COVID-19
BCG Perspectives

Facts, scenarios, and actions for leaders

Publication #6 with a focus on:
Restructuring costs, and managing cash and liquidity

Version: 19 May 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 wellbeing 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.

Source: BCG

9 action areas for business leaders

	Flatten	Fight	Future

Establish crisis management

1 Develop **Scenario-Based Planning Approach** to manage uncertainty

2 Create a **Rapid Response and Transformation (RR&T)** team

Navigate through Flatten, Fight, and Future

3 Revamp Organization **for the New Reality**

6 Restructure **Cost**, manage **Cash & Liquidity**

Focus of this edition

4 Drive **Topline Security and Customer Trust**

7 **Emerge Stronger**; drive advantage in adversity

5 Stabilize and restart **Supply Chain, Manufacturing**

8 **Accelerate Digital and Technology** transformation

9 **Help Society** during COVID-19

Note: RR&T = Rapid Response and Transformation Team
Source: BCG

Executive Summary | COVID-19 BCG Perspectives

For the many businesses hit hard by the crisis, it is critical for companies to adapt cash and costs to current and future requirements

- COVID-19 crisis has resulted in negative economic and business impact (-3% global GDP[1], up to -30% change in world trade, lower revenues, higher risk of default)
- With many countries entering the 'Fight' phase, business leaders must move from crisis response to performance transformation
- Transformations are by definition holistic and cover the entire company; managing cash and liquidity and driving cost take-out are imperative
  - Cash and liquidity are top priorities for investors; management can gain control quickly by establishing a high-impact cash management office
  - Cost take-out is critical to ensure company stability; however leaders must consider current and future requirements, especially on the people side

Across countries, efforts to flatten the curve and ramp-up testing continue; the impact on economy, sectors, and businesses persists

- Globally, 1.6 million patients have recovered from COVID-19 and the case-doubling rate has improved to 33 days
- As countries move into the 'Fight' phase, several have started to see a decline in the number of daily cases; ramp-up of testing continues
- The testing landscape is changing rapidly and molecular testing continues to be the “gold standard”; efforts focused on improving speed
- Vaccine and therapeutics development are moving at rapid pace; seven vaccine candidates in phases I/II; therapeutics availability by Q3 2020 (earliest)
- Full-year 2020 economic and employment impact from lockdown measures will be substantial across geographies

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

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

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

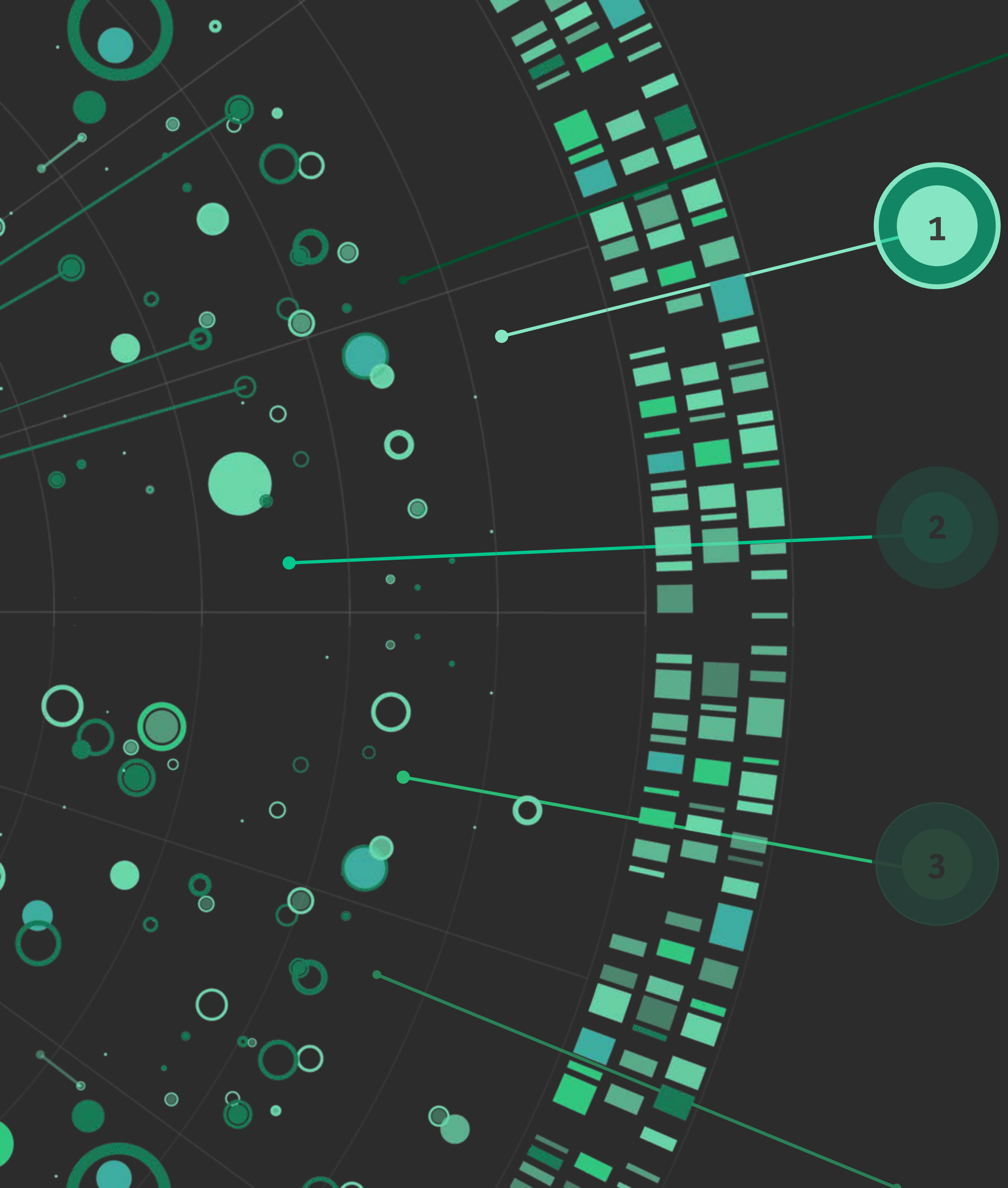
1. Basis IMF forecast for 2020
Source: BCG

COVID-19 will be a journey with three distinct phases, requiring an integrated perspective

Flatten	Fight	Future
Typically the initial phase after a pandemic outbreak–goal is to urgently **limit number of new cases**, especially critical care Social distancing (lockdown) and partial business closures, lead to **economic recession** with large employment impact	Finding **paths to collectively fight the virus, restart the economy, and support society in balancing lives and livelihood** Increasing economic activity with recovering GDP, some business reopenings, and social distancing on sustainable level	**Disease controlled through vaccine/cure/ herd immunity**, and treatment within sustainable medical capacities possible **Reactivated economy** with strong business rebound and job growth, social restrictions limited or completely suspended

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

Source: BCG



1 Guide for leaders

Need for performance transformation across companies

How to restructure cost, and manage cash and liquidity

2 Updated epidemic, economic, and business scenarios and impact

Epidemic progression, virus monitoring, health care capacity

Economic impact

Business scenarios and impact

3 Appendix: Further readings

Learnings from successful business leaders

Further readings

COVID-19: Impact dashboard

As of 15 May 2020

Epidemic Progression

4.5M	1.6M	308K
# of cases	# of recoveries	# of fatalities

	17 Apr	01 May	15 May
# of days of case doubling[1]	16	26	33
# of reported recoveries as % of total cases	25%	32%	36%
# of countries with 1k+ cases	76	87	98
# of tests / case[2]	10	11	14
# of tests / million[2]	10k	16K	24K

	Vaccine	Treatment
Trials in pre-clinical stage and beyond[3]	132	122
Trials in Phase 1 and beyond[4]	7	50
Current est. timeline for approval & scale-up	12-36 months[5]	6-24 months[6]

Economic Impact

GDP forecasts *(Current outlook, likely to evolve further)*

IMF forecast	2020 As of Jan'20	2020 As of May'20	2021 As of Jan'20	2021 As of May'20
US	2.0%	-5.9%	1.7%	4.7%
China	6.0%	1.2%	5.8%	9.2%
Europe	1.3%	-7.5%	1.4%	4.7%
India	5.8%	1.9%	6.5%	7.4%
Japan	0.7%	-5.2%	0.5%	3.0%

Estimated current employment impact[7]

	Total employment 2019 (M)	Employees impacted[8] (M)	% of employees impacted
US	~159	~36	~23%
UK	~33	~8	~25%
Germany	~45	~10	~23%
France	~28	~12	~45%
Italy	~23	~7	~28%
Spain	~20	~4	~21%

Business Impact

Stock market performance[9]

	S&P500	FTSE100	DAX	CHN SSE
20 Mar vs 21 Feb	-31%	-30%	-34%	-10%
15 May vs 21 Feb	-14%	-22%	-23%	-6%

Total Shareholder Returns[9]

First column: 21 Feb to 20 Mar; Second column: 21 Feb to 15 May

	Americas		Europe		Asia	
Pharma	-19%	-1%	-20%	-10%	-22%	-3%
F&B[10]	-26%	-16%	-24%	-18%	-12%	-7%
Telecom	-17%	-13%	-20%	-21%	-14%	-13%
Software	-30%	-12%	-32%	-19%	-28%	-16%
Retailing	-42%	-22%	-36%	-25%	-24%	2%
Capital goods	-38%	-27%	-35%	-26%	-29%	-16%
Auto	-47%	-34%	-45%	-33%	-32%	-23%
Real Estate	-42%	-39%	-26%	-40%	-22%	-15%
Energy	-56%	-37%	-45%	-32%	-41%	-30%
Banks	-41%	-40%	-44%	-48%	-26%	-21%

1. No. of doubling days based on 7 day CAGR 2. Median of values for top 15 countries by nominal GDP (except China) 3. On-going trials including pre-clinical, Phase 1 (first trial in humans), Phase 2, Phase 3, Phase 4 4. On-going trials including Phase 1(first trial in humans), Phase 2, Phase 3, Phase 4 5. 12 month development "best case", then likely to require time to scale across population 6. Remdesivir is approved now, could be more widely available by Jul '20. For the next wave, estimated timeline is Oct '20 – April '22 (6-24 months). If first round of drugs being tested succeeds – then 6-9 months; if not – substantially longer 7. Available data as of May 15; figures are changing rapidly and often being reported with a lag from the current date 8. Includes increase in unemployment and employees covered by government's wage support programs 9. 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 15 May 2020 10. Food & Beverage Source: WHO, World Bank, JHU CSSE, Our World in Data, IMF, Bloomberg, BCG, Employment data - Eurostat, Trading Economics; Gov't Wage Support figures: Gov.Uk (UK), Reuters (Italy), News Break (Spain), travail-emploi.gouv.fr (France), Barrons (Germany)

COVID-19 resulting in substantial negative economic and business impact

As of 15 May 2020

Economic downturn

-3.0%

global GDP development forecasted for 2020; -7.5% Europe; -5.9% US

(IMF)

Supply chain interruption

Up to

-30%

change in world trade, interrupting supply chains

(BCG Trade Finance Model)

Revenue decline

More than

50%

of companies expect shrinking topline due to drop in demand

(BCG Henderson Survey across 213 companies)

Sector distress

11 out of 24

sectors with significant share of companies at high risk of default[1]

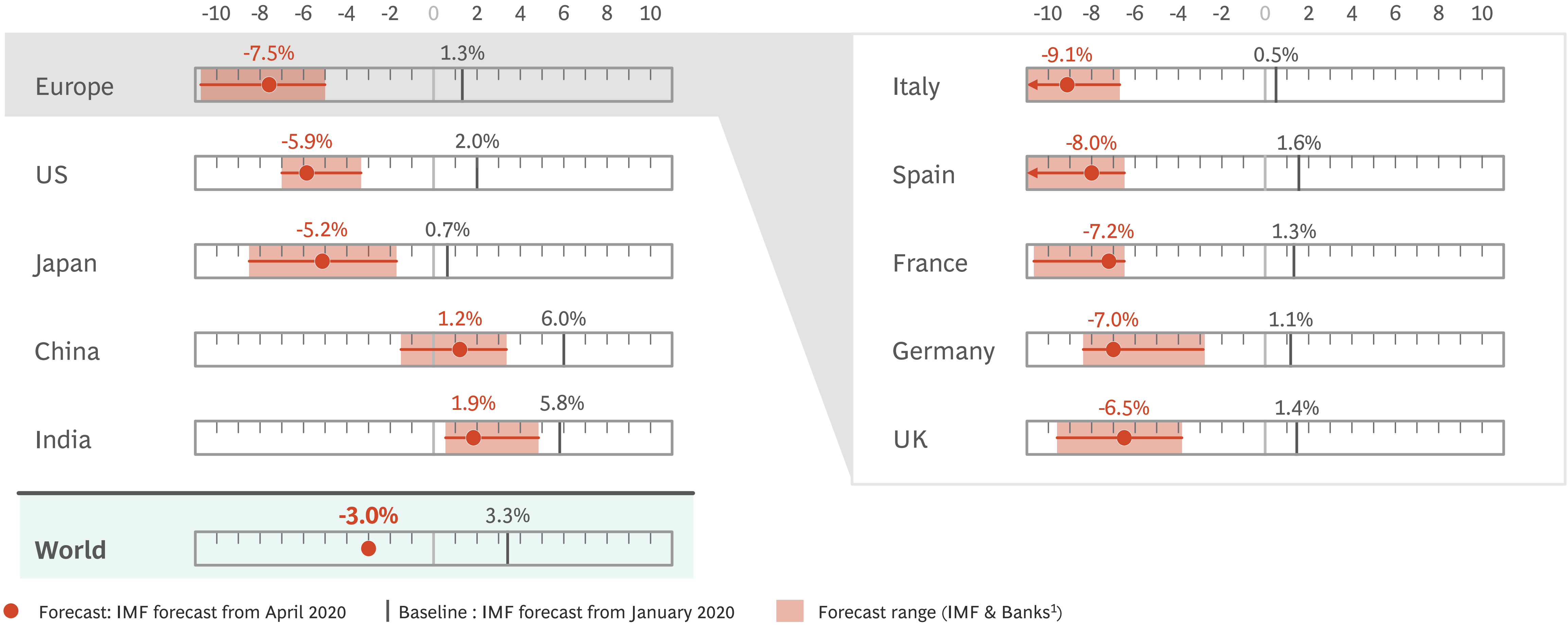
(BCG Value Science Center analysis for S&P Global 1200)

1. Pharma, Telecom, Retailing, Materials, Transport, Media, Capital Goods, Auto, Real Estate, Energy, Hospitality with > 10% of companies with probability of default > 15% as of 15 May 2020
Source: Bloomberg; IMF; UN Comtrade, OECD, IHS, WEF, WTO; BCG COVID-19 Consumer Sentiment Survey; BCG Henderson Institute; S&P Capital IQ; BCG ValueScience® Center; BCG

Economic downturn | -3.0% global GDP development forecast for 2020; -7.5% in Europe and -5.9% in US

As of 15 May 2020

GDP growth forecast vs. baseline for 2020 [%]



Note: As of reports dated 12 April 2020 to 12 May 2020, YoY forecasts 1. Range from forecasts (where available) of International Monetary Fond, JP Morgan Chase; Morgan Stanley; Bank of America; Fitch Solutions; Credit Suisse; Danske Bank; ING Group; HSBC Source: Bloomberg; IMF; BCG Analysis

Supply chain interruption | Up to -30% change in world trade expected, interrupting supply chains

As of 15 May 2020

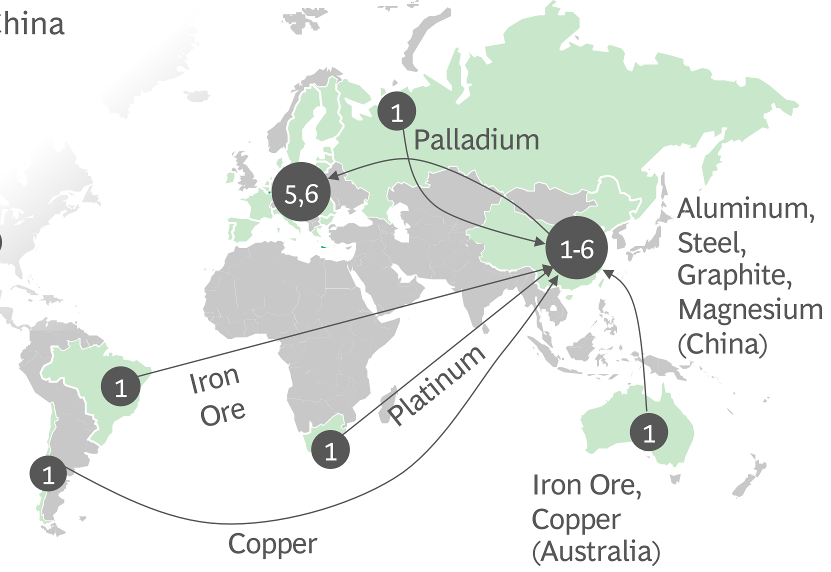
Global trade impact
COVID-19 recession implications

- **~$18 trillion world trade in 2019**
  (**CAGR of ~4%** from 2015-2019)
- **-10-30% in world trade expected for 2020**
  due to COVID-19
- **-4% total imports in Q1 2020**
  Q1 2020 vs. Q1 2019 in value
- **-14% automotive imports in Q1 2020**
  Q1 2020 vs. Q1 2019 in value

Global supply chain
Automotive example (pre Covid-19 crisis)

Illustrative

1. Metals imported from various countries, rare metals mined in China
2. Aluminum and steel produced in China
3. Components produced in Hubei and other parts of China (Tier 2+)
4. Engines produced in Hubei and other parts of China (Tier 1)
5. Cars assembled by OEMs in EU, Hubei and other parts of China
6. Finished cars shipped from EU and China



Source: UN Comtrade, OECD, IHS, WEF, WTO, IMF, BCG Trade Finance Model 2020, BCG Analysis

Revenue decline | Due to drop in demand, 50% or more of companies across sectors expect shrinking topline

As of 20 April 2020

Consumer sentiment

German example

39%

refrain from large, planned investments

46%

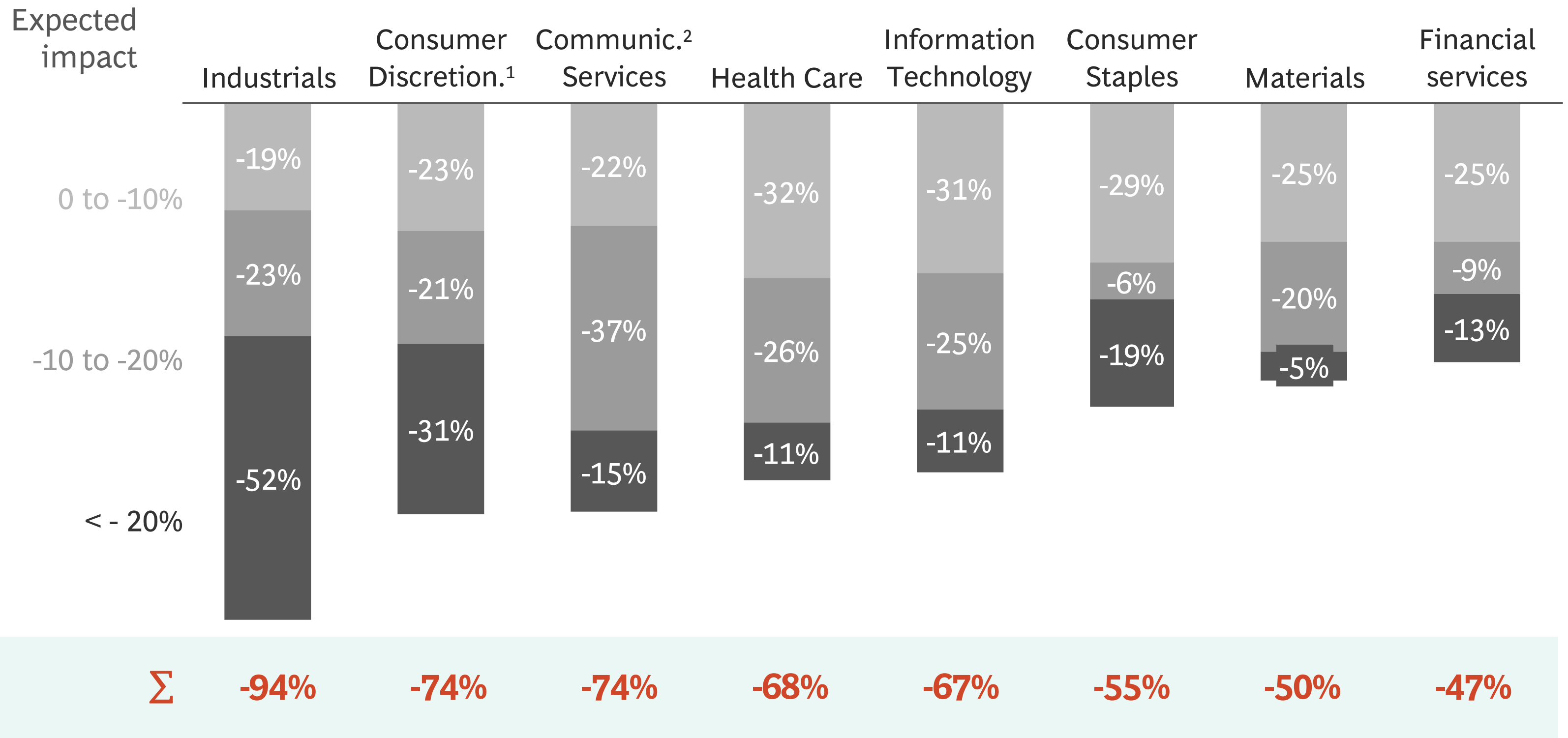
want to save money in case we enter a recession

51%

are careful and cut back on their overall spending

As of 15 April 2020

% of companies expecting negative revenue impact in FY20



1 Discretionary 2. Communication

Left: Top-2 values (i.e. share of respondents who (strongly) agree to these statements); Question text: "To what extent do the following statements describe the impact the coronavirus crisis has on your income and spending behavior (if any)? Please select one answer for each statement."; Source: BCG COVID-19 Consumer Sentiment Survey, April 17–20, 2020 (N= 1,584, unweighted, representative within ±3% of German census)

Right: All sectors with >9 responses are listed; Sector classification follows Global Industry Classification Standard; Source: BCG Henderson Institute survey, April 15, 2020 (N= 313 companies)

Sector distress | 11 sectors with more than 10% of companies at high risk of default

As of 15 May 2020

Based on top S&P Global 1200 companies

	Sectors	Share of companies with probability of default > 15%	Median YTD[2] Total shareholder return
Healthier sectors[1]	Pharma	16%	0%
	Food/staples Retail	0%	-2%
	Household Products	0%	-5%
	Health Equipment	0%	-6%
	Semiconductors	0%	-13%
Pressured sectors[1]	Food & Beverage	0%	-12%
	Telecom	15%	-9%
	Software	0%	-6%
	Tech Hardware	0%	-15%
	Retailing	47%	-20%
	Materials	17%	-23%
	Prof. Services	0%	-14%
	Utilities	5%	-14%
	Transport	36%	-22%
	Media	21%	-24%
Vulnerable sectors[1]	Capital Goods	12%	-24%
	Financials	0%	-24%
	Auto	33%	-32%
	Durable Goods	5%	-29%
	Insurance	0%	-32%
	Real Estate	17%	-28%
	Energy	29%	-41%
	Hospitality	43%	-36%
	Banks	6%	-37%

Key take-away

11 sectors have > 10% share of companies with probability of default > 15%

Pre-crisis, no sector had > 10% of companies with probability of default > 15%

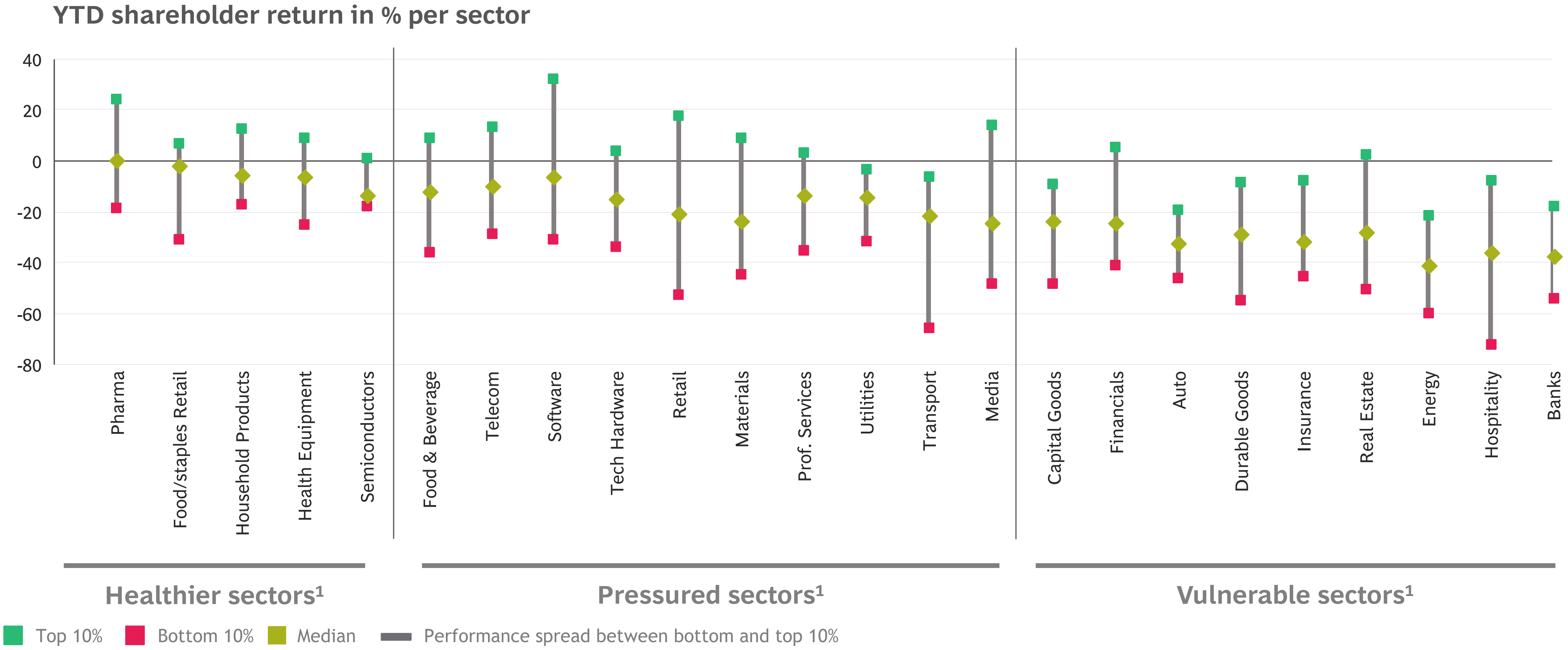
Key take-away

Negative median year-to-date[2] total shareholder return in all sectors

Note: Sectors are based on GICS definitions 1. Sector ranking and division into "healthy", "pressured", "vulnerable" based on global TSR between 21 Feb 2020 to 15 May 2020 2. comparing 15 May 2020 vs 1 Jan 2020; Source: S&P Capital IQ; BCG ValueScience® Center; BCG

All sectors, even the healthier ones, have players in need of performance transformation

As of 15 May 2020



Note: Sectors are based on GICS definitions; Companies sampled from S&P Global 1200 1. Sector ranking and division into “healthy”, “pressured”, “vulnerable” based on global TSR between 21 Feb 2020 to 15 May 2020, Source: S&P Capital IQ; BCG ValueScience® Center

Companies have started to initiate performance response

As of 15 May 2020

European Retailers Scrap $1.5 Billion of Bangladesh Orders

How big tech plans to profit from the pandemic

How coronavirus brought aerospace down to earth

The industry has been one of the hardest hit, with contracts cancelled, production halted and pleas for big bailouts

New York City Apartment Renting Turns to Video Chats and Virtual Tours

Coronavirus has challenged real-estate agents on how to show listings and could change the way rentals are marketed

How factories change production to quickly fight coronavirus

How small retailers are adapting to COVID-19

From curbside pickup to free delivery, small businesses are finding ways to connect with their customers

Bringing The Store To The Consumer: How Live Streaming Could Become A Post-Pandemic Game Changer

FIFA Races Toward a Plan to Help Soccer Clubs Survive Shutdown

With leagues and clubs around the world scrambling to sort out issues from player compensation to future transactions, the global governing body is trying to provide a new framework.

Five elements
of a holistic performance transformation

1

Manage cash and liquidity

Monitor cash flow and key financials (including FC)

Implement balance sheet measures

Ensure funding (including government aid)

2

Drive cost take-out

Push cost take-out in non-critical areas; drive flexibility in personnel costs

Manage spend and investments actively

3

Ensure topline security

Use high frequency indicators to sense changing demand / supply sentiment

Activate topline levers, e.g. channel shift, marketing spend, customer engagement

4

Stabilize supply chain, manufacturing

Manage supply chain actively; build resilience to limit risk of interruption

Prepare for force majeure claims

5

Organize people for the new reality

Keep employees safe; enable new ways of working

Build new capabilities and restructure organization

Build SWAT teams to address critical areas

For deep-dive, refer Edition 5

Steered through a central team

Set-up Rapid Response & Transformation Team

Steer crisis response centrally

Monitor impact along KPIs

Initiate and track counteraction

Source: BCG

Companies need to move from crisis response to driving transformation as they move into fight phase

Deep-dive on following pages

	Flatten	Fight	Future
	From crisis response...	**...to driving the transformation**	...
Manage cash & liquidity	Build liquidity transparency and manage net working capital	Free internal funds to ensure funding of strategic moves	
Drive cost take-out	Stop non-essential spend/investments, drive flexibility in personnel costs	Push cost-out; adjust cost structure permanently Make prudent long-term policy decisions	
Ensure topline security	Protect existing business and align value proposition to needs	Make structural moves to win in new reality; Determine how to reactivate customers	
Stabilize supply chain, manufacturing	Manage supply chain actively, define 'hibernation' plan for underutilized OPS	Build resilient supply chain and manufacturing to limit the risk of interruption	
Organize people for the new reality	Protect people and enable remote work	Continue to protect people, build new capabilities and restructure org. to fit go-forward needs	
Set-up Rapid Response & Transformation Team	Central crisis response teams provide top-down direction to business	Accountable line management in the lead, activist RR&T Team supports transformation	

Source: BCG

Investors believe it is critically important for companies to ensure liquidity and be financially resilient; even if it is at the expense of investing

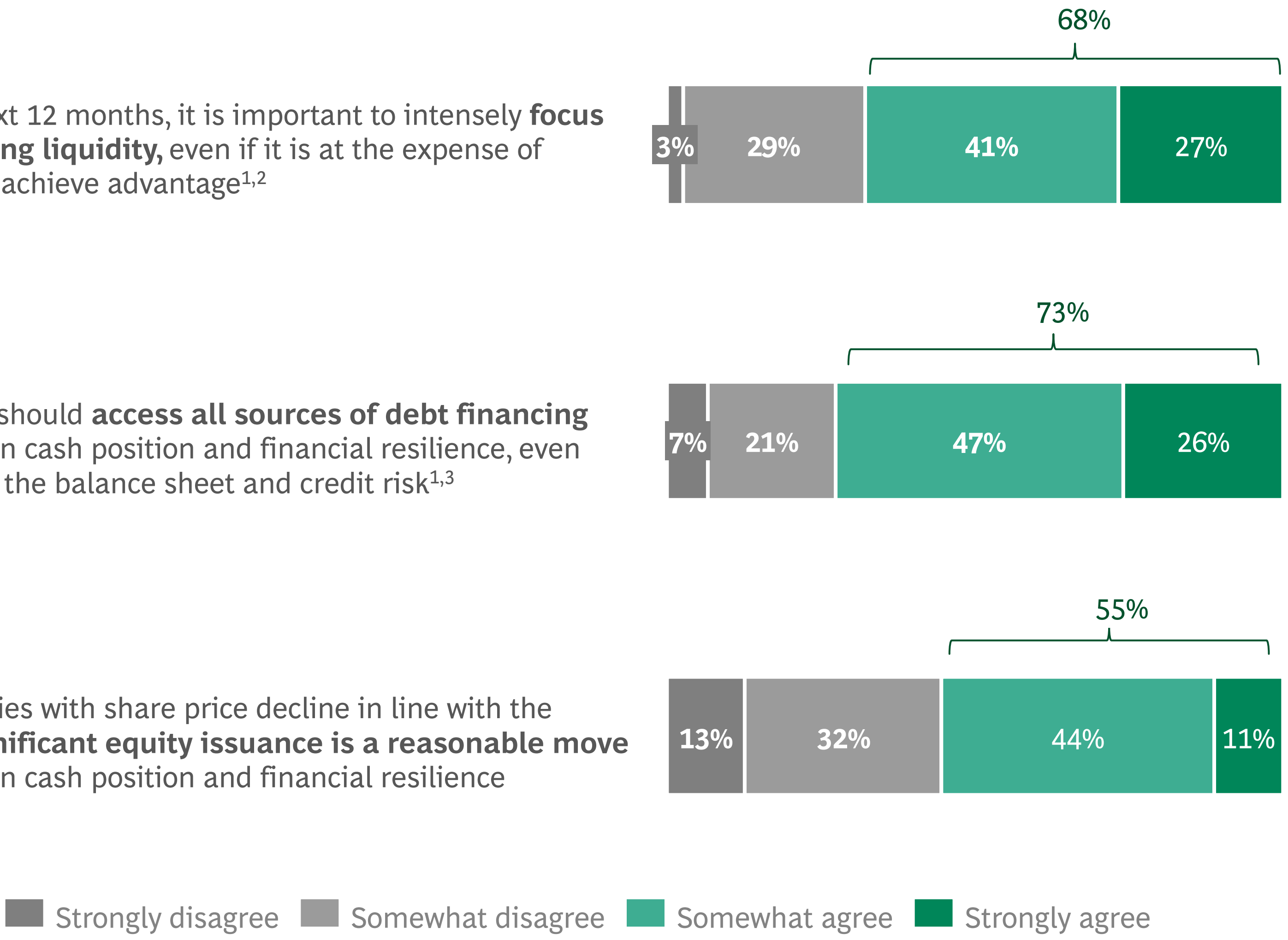
~68%

want intense focus on liquidity

Over the next 12 months, it is important to intensely **focus on preserving liquidity,** even if it is at the expense of investing to achieve advantage[1,2]

Companies should **access all sources of debt financing** to strengthen cash position and financial resilience, even if it impacts the balance sheet and credit risk[1,3]

For companies with share price decline in line with the market, **significant equity issuance is a reasonable move** to strengthen cash position and financial resilience



1. Questions were posed with respect to financially healthy companies 2. Investing to achieve advantage in the business may include digital and acquisitions, for example 3. Debt financing includes revolvers, bank term loans, asset-backed loans, private placements, for example.
Source: BCG's COVID-19 Investor Pulse Check, May 3, 2020; n = 150

Cash & Liquidity | Business leaders can gain control of liquidity by establishing high-impact cash management

Introduce cash office	Generate transparency	Build liquidity scenarios	Define rules for discretionary spent	Secure financing
Centralize **cash governance** Set up **dedicated Cash Team** with clear accountability **Standardize process and format** across legal entities	Work at legal entity level, with **clear owners** Map suppliers and clients ("**cash impact**") Identify **total cash available** vs. trapped **Compare terms** to maximize reliability of forecast **Analyze variances** actual vs. forecast	Set up a **cash flow forecast process** Identify minimum **cash buffer**, based on history and peak levels Cross-check **direct vs. indirect cash flow**	Define clear roles and responsibilities for **spend approval** Create **authorization gateways** and spend limits Set up rigorous **spend authorization processes** Evaluate limitation of **payment timing**	**Map the financing structure and instruments** Evaluate and implement **cash-pooling**

Source: BCG

Cash & Liquidity
Example 1

Global footwear and apparel manufacturer applied effective cash and liquidity management to sustain operations during the crisis

As of 15 May 2020

Stress on liquidity and cash flow due to the crisis

- Major distress across most of its >10k outlets
- Decline in business activity to ~85%[1]
- Expected decline in Q1 sales by 50%[2]

Initiatives implemented for managing cash and liquidity

Introduced cash office to drive cash and liquidity management

- **Reduced cash requirement** from workforce cost by reducing working hours for over 1,000 workers; difference of pay to be **financed by government** aid package
- **Reduction in annual management compensation** (eliminated short- and long-term bonuses)
- **Suspended discretionary spend** of €1 billion share buyback and dividend payments to investors

Impact

50K+

Workforce remained employed while effectively preserving healthy balance sheet and stabilized cash flow

€1Bn+

Loan from a consortium of banks for financial stability as a result of strict cost cutting and liquidity management

1. In China, compared to the same period last year (Jan 25 – Feb 29); 2. In China, 2020 as compared to 2019
Source: Press search; BCG

Cash & Liquidity
Example 2

Global airline reduced cash requirements to manage liquidity for operations

As of 15 May 2020

Stress on liquidity and cash flow due to the crisis	Global reduction in travel due to restrictions	Domestic flights reduced to ~5% of pre-crisis network	~70% share price decline by mid March[1]

Initiatives implemented for managing cash & liquidity

- **Suspended capex expense** by shelving plans to order 10+ aircrafts
- **Reduced cash requirement** from workforce cost by standing down 25,000+ staff and reducing executive salary by 30%[2], bonuses reduced to zero
- **Cascaded plan to reduce cash burn** to ~$25 million a week[2]
- Secured ~**$1 billion funding** against its aircrafts

Impact

12-15 months

Of operations possible before running out of cash

~$2 billion

Available cash balance[3] with an additional ~$1 billion undrawn facility remaining available

1. As compared to share price on 1H results announcement in Feb'20; 2. Till end of June; 3. As of Mar'20
Note: All the values in $ are US dollars; Source: Press search; BCG

Cost take-out | Business leaders must drive cost reduction, while considering current and future requirements and handling people agenda with empathy

Streamline personnel costs

Identify and pursue **valuable and business-critical** activities

Determine and stop investing in **non-essential** tasks

Make use of **governmental programs** and special legislations

Establish appropriate **workforce flexibility** to ramp up/down

Adjust **FTEs** using **HR instruments**

Reduce non-personnel costs

Bring down **budgets** and retain lower **in-crisis spend**

Optimize **consumption/behavior patterns** (zero-based mindset)

Rigorously review and renegotiate all key **procurement contracts**

Tackle **'other' cost buckets** not addressed yet for savings (e.g., rent)

Establish **cost conscious culture** with clear horizontal cost-ownership

Drive efficiency in operations

Optimize number of operational units (e.g. manufacturing locations, warehouses)

Reduce **non-essential factor cost** (e.g. overtime balances, leave, contractors)

Strike **insourcing vs. outsourcing** balance (per industry and function)

Drive **benchmark cost per FTE** compared with industry standard

Source: BCG

Cost take-out
Example 1

Global upstream oil and gas service company drove workforce flexibility and other cost saving measures to minimize impact from the crisis

As of 15 May 2020

Stress due to the crisis	Oil trading prices fell by ~40%[1]	Land oil rig count in US down by 34%[2]	Global April oil demand down by ~30mmb/d[3]

Initiatives implemented for driving cost take-out

Streamlined personnel costs	20% HQ personnel reduction; over 3,000personnel in **alternate work-week schedule**
Reduced non-personnel costs	**Selective suspension** of operations to **optimize operational costs** Cascaded plan **to cut ~$1 billion of annualized** overhead and other costs
Restructured organization	**Agile org-restructuring** across functions in North America

Impact

~60%

Estimated cost reduction in selected areas

6-9 months

Of low prices can be weathered due to cost savings initiatives

1. WTI oil prices since 01-Mar'20; 2. Since mid-Mar'20; 3. Million Barrels per day as compared to last year
Source: Press search; BCG

Cost take-out
Example 2

Growth technology company accelerated rapid and radical cost realignment in crisis mode

Stress due to the crisis

- Investor and economic pressure to reduce costs quickly
- Urge to protect the core technology capabilities for long-term success

Initiatives implemented for driving cost take-out

Vision, targets, and plan
- **Defined vision**, and prioritized capabilities **within first two weeks**
- Defined scenarios, targets (FTE and budget), timeline
- Kicked off cost PMO

Agile org design, staffing, and action
- **Reduced 30% of core business-**related costs
- **Reduced** > **60% SG&A cost** in non-revenue-generating business

Streamlined remaining costs
- **Refined org model,** communicated the new focus
- Kicked off **non-personnel cost reduction**
- Developed **interim op model** and transition to steady state

Impact

~45%

Total cost reduction in six weeks

Core technology capabilities protected during cost-reduction process

Source: Press releases; BCG

Topline security | Companies are sensing demand via high frequency data and react in agile ways to secure topline

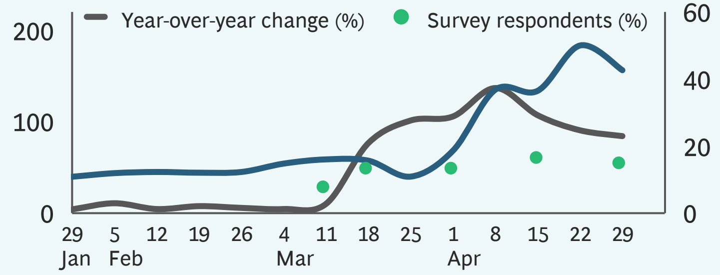
As of 06 May 2020

1 Demand forecast

Traditional forecast methods are less reliable during crises

Use high-frequency indicators to sense changing demand

Example: Consumer sentiment and web traffic data foresee spend increase



Real change in spending
Historical: Confirmation that increase occurred

Real change in web traffic
Immediate term: Strong predictor of changes

Consumers expecting to increase spending during next month[1]
Short term: Signal that the increase may persist

2 Topline levers

Securing topline is critical to keep businesses running

Be agile and creative in responding to changes

Example: Company responses to customers' increased online activity

Channel shift

Beverage producer **shifted sales channel** including loyalty program **online** and achieved **sales uplift of 40%** on e-commerce platform

Marketing spend

Fitness studio chain focused marketing spend on new member acquisition for underutilized studios resulting in **3-4% higher** lead and trial **conversion**

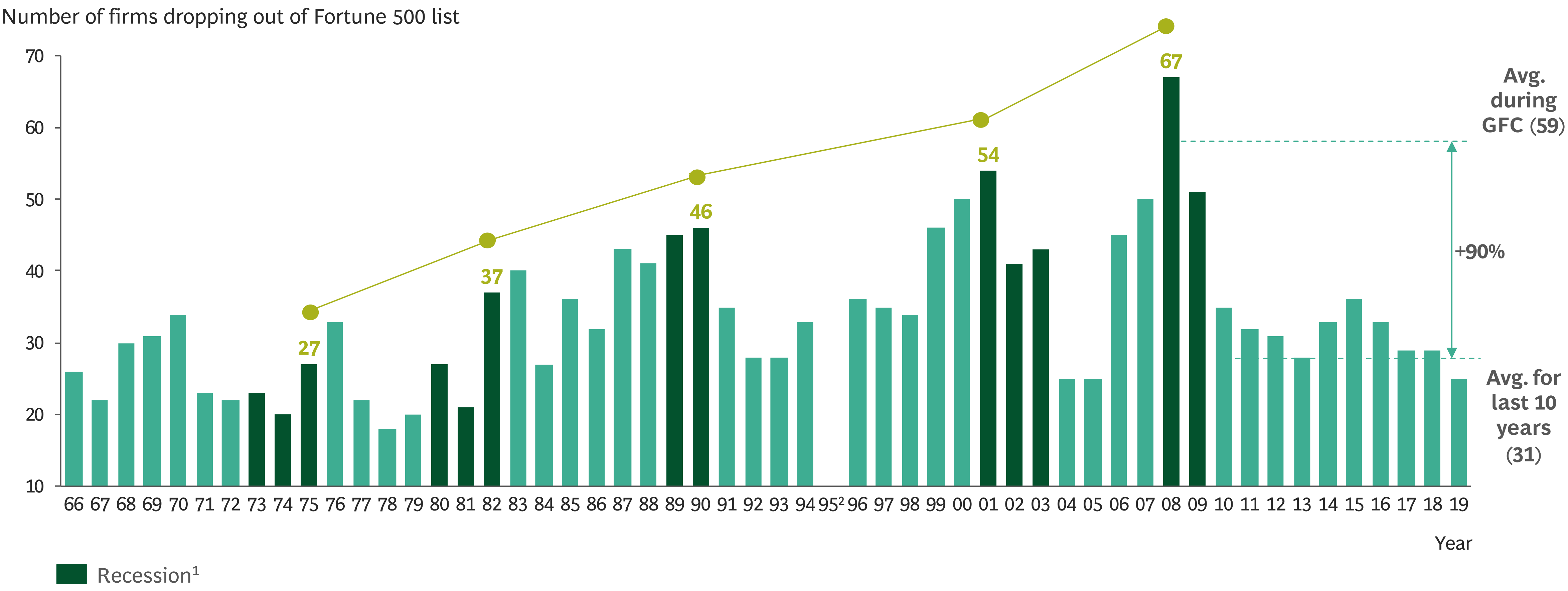
Customer engagement

Lifestyle player **personalized offers** based on member customer lifetime value and observed behaviors, **increasing tenure by 8-12%** for 75% of customer base

1. Compared with prior year. Source: SimilarWeb; Earnest Research, May 6, 2020; BCG COVID-19 Consumer Sentiment Survey, April 24-27, 2020 (N = 2,783 US), unweighted, representative within +-3% of census demographics; press releases; BCG

Time for performance transformation is now | Positional churn of companies highest during crises and increasingly over time

Rate of firms leaving Fortune 500 during the Global Financial Crisis (GFC) was 90% higher than the rate for the ten years that followed



1. Officially designated by National Bureau of Economic Research. 2. Large change in 1995 list due to change in list-compilation methodology, and is therefore excluded
Source: Fortune 500 Listings; NBER; BCG analysis.

Learnings from successful transformations | Specific milestones during each step of the journey

Initiate Performance Response

Rapid Assessment to Shape Transformation Plan

Fully Mobilize

Accelerate Rapid Response Measures

Drive Advantage in Adversity

Initiate Performance Response

- Initial responses developed in one month (e.g. cash, liquidity, no-regret cost out, insured supply chain, secured topline)
- Data is collected, scrubbed, and validated
- Multi-functional response team identified and enabled

Rapid Assessment to Shape Transformation Plan

- Specific scenarios developed and trigger points identified
- Performance levers identified, sized, and prioritized, and firmed up into a roadmap using strategic, operational, and financial lenses
- Transformation operating model established
- Performance response further accelerated

Fully Mobilize

- Full organization activated within first 100 days
- Initiatives maturing, delivering results
- Change management program launched to mobilize leaders and people
- Leadership committed to plans and targets; linkage established with incentive schemes
- Further initiatives (procurement, SCM[1], etc.) ramped up and launched

Drive Advantage in Adversity

- Holistic performance initiatives launched and executed with tracking on weekly, monthly, and quarterly basis
- Targets aligned on a quarterly basis
- Leaders activated and organization enabled
- Cost leadership embedded into organization
- New capabilities (e.g. digital, AI[2]) built and new ways of working embedded
- Wins during transformation shared, understood, and appreciated in the organization

1. Supply Chain Management; 2. Artificial Intelligence
Source: BCG

1 Guide for leaders

Need for performance transformation across companies

How to restructure cost, and manage cash and liquidity

2 Updated epidemic, economic, and business scenarios and impact

Epidemic progression, virus monitoring, health care capacity

Economic impact

Business scenarios and impact

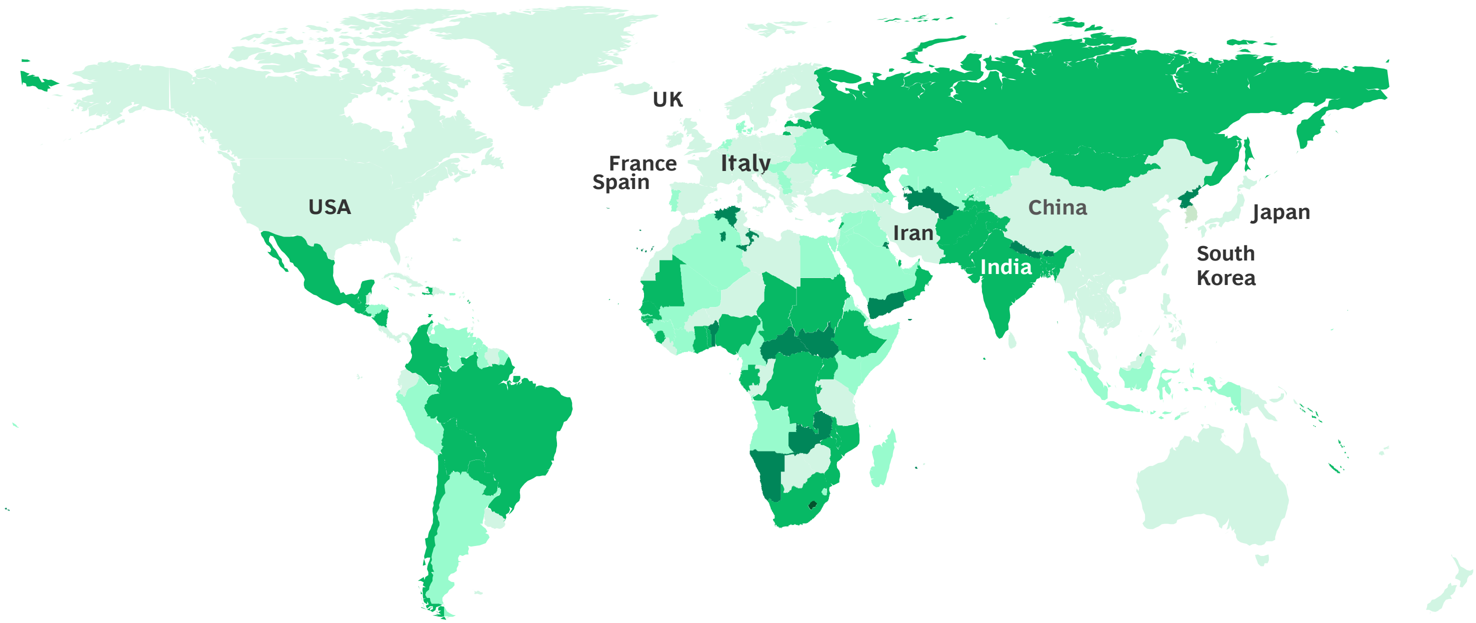
3 Appendix: Further readings

Learnings from successful business leaders

Further readings

~36% reported recoveries[1] globally so far; case-doubling rate improves to 33 days

As of 15 May 2020



Days of doubling cases:

0-3 days | 3-6 days | 6-14 days | 14-30 days | >30 days

185
Countries with cases[3]

4.5M [Δ2.1%][4]
Confirmed cases globally

308k [Δ1.7%][4]
Fatalities globally

17th Apr'20	1st May'20	15th May' 20
16 days	26 days	33 days

# of days of doubling[2] the cases globally

568k (25%)	1,053k (32%)	1,637k (36%)

Total # of recoveries (as % of confirmed cases)

24	49	69

# of countries with community transmission[5]

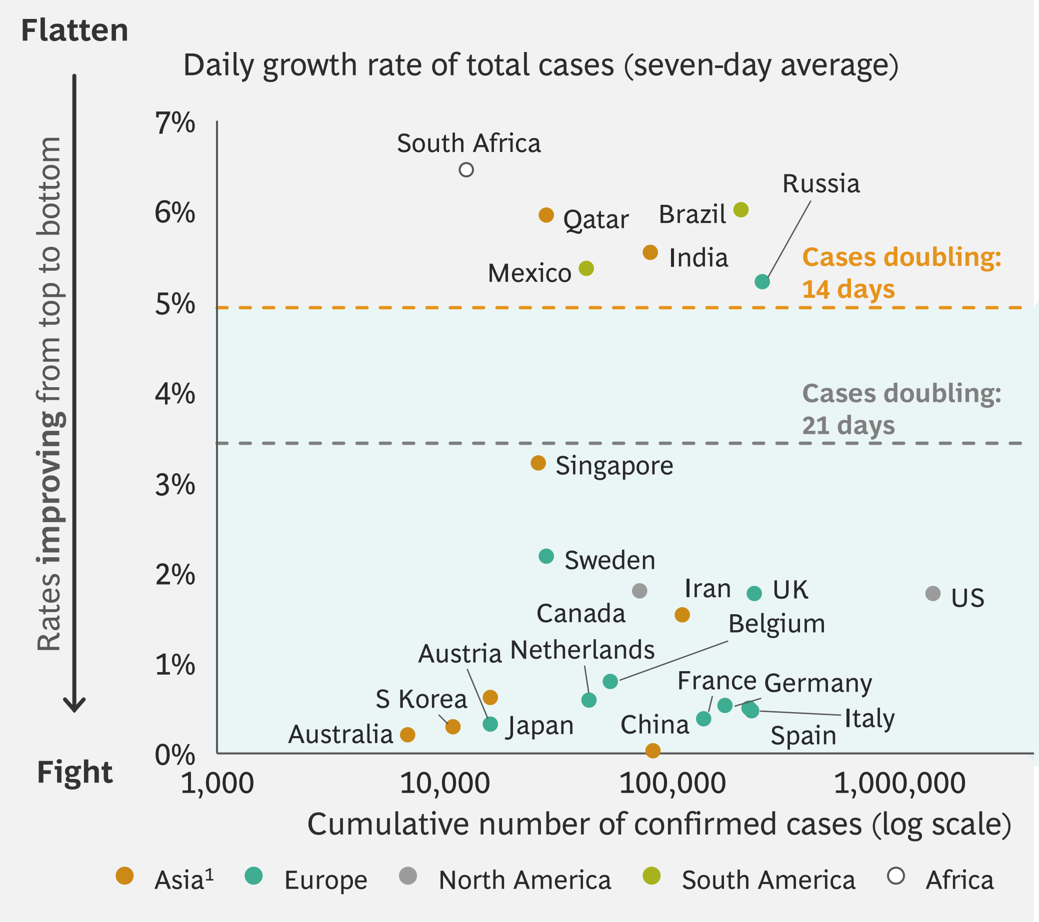
Note: Continued cases and fatalities are subject to different testing, propensity, reporting standards and hence are imperfect measures
1. Refers to total reported recoveries as a percentage of total reported infections (cases), 2. No. of doubling days based on 7-day CAGR 3. Basis Johns Hopkins CSSE; 4. Daily growth rate basis 7-day CAGR;
5. Community transmission defined basis WHO - Countries experiencing larger outbreaks of local transmission on basis of decided factors
Sources: Johns Hopkins CSSE, Our world in data, WHO situation reports, BCG analysis

As countries move into Fight phase, several have started to see decline in number of daily cases

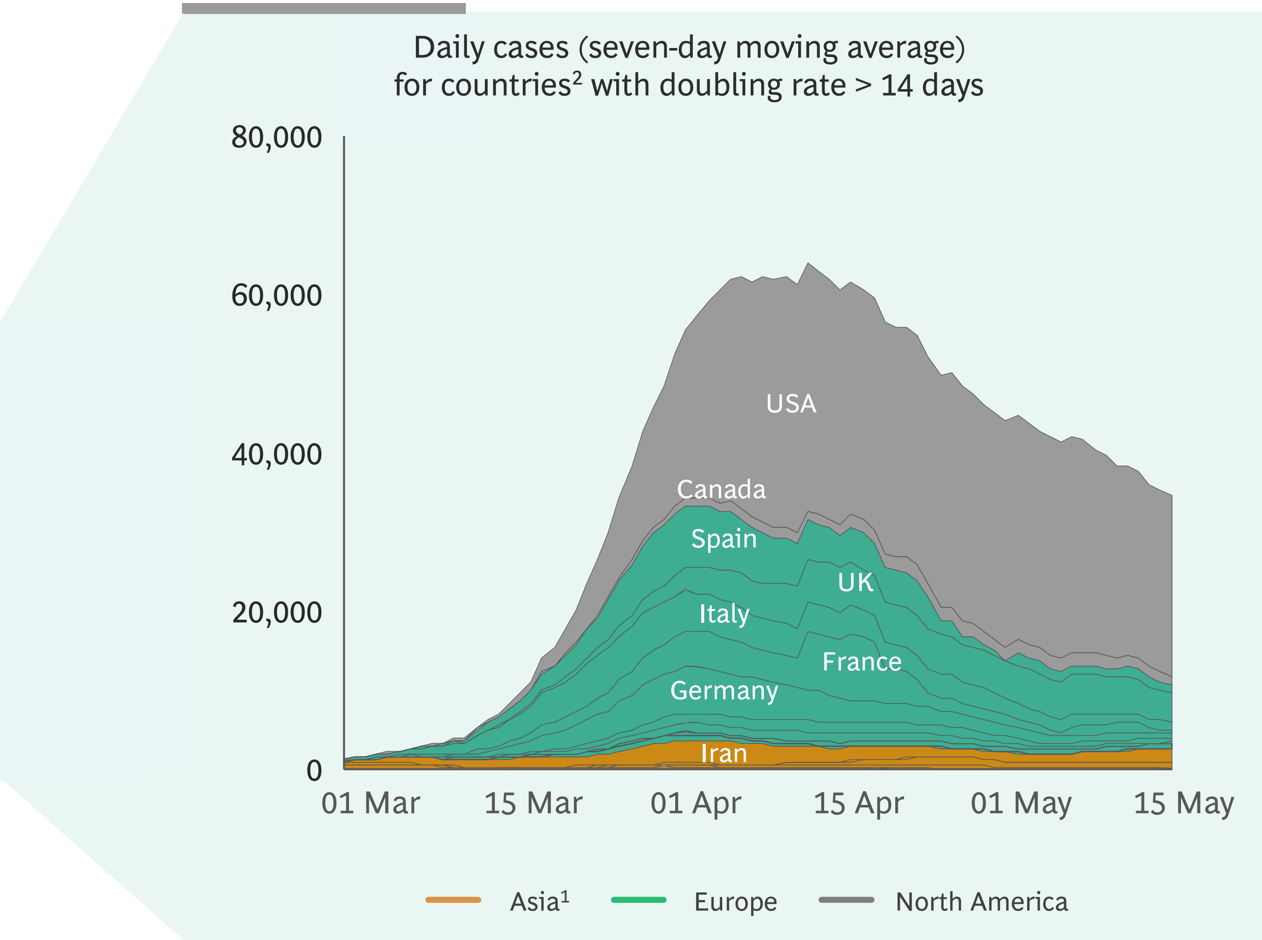
As of 15 May 2020

Non-exhaustive

Several countries increasing doubling rate...



...driven by decline in number of daily cases

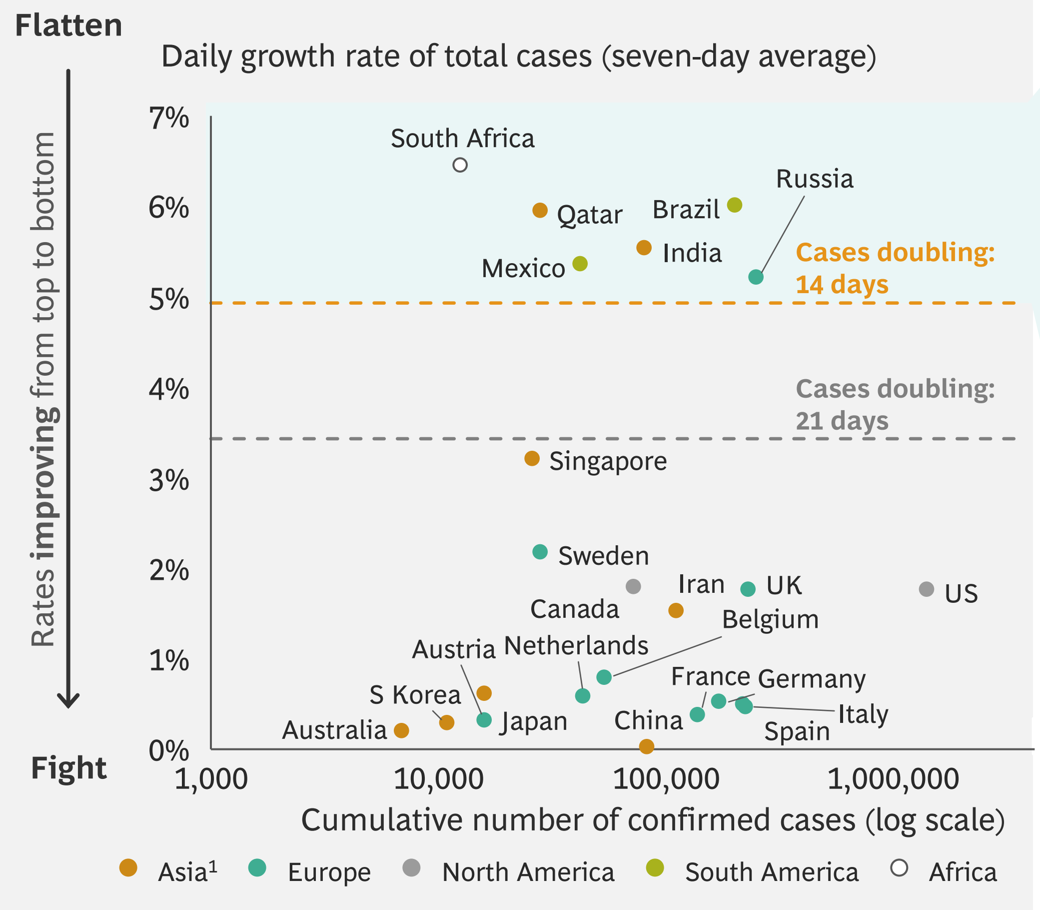


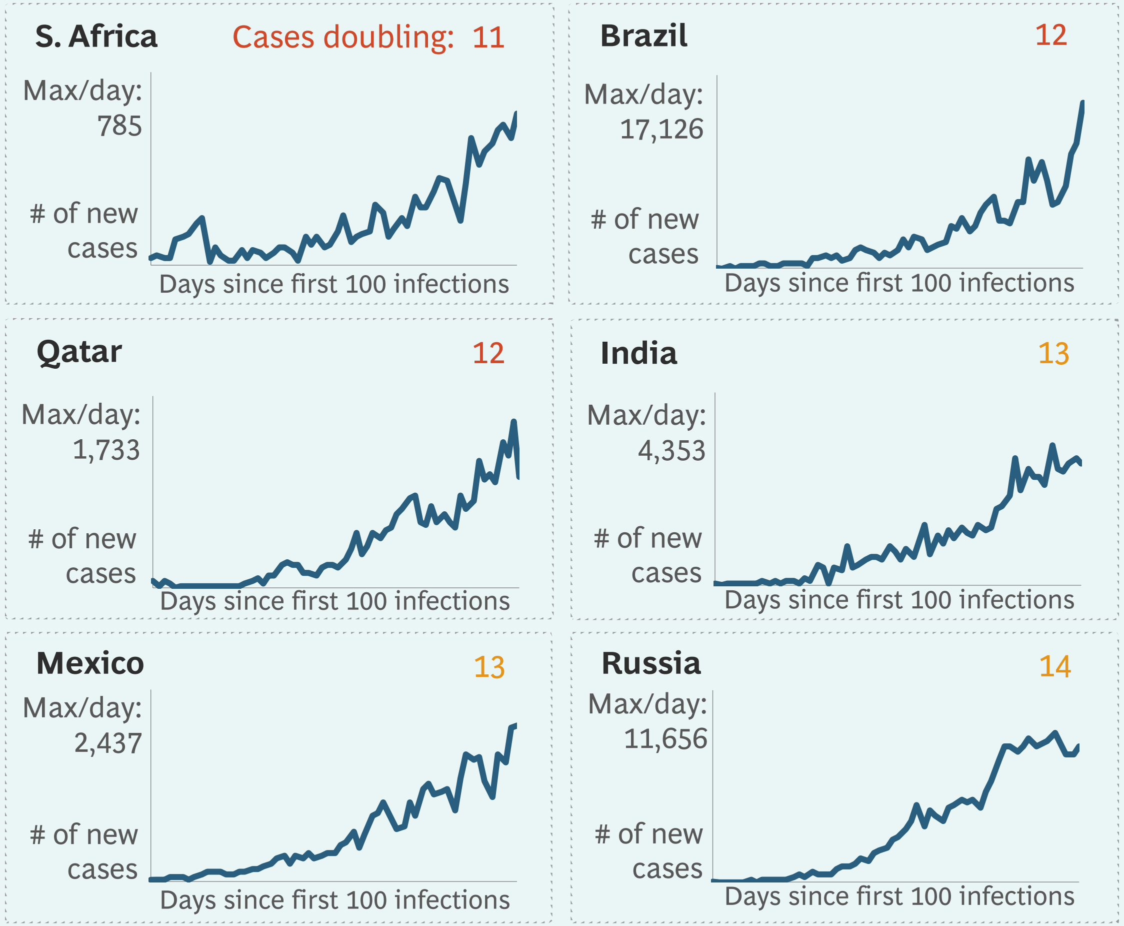
1. Includes Middle East & Australia 2. Countries selected from the chart on the left
Source: Johns Hopkins CSSE, Our World in data

Some countries currently have cases doubling in under 14 days; strong monitoring in the next few weeks

As of 15 May 2020

Non-exhaustive

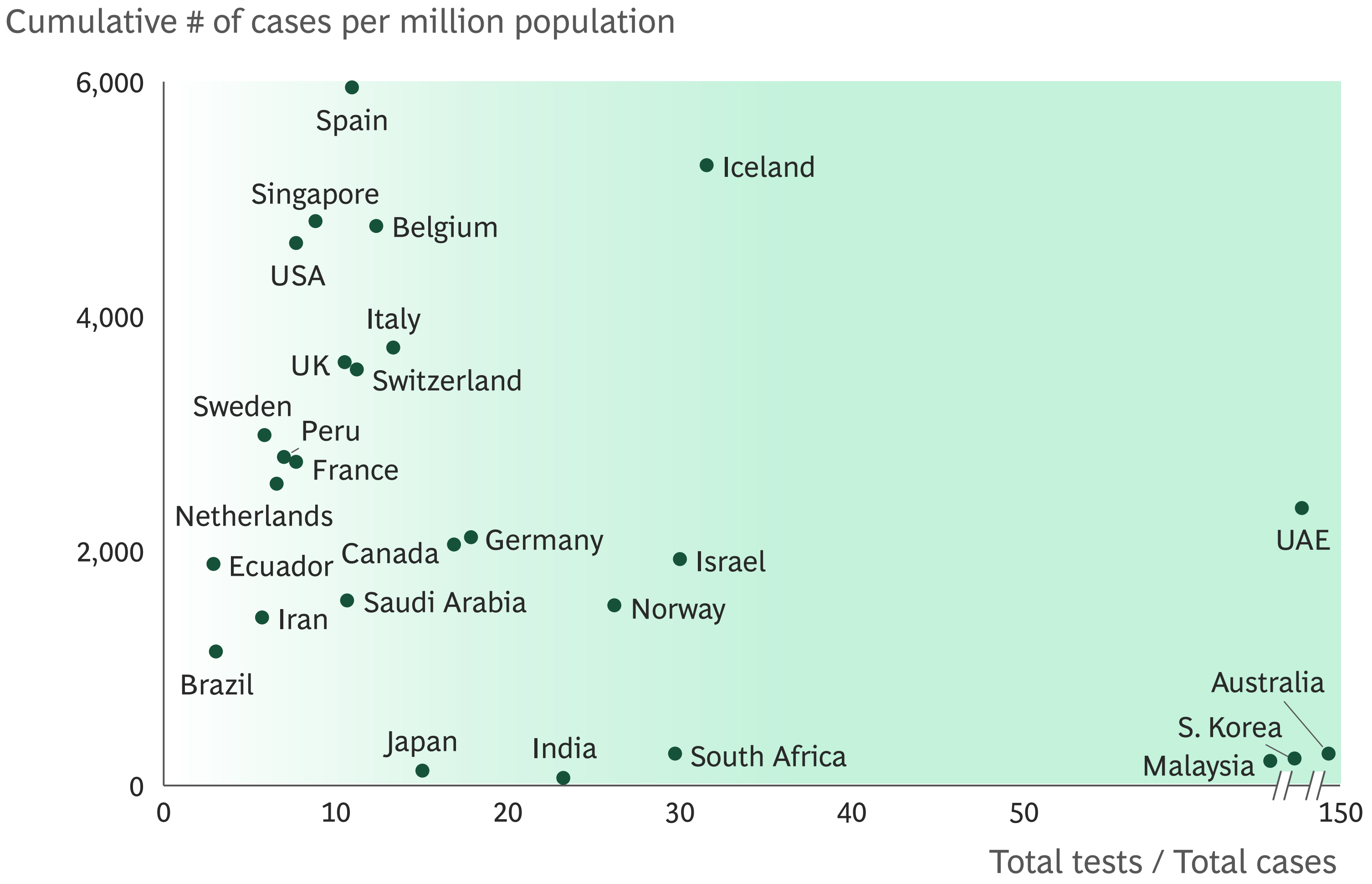




Note: For doubling days, round off values calculated based on last 7 days CAGR of total confirmed cases 1. Includes Middle East, Australia
Source: Johns Hopkins CSSE, Our World in data, WHO situation reports

While countries further relax lockdown measures, they are substantially ramping-up testing

As of 15 May 2020



- For countries with complete or partial lockdowns (Singapore, UK, France, etc.), **reopening is gated by lack of widespread testing**
- For countries with relaxed lockdowns (S. Korea, Australia, etc.), **continued higher testing is critical**
- For countries to move to the right and reopen, they need **an integrated Virus Monitoring System** that includes testing, tracking, and tracing

Source: World-o-meter, BCG Analysis

Testing landscape is changing | Tests to detect viral genome and patient immune response are now available

As of 15 May 2020

Not exhaustive; US example

Test purpose		Available for last 3+ weeks	Becoming available now (over last 1-2 weeks)	In development
Presence of viral genome	Lab-based	Roche, bioMérieux, BD, Luminex, QIAGEN, Abbott, ThermoFisher Scientific, Hologic, altona Diagnostics	Siemens Healthineers, Sherlock Biosciences, bioMérieux, Bio-Rad, 1Drop Diagnostics	Fluidigm, Caspr Biotech, LexaGene
	Near-patient /Point-of-Care	Cepheid, Abbott, mesa biotech		Nuclein, Mobidiag, Spartan, QuantuMDx, LumiraDx, Biomeme, Bosch, Mammoth Diagnostics
Immune response to virus	Lab-based	Ortho Clinical Diagnostics, Abbott, DiaSorin, Euroimmun, Diazyme, EDI Epitope Diagnostics, Inc.	Roche, Bio-Rad	Beckman Coulter, bioditech, Attomarker, Siemens Healthineers, bioMérieux, ThermoFisher Scientific
	Near-patient /Point-of-Care	Cellex, 丽珠医药 Livzon, BD, Chembio Diagnostic Systems, Inc., Biomerica, BioMedomics, Autobio		*Many players announced development plans[1]*
Antigen tests: Presence of viral particle			Quidel	OraSure Technologies, E25Bio, BD, Pinpoint Science, Avacta, Roche, nanomix, Luminostics, Hememics
Viral load: Amount of virus		Currently none		

1. More than 180 serology test makers have notified FDA that they have serology tests available for use as of May 15, 2020
Source: CDC website, FDA website, company websites, BCG analysis

Vaccine fast movers | 7 vaccine candidates already into clinical trials

As of 15 May 2020

2 Phase II

CanSino Biologics

Phase II

Phase 2 advancement since Apr 2020; follow-up expected by Oct 2020

Moderna

Phase II

Early results of trial expected by Jun 2020 (expanded to include older adults)

4 Phase I/II

BioNTech & Pfizer

Phase I/II

Trial ongoing in Germany; if approved, distribution possible by Oct-Dec 2020

China National Biotec[1]

Phase I/II

Trial started in Apr 2020; expected completion of final trials by Nov 2021

Oxford Uni. & AstraZeneca

Phase I/II

Trial on-going in UK; late-stage trials possible in Jul 2020

Sinovac

Phase I/II

Trial started in Apr 2020; expected completion by Aug 2020

1 Phase I

Inovio

Phase I

Trial started in Apr 2020; larger studies possible in Jun-Aug 2020

125 Pre-clinical

132 Total

1. Listed as 2 candidates by WHO: Beijing institute of Biological Products / Sinopharm & Wuhan Institute of Biological Products / Sinopharm

Source: WHO (May 15th), Citeline Pharma Project (May 19th), Milken Institute (May 12th), ClinicalTrials.gov (May 19th), Bloomberg, BCG analysis

Therapeutics outlook | Timeline and key developments across critical trials show broad availability by end of Q3 2020 earliest

EPIDEMIC PROGRESSION, VIRUS MONITORING, & HEALTH CARE CAPACITY

As of 28 Apr 2020

Therapy	Q1 2020	Q2 2020	Q3 2020	Q4 2020	2021+
Remdesivir	Gilead and NIH launch multicenter Phase III trials; Gilead provides compassionate-use access	Phase III studies show reduced time to recovery; FDA authorizes emergency use			
Ritonovir/ lopinavir	Randomized controlled trials in China fail to show clinical benefit; Drug combination included in WHO Solidarity trial				
Neutralizing antibodies		Trials launched; multiple companies pushing development, incl. several partnerships	Initial lead-candidate data expected from multiple trials		
Convalescent plasma	FDA authorized emergency use	FDA greenlights Phase II trials in April 2020	Phase III randomized controlled trials expected to launch in May 2020	Therapy to expand nationwide, pending Phase III results	
Hyperimmune globuline		Clinical trials anticipated to begin in June 2020	Phase II and III readouts, August to September 2020, and early access		
Tocilizumab	Observation study in China shows improved survival; Roche Phase III trial launched in March 2020	Preliminary results reveal significant mortality reduction	Wide availability, pending Phase III trial results		
Sarilumab		Phase II and III trials launched in March 2020; Interim results show lower mortality in mechanically ventilated patients	Wide availability, pending Phase III trial results		
Chloroquine/ hydroxy-chloroquine	French Study shows reduction in viral load	Retrospective study shows no clinical benefit; NIH ORCHID and Oxford trials launched in April 2020	EPICOS study in Spain	Preliminary ORCHID results expected in fall of 2020; Wide availability if shown to be effective in randomized controlled trails	Interim Oxford study results expected in 2021

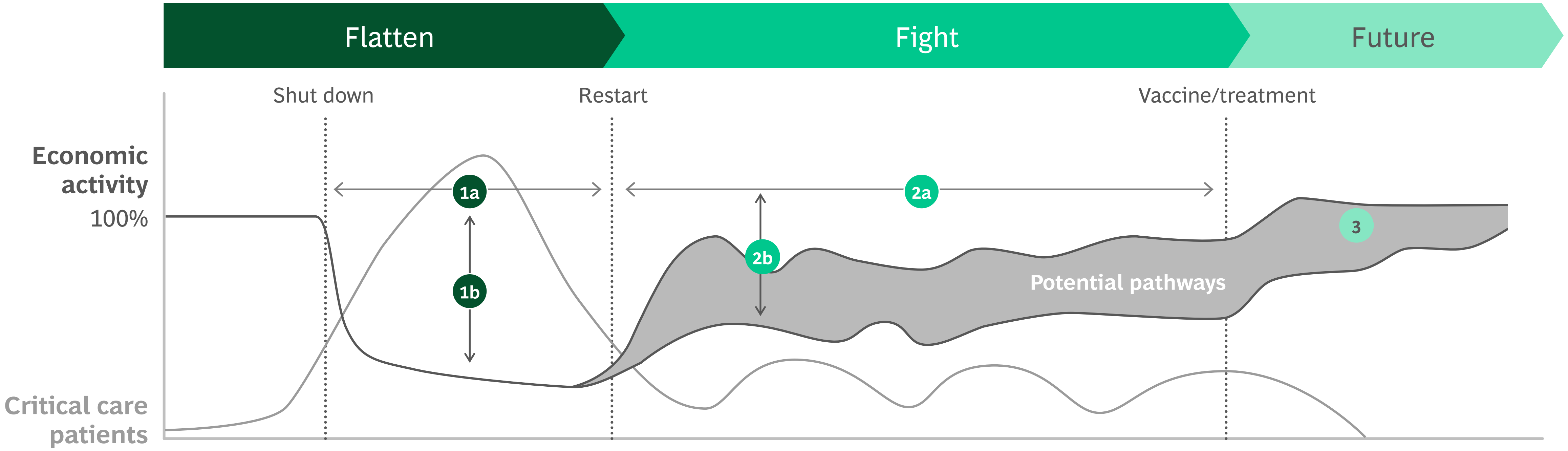
Trial start | Preliminary data | Early access | Broad availability

Source: Company websites; National Institutes of Health, ClinicalTrails.gov data, April 28, 2020, WHO, BCG analysis

Scenarios and impact | Five key questions

As of 15 May 2020

Illustrative



Five questions will shape the economic impact

1a **What will the LENGTH of "Flatten" be?**
What are the preconditions to transition?
When will we achieve them?

1b **To what DEPTH does the economy drop in "Flatten"?**

2a **What will the LENGTH of "Fight" be?**
What are the preconditions to transition?
When will we achieve them?

2b **What will the DEPTH of "Fight" be?**
What level of recovery does the economy achieve in "Fight"?

3 **Where does the economy return to, relative to the pre-COVID era in "Future"?**

Source: BCG

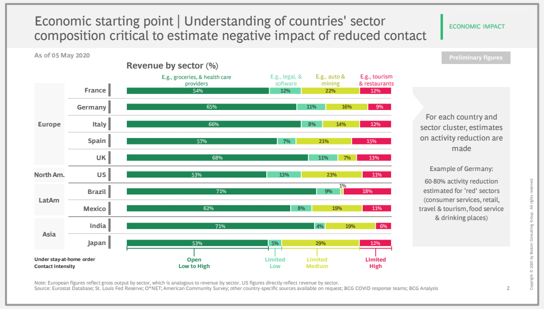
Methodology | To determine economic impact, must derive depth (from economic starting point) and factor in length of crisis

ECONOMIC IMPACT

Shown for 'Flatten' as length of 'Fight' still unknown

Economic starting point:

Understanding a country's **sector composition**

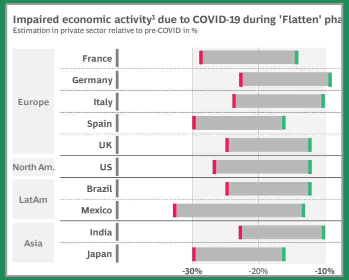


For each country and sector cluster, assumptions are made on activity-reduction based on reduced contact

Depth:

Pre-crisis
Fight
Flatten

Deriving the **impaired economic activity**



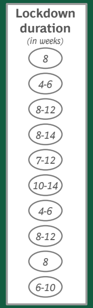
For each country, a range of microeconomic loss is derived

x

Length:

Pre-crisis
Fight
Flatten

Factoring in the **duration of crisis**

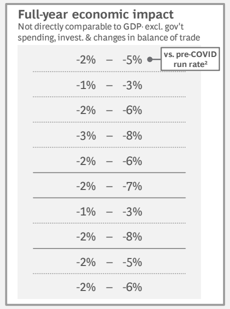


For each country, expected length of stay-at-home order is factored in

=

Projected economic impact:

Determining the result as **full-year economic impact** from direct impact of disease



Result is full-year economic impact (not comparable to GDP as excludes fiscal stimulus and other effects) – need to combine pre-crisis, Flatten, and Fight phase to conclude impact for 2020

Source: BCG

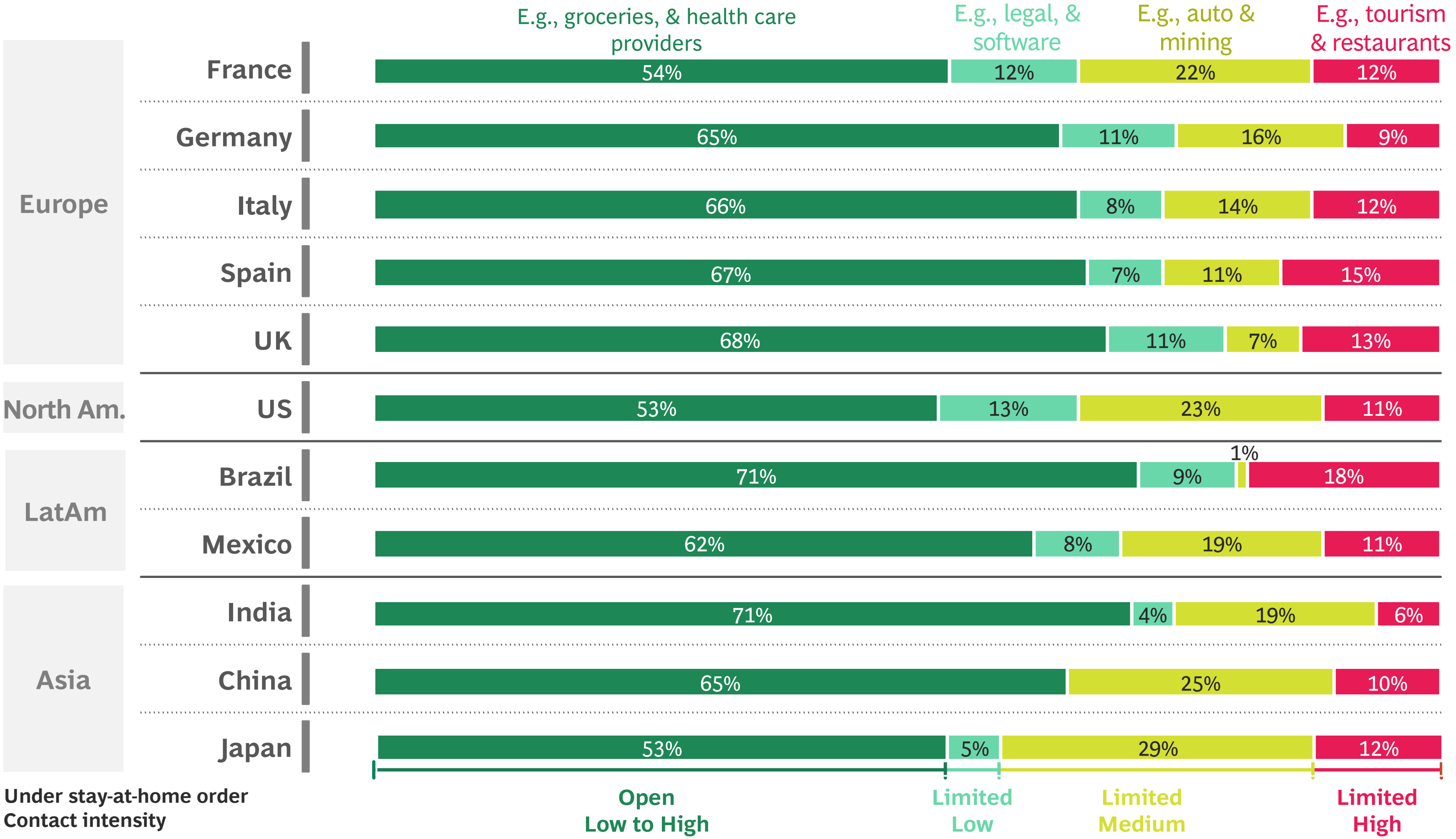
Economic starting point | Understanding of countries' sector composition critical to estimate negative impact of reduced contact

ECONOMIC IMPACT

As of 15 May 2020

Revenue by sector (%)

Preliminary figures



For each country and sector cluster, estimates on activity reduction are made

Example of Germany:

60-80% activity reduction estimated for 'red' sectors (consumer services, retail, travel and tourism, food service, and bars)

Note: European figures reflect gross output by sector, which is analogous to revenue by sector. US figures directly reflect revenue by sector.
Source: Eurostat Database; CNBS; Statistics Bureau of Japan; St. Louis Fed; O*NET; American Community Survey; other country-specific sources on request; BCG COVID response teams; BCG

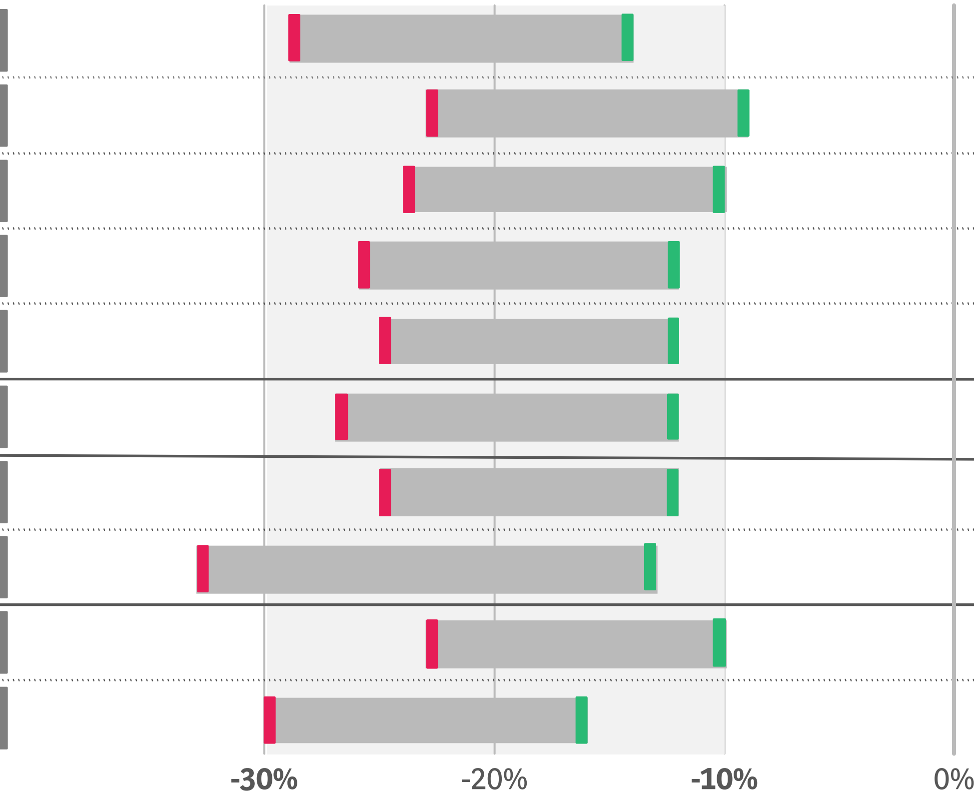
'Flatten' | Impaired economic activity (depth) and lockdown duration (length) yield full-year economic impact for 'Flatten' phase

ECONOMIC IMPACT

As of 15 May 2020

Need to combine pre-crisis, 'Flatten' & 'Fight' phase to conclude **impact for 2020**

Impaired economic activity[1] due to COVID-19 during 'Flatten' phase
Estimation in private sector relative to pre-COVID in %



x **Lockdown duration** (in weeks) = **Full-year economic impact**

Not directly comparable to GDP, excludes gov't spending, investment, and changes in balance of trade

		Lockdown duration (in weeks)	Full-year economic impact vs. pre-COVID run rate[2]
Europe	France	8	-2% – -4%
Europe	Germany	4-6	-1% – -3%
Europe	Italy	8-12	-2% – -6%
Europe	Spain	8-12	-2% – -6%
Europe	UK	7-12	-2% – -6%
North Am.	US	10-14	-2% – -7%
LatAm	Brazil	4-6	-1% – -3%
LatAm	Mexico	8-12	-2% – -8%
Asia	India	8	-2% – -4%
Asia	Japan	6-10	-2% – -6%

Disclaimer: These analyses represent only potential scenarios based on discrete data from one point in time. They are **not intended as a prediction or forecast** and the **situation is changing daily**. Figures shown only reflect economic activity "directly displaced" by effect of virus. However, **multi-order impacts and the impact of government spending and stimulus not considered**

Max of estimated range (i.e. period hardest hit by the lockdown)

Min of estimated range

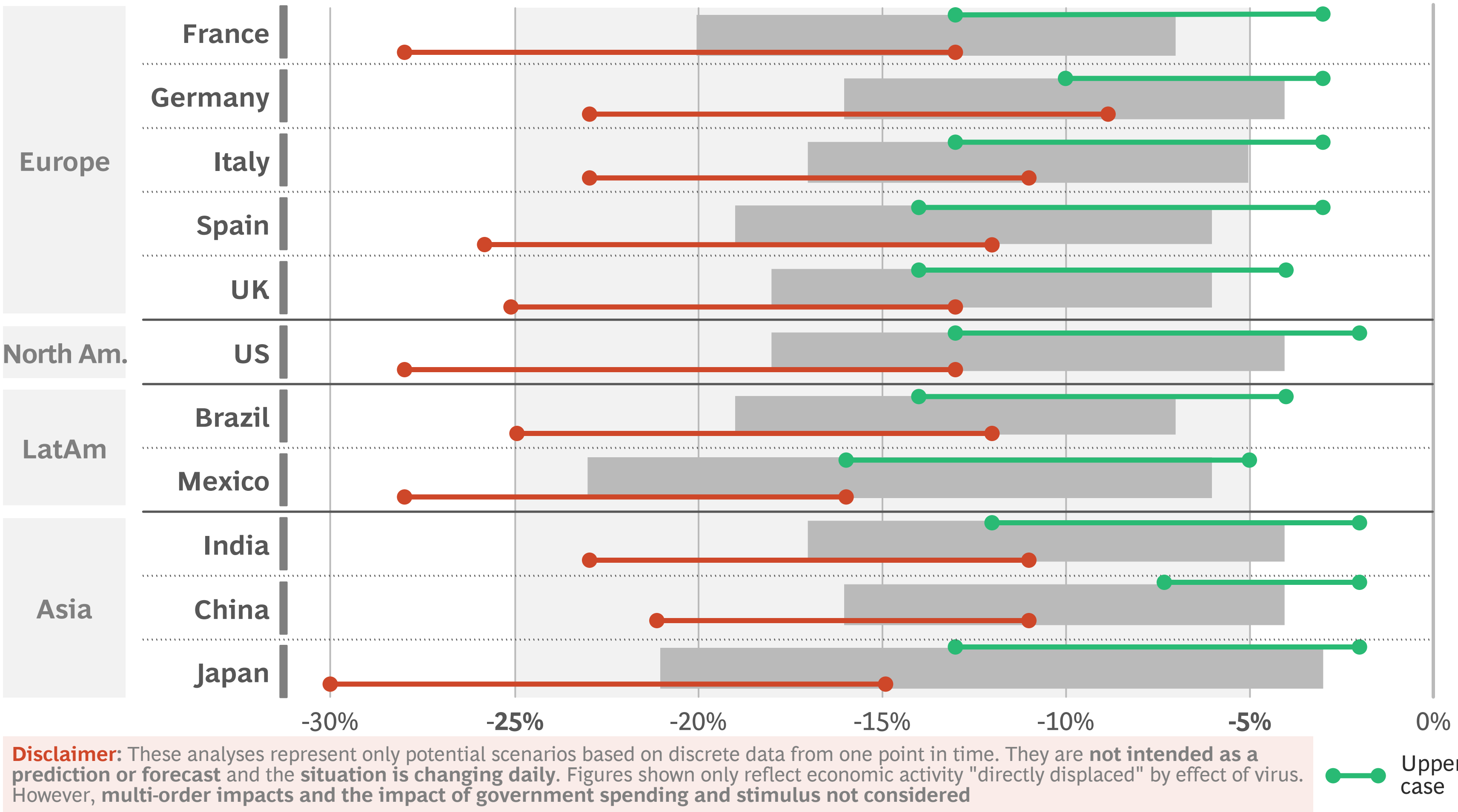
Note: Lockdown length capped at 6 weeks.; We expect a lot of variations across geographies, even within countries
1. European figures reflect gross output by sector, which is analogous to revenue by sector. US figures directly reflect revenue by sector. 2. Only accounts for COVID-19 impact, does not factor in underlying growth.
Source: Eurostat Database; St. Louis Fed Reserve; O*NET; American Community Survey; other country-specific sources available on request; BCG COVID response teams; BCG Analysis

'Fight' | ~5 to 25% of economic activity can be temporarily at risk – implying protracted economic challenges

As of 15 May 2020

Impaired economic activity[1] during 'Fight' phase

Estimation in private sector relative to pre-COVID-19 in %



Sector mix and local conditions will vary the depth of 'Fight' on very short timescales, making the full-year economic impact challenging to estimate precisely

Disclaimer: These analyses represent only potential scenarios based on discrete data from one point in time. They are **not intended as a prediction or forecast** and the **situation is changing daily**. Figures shown only reflect economic activity "directly displaced" by effect of virus. However, **multi-order impacts and the impact of government spending and stimulus not considered**

Note: We expect a lot of variations across geographies, even within countries, hence the wide ranges.

1. European figures reflect gross output by sector, which is analogous to revenue by sector. US figures directly reflect revenue by sector.

Source: Eurostat Database; CNBS;Statistics Bureau of Japan; St. Louis Fed Reserve; O*NET; American Community Survey; other country-specific sources available on request; BCG COVID response teams; BCG

1

Guide for leaders

Need for performance transformation across companies

How to restructure cost, and manage cash and liquidity

2

Updated epidemic, economic, and business scenarios and impact

Epidemic progression, virus monitoring, health care capacity

Economic impact

Business scenarios and impact

3

Appendix: Further readings

Learnings from successful business leaders

Further readings

Recent learnings from successful CEOs

CEOs are in the spotlight more than ever as they lead their companies through the current crisis. By understanding principles underpinning when and how much leadership matters, and factors that increase the odds of success, leaders can learn valuable lessons about navigating today's challenges

For further details; refer to the article from BCG Henderson Institute:
Leadership Matters: When, How Much, and How?

Based on survey of 7,000 CEOs worldwide

1 Strive to defy the average

Focus more on innovation and new opportunities in order to be exceptional. Defy the average within your industry; focus less on "best practices" which tend to level performance

2 Identify key moves and act preemptively

Early action is key; accelerate turnover of underperforming management teams, make deals early, and embark on transforming organizations early when needed

3 Take a de-averaged and dynamic approach to strategy

Adopt the right approach to strategy in each part of the business, and in particular, use dynamic and/or creative approaches where necessary. In more uncertain and fast-moving contexts, classic planning is not always the best approach

4 Articulate and fulfill a positive social purpose

Articulate a purpose beyond maximizing financial returns, and improve performance on non-financial dimensions as well. Pursue sustainable business models as expectations of social contributions are increasing

Additional perspectives on COVID-19

COVID-19 BCG Perspectives

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

Edition #1

Facts, scenarios, and actions for leaders

Relevant topic publications

Cash & Liquidity

A Cash Management Survival Guide

Cash & Liquidity

Essential lifeline: Rapid-Response Cash Management Office

Leadership

Leadership Matters: When, How Much, and How?

Finance

The COVID-19 CFO Pulse Check

Transformation

COVID-19 Response: Big Decisions for CEOs Right Now

Transformation

Crisis Can Spark Transformation and Renewal

Selected sector publications

Consumer

COVID-19 Consumer Sentiment Snapshot #9

Automotive

Auto Companies Will Outlast COVID-19 and Come Out Stronger

Travel & Tourism

The Great Reset for Revenue Management in Travel

Health Care

COVID-19 Stressing Finances of Even the Strongest US Health Systems

Power & Utilities

B2B Energy Retailers Can Weather the COVID-19 Storm

Technology

Is Your Technology Ready for the New Digital Reality?

Source: BCG

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