

A decorative graphic on the left side of the slide features a series of green squares of varying sizes arranged in a diagonal line, and several green circles of different sizes scattered below them.

COVID-19 BCG Perspectives Series

Facts, scenarios, and actions for leaders

Advantage in Adversity

06 October 2020

COVID-19 BCG Perspectives

Objectives of this document

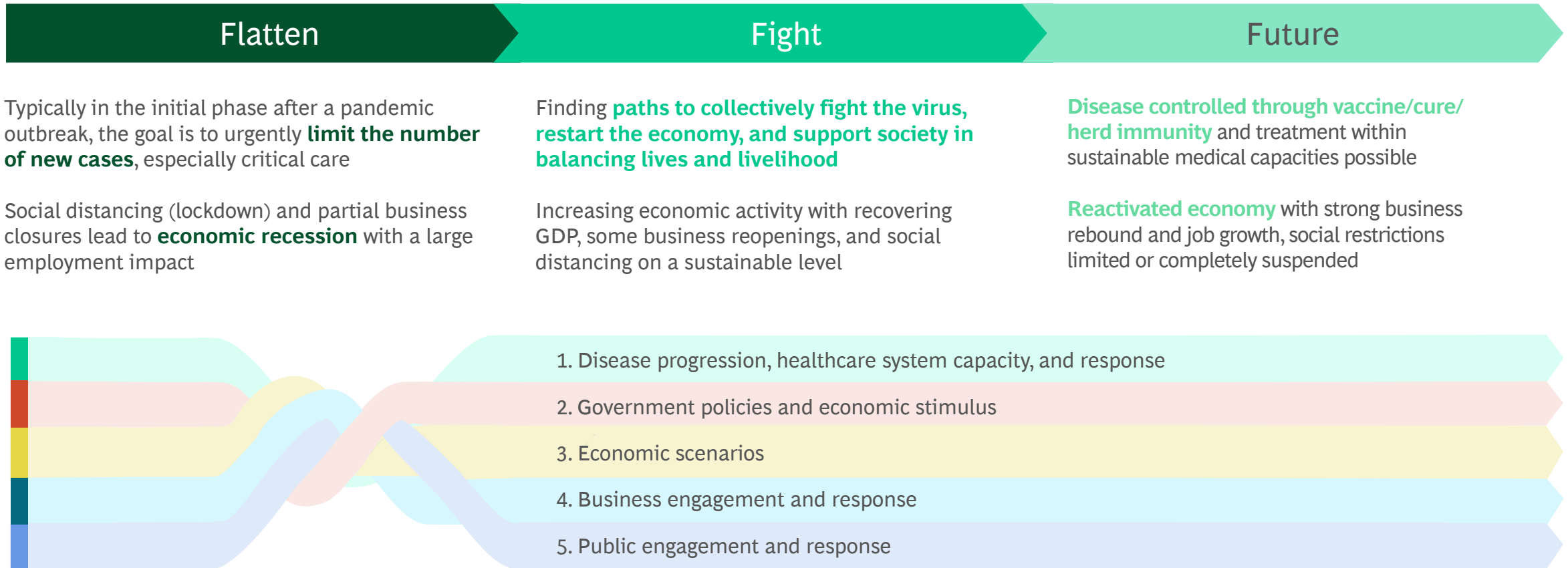
COVID-19 is a global societal crisis

We at BCG believe that the COVID-19 outbreak is first and foremost a societal crisis, threatening lives and the well-being of our global community. Society now, more than ever, needs to collaborate to protect people's lives and health, manage mid-term implications, and search for lasting solutions.

Leaders need to drive an integrated response to navigate the crisis

It is the duty of health, political, societal, and business leaders to navigate through this crisis. A complex interplay of epidemic progression, medical response, government action, sector impact, and company action is playing out. This document intends to help leaders find answers and shape opinions to navigate the crisis in their own environments. It encourages thinking across the multiple time horizons over which we see the crisis manifesting itself.

The COVID-19 recovery will be driven by disease progression, de-averaged economic impact, government policies, and business and public responses



All of the above five factors result in specific economic and social outcomes in each phase

Summary snapshot | Restart progression at a glance

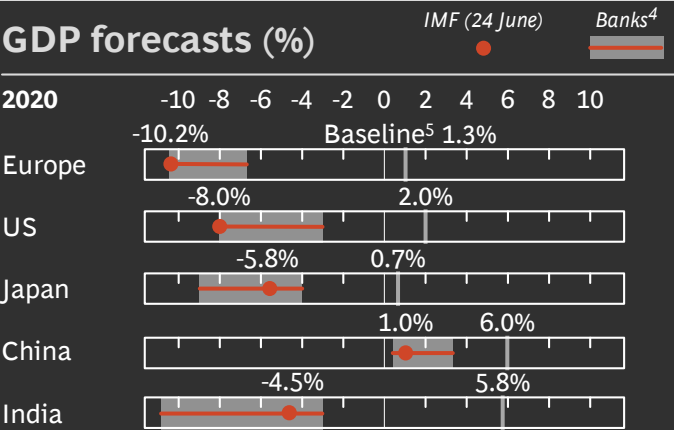
As of 04 Oct 2020

Epidemic Progression

Global epidemic snapshot

		35M	295K	9.6M	1.0M	
		# of cases	# of daily cases ¹	# of active cases	# of fatalities	
Month-on-month growth of new cases ²			June	July	Aug	Sep
	Americas	▮	1.6x	1.7x	1.0x	0.8x
	Europe	▮	0.8x	1.0x	1.7x	1.9x
	Asia ³	▮	2.0x	1.7x	1.4x	1.3x

Economic Impact



Consumer Activity

Mobility

		Jul	Aug	Sep
Mobility ^{6,7}	US	-19%	-19%	-19%
(month vs. Jan '20)	Europe	-17%	-17%	-13%
	Japan	-13%	-13%	-12%
Domestic air travel tickets booking ^{8,9} (YoY)	US	-76%	-69%	-67%
	UK	-86%	-85%	-84%
	China	-27%	-2%	1%

Sales

Retail goods sales ¹⁰ (excl. auto & fuel, YoY)	US	8%	8%	
	UK	3%	4%	
	China	-2%	-1%	
Passenger vehicle sales ¹¹ (YoY)	US	-19%	-27%	
	Europe	-19%	-17%	
	China	9%	6%	
Hotel occupancy ¹² (YoY)	US	-36%	-32%	
	Europe	-66%	-45%	
	China	-19%	-12%	

Business Impact

Stock market performance

		Jul	Aug	Sep
Month end vs. 02 Jan '20	S&P500	0%	7%	3%
	FTSE100	-22%	-22%	-23%
	CHN SSE	7%	10%	4%
	Volatility Index (S&P500) ¹³	2.0x	2.1x	2.1x

International trade

Trade value ¹⁴ (YoY)	US	-11%		
	UK	-19%		
	China	3%	4%	

Industrial production

Purchasing manager's index ¹⁵ (base = 50)	US	51	53	53
	EU	52	52	54
	China	51	51	52
Steel production (YoY) ¹⁶		-3%	0%	

To be updated in forthcoming editions

1. Calculated as 7-day rolling average; 2. Calculated as monthly average of daily cases vs. previous month; 3. Includes Middle East and Oceania; 4. 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 12 April 2020 to 27 Sep 2020; 5. IMF Jan 2020 forecast; 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. Data as of 11th September 2020; 8. Calculated as change in last 14 days rolling average value as compared to same period last year; 9. Data as of 13th September 2020; 10. 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; 11. Figures represent passenger vehicle (including sedan, hatchback, SUV, MPV, van and pickup) sales data for 2020 over same month in 2019; Europe value calculated as cumulative sales in Germany, France, UK, Spain, and Italy; 12. Calculated as average occupancy rates compared to same month of previous year; 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; 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

Executive Summary | COVID-19 BCG Perspectives

Despite global uncertainty and forecasts for slow economic recovery, several companies have begun to shift gear towards winning in the future

- Market rebounds globally are masking an uneven recovery; only a few big winners are driving the rebound
- High global uncertainty and forecasts for slow economic recoveries point toward continued adversity in the near-term
- Company responses are characterized by a shift to strategic actions, with a particular emphasis on reimagining offerings for the new reality
- Evidence from past crises highlights opportunity available now to create long term advantage: 14% of companies grow sales and margin in downturns
- Business leaders should consider six strategic actions now: (i) employ 'always on' strategic planning; (ii) over-communicate; (iii) de-average portfolio, allocate capital smartly; (iv) disrupt and re-invent business models; (v) accelerate digital transformation; (vi) use targeted divestments and M&A

While severe global economic downturn expected for 2020; some green shoots on recovery visible

- Early signs of slowing global COVID case growth visible in September 2020; however, some countries (e.g., in Europe) experiencing substantial case resurgence
- 10 vaccine candidates already in Phase III; some may get emergency use authorization (EUA) starting in Q4 2020¹; multiple promising therapeutics in trials
- For most leading economies, forecasts indicate a rebound to 2019 GDP levels only by end of 2021
- Business activity across many sectors has recovered to 2019 levels; Transportation & Logistics, and Energy continue to be hit
- Consistent improvement in consumer sentiment and purchasing managers' index (PMI) across multiple geographies
- 4 (out of 24) sectors² are currently above pre-crisis TSR³ levels; 7 sectors have a significant share⁴ of companies with >15% default risk

We believe during this crisis leaders need to think along two dimensions:

Taking an integrated perspective on health/medical progression, governmental responses, societal reactions, and economic implications to understand business/sector impacts

Thinking multi-timescale in a Flatten-Fight-Future logic

1. Initial data observed in the early stages of phase 3 trials may lead to restricted approvals starting in Q4 2020; 2. Semiconductors, Retailing, Household products and Materials; 3. TSR: Total Shareholder Return; 4. Retailing, Materials, Auto, Transport, Hospitality, Real estate and Energy are sectors with > 10% of companies with probability of default > 15%;



Guide for Leaders

Companies' post-crisis outlook and current actions

Moves to drive advantage in adversity

Updated Analyses and Impact

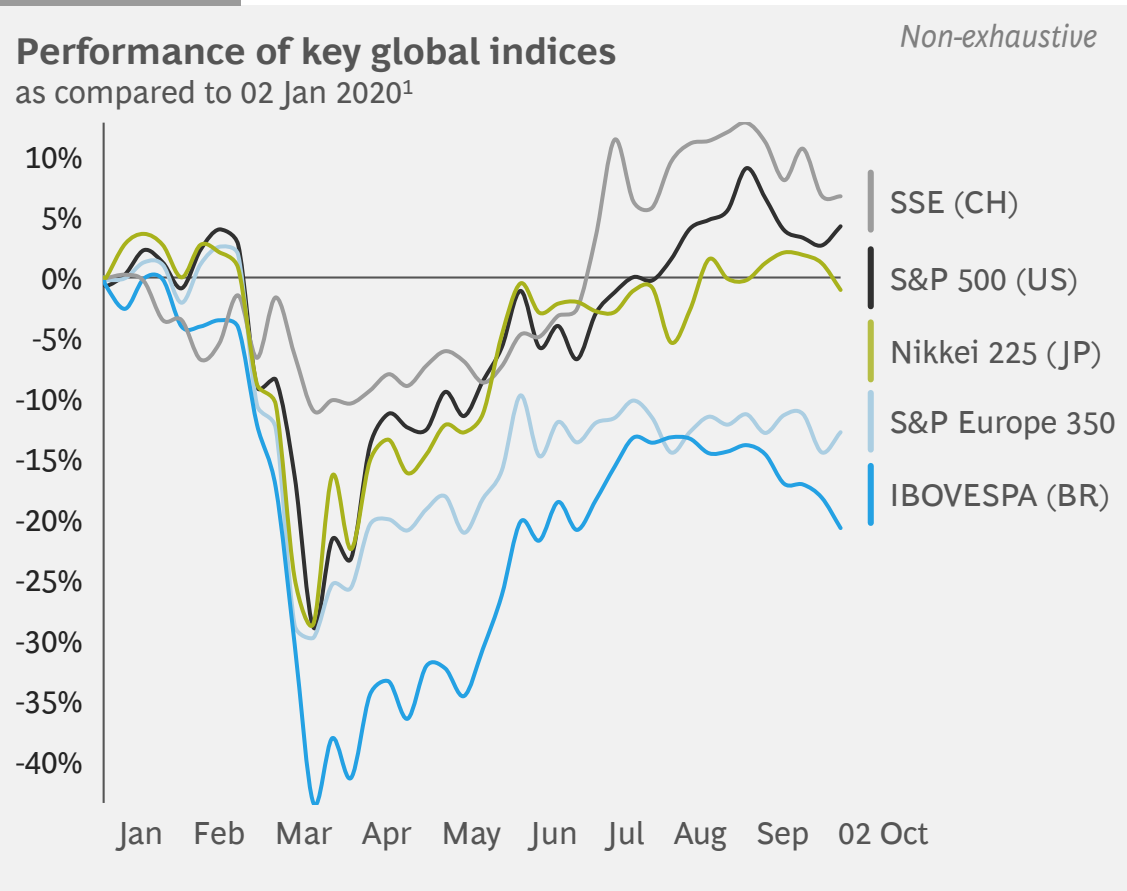
Epidemic progression and virus monitoring

Economic and business impact

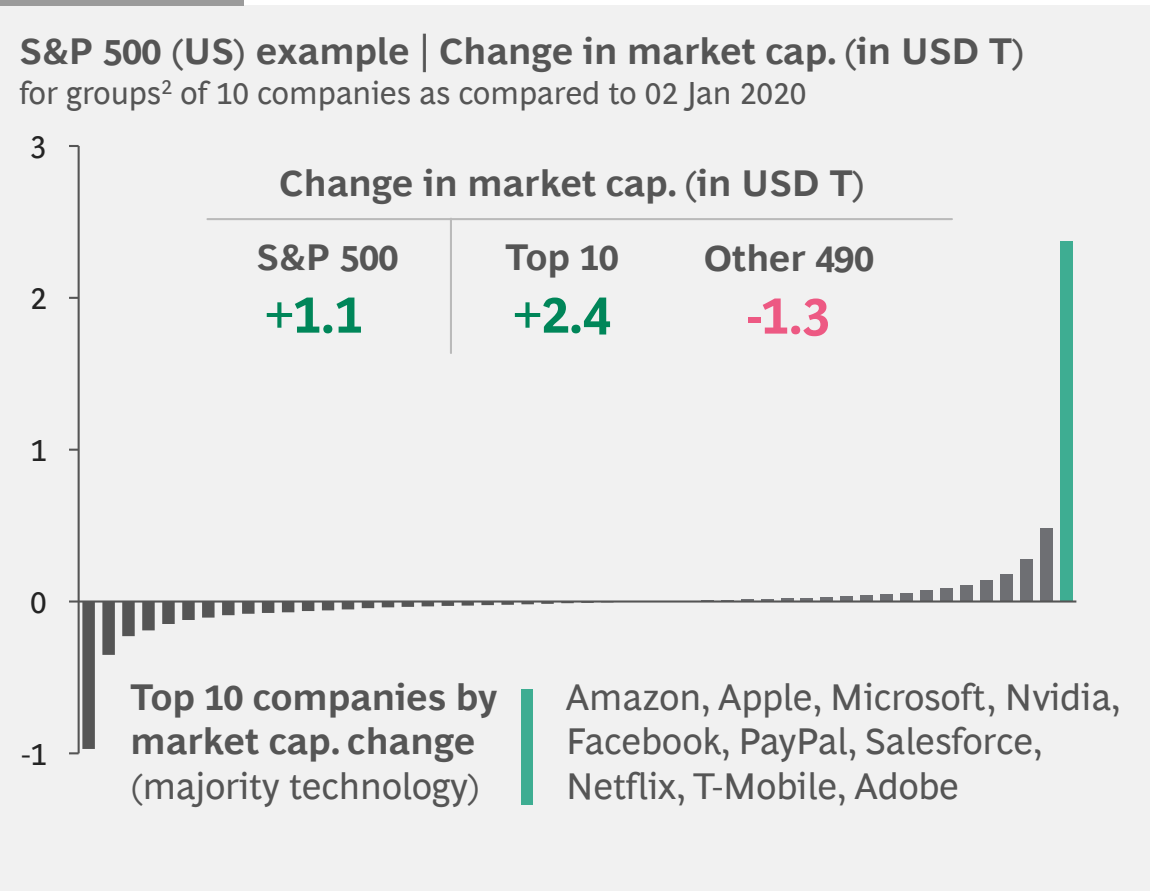
Market rebounds globally are masking an uneven recovery in underlying stocks

As of 02 Oct 2020

Several markets have rebounded



But only a few big winners are driving the rebound



Note: Market index includes dividends (Total Return indexes); 1. Weekly smoothed data represented; 2. Grouped by descending order of change in market capitalization between 2 Jan 2020 and 02 Oct 2020; analysis performed on companies comprising the S&P 500 as of 02 Oct 2020; Source: S&P Capital IQ; Bloomberg; BCG

In many cases, valuation rebound not supported by fundamentals; instead driven by deterioration in attractiveness of alternative investments

As of 02 Oct 2020

Example | Analysis of
S&P 500 index

Declining fundamentals

-15%

Decrease in 12-month forward earnings estimates¹



Earnings fundamentals have declined since the onset of COVID-19, **making equities less attractive**

Worsening alternatives

-0.9%

Real return² on U.S. 10-year treasuries



Alternatives to equities are generating negative returns, **increasing relative attractiveness of equities**

Growing multiples

+22%

Increase in 12-month forward P/E multiples³



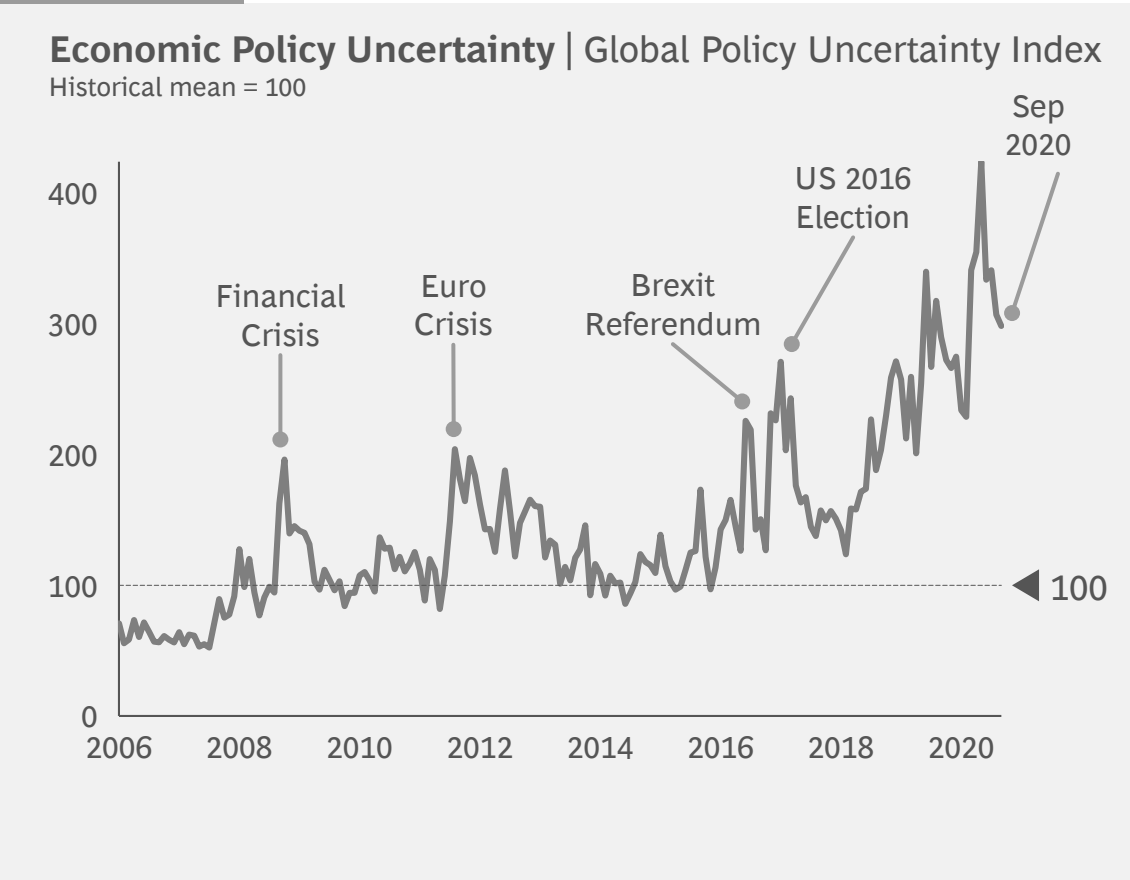
Earnings multiples have inflated more than the decline in fundamentals, **pushing markets up**

1. Earnings estimates are net profit forecasts for rolling 12-month forward for the S&P 500 index 2. Real return = Interest rate – Expected inflation; 3. Price earnings multiples, where earnings are the net profit forecast for rolling 12-month forward for the S&P 500 index; Source: S&P Capital IQ; BCG ValueScience Center

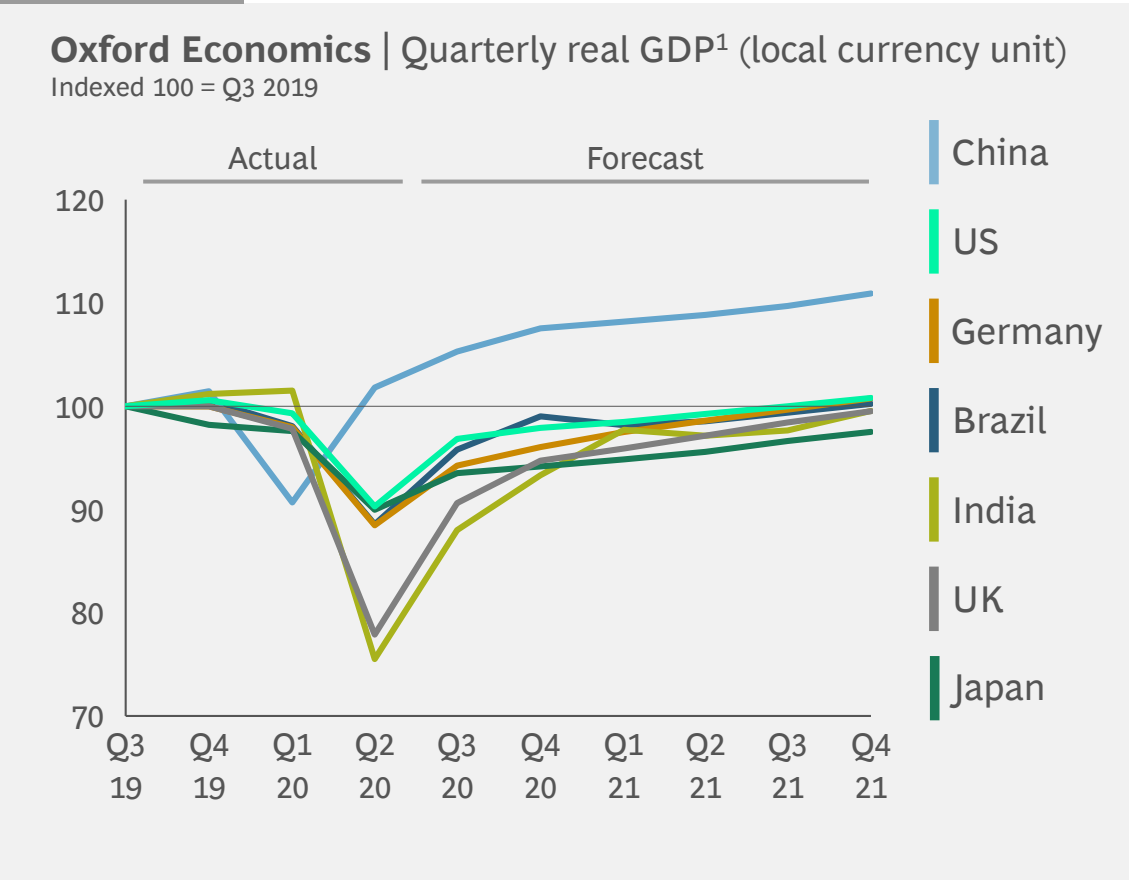
High global uncertainty and forecasts for slow economic recoveries point toward continued adversity in the near term

As of 02 Oct 2020

Global uncertainty is holding at record-high levels



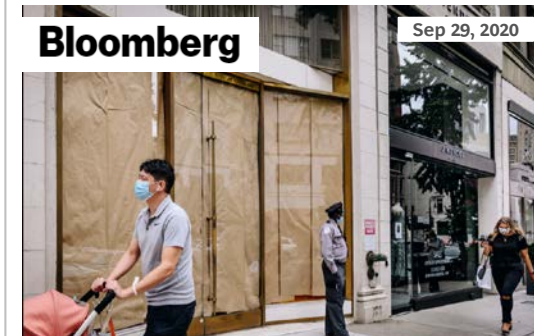
Slow recovery expected in most economies



Note: The Global Policy Uncertainty Index measures media reporting on economic and policy uncertainty, expiring policy, and economic forecaster disagreement
1. Seasonally adjusted; Source: Economic Policy Uncertainty; BCG Henderson Institute: Center for Macroeconomics; Oxford Economics

While pressured and vulnerable companies continue to fight for sustenance, several companies have begun to shift gear toward winning in the future

As of 30 Sep 2020



Sep 29, 2020

As companies burn through loans tapped in March, New York sees 40% bankruptcy surge, with cos. struggling



Sep 29, 2020

Leading restaurant chain reopens stores but continues to cut costs, working hours to minimize job losses



Sep 20, 2020

Companies shift from survival mode to strategic moves: takeovers, leadership changes & restored financial targets



Sep 30, 2020

Boards are going on a pandemic M&A deal spree; leading to a record third quarter with \$1T+ worth of transactions



Sep 21, 2020

Micro firms bear maximum COVID brunt; labour, credit, NPA issues more severe than SME, large units



Sep 24, 2020

To navigate the ongoing uncertainty, 'flexibility' is the new survival watchword for Asia Pacific's airlines



Sep 15, 2020

Covid-19 pandemic's 'great reset' makes energy companies step-up investments in renewables



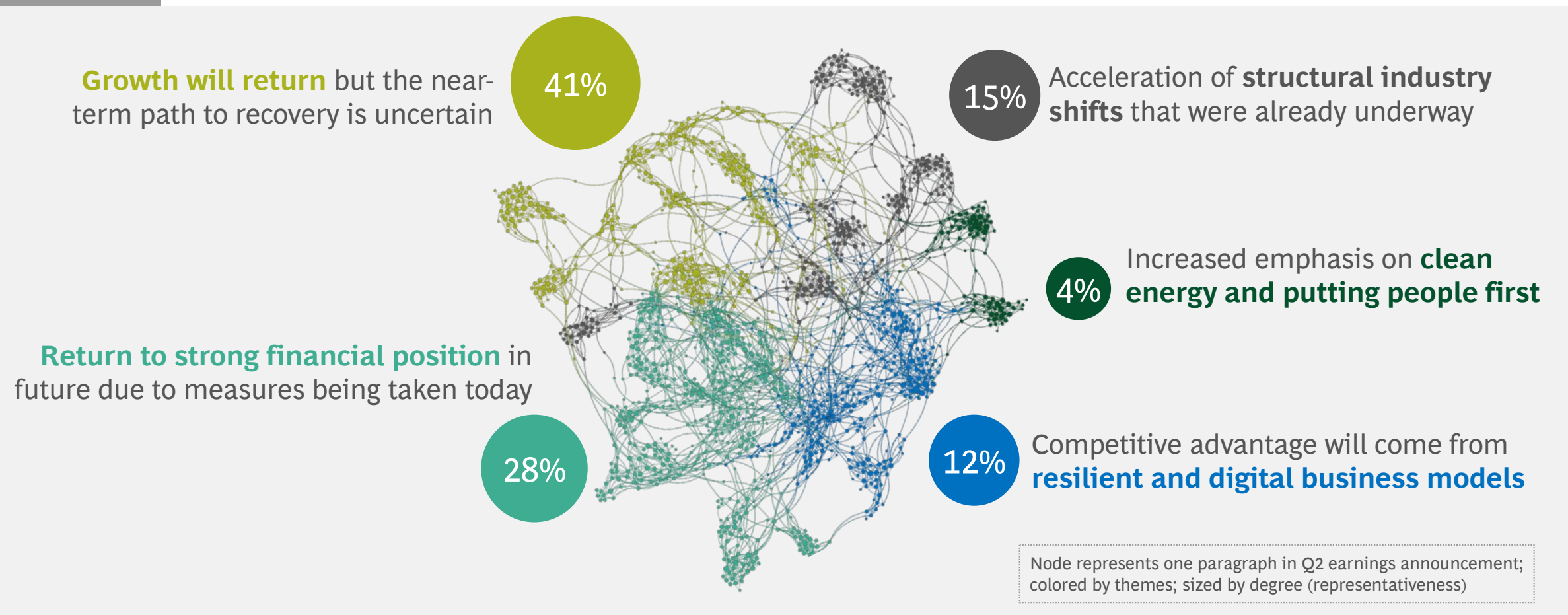
Sep 29, 2020

90% of firms have maintained or increased their digital transformation budget amid COVID-19, finds survey

Companies are expressing optimism for a return to growth but significant uncertainty around the shape of the return

Distribution of views on post-COVID-19 future mentioned in Q2'20 earnings transcripts¹ of 903 S&P Global 1200 companies

BCG Center for Growth & Innovation Analytics



Note: ~11.7K paragraphs of future-looking commentary sourced from Q2-2020 earnings call transcripts of 903 top global companies from S&P 1200 with English language transcripts were analyzed/clustered in Quid. 12% of data could not be analyzed/clustered in Quid and is not considered in the analysis

1. Only select clusters are shown in network visualization; remaining are hidden; Source: ThomsonOne; Quid; BCG Center for Growth & Innovation Analytics

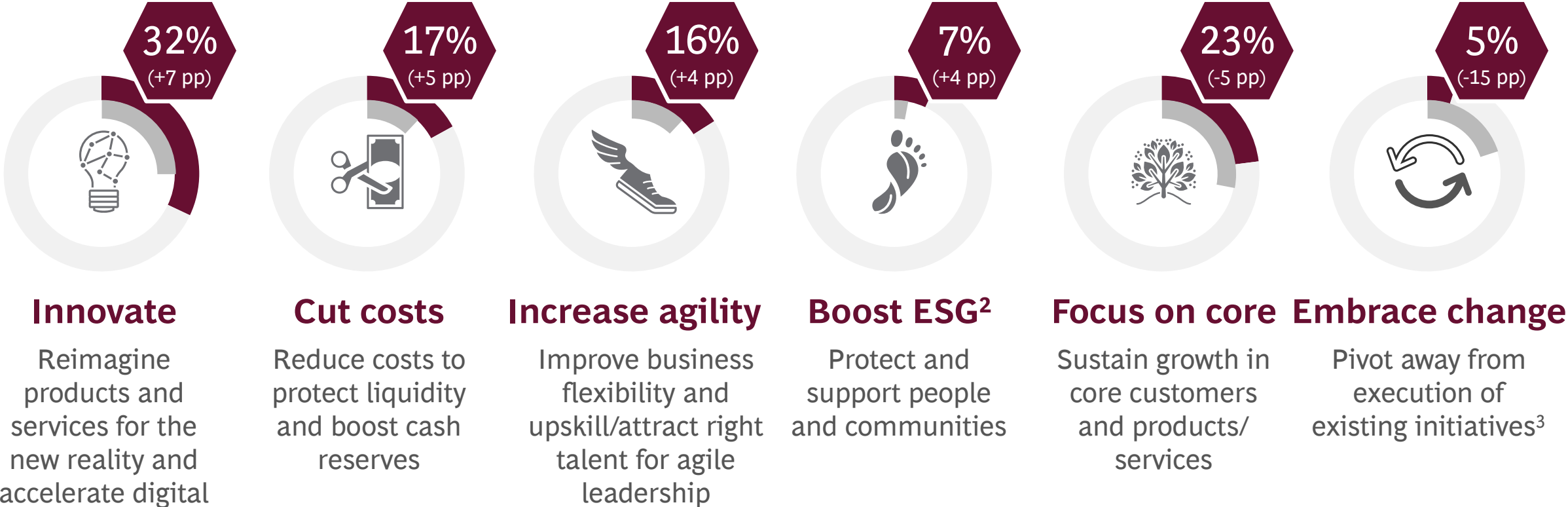
Company responses are characterized by a shift to strategic actions, with a particular emphasis on reimagining offerings for the new reality

Distribution of key actions mentioned in earnings transcripts¹ in Q2'20 of 903 S&P Global 1200 companies

(delta from Q4 '19)

Q2'20
Q4'19

BCG Center for Growth & Innovation Analytics

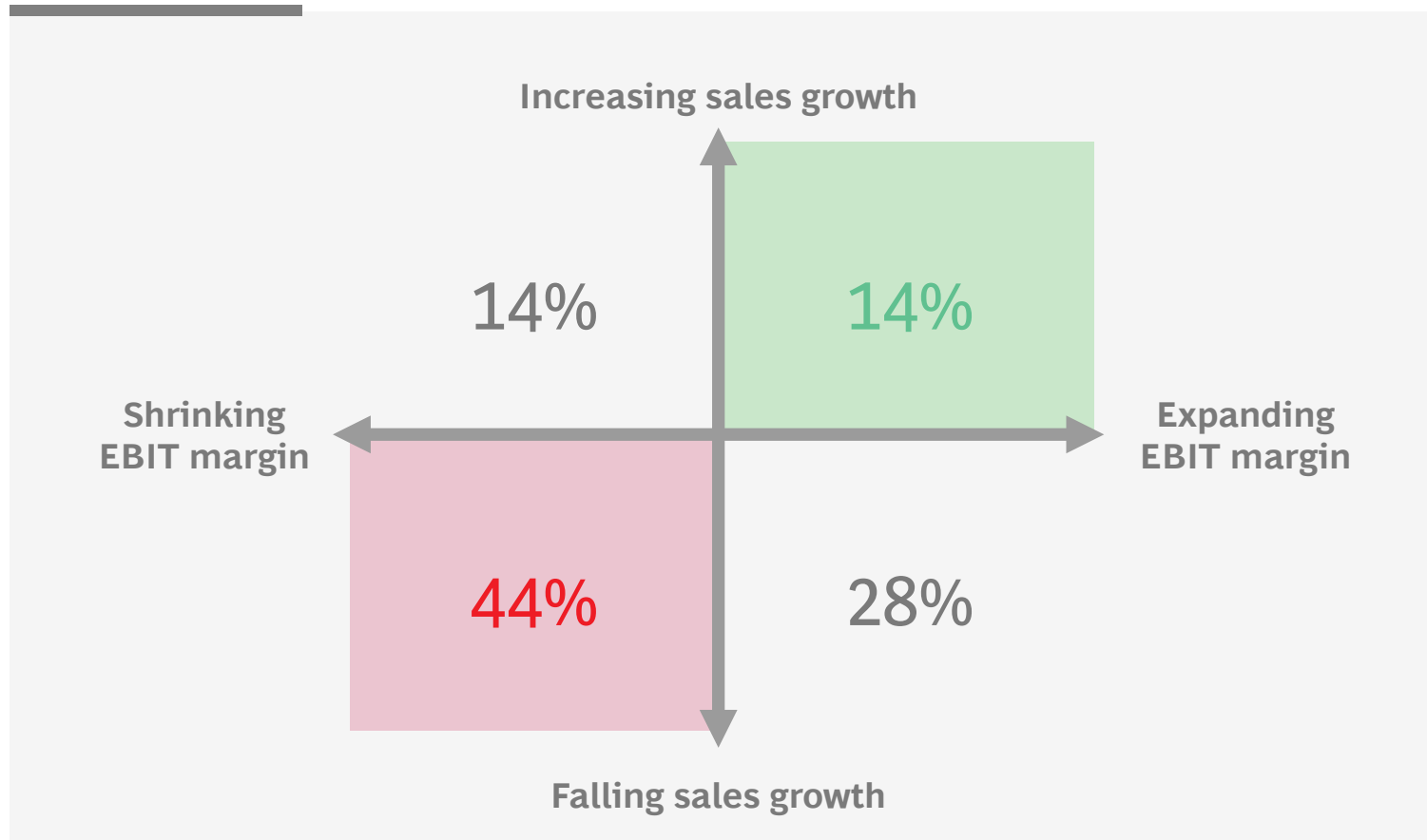


Note: ~9K sentences of strategic moves commentary sourced from Q2-2020 earnings call transcripts of 903 top global companies from S&P 1200 with English language transcripts and ~8.4K sentences of strategic moves commentary sourced from Q4-2019 earnings call transcripts of 875 top global companies were analyzed/clustered in Quid. 12% of data could not be analyzed/clustered in Quid and is not considered in the analysis; 1. Percentage of mentions in Q2 2020 earnings call transcripts, percentage change from Q4 2019 in parentheses; 2. Environmental, Social & Corporate Governance; 3. Includes other category (4%); Source: ThomsonOne; Quid, BCG Center for Growth & Innovation Analytics

Evidence from past crises highlights the opportunity available now to create long-term advantage

14% of companies improve growth and margin in downturns

(Performance¹ averaged across last four U.S. downturns since 1986 as compared to 3-year pre-downturn)



Companies created or re-imagined in past downturns

Select examples

Alibaba

Accelerated into B2C e-commerce as the SARS outbreak led to a shift in consumer buying patterns from offline to online

Leading chemical player

Developed innovative materials for the consumer market by leveraging synthetic chemicals invented as part of WWII

Amazon

Shifted focus toward third-party seller ecosystem rather than direct sales; outpaced other retailers during Global Financial Crisis '08-09

Further reading

[Advantage in Adversity: Winning the Next Downturn](#)

1. For U.S. companies with at least \$50M sales
Source: S&P Compustat and Capital IQ; BCG Henderson Institute

Six strategic actions that leaders should consider now to build long-term advantage out of current adversity

PERFORM

Prosper in an environment of elevated uncertainty and volatility

- 1 Employ 'always on' strategic planning to enable decision making with real-time data
- 2 Over-communicate to ensure a common strategic context and align actions
- 3 De-average your portfolio and allocate capital smartly

THRIVE

Pursue opportunities for growth and competitive advantage

- 4 Disrupt and reinvent business models to reposition and/or capture new opportunities
- 5 Accelerate digital transformation with an emphasis on growth
- 6 Use targeted divestments and M&A to accelerate focus on core and growth

1

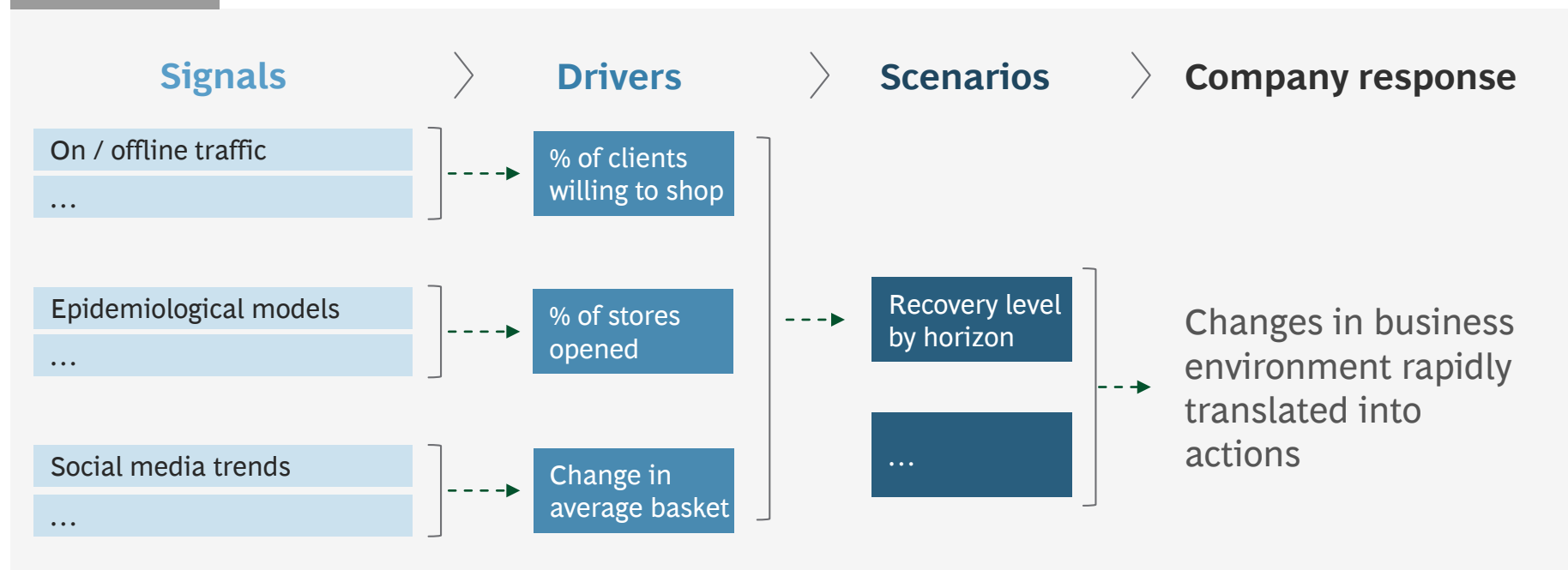
Employ 'always on' strategic planning to enable decision making with real-time data

Build a common context with an aligned fact base, frequently updated

Use scenarios to broaden organization planning horizon

Make strategic planning 'always on' by untangling from annual cycle

Example | Global fashion retailer set up dynamic scenario planning to respond to COVID-19 crisis



Impact | Improved agility and strategic focus of planning cycle

75%

Reduction in budgeting cycle time¹
(from 2 months to 2 weeks)



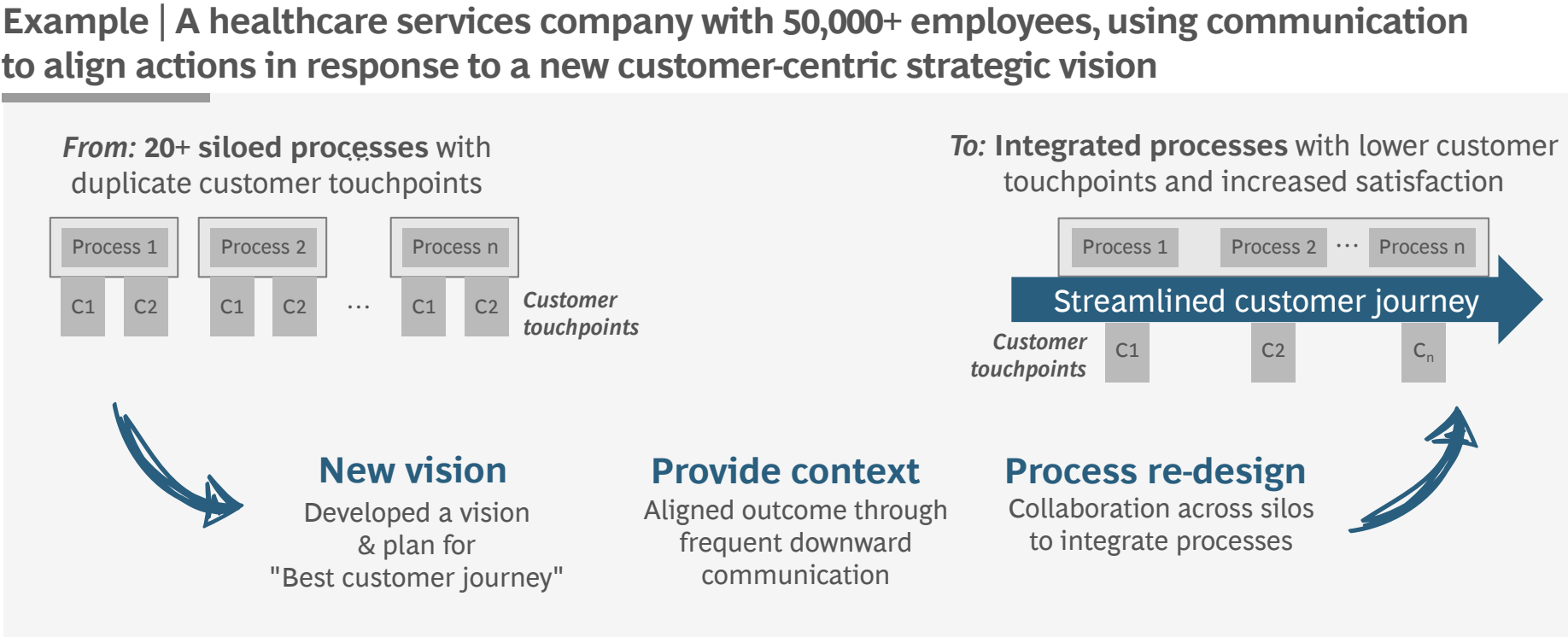
- **Rapid tailoring of product mix** based on regional indicators
- **Dynamic decisions** on store closures
- **Continuous optimization** of advertisement & promotion spend

1. In Q2'20 as compared to Q1'20; Source: BCG

2

Over-communicate to ensure a common strategic context and align actions

- Communicate purpose regularly to give context to organization
- Create alignment on outcomes but let organization define activities
- Set incentives that reward outcomes and results, not activities and inputs



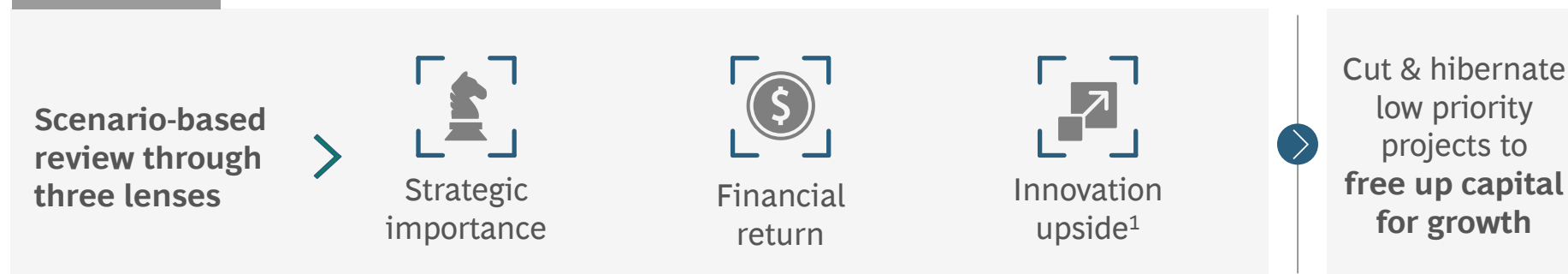
Note: Impact to be realized over the span of 2 years
1. Customers who are members as part of Health Maintenance Organization (HMO) or Preferred Provider Organization (PPO); Source: BCG

3

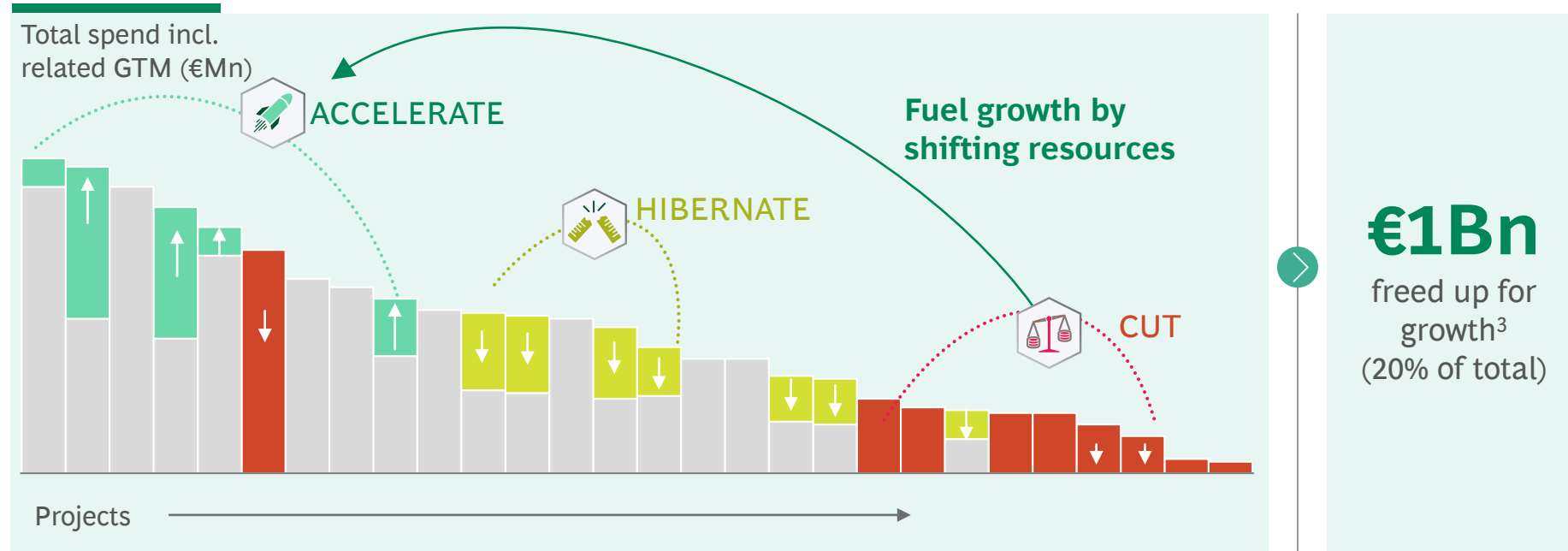
De-average your portfolio and allocate capital smartly

- Leverage scenarios to tackle uncertainty & build in flexibility
- Look beyond financial return measures
- Conduct detailed project-level COVID-19 delta assessment
- Approach it as a means to accelerate growth, not just cost cutting

Approach | De-average portfolio and assess impact on each project



Example | International airport operator reshaped portfolio through smart capital allocation to accelerate growth²



1. Desirability, Feasibility and Viability; 2. During aviation sector downturn of 2003; 3. €1Bn freed over the span of 2 years
Source: BCG

4

Disrupt and reinvent business models to reposition and/or capture new opportunities

Don't just focus on product innovation – business model innovation is equally important

Leverage the crises to build an innovation advantage over competitors

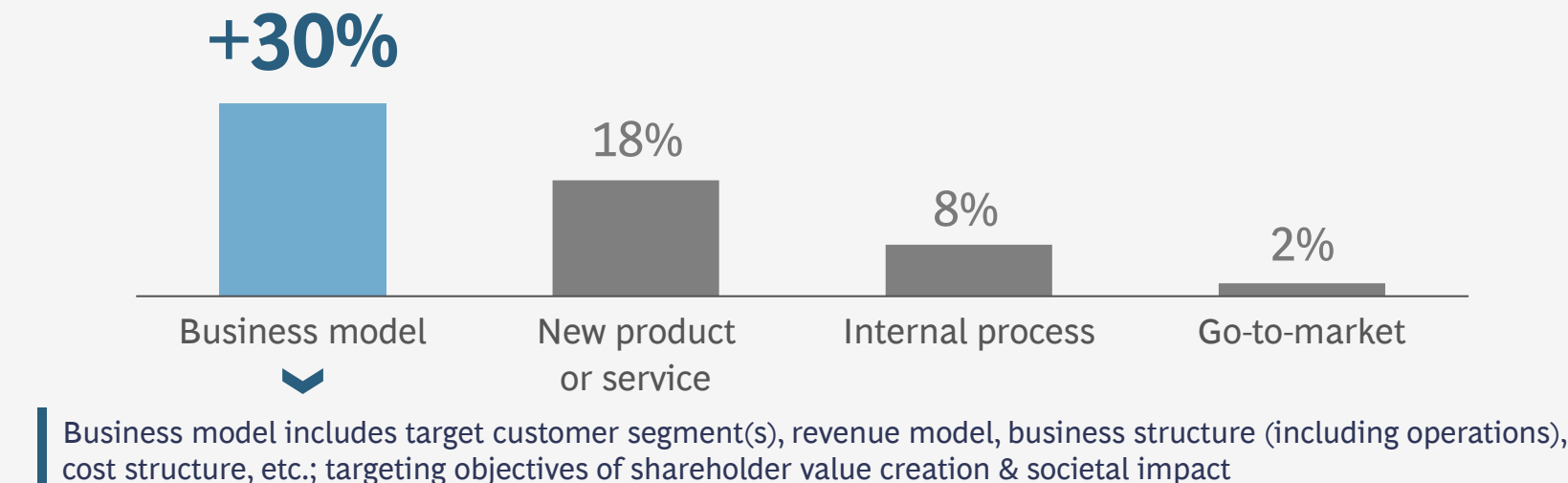
Further reading

The Most Innovative Companies 2020

Leading innovators stand out through their emphasis on business model innovation

% difference in emphasis between leading innovators and a randomly sampled control group on type of innovation as a top 1 or 2 mention¹

The Most Innovative Companies 2020 (BCG)



Top business model innovators show higher total shareholder return (TSR)

4.3%

TSR outperformance per year

of 30 companies leading in business model innovation (BCG BMI 30) compared to MSCI² World between 2015-2019³

1. Analysis based on ~3.5k innovation related news articles published in top tier news sources for top 50 MIC companies in 2019 (The Most Innovative Companies 2020) and control group, Feb-Aug'20. Control group is the top 50 non-MIC companies that are covered in the media at the same frequency as the 50 MIC companies. ESG innovation cluster not included; 2. Morgan Stanley Capital International; 3. BCG BMI 30 are the firms on BCG' MIC list that are seen as pursuing BMI most successfully (BCG assessment), average yearly TSR from 31.12.2014 to 31.12.2019; Source: Quid; BCG Center for Growth & Innovation Analytics; BCG Innovation Journey Analytics Database; Capital IQ

5

Accelerate digital transformation with an emphasis on growth

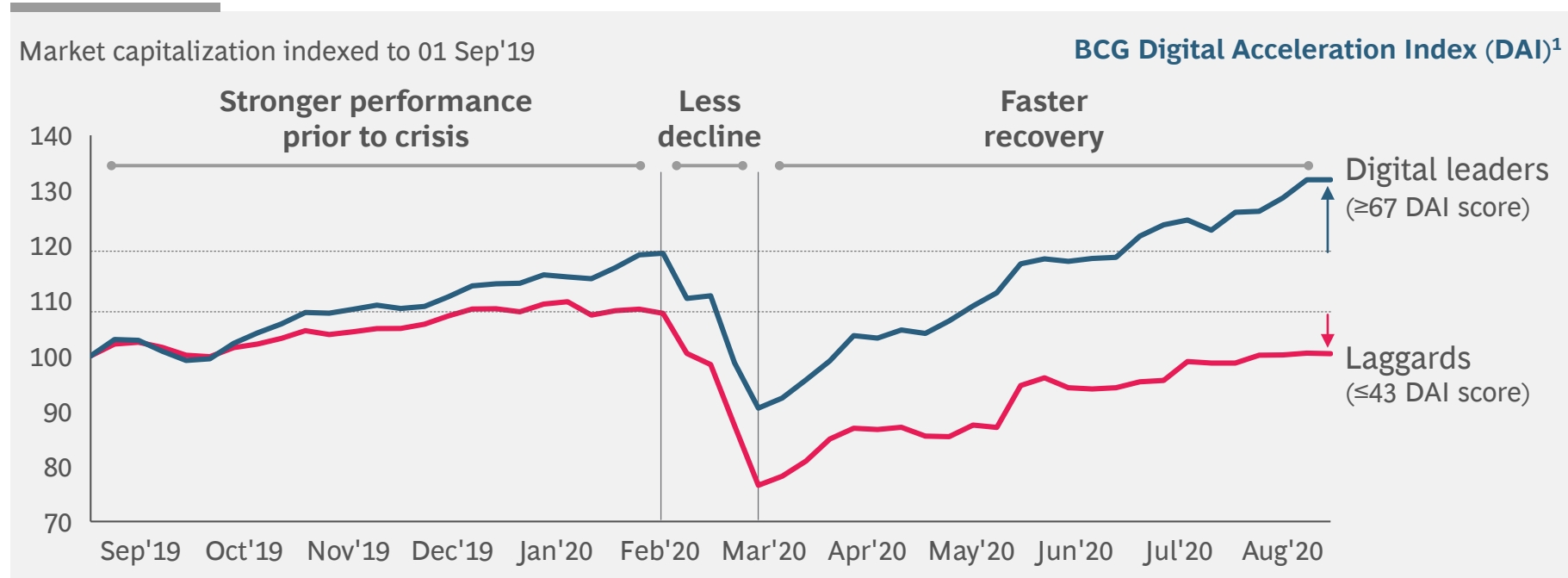
Accelerate digital initiatives that deliver growth in a post-COVID-19 world

Factor digital into strategic planning - it is now key for competitive advantage

Further reading

1. [The Evolving State of Digital Transformation](#)
2. [The Digital Path to Business Resilience](#)

Digital leaders are recovering faster from the COVID-19 crisis



1.8x

Increase in earnings growth per year² for digital leaders vs. laggards

2x

Performance³ of digital leaders vs. laggards in key metrics like cost efficiency, product quality, customer satisfaction, time-to-market

1. An index score that measures a company's digital maturity based on 36 dimensions across 8 blocks: strategy & purpose; digital in operations; personalized customer experiences; new offers, services & business models; dynamic platform organizations; digital talent; modular tech; data & AI; 2. BCG DAI global study 2019 that looked at earnings from the period of 2016 through 2018, n=224. Digital companies see on average 7.2% EBITDA growth, whereas less digital companies see 4.1% EBITDA growth; 3. Global DAI study 2019/20; Source: Capital IQ; BCG DAI Global Database

6

Use targeted divestments and M&A to accelerate focus on core and growth

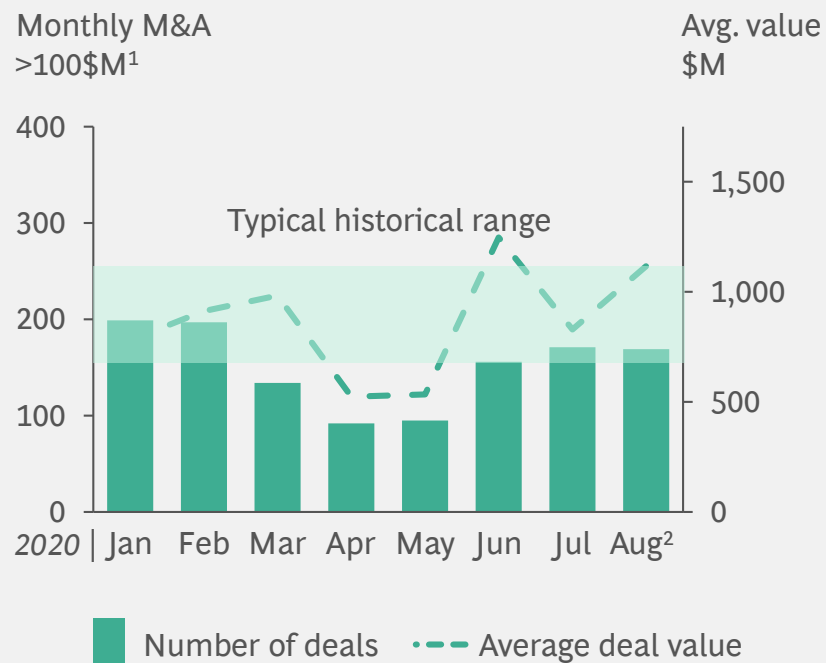
Take de-averaged view on valuations

Divest to fund specific and actionable strategic initiatives

Acquire growth initiatives for post-COVID-19 strategic advantage

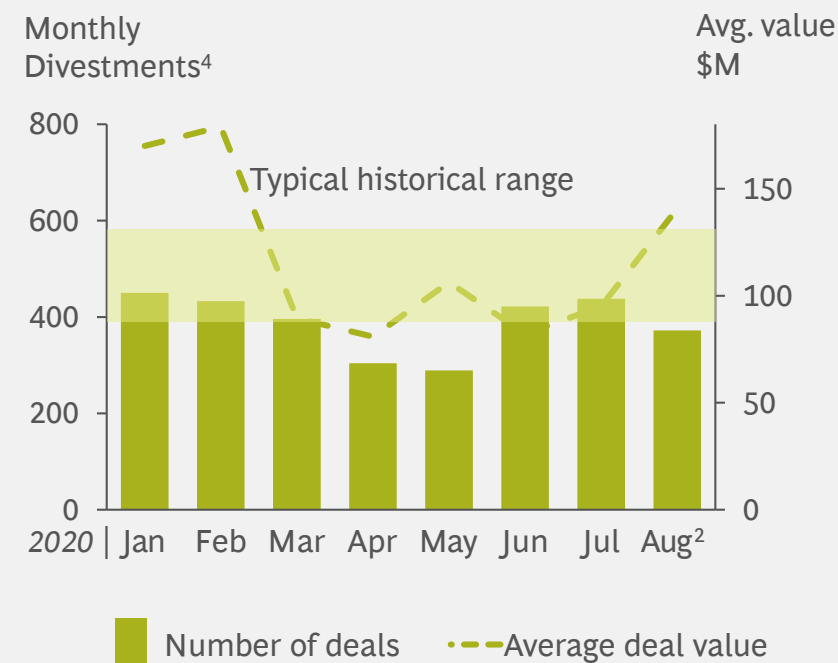
Secure value creation with rigorous integration/carve-out

Now is the time to reposition your portfolio: Activity levels for M&A and divestments quickly returning to normal



71%

of investors believe healthy companies should **actively pursue acquisitions** to strengthen the business³



73%

of investors believe healthy companies should **actively divest** to strengthen the company⁵

1. M&A transactions comprise pending, partly completed, completed, unconditional, and withdrawn deals announced between January 1, 2000 and August 31, 2020, with a transaction-size threshold of \$100 million. Self-tenders, recapitalizations, exchange offers, repurchases, acquisitions of remaining interest, minority stake purchases, privatizations, and spinoffs were excluded. Deal value includes assumed liabilities; 2. Lag in deal registration means not all deals included; 3. Original text: 71% Investors that believe healthy companies should actively pursue acquisitions to strengthen the business at today's current valuations; 4. Global divestments comprise pending, partly completed, completed, unconditional, and withdrawn deals announced between January 1, 2000 and August 31, 2020. Only transactions with publicly listed sellers were included. Deal value includes assumed liabilities; 5. Original text: 73% Investors that believe healthy companies should actively consider exiting or divesting lines of business to strengthen the overall company given current market conditions
Source: Refinitiv; BCG 2019 M&A Report; BCG's COVID-19 Investor Pulse Check, August 9, 2020; n = 150

Questions for CEO reflection

Leaders who embrace challenges will be better prepared to create new, powerful opportunities in the new reality

14%

of companies are able to improve both growth and margins during downturns¹

4.2 pp.

Higher revenue growth by companies that had long-term focus in Global Financial Crisis 2008-09²

2x

More likely to score high on purpose if company is in top half of total shareholder return (TSR) performance³

3-19%

Valuation premium for top-performing companies on total societal impact⁴

Where are the new opportunities to **create competitive advantage** coming out of COVID-19 crisis?

What are the **long-term implications** for your strategy and **what can you do now** to react?

How can you leverage your purpose to inspire employees and **create an empowering culture?**

How can you build back better **to engrain care for all stakeholders** into your strategy and actions?

1. Average across last four US downturns pre-COVID-19 since 1985; based on performance compared with three-year pre-downturn baseline for US companies with at least \$50 million in sales; 2. Long-term orientation score determined by BHI proprietary NLP analysis of mgmt. discussion in companies' 10-K SEC filings; 3. BCG and BrightHouse purpose & performance analysis based on 10-year average TSR performance & purpose score calculated based on survey of leaders, employees & customers across 50 US companies in technology, media & telecom, financial, consumer & services sectors, 2017; 4. Average valuation premium of top versus median TSI performers (October 2017); Source: BCG



Guide for Leaders

Companies' post-crisis outlook and current actions

Moves to drive advantage in adversity

Updated Analyses and Impact

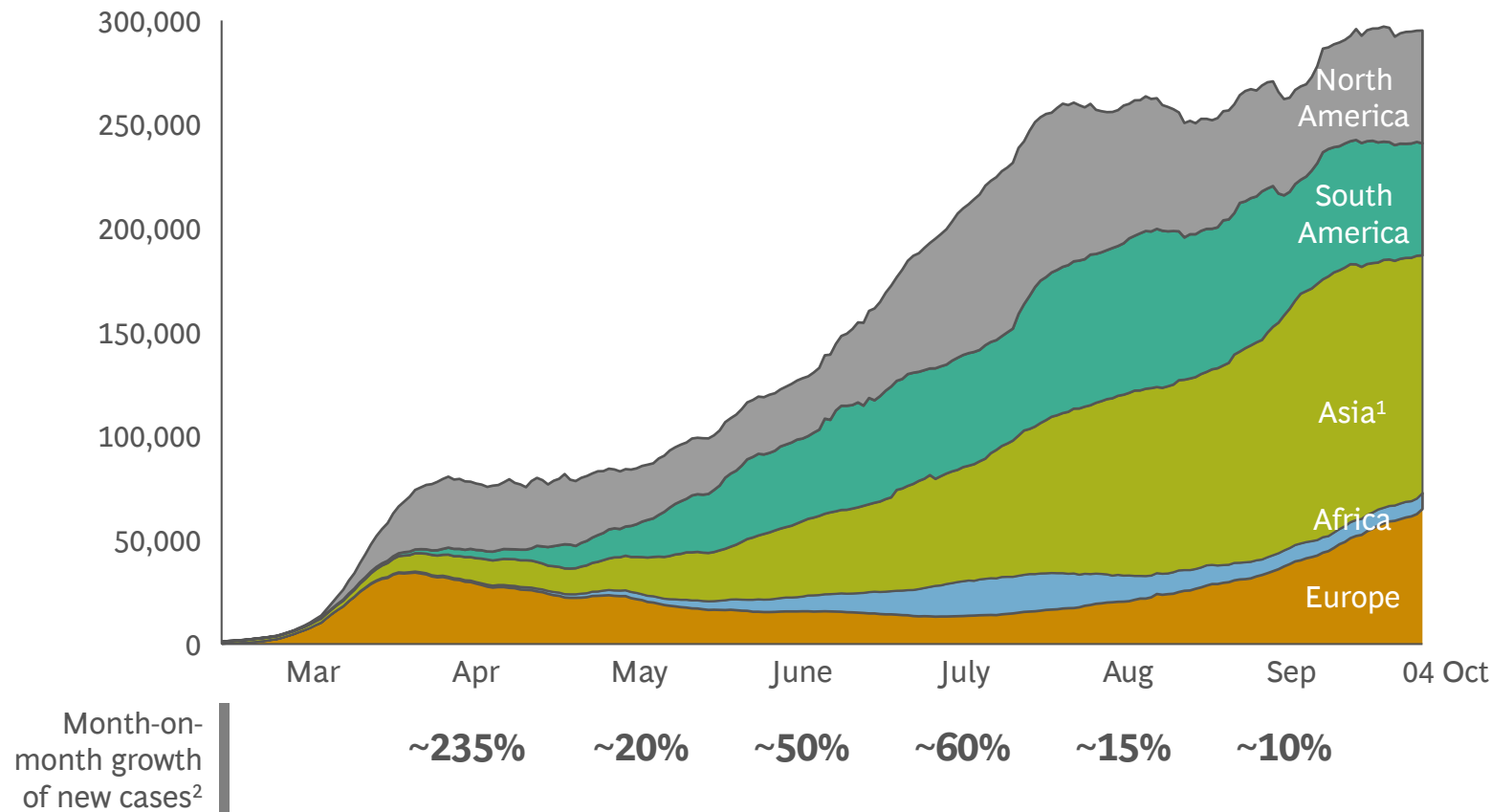
Epidemic progression and virus monitoring

Economic and business impact

Epidemic progression | Daily case growth slowing globally; Asia continues to grow

As of 04 Oct 2020

Daily new cases (7-day rolling average)



Key observations

35.0M
of confirmed cases

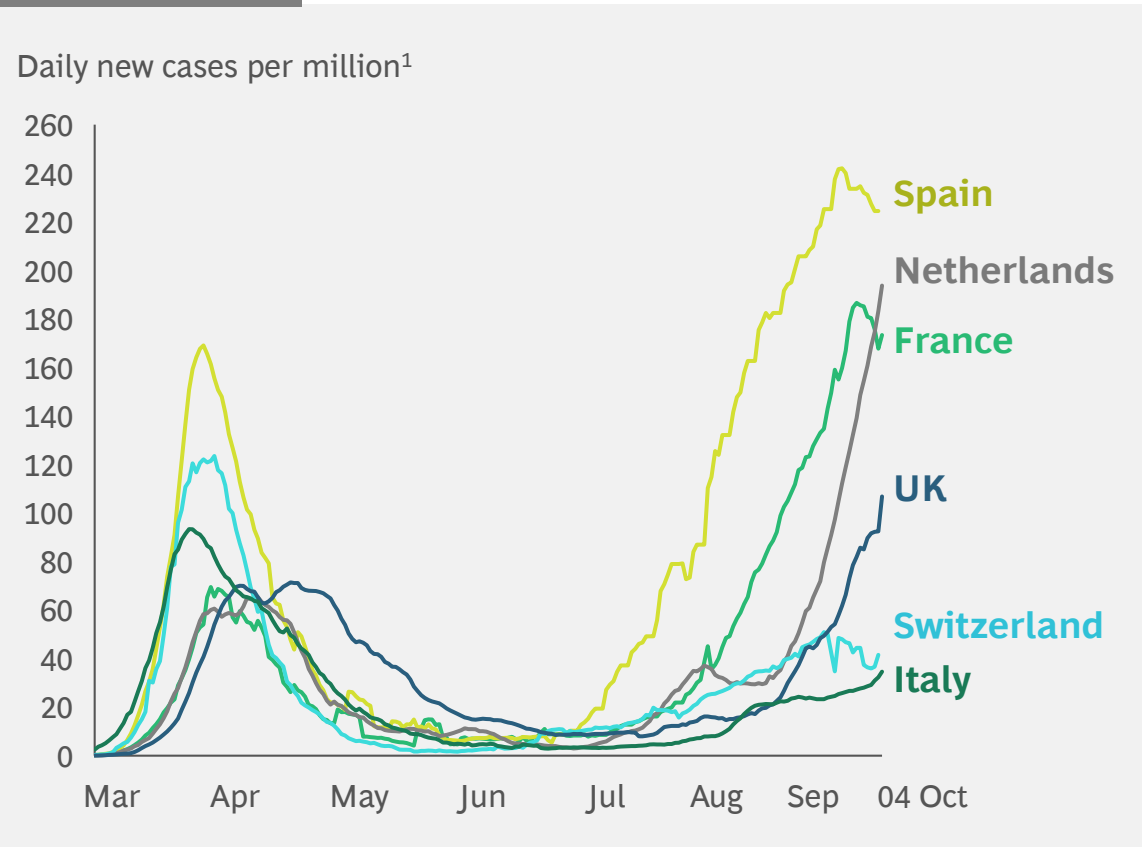
9.6M (27%)
of active cases
(% of confirmed cases)

1.0M
of fatalities

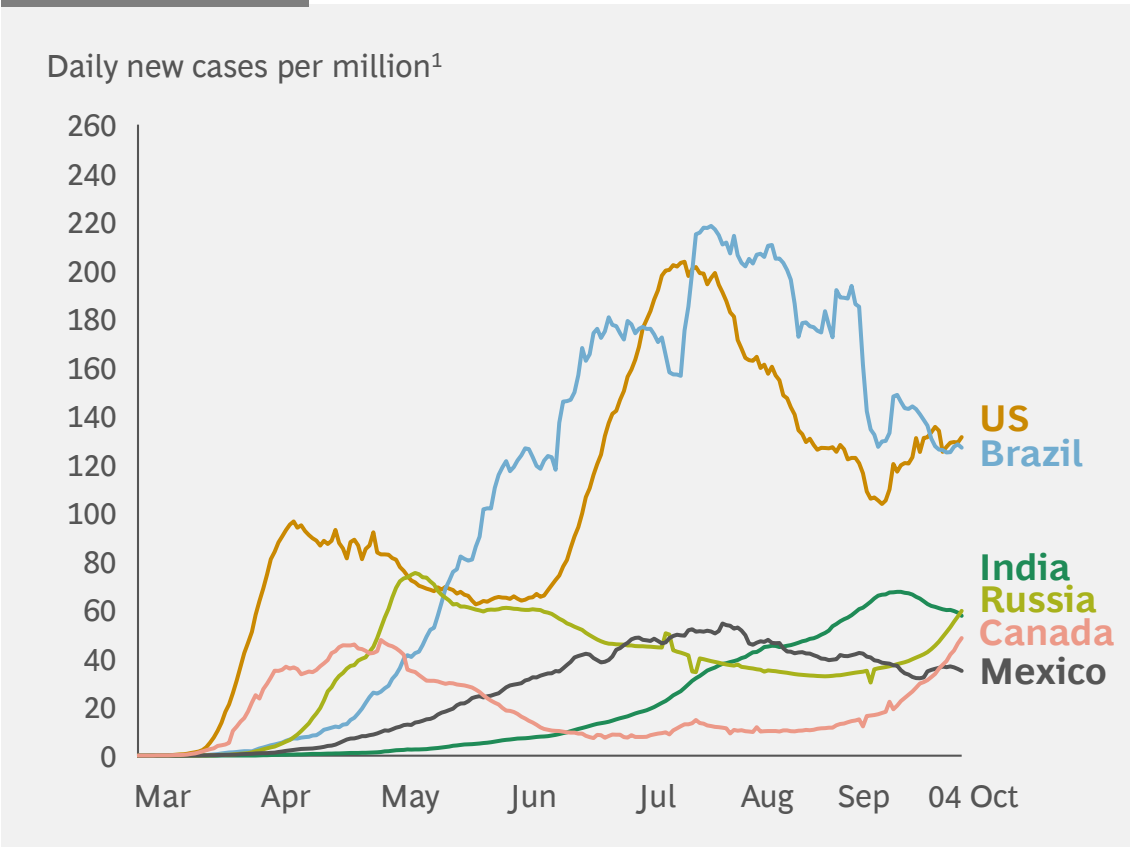
De-averaged view | Several European countries witnessing resurgence

As of 04 Oct 2020
Data shown only for top 20 countries (by GDP) with >30 daily new cases per million

Europe: Several countries witnessing resurgence, with some exceeding previous case peaks



Brazil and US showing decline compared to peak case levels



Note: Page shows de-averaged view of top 20 countries (by GDP), of which 12 have daily cases/M >30; other 8 countries have <30 daily cases/M (Germany (26), Turkey (17), Indonesia(15), Saudi Arabia (13), Japan (4), South Korea (1), Australia (1), China (0))
1. Calculated as a 7-day rolling average; Source: Our World in Data; BCG

Best-case timelines as of 02 Oct 2020

Vaccines

42

candidates currently in clinical trials

10

candidates currently in Phase III;
in race for EUA^{1,2} starting Q4'20,
contingent on safety and efficacy profiles

Q2'21

expected start of broader distribution
(beyond targeted population segments)³
in the best-case scenario⁴

Therapeutics

254

candidates currently in clinical trials

4

key candidates currently under EUA^{1,5} in select
countries; ensuring broad clinical trials, safety,
and efficacy key for further approvals

Q4'20

expected broader availability⁶

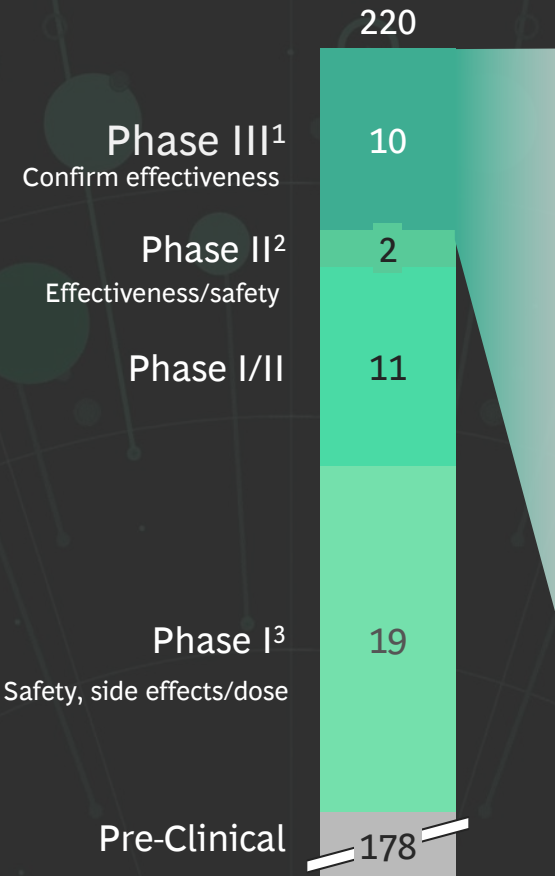
1. Emergency Use Authorization; nomenclature may differ across geographies; 2. Estimated timelines for grant of EUA: BioNTech/Pfizer, Moderna, Sinopharm/BIPB and Sinopharm/WIPB by Q4 '20, Oxford University/AstraZeneca between Q4 '20 & Q1 '21; Janssen (J&J), Novavax, Sinovac and CanSino by Q1 '21; Gamaleya Research Institute to be ascertained; 3. Healthy adults (beyond initial target population segments) able to access vaccine; 4. Estimated for the US; will be subject to a set of preconditions including phase 3 results, manufacturing & distribution setup and scale-up, etc.; 5. EUA for Remdesivir in the US, Japan, Australia (non-exhaustive), Convalescent plasma therapy in the US (non-exhaustive); Dexamethasone in UK, Japan (non-exhaustive); Favipiravir in India, Russia, China (non-exhaustive); 6. First few million doses; Gilead to ramp up availability of Remdesivir to 2M by Dec 2020; the US has secured 500k already and pre-booked 90% of September 2020 month's capacity; Additionally, availability basis prescription has started in select geographies like India, Japan, European Union, etc; Gilead has also signed non-exclusive voluntary licensing agreements with generic pharmaceutical manufacturers based in Egypt, India and Pakistan; Dexamethasone widely available but used generally in severe patients requiring supplemental oxygen support; Source: FDA, WHO, Milken Institute; Biocentury; Company websites, BCG

Further reading

**Vaccines & Therapeutic Outlook Part I:
Timelines and Success Factors**

Vaccine fast movers | 10 vaccine candidates already in Phase III

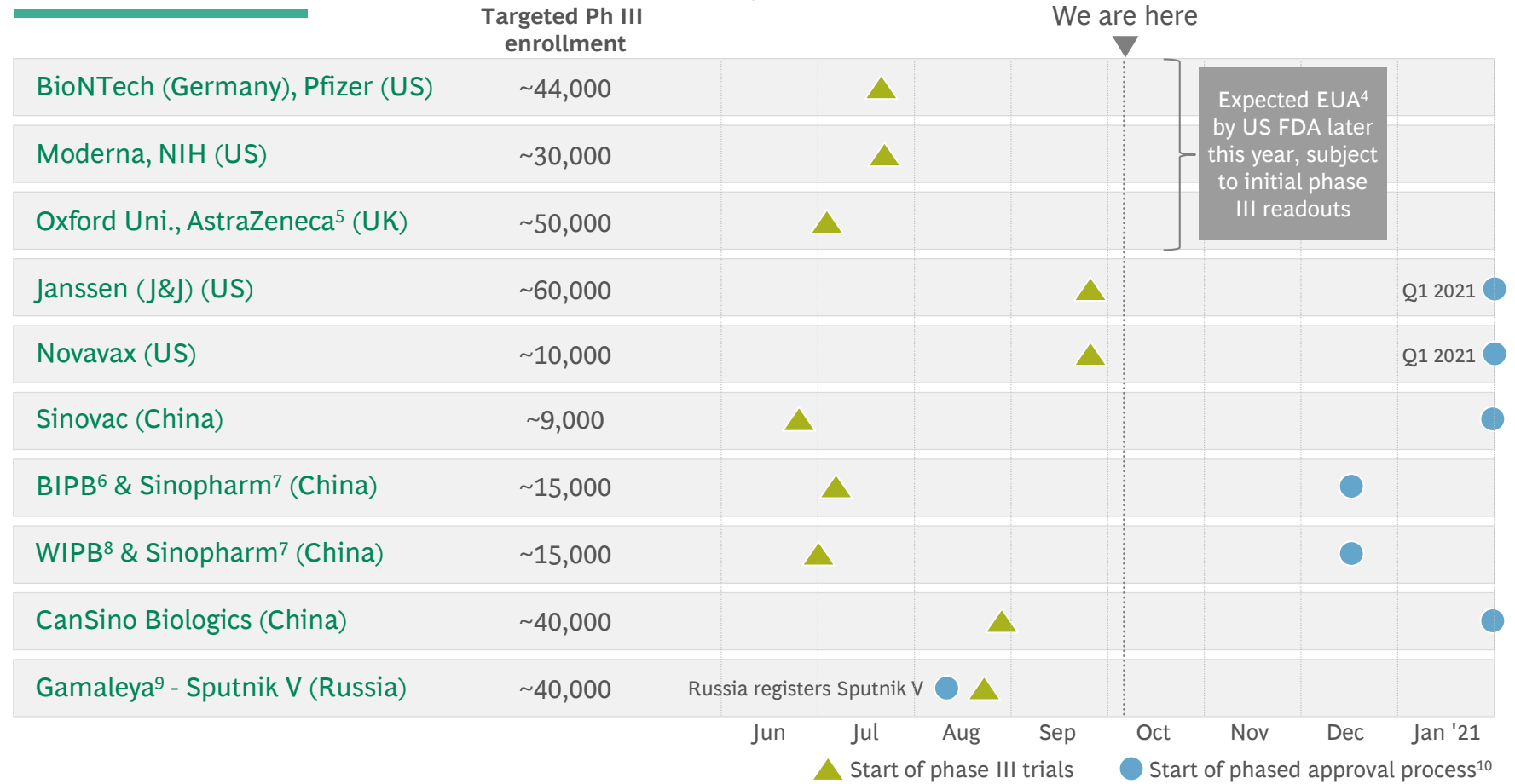
Vaccine candidates across development phases



As of 02 Oct 2020

Potential timelines for candidates currently in Phase III

WHO Phase III classification



Note: The timeline represented is highly dependent on Phase III vaccine results including safety and efficacy data and, hence, is subject to change; 1. Ph III trials involve large number of volunteers (e.g., 10s of 1000s) to test efficacy & safety of vaccine; 2. Phase II studies involve small number of volunteers (e.g., 100-1000) & intended to provide preliminary information about vaccine's ability to produce desired effect; 3. Phase I clinical studies involve initial testing in very small number of volunteers (e.g., 20-100) to test safety profile; 4. Emergency Use Authorization; 5. Oxford University/AstraZeneca voluntarily paused Ph. III trials to review safety event on a UK patient; trials resumed in UK, India but suspended in other countries, including US; 6. Beijing Institute of Biological Products; 7. EUA granted for high-risk groups in China & UAE, conditional regulatory approval for general public use expected by end of year; 8. Wuhan Institute of Biological Products; 9. Gamaleya Research Institute; 10. Trials expected to continue till 2021 & 2022 for different candidates, per WHO, clinicaltrials.gov. Companies expected to start approval applications with initial phase III results. Source: Guggenheim, Wells Fargo, Bloomberg, FT, Cowen, NYT, Milken Institute, Morgan Stanley, NIH, clinicaltrials.gov, WHO, Press Search, BCG

Therapeutics | Multiple therapeutic candidates at various stages of clinical trials

Globally 300+ treatments undergoing trials



As of 02 Oct 2020

US example

3 therapeutic candidates currently approved¹ in the US for potential COVID-19 treatment

	Remdesivir <i>(antivirals)</i>	Dexamethasone <i>(corticosteroid)</i>	Plasma Therapy <i>(convalescent plasma)</i>
Interim report view	~30% drop in recovery time >50% patients discharged in 2 weeks	Mortality risk reduction in <u>severe patients</u> ² Reduced 28-day mortality rate by 17%	8.7% mortality rate ³ for patients transfused within 3 days of diagnosis versus 11.9% in patients transfused after 3 days
Authorization status	Broader EUA ^{4,5} granted allowing treatment of suspected or confirmed COVID-19 patients	<u>Widely available</u> as anti-inflammatory drug	EUA ⁴ granted ⁶ ; rigorous randomized trials underway

Example candidates in Phase III clinical trials

Non-exhaustive

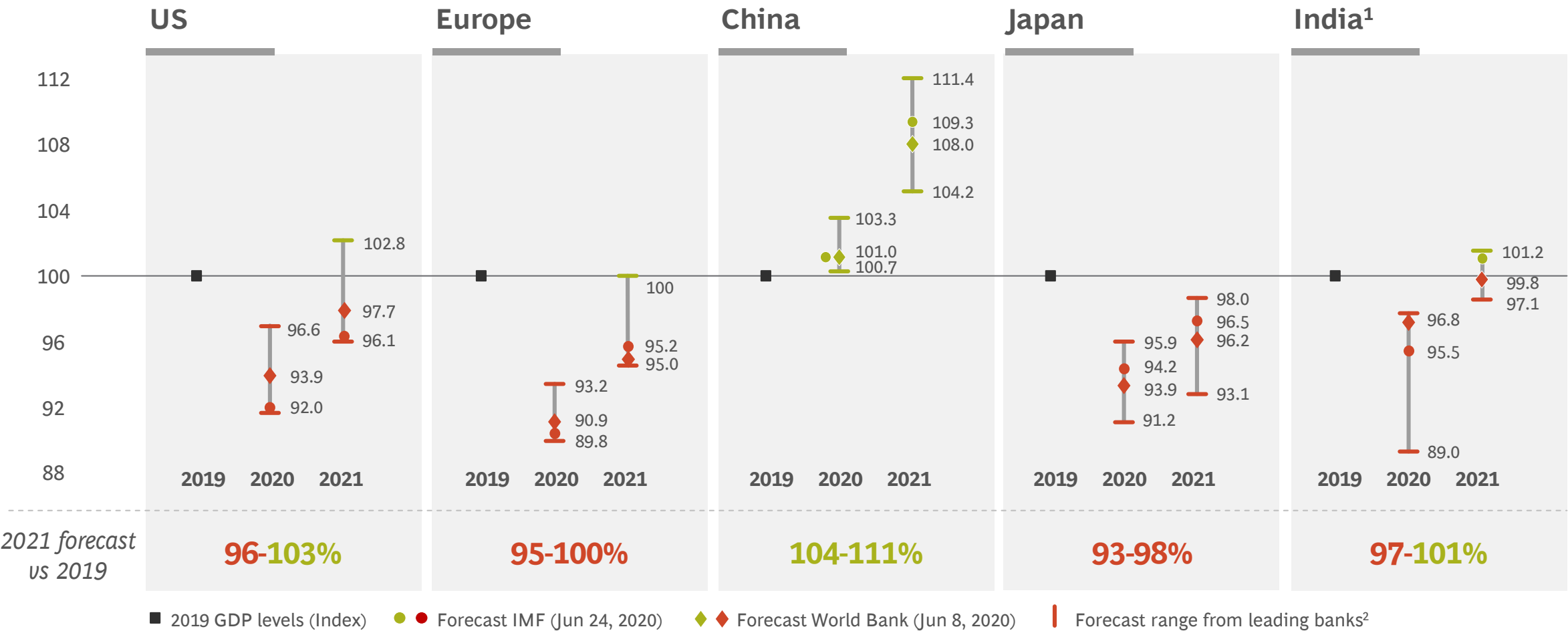
	LY-CoV555 (Eli Lilly) <i>(monoclonal antibodies)</i>	Actemra (Roche) <i>(monoclonal antibodies)</i>	REGN-COV2 (Regeneron) <i>(antibody cocktail)</i>
Trial phase	Phase III	Phase III	Phase III
Interim report view	72% reduction in hospitalization for patients who received antibody vs. those who received a placebo	Patients were 44% less likely to progress to mechanical ventilation or death	Reduced viral load by 50-90% and time to alleviate symptoms by 5-7 days vs. those who received a placebo

1. Remdesivir and plasma therapy granted Emergency Use Authorization; US Health and Human Services included dexamethasone in COVID-19 treatment guideline; 2. Patients requiring supplemental oxygen support; 3. 7-day mortality rate; 4. Emergency Use Authorization; 5. Initial EUA restricted use to patients with severe conditions (e.g., patients requiring supplemental oxygen support); 6. EUA granted despite no to limited randomized clinical trial involving a placebo group to estimate actual impact of the plasma treatment

Economic forecasts point toward a severe downturn in 2020; most countries expected to rebound to 2019 GDP only by end of 2021

As of 02 Oct 2020

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



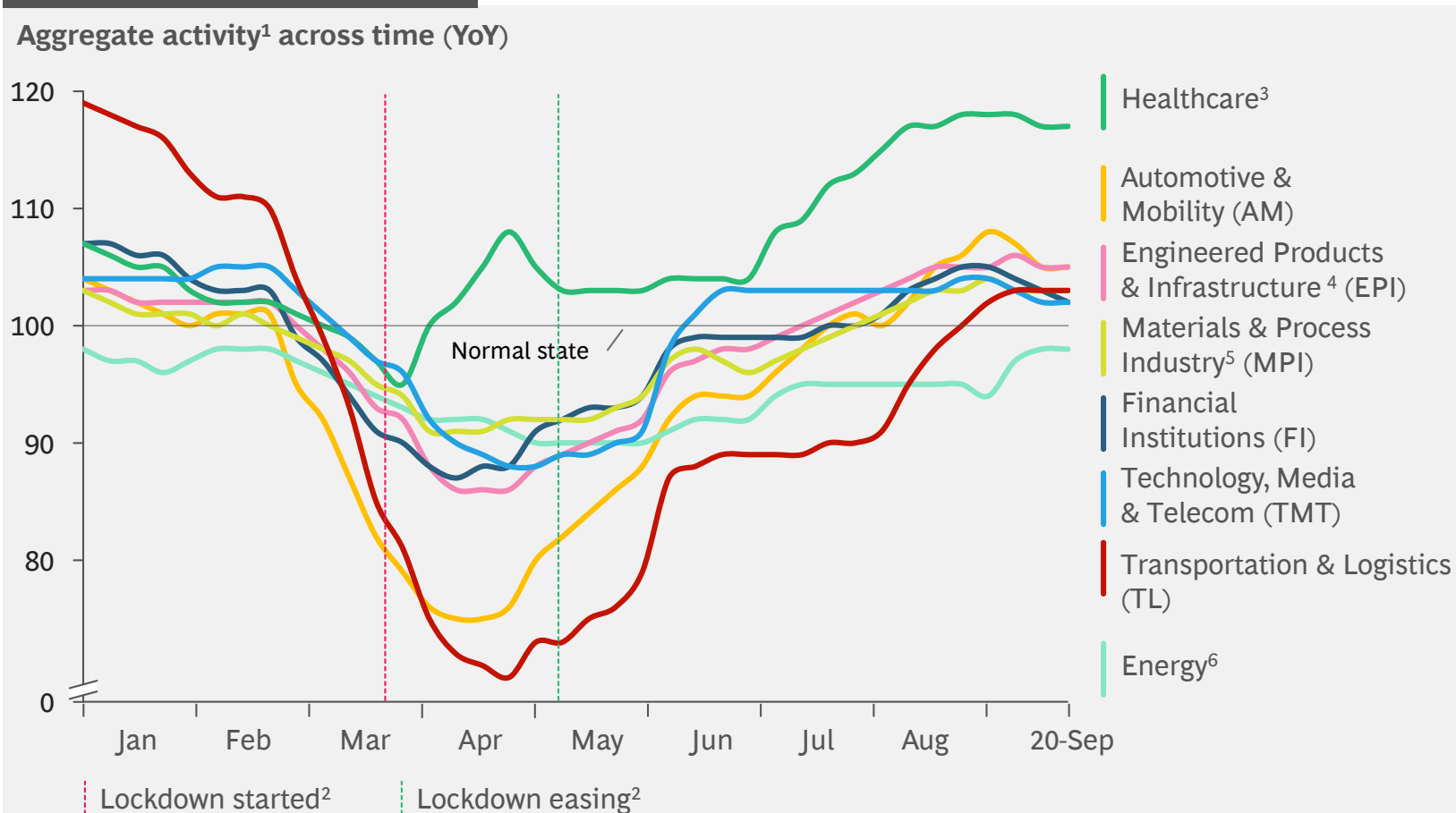
Note: As of reports dated 29 May 2020 to 02 Oct 2020, YoY forecasts; 1. For India, forecast is for financial year; for other countries, the forecast is for calendar year; 2. Range from forecasts (where available) of JPMorgan Chase; Morgan Stanley; Bank of America; Fitch Solutions; Credit Suisse; Danske Bank; ING Group; HSBC; Source: Bloomberg; World Bank; IMF; BCG

In the US, business activity¹ across all sectors, except energy, has currently rebounded to previous year levels

As of 20 Sep 2020
Data for US

Non-exhaustive

BCG Economic Recovery Pulse Check (ERPC): US example



Healthcare witnessed stronger rebound due to increased demand during current crisis

AM, EPI, MPI, FI, TMT, & TL saw steady, moderate recovery; currently above previous year levels

Energy continues to remain below pre-crisis levels

Note: Index value of 100 indicates normal activity compared to previous year's period; 1. Sector level activity based on 100+ data sources, e.g. financial index, macro economic data, employment, sector confidence, specific data source by sector etc.; 2. Refers to US lockdown start and easing dates 3. Medical Tech, Biopharma, Consumer Health (excluding Hospitals); 4. Aerospace & Defense, Infrastructure, Machinery & Industrial Automation; 5. Chemicals, Metals and Mining, Building Materials, Forest Products, Paper and Packaging; 6. Oil & Gas, Energy & Utilities. Source: BCG

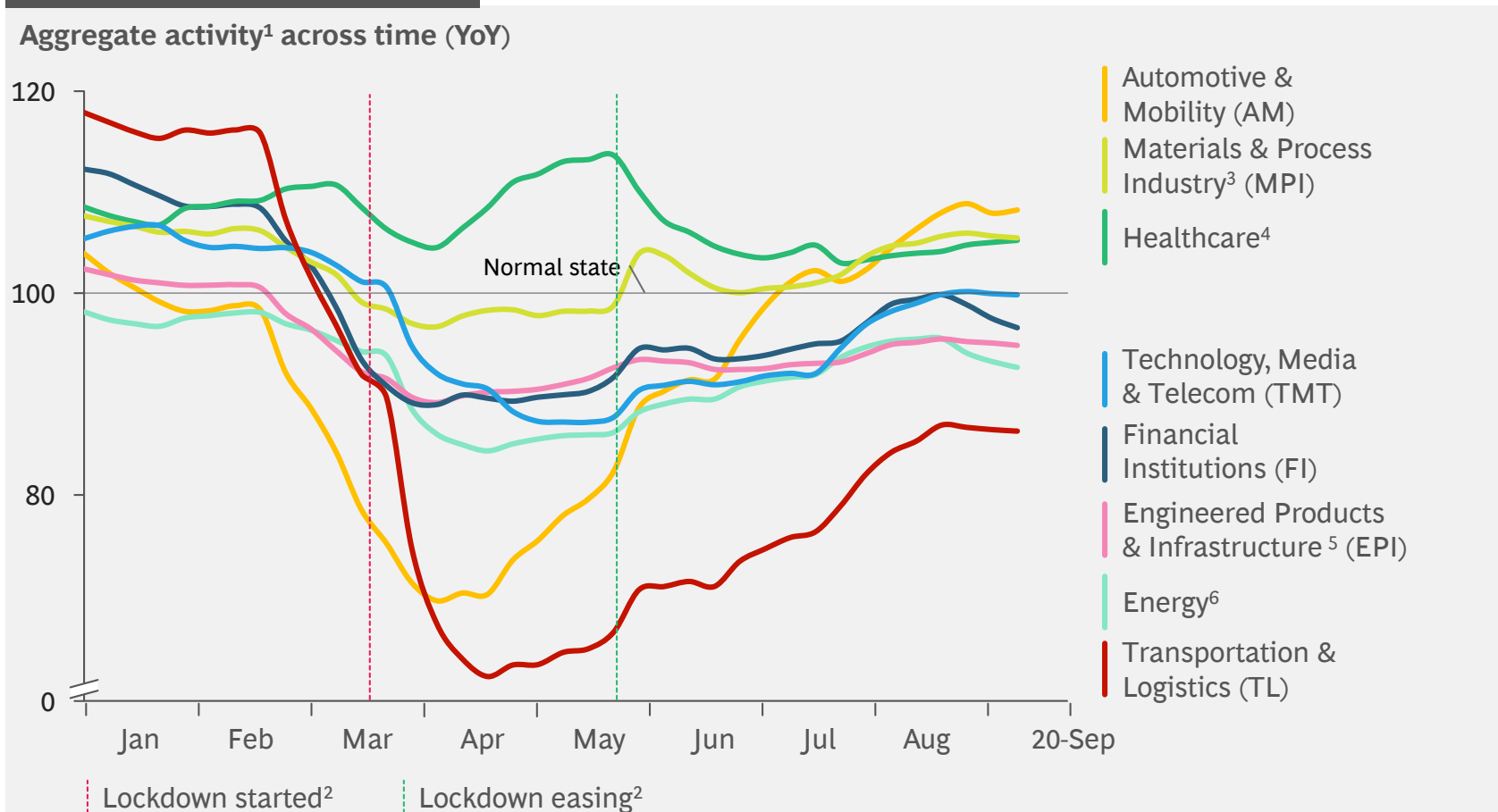
In Europe, business activity¹ across many sectors has exceeded or is close to previous year levels

ECONOMIC &
BUSINESS IMPACT

As of 20 Sep 2020
Aggregated for Europe (GER, FR, UK, ITA, SPA)

Non-exhaustive

BCG Economic Recovery Pulse Check (ERPC): Europe example



AM, MPI, and Healthcare currently above previous year levels; AM has seen strong recovery since the low activity during broader lockdown phase

TMT, FI, EPI, TL, & Energy remain below pre-crisis levels; TMT sees continued rebound, close to previous year levels

Note: Index value of 100 indicates normal activity compared to previous year's period; 1. Sector level activity based on 100+ data sources, e.g. financial index, macro economic data, employment, sector confidence, specific data source by sector etc.; 2. Refers to average lockdown start and easing dates across countries; 3. Chemicals, Metals and Mining, Building Materials, Forest Products, Paper and Packaging; 4. Medical Tech, Biopharma, Consumer Health (excluding Hospitals); 5. Aerospace & Defense, Infrastructure, Machinery & Industrial Automation; 6. Oil & Gas, Energy & Utilities; Source: BCG

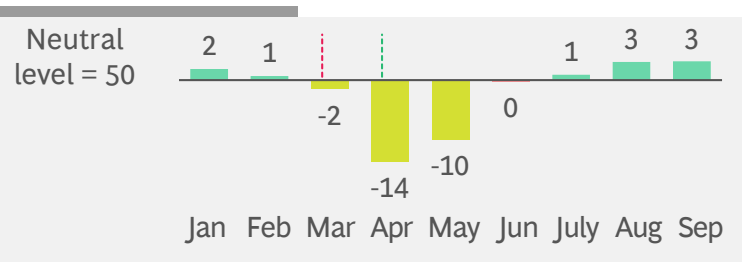
Manufacturing PMI recovery globally indicates positive momentum

ECONOMIC &
BUSINESS IMPACT

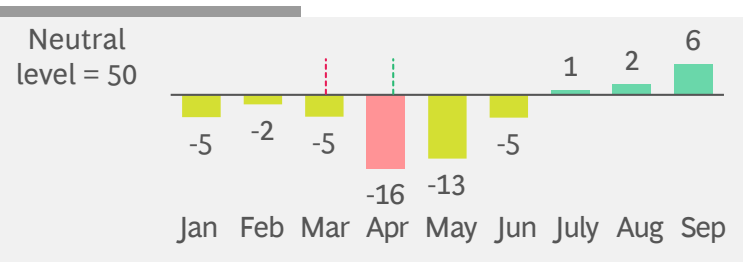
As of 02 Oct 2020

Manufacturing PMI before, during, and after the crisis

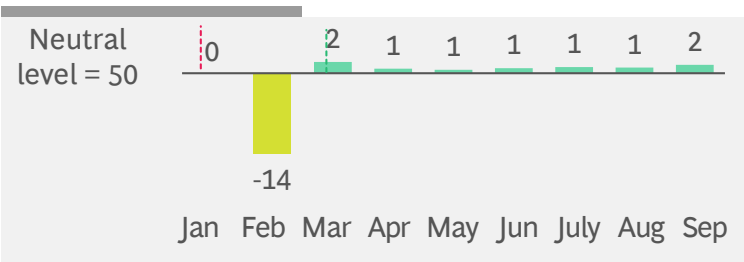
US



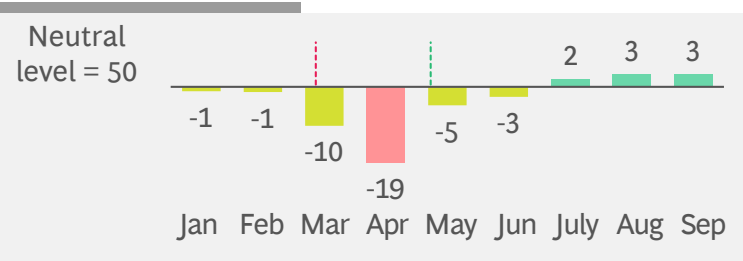
Germany



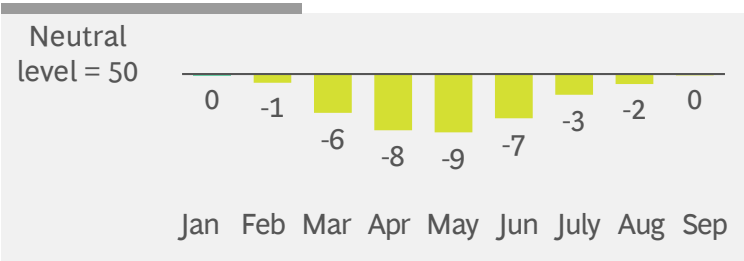
China¹



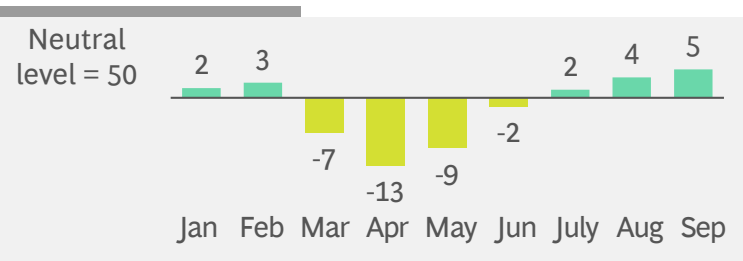
Italy



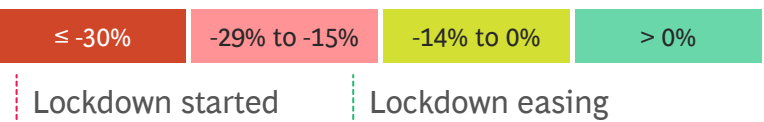
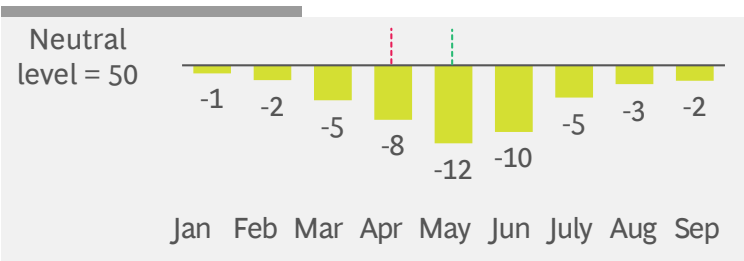
South Korea



Sweden



Japan



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. 1. Lockdown dates are only pertaining to Hubei province; Source: 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; Bloomberg

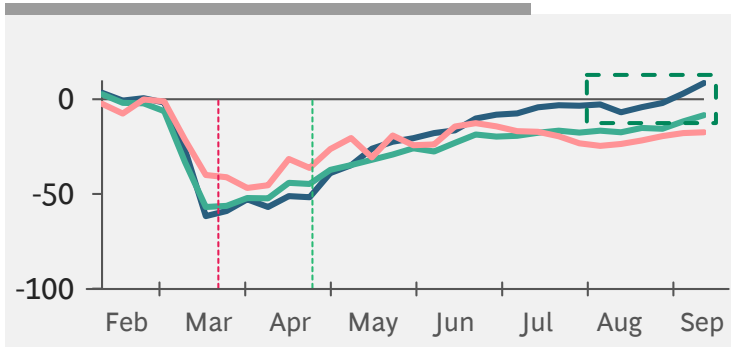
Retail and recreation mobility recovered fastest; lower recovery of workplace mobility indicates continued adoption of work from home

As of 11 Sep 2020

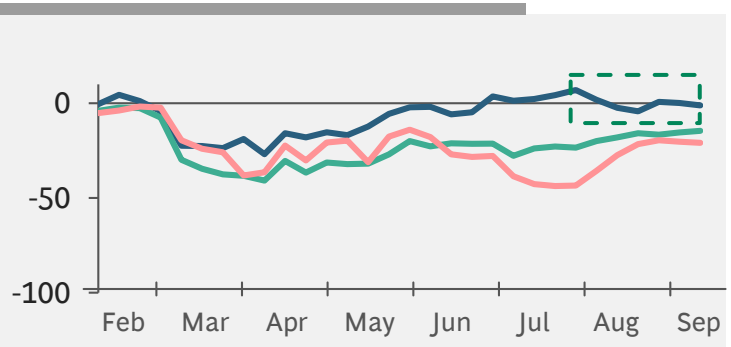
Non-exhaustive

Workplace¹, public transit,² and retail & recreation³ mobility compared to baseline of January to mid-February 2020

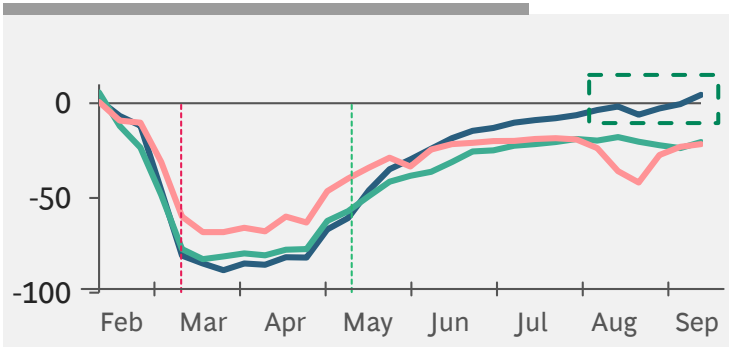
Germany



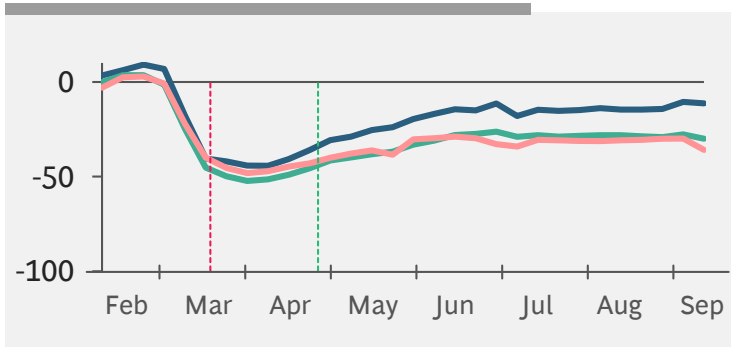
Sweden



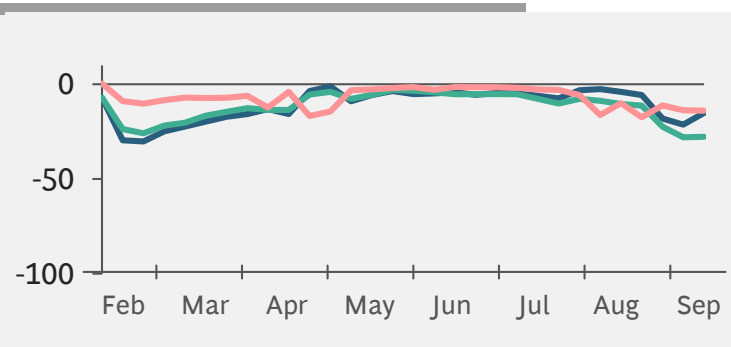
Italy



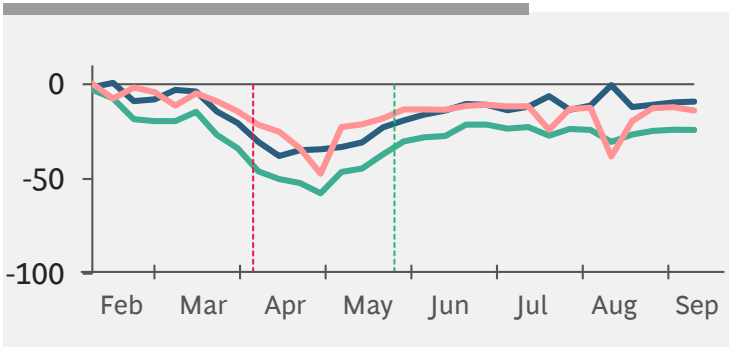
US



South Korea



Japan



Lockdown started⁴ | Lockdown easing⁴ | Workplace mobility | Public transit mobility | Retail & recreation | Mobility rebounded to baseline levels

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; Note: Data taken as weekly average compared with baseline (average of all daily values of respective weeks during Feb 15–Sep 11, 2020); Source: Google LLC "Google COVID-19 Community Mobility Reports". <https://www.google.com/covid19/mobility/> Accessed: 21 Sep 2020; Press search; BCG

4 sectors currently above pre-crisis TSR levels; 7 sectors with significant share¹ of companies with >15% default risk

ECONOMIC &
BUSINESS IMPACT

As of 02 Oct 2020

Categories based on TSR and net debt/enterprise value²

Based on top S&P
Global 1200 companies

		TSR performance ³			Companies with probability of default >15% ⁴		
		21 Feb 2020 - 20 Mar 2020	21 Feb 2020 - 2 Oct 2020	18 Sep 2020 - 2 Oct 2020	21 Feb 2020	2 Oct 2020	18 Sep 2020 - 2 Oct 2020
Healthier sectors	Semiconductors	-30%	13%	↗	0%	0%	→
	Retailing	-40%	9%	→	0%	35%	↘
	Household Products	-16%	4%	→	0%	0%	→
	Materials	-32%	1%	↘	5%	13%	↘
	Prof. Services	-30%	0%	→	0%	0%	→
Pressured sectors	Pharma	-20%	-1%	↘	0%	5%	↘
	Software	-30%	-1%	→	9%	0%	→
	Media	-36%	-2%	→	0%	0%	→
	Capital Goods	-35%	-4%	↘	2%	5%	→
	Tech Hardware	-26%	-5%	→	0%	0%	→
	Food/staples Retail	-10%	-6%	→	0%	0%	→
	Durable Goods	-39%	-6%	→	0%	0%	→
	Health Equipment	-31%	-6%	→	0%	0%	→
	Food & Beverage	-23%	-11%	→	0%	0%	→
	Utilities	-30%	-12%	↗	0%	0%	→
Vulnerable sectors	Auto	-41%	-13%	↘	0%	14%	↘
	Financials	-35%	-14%	→	0%	0%	→
	Telecom	-17%	-16%	↘	0%	8%	→
	Transport	-34%	-20%	↘	0%	28%	↘
	Hospitality	-44%	-22%	→	8%	31%	↘
	Insurance	-39%	-24%	↘	0%	0%	→
	Real Estate	-39%	-26%	→	0%	17%	↘
	Banks	-39%	-29%	↘	0%	4%	→
	Energy	-52%	-44%	↘	0%	21%	↘

Note: Based on top S&P Global 1200 companies; Sectors are based on GICS definitions; 1. Retailing, Materials, Auto, Transport, Hospitality, Real estate and Energy are sectors with > 10% of companies with a probability of default > 15%; 2. Net debt & enterprise value from latest available balance sheet; Categories defined based on comparison with S&P Global 1200 median: healthy = TSR & debt/EV > median, pressured = TSR or debt/EV < median, vulnerable = TSR & debt/EV < median; 3. 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 02 Oct 2020 based on median; 4. Implied by 5-year credit default swap based on median; Source: S&P Capital IQ; BCG ValueScience Center; BCG

↗ Pos. trend ≥ 2%
→ No sig. change
↘ Neg. trend ≥ 2%

Additional perspectives on COVID-19



Edition #16

[Vaccines & Therapeutics Outlook Part II: Scenarios and Implications](#)



Edition #15

[Vaccine & Therapeutics Outlook - Part I: Timelines and Success Factors](#)



Edition #14

[US: Current Dynamics and How to Win the Fight](#)



Edition #13

[Global Restart: Key Dynamics](#)



Edition #12

[Ensuring an Inclusive Recovery](#)



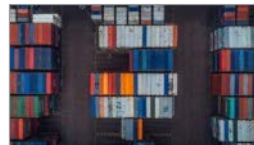
Edition #11

[Accelerating Climate Actions in the New Reality](#)



Edition #10

[Value Protection and Acceleration Roadmap to Win in the New Reality](#)



Edition #9

[Future of Global Trade and Supply Chains](#)



Edition #8

[Galvanizing Nations for the New Reality](#)



Edition #7

[Sensing Consumer Behavior and Seizing Demand Shifts](#)



Edition #6

[Restructuring Costs, and Managing Cash and Liquidity](#)



Edition #5

[Revamping Organizations for the New Reality](#)



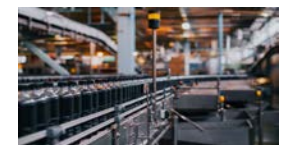
Edition #4

[Accelerating Digital & Technology Transformation](#)



Edition #3

[Emerging Stronger from the Crisis](#)



Edition #2

[Preparing for the Restart](#)

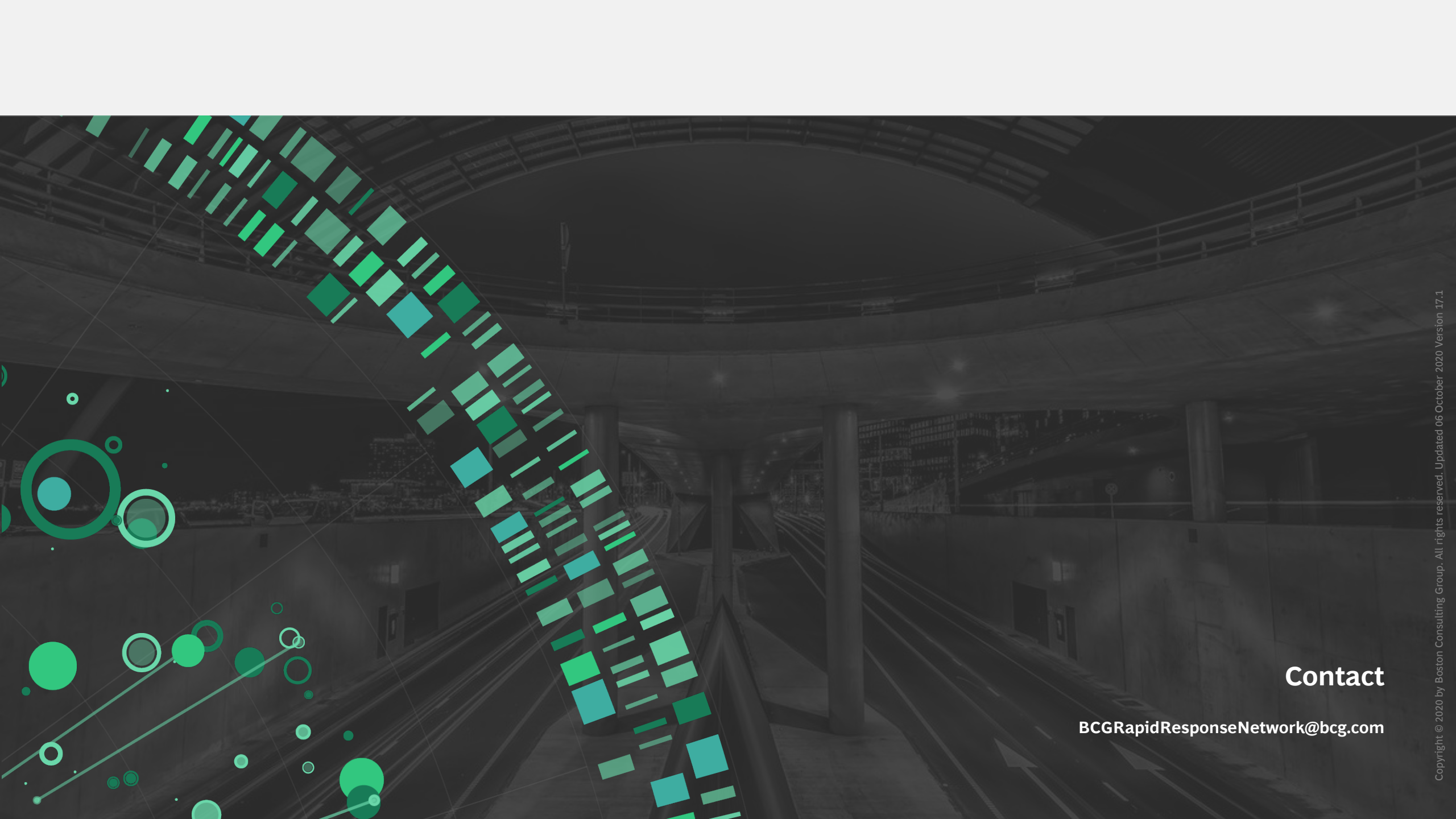
Disclaimer

The services and materials provided by Boston Consulting Group (BCG) are subject to BCG's Standard Terms (a copy of which is available upon request) or such other agreement as may have been previously executed by BCG. BCG does not provide legal, accounting, or tax advice. The Client is responsible for obtaining independent advice concerning these matters. This advice may affect the guidance given by BCG. Further, BCG has made no undertaking to update these materials after the date hereof, notwithstanding that such information may become outdated or inaccurate.

The materials contained in this presentation are designed for the sole use by the board of directors or senior management of the Client and solely for the limited purposes described in the presentation. The materials shall not be copied or given to any person or entity other than the Client ("Third Party") without the prior written consent of BCG. These materials serve only as the focus for discussion; they are incomplete without the accompanying oral commentary and may not be relied on as a stand-alone document. Further, Third Parties may not, and it is unreasonable for any Third Party to, rely on these materials for any purpose whatsoever. To the fullest extent permitted by law (and except to the extent otherwise agreed in a signed writing by BCG), BCG shall have no liability whatsoever to any Third Party, and any Third Party hereby waives any rights and claims it may have at any time against BCG with regard to the services, this presentation, or other materials, including the accuracy or completeness thereof. Receipt and review of this document shall be deemed agreement with and consideration for the foregoing.

BCG does not provide fairness opinions or valuations of market transactions, and these materials should not be relied on or construed as such. Further, the financial evaluations, projected market and financial information, and conclusions contained in these materials are based upon standard valuation methodologies, are not definitive forecasts, and are not guaranteed by BCG. BCG has used public and/or confidential data and assumptions provided to BCG by the Client. BCG has not independently verified the data and assumptions used in these analyses. Changes in the underlying data or operating assumptions will clearly impact the analyses and conclusions.

The situation surrounding COVID-19 is dynamic and rapidly evolving, on a daily basis. Although we have taken great care prior to producing this presentation, it represents BCG's view at a particular point in time. This presentation is not intended to: (i) constitute medical or safety advice, nor be a substitute for the same; nor (ii) be seen as a formal endorsement or recommendation of a particular response. As such you are advised to make your own assessment as to the appropriate course of action to take, using this presentation as guidance. Please carefully consider local laws and guidance in your area, particularly the most recent advice issued by your local (and national) health authorities, before making any decision.



Contact

BCGRapidResponseNetwork@bcg.com