaccination, shifting to the right of this spectrum



Percentage of employers requiring employee vaccination has increased in past few months, **showing lower tolerance of risk amid Delta variant surges**

While companies initially relied on the honor code, they are increasingly asking for **continual regular testing** or **proof of vaccination to return to office**. Employers should make ongoing risk/safety assessments and ensure employees have ability (e.g., time off) to vaccinate

Sources: HBR; employer surveys; press search; BCG analysis.

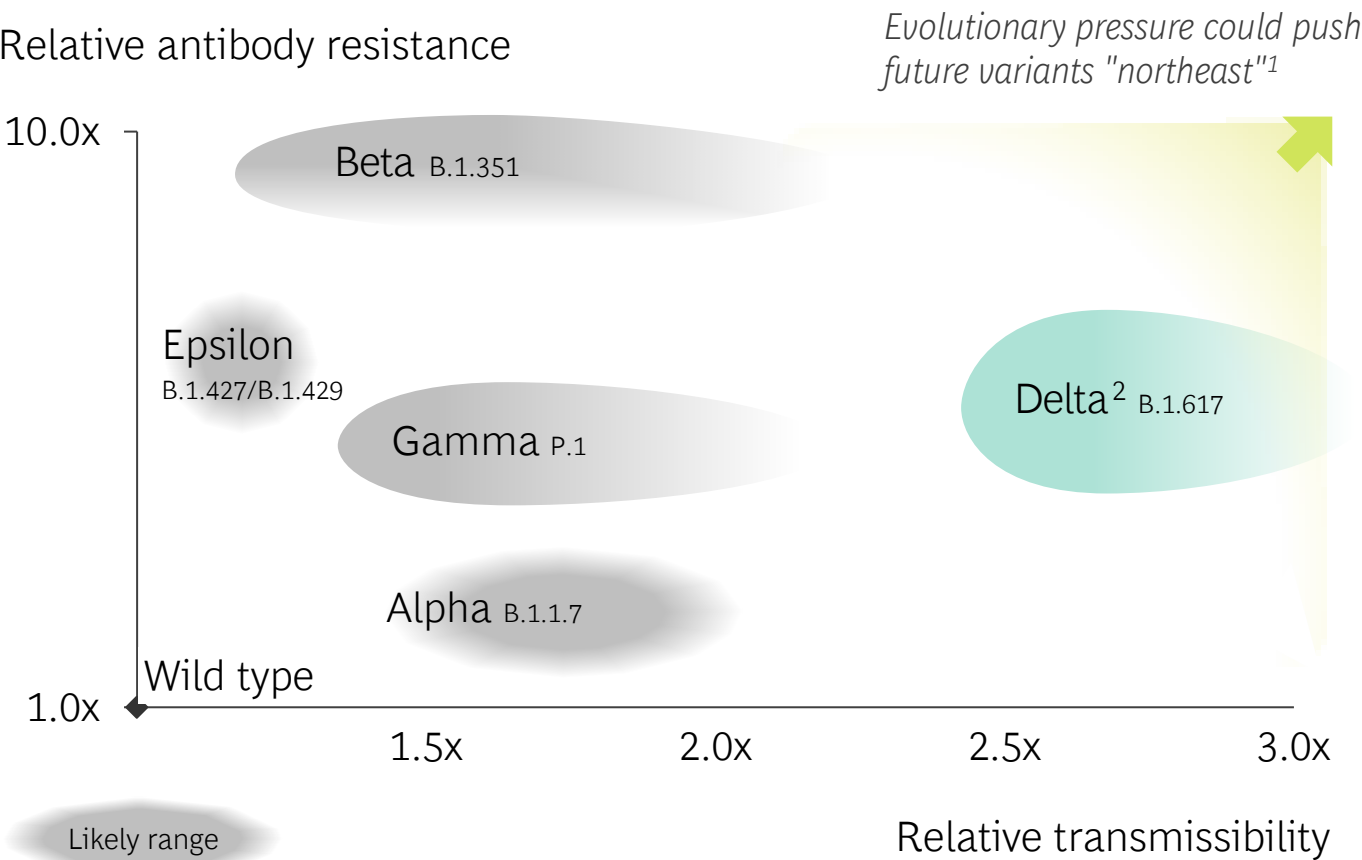
Increasingly serious about vaccines:

Since the US federal government enacted a **test or vaccinate** approach for staff, others have followed suit or even passed **hard mandates**

Examples include companies **across industries**, such as Google, Uber, Disney, Walmart, McDonald’s, United Airlines, Tyson Foods, BlackRock, Kaiser Permanente, and others

Vaccination is critical for longer-term disease management; if large parts of global population remain unvaccinated, dangerous variants may surface

Variants of concern compared with wild type



Future variants may potentially be more dangerous

Given evolutionary selection pressures, future variants are likely to become **more transmissible** and could also have **higher antibody resistance**

Vaccination prevents future variants

Large populations of unvaccinated people allow COVID-19 to evolve variations that likely have **higher transmissibility**

In vaccinated populations, only mutations with **increased antibody resistance** can survive, but virus is likely to **mutate and spread much more slowly** than in unvaccinated populations

1. Antibody resistance and transmissibility of the Lambda variant, which may be an emerging variant of concern, are currently being assessed.
 2. Preliminary evidence shows that the "Delta Plus" variant, which is a version of the Delta variant with further mutations, has similar antibody resistance and transmissibility as Delta variant. Sources: US CDC; cov-lineages.org; Lancet Infectious Diseases; press search; bioRxiv; Axios variant tracker; Nature; BCG analysis

Long-term course of pandemic depends on actions in the next year; failure to “get ahead” of virus can lead to severe consequences for years to come

Longer-term global recovery scenarios

	ON TRACK TO “NORMAL” BULL CASE	2-SPEED RECOVERY BASE CASE	ONGOING CHALLENGES BEAR CASE
CRITICAL FACTORS			
Supply and throughput to cover vulnerable	Vaccine redistribution covers world population , including all lower-income countries and populations No major throughput issues	Gaps in vaccine availability for lower-income countries or populations, whether in supply or throughput Moderate risk for new variants	Severe issues in vaccine coverage for lower-income countries or populations, leading to high risk of dangerous variants emerging
Vaccine uptake / population immunity by 2022 ¹	High vaccination uptake (70-80%+) to reach high population immunity levels worldwide	Vaccination rates stagnate in the ~50-70% range, leaving room for greater risk of resurgence	Global vaccination rates are <50% , creating high risk to longer-term management of disease
Vaccine effectiveness	Current vaccines with boosters remain highly effective in preventing severe disease. Vaccines can “ stay ahead ” of disease	Certain emerging variants show high levels of escape immunity ; more developments in vaccines are needed, but situation is manageable	Existing vaccines not effective against emerging variants; significant costs needed to keep developing next-gen vaccines
LIKELY OUTCOMES			
Resulting variant development and recovery path	Existing problematic variants (e.g., Delta, Beta) can be contained and emerging variants can be managed Disease burden will be like flu	Disease is controlled in higher-income nations , but lower-income nations face more severe impacts Extended economic/health impacts	Continuing rise of additional challenging variants and response is always “ behind ” virus Profound economic/health impacts

1. Ranges per case are directional and based on vaccination rates across countries. Source: BCG analysis and case experience.

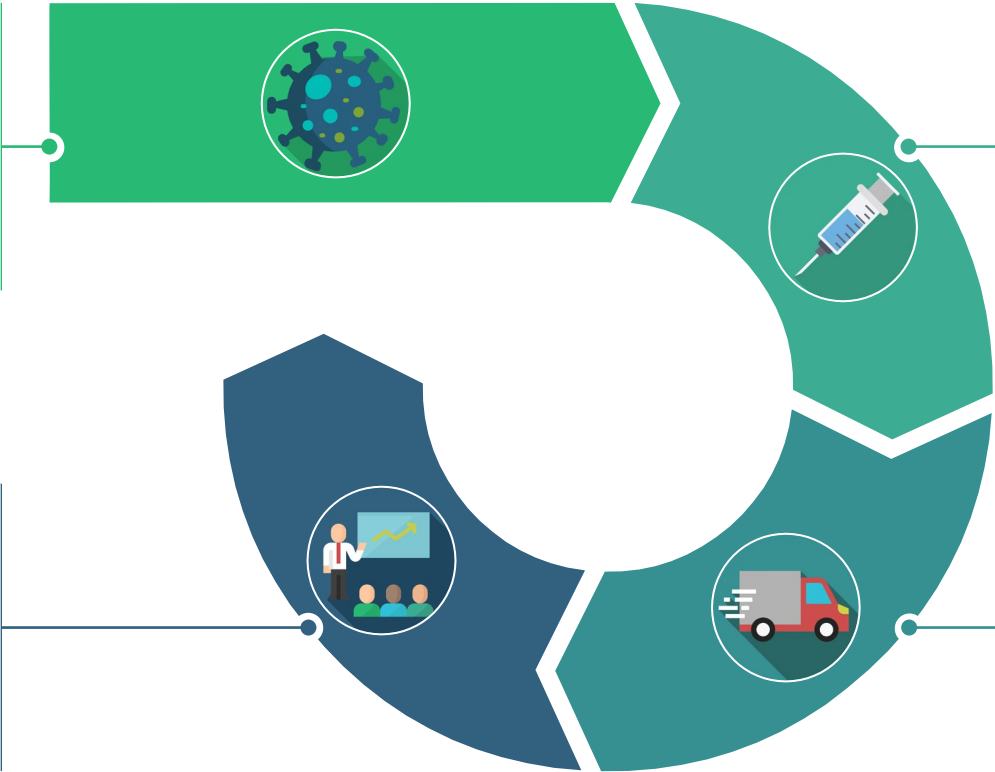
Summary | Increasing vaccination rates require coordinated global efforts

Effectiveness

Continue investment in vaccine R&D to expand eligibility and combat variant proliferation

Uptake

Provide ongoing education to reduce vaccine hesitancy; reconsider policies to increase uptake



Supply

Donate excess doses to lower-income nations continuously; continue to monitor and reduce vaccine deserts within countries

Throughput

Provide support for distribution and administration resources in areas of need; work with global organizations such as COVAX

BCG Executive Perspectives

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DELTA VARIANT AND THE FUTURE OF COVID-19: TRENDS AND ACTIONS

Delta variant fact base and trends

Immediate and longer-term implications for leaders

UPDATED ANALYSES AND IMPACT



Epidemic progression and virus monitoring



Economic and business impact

Summary dashboard

As of 12 August 2021

To be updated in forthcoming editions

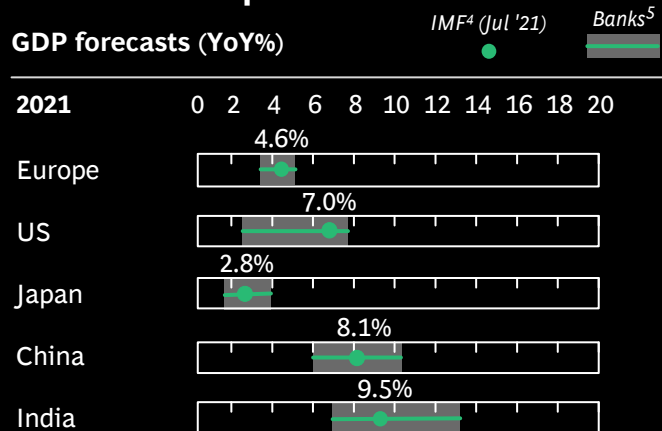
Epidemic Progression

Global epidemic snapshot

204M	16.5M	4.3M	4.5B		
# of cases	# of active cases ¹	# of fatalities	Vaccine doses administered		
		Apr	May	Jun	Jul
Month-on-month growth of new cases ²	Americas	1.2x	0.8x	1.0x	0.9x
	Europe	0.9x	0.5x	0.6x	2.5x
	Asia ³	3.3x	1.0x	0.4x	1.3x

Economic Impact

GDP forecasts (YoY%)



Consumer Activity

Mobility

		Apr	May	Jun
Mobility ⁶ (month vs. Jan '20)	US	-15%	-12%	-11%
	Europe	-25%	-17%	-7%
	Japan	-12%	-16%	-11%
Domestic air travel tickets booking ^{7,8} (YoY)	US	189%	129%	
	UK	181%	276%	
	China	157%	76%	

Sales

Retail goods sales ⁹ (excl. auto & fuel, YoY)	US	40%	24%	
	Europe ¹⁰	21%	8%	5%
	China ¹¹	18%	12%	12%
Passenger vehicle sales ¹² (YoY)	US	113%	43%	17%
	Germany	90%	37%	24%
	China	9%	-3%	-14%

Business Impact

Stock market performance

02 Jan '20 vs Month end	Apr	May	Jun
S&P500	28%	29%	32%
FTSE100	-8%	-8%	-7%
CHN SSE	12%	17%	16%
Volatility Index (S&P500) ¹³	1.5x	1.3x	1.3x

International trade

Trade value ¹⁴ (YoY)	US	42%	47%	37%
	France	79%	54%	
	China	35%	36%	34%

Industrial production

Purchasing manager's index ¹⁵ (base = 50)	US	61	62	62
	Germany	66	64	65
	China	51	51	51

Steel production (YoY) ¹⁶	25%	17%	12%
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1. Total cases less deaths and recovery; 2. Calculated as monthly average of daily cases vs. previous month; 3. Includes Middle East and Oceania; 4. IMF Apr 2021 forecast; 5. For India, forecast is for financial year; for others, it is for calendar year; YoY forecasts; range from forecasts (where available) of World Bank, International Monetary Fund, JP Morgan Chase; Morgan Stanley; Bank of America; Fitch Solutions; Credit Suisse; Danske Bank; ING Group; HSBC; As of reports dated 08 June 2020 to Mar 01 2021; For India's GDP forecast, World Bank's 2020 forecast from 08 June provides the upper bound of the forecast range; 6. Mobility values are calculated as the average of mean monthly mobilities in workplace, public transit, retail & recreation, and grocery & pharmacy and compared to a baseline from 03 Jan - 06 Feb 2020; Europe mobility values are calculated as the average of Germany, France, UK, Spain, and Italy; 7. Calculated as change in last 14 days rolling average value as compared to same period last year; 8. Domestic tickets by ticketing; 9. Retail goods sales include online & offline sales and comprise food & beverages, apparel, cosmetics & personal care, home appliances, general merchandise, building material, do not include auto, fuel & food services; 10. Europe includes 27 countries currently in EU; 11. For China, Jan & Feb are reported together due to National Holidays; 12. Figures represent passenger vehicle (including sedan, hatchback, SUV, MPV, van and pickup) sales data for over same month in previous year; Europe value calculated as cumulative sales in Germany, France, UK, Spain, and Italy; 13. Underlying data is from Chicago Board Options Exchange Volatility Index (VIX); Volatility Index is a real-time market index that represents the market's expectation of 30-day forward-looking volatility and provides a measure of market risk and investors' sentiments; 14. Calculated as sum of imports and exports, measured in USD and compared to previous year period; EU trade values between EU and all outside countries; 15. PMI (Purchasing Manager's Index) is a diffusion index that summarizes whether market conditions, as viewed by purchasing managers, are expanding (>50), staying the same (50), or contracting (<50); 16. Data corresponds to G-20 countries (minus Indonesia). Sources: JHU CSSE, Our World in Data, WHO, World Bank, IMF, Bloomberg, Google Mobility, US Census Bureau, Eurostat, PRC National Bureau of Statistics, ACEA actuals, Marklines, ARC ticketing data, STR, Statista, CBOE, OECD, BEA, GACC (customs) China, ONS, BCG.

COVID-19 has broad geographic reach today with countries at different stages in their fight

As of 09 Aug 2021

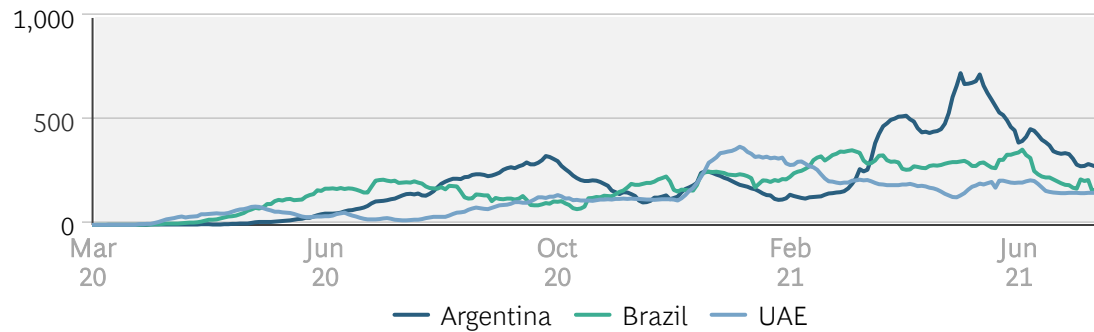
Non-exhaustive

Epidemic Progression

Continuation

Curve was never quite flattened; ongoing battle

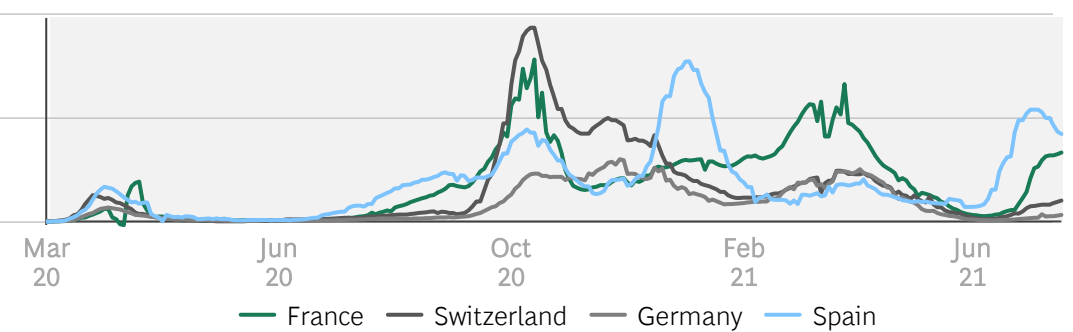
Daily new confirmed cases per million¹



Resurgence

Curve was flattened but saw one or more resurgences

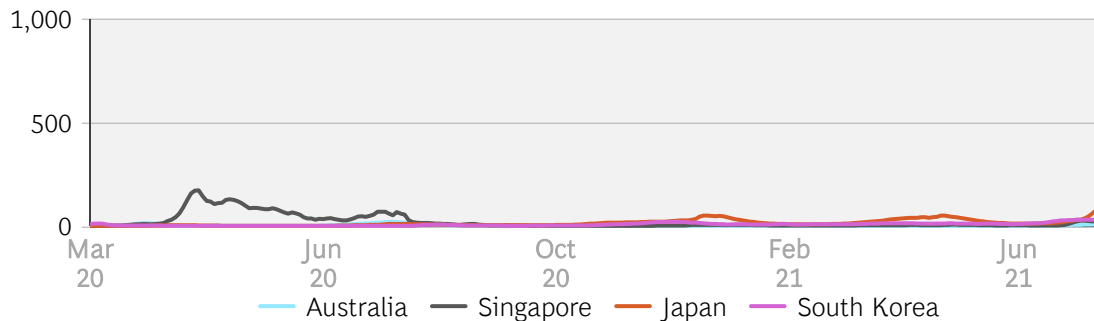
Daily new confirmed cases per million¹



Crush and contain

Curve was flattened; some countries' cases rising with Delta but much lower relative to other parts of world

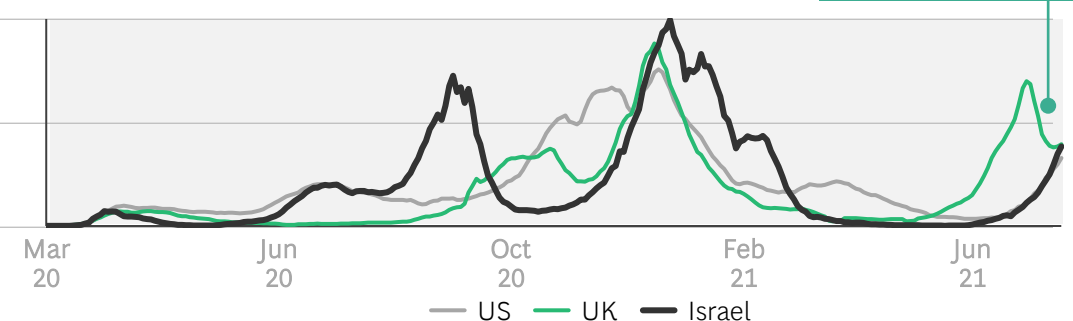
Daily new confirmed cases per million¹



Vaccinated

Curve reduced through vaccination progress

Daily new confirmed cases per million¹



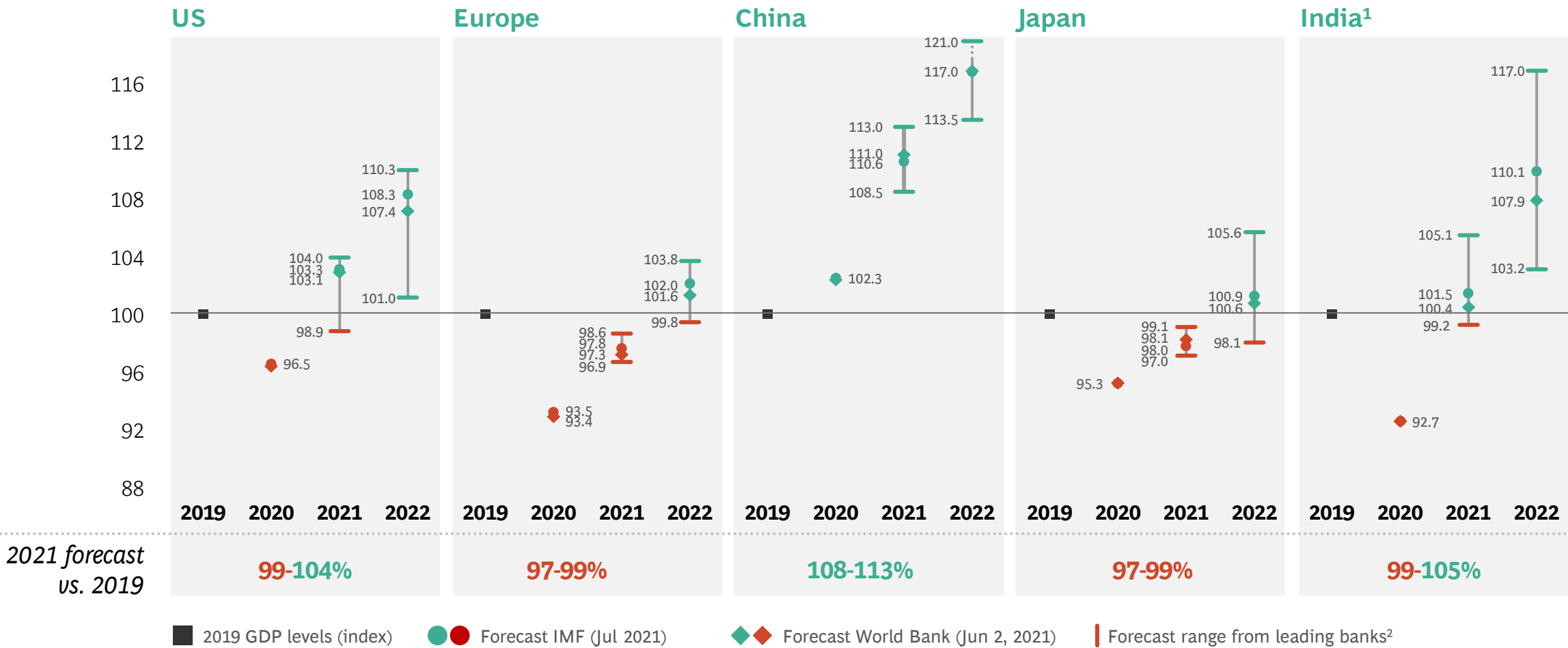
1. Data shown as 7-day rolling average of daily new cases per million.
Sources: Our World in Data; BCG.

Many large economies expected to continue recovery and reach 2019 GDP levels between 2021 and 2022

As of 12 Aug 2021

Economic Impact

GDP forecast levels indexed to 2019 value (Base: 100)



Note: As of reports dated 08 June 2020 to 01 Mar 2021; YoY forecasted 2020 values are estimated actual GDP. 1. For India, forecast is for financial year; for other countries, the forecast is for calendar year. 2. Range from forecasts (where available) of JPMorgan Chase; Morgan Stanley; Bank of America; Fitch Solutions; Credit Suisse; Danske Bank; ING Group; HSBC. Sources: Bloomberg; World Bank; IMF; BCG.

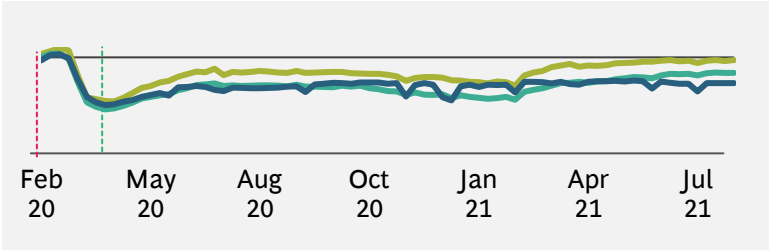
Retail and recreation mobility recovered fastest; public transit and workplace mobility remains lower in most countries

As of 09 August 2021

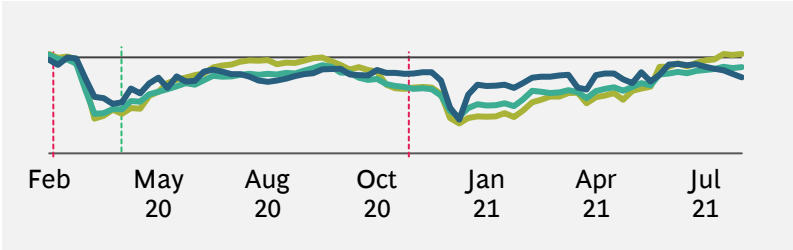
Economic Impact

Workplace¹, public transit², and retail and recreation³ mobility compared with baseline of January 2020 to February 2020

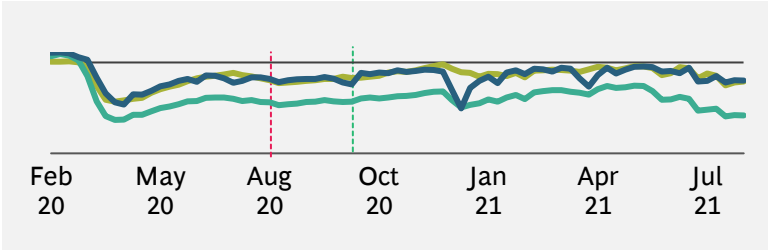
US



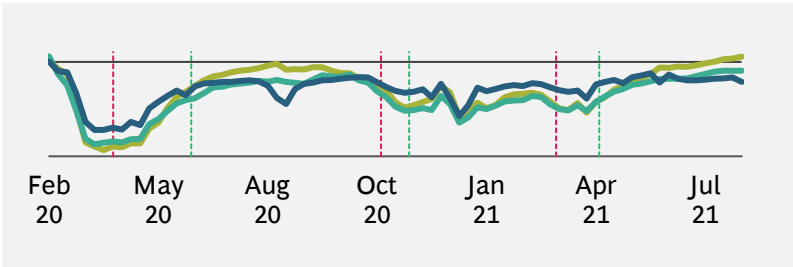
Germany



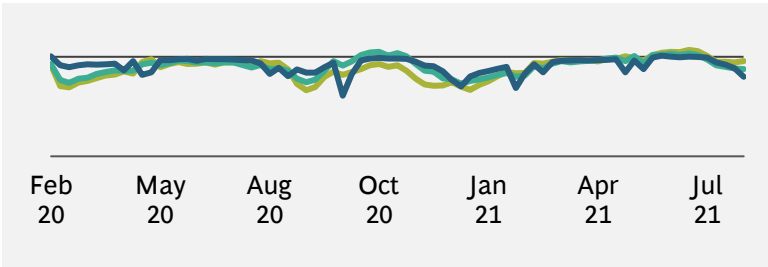
Australia



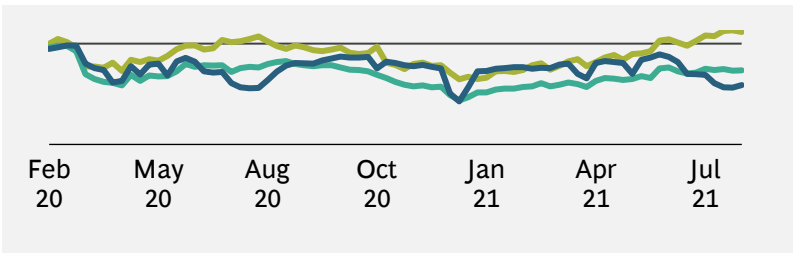
Italy



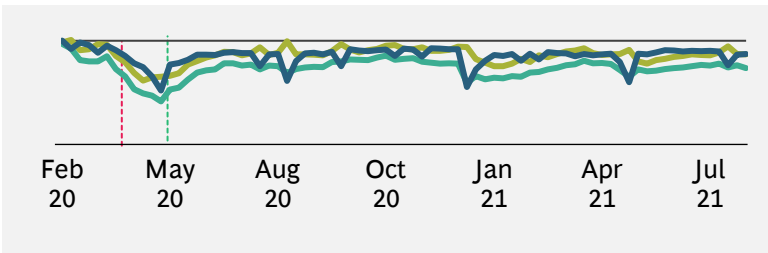
South Korea



Sweden



Japan



- Public transit mobility
- Workplace mobility
- Retail and recreation
- Lockdown easing⁴
- Lockdown started⁴

1. Tracked as changes in visits to workplaces 2. Tracked as changes in visits to public transport hubs, such as underground, bus and train stations. 3. Tracked as changes for restaurants, cafés, shopping centers, theme parks, museums, libraries, and cinemas. 4. Refers to average lockdown start and easing dates for larger lockdowns. Note: Data taken as weekly average compared with baseline (average of all daily values of respective weeks during Feb 15 2020–Feb 28 2021). Sources: Google LLC “Google COVID-19 Community Mobility Reports.” <https://www.google.com/covid19/mobility/>. Accessed: 01 Mar 2020; press search; BCG.

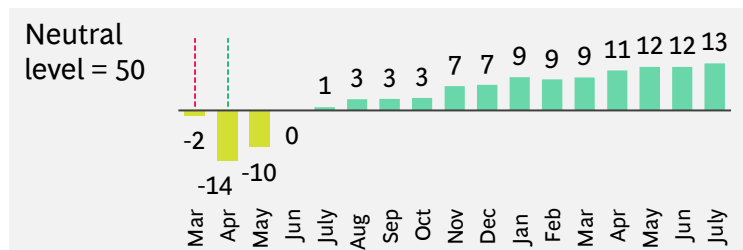
Manufacturing PMI global recovery indicates continued positive momentum

As of 09 Aug 2021

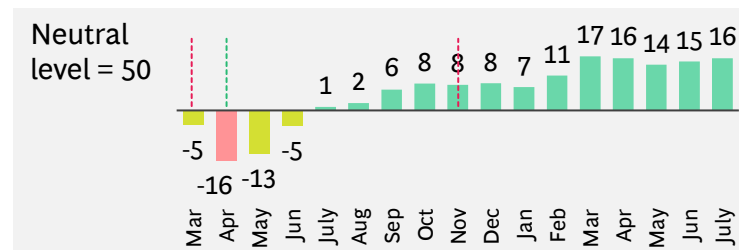
Economic Impact

Manufacturing PMI before, during, and after the crisis

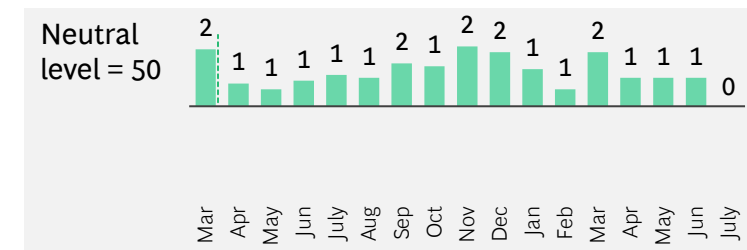
US



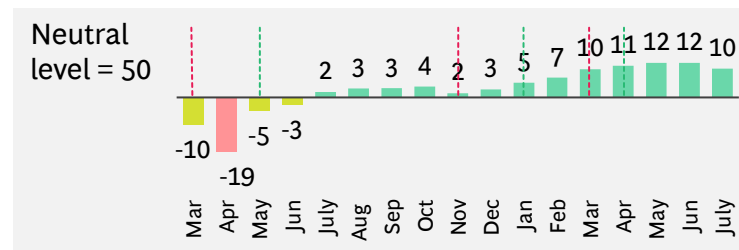
Germany



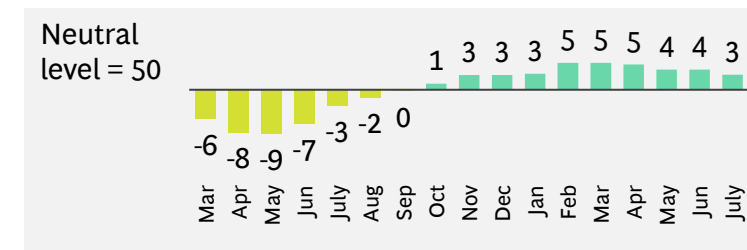
China¹



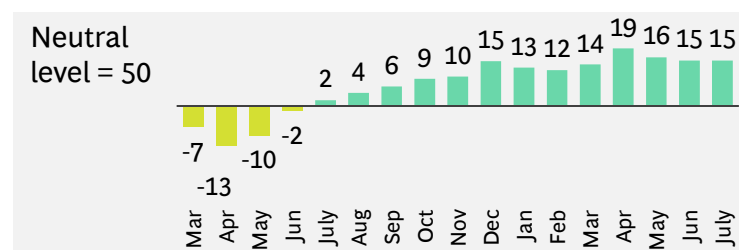
Italy



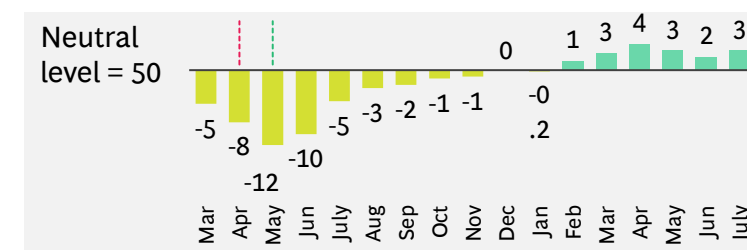
South Korea



Sweden



Japan



Lockdown started

Lockdown easing

1. Lockdown dates are pertaining only to Hubei province. Note: PMI (Purchasing Manager's Index) is a diffusion index that summarizes whether market conditions, as viewed by purchasing managers, are expanding, staying the same, or contracting. 50 is neutral, >50 is considered to be positive sentiment, and <50 is considered to be negative sentiment. Sources: Markit South Korea Manufacturing PMI SA; Jibun Bank Japan Manufacturing PMI SA; China Manufacturing PMI SA; Swedbank Sweden PMI SA; Markit/BME Germany Manufacturing PMI SA; Markit Italy Manufacturing PMI SA; Markit US Manufacturing PMI SA; EIKON.

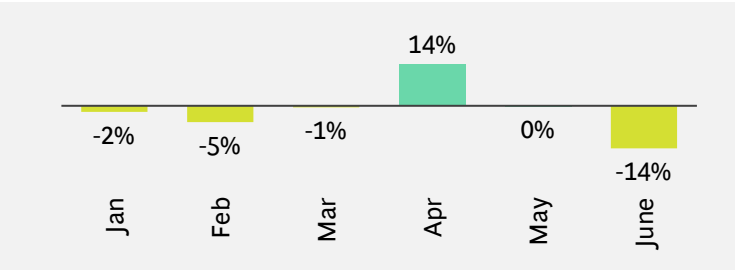
Monthly passenger vehicle sales starting to return to pre-pandemic levels but are also capped by supply constraints

As of 09 August 2021

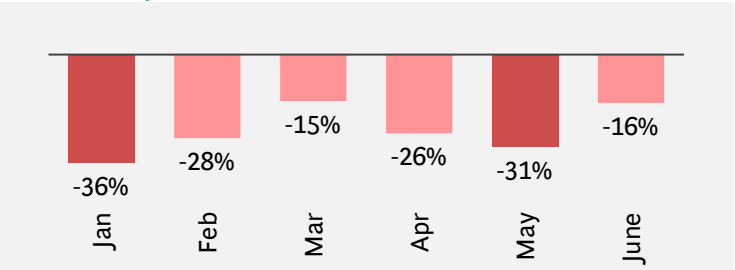
Economic Impact

Monthly passenger vehicle¹ sales, % change vs. same month in 2019

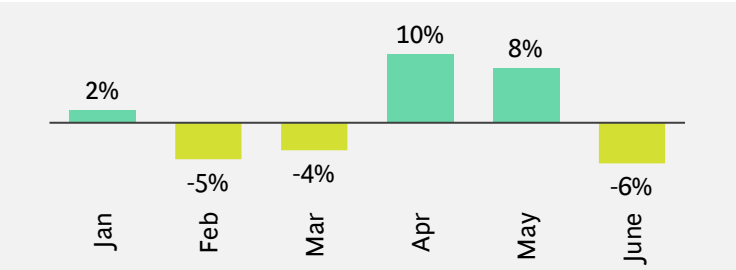
US



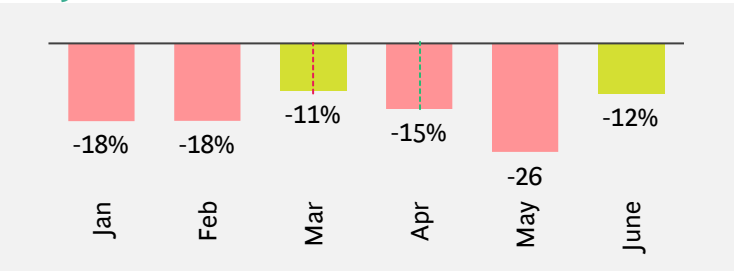
Germany



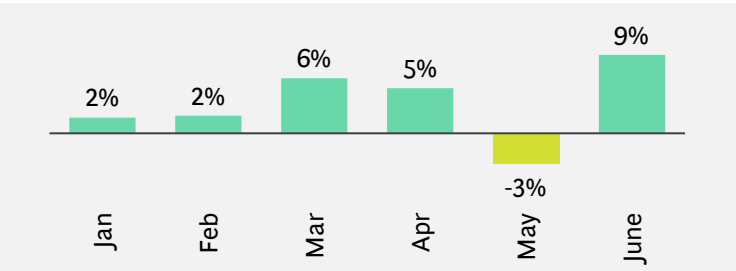
China²



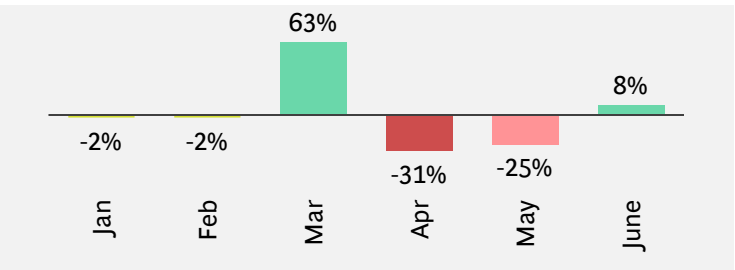
Italy



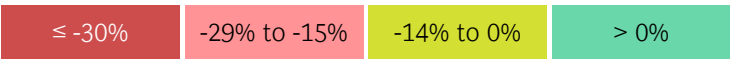
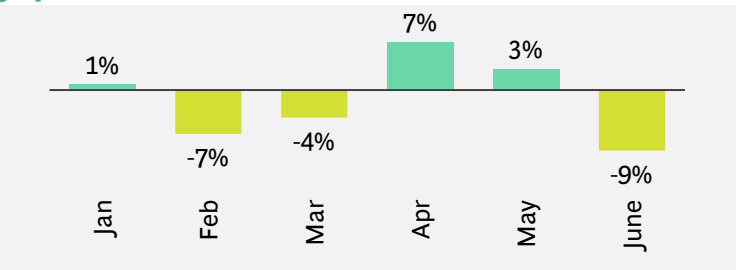
South Korea³



Sweden



Japan



Lockdown started Lockdown easing

1. Passenger vehicle sales includes data on, where available, hatchback, MPV, pickup, sedan, SUV, mini trucks, light trucks, and vans. 2. Stimulus policies: Launched subsidies for car purchases in 10 cities, lessened purchase restriction in high-tier cities, and extended NEV subsidies. 3. South Korea's growth in auto sales from Mar through June 2020 is supported by recent tax cuts for individual consumption goods (e.g., cars), several carmakers (e.g. Audi, VW) launching new models, and the increased appreciation by the Koreans of cars as a safe mode of transport and as a travel alternative for camping during COVID-19, supported by recently passed legislation to allow a variety of different cars to be modified into "camping cars." Sources: Marklines; BCG.

Retail goods sales (excluding auto and fuel) have grown compared with pre-COVID-19 levels in most countries

As of 12 Aug 2021

Growth of retail goods sales (excluding auto and fuel)¹, % change vs. same month in 2019

Retail goods sales include online and offline sales and comprise food and beverages, apparel, cosmetics and personal care, home appliances, general merchandise, building material; do not include auto, fuel, and food services

	Jan '21	Feb '21	Mar '21	Apr '21	May '21	Jun '21
US	14%	11%	21%	20%	19%	-
UK ²	-2%	-1%	3%	13%	12%	11%
Spain	-6%	-3%	-1%	-2%	-3%	-2%
Sweden	6%	9%	10%	5%	12%	11%
France	7%	7%	9%	0%	8%	8%
China ³	6%		11%	7%	9%	12%
Japan	3%	7%	5%	2%	2%	5%
				-29% to -15%	-14% to 0%	> 0%

1. Retail goods sales categorization may be different across countries; seasonally adjusted values taken; country-specific categorization. 2. UK figures include total retail sales excluding automotive fuels, sourced from Office for National Statistics United Kingdom as data is no longer reported in Eurostat after Brexit. 3. For China, Jan & Feb 2021 are reported together due to national holidays.
Sources: US Census Bureau; PRC National Bureau of Statistics; Eurostat; Office for National Statistics United Kingdom; Ministry of Economy Japan.

Economic Impact

Retail goods sales have **rebounded** with growth above 2019 levels, potentially signifying effects of **pent-up demand**

US has seen strongest growth relative to 2019, but other countries have also started seeing double-digit percentage growth

Some European countries have seen retail sales dips in early 2021 coinciding with increased cases and lockdowns

Retail store sales in China and US have rebounded across categories; apparel sales continue to be impacted in other countries

As of 12 Aug 2021

Retail store sales breakdown by category, % change vs. same month in 2019

Food and beverage stores

	Jan '21	Feb '21	Mar '21	Apr '21	May '21	Jun '21
US	14%	16%	14%	15%	16%	-
UK	7%	9%	10%	10%	4%	8%
Spain	3%	1%	0%	0%	-3%	-1%
Sweden	3%	4%	4%	0%	5%	6%
France	7%	6%	10%	8%	8%	5%
China ¹	14%		23%	20%	18%	23%
Japan	-2%	-1%	-3%	-2%	0%	1%

Apparel stores³

	Jan '21	Feb '21	Mar '21	Apr '21	May '21	Jun '21
US	-3%	-8%	12%	10%	13%	-
UK	-46%	-52%	-44%	-5%	-2%	-6%
Spain	-36%	-35%	-21%	-23%	-21%	-13%
Sweden	-24%	-22%	-19%	-27%	-15%	-8%
France	-25%	-22%	-24%	-63%	-17%	-
China ¹	-3%		4%	3%	8%	8%
Japan	-24%	-26%	-19%	-30%	-29%	-23%

Personal care and cosmetics stores

	Jan '21	Feb '21	Mar '21	Apr '21	May '21	Jun '21
US	5%	3%	12%	14%	15%	-
UK ²	-47%	-30%	-26%	-6%	-7%	-7%
Spain	-4%	-1%	0%	1%	-1%	2%
Sweden	0%	7%	12%	4%	10%	13%
France	8%	5%	11%	7%	10%	-
China ¹	24%		31%	30%	36%	43%
Japan	44%	45%	45%	42%	38%	46%

Home appliance stores⁴

	Jan '21	Feb '21	Mar '21	Apr '21	May '21	Jun '21
US	-1%	-6%	10%	13%	8%	-
UK	-12%	13%	-9%	30%	30%	20%
Spain	-4%	-1%	9%	7%	17%	9%
Sweden	21%	23%	26%	18%	27%	24%
France	15%	17%	20%	4%	11%	-
China ¹	-5%		-5%	-7%	3%	15%
Japan	19%	17%	1%	5%	11%	1%

≤ -30%	-29% to -15%	-14% to 0%	> 0%
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1. For China, Jan & Feb 2021 are reported together due to national holidays; food & beverages category includes only food & grains; 2. UK data set switched over from Eurostat to Office for National Statistics following Brexit. 3. Includes clothing accessories, shoes, etc. 4. Includes audio video & home appliances stores. Note: For US, share in retail store sales in Q4 2019: F&B ~25%, personal care & cosmetics ~12%, apparel ~6%, home appliances ~3%, general merchandising ~25%, and building material & gardening equipment ~13%. Sector classification and mix may be different across countries. Sources: US Census Bureau; PRC National Bureau of Statistics; Eurostat; Office for National Statistics United Kingdom; Ministry of Economy Japan.

Economic Impact

China and US have seen **strong rebounds in almost all categories**, most even above 2019 levels

Retail store sales recovery driven by **food and beverage** across almost all countries. **Personal care and cosmetics** also seeing strong growth across countries

Apparel category continues to see decline compared with 2019, except for US and China

Home appliances sales had mixed development across countries but have returned to pre-pandemic levels

Stock markets continue to have an optimistic outlook: 20 out of 24 sectors currently above pre-crisis TSR levels

As of 13 Aug 2021

Based on top S&P
Global 1200 companies

Economic Impact

	TSR ¹	Companies with default probability >15% ²	
	21 Feb 2020– 13 Aug 2021	21 Feb 2020	13 Aug 2021
Semiconductors	69%	0%	0%
Tech Hardware	47%	0%	0%
Materials	44%	5%	2%
Durable Goods	40%	0%	0%
Auto	35%	0%	0%
Retailing	34%	0%	17%
Capital Goods	34%	2%	2%
Media	32%	0%	0%
Financials	27%	0%	0%
Software	25%	0%	0%
Food/staples Retail	24%	0%	0%
Health Equipment	20%	0%	0%
Prof. Services	18%	0%	0%
Insurance	13%	0%	0%
Banks	10%	0%	0%
Pharma	7%	0%	5%
Food & Beverage	6%	0%	0%
Telecom	4%	0%	4%
Household Products	3%	0%	0%
Real Estate	1%	0%	0%
Utilities	-1%	0%	0%
Hospitality	-2%	8%	15%
Energy	-10%	0%	6%
Transport	-12%	0%	24%

1. Performance is tracked for two periods, first from 21 February 2020 (before international acceleration of outbreak) to 20 March 2020 (trough of the market) and from 21 February 2020 through 13 Aug 2021; 2. Implied by 5-year credit default swap based on median; Note: Based on top S&P Global 1200 companies; sectors are based on GICS definitions; Sources: S&P Capital IQ; BCG ValueScience Center; BCG

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