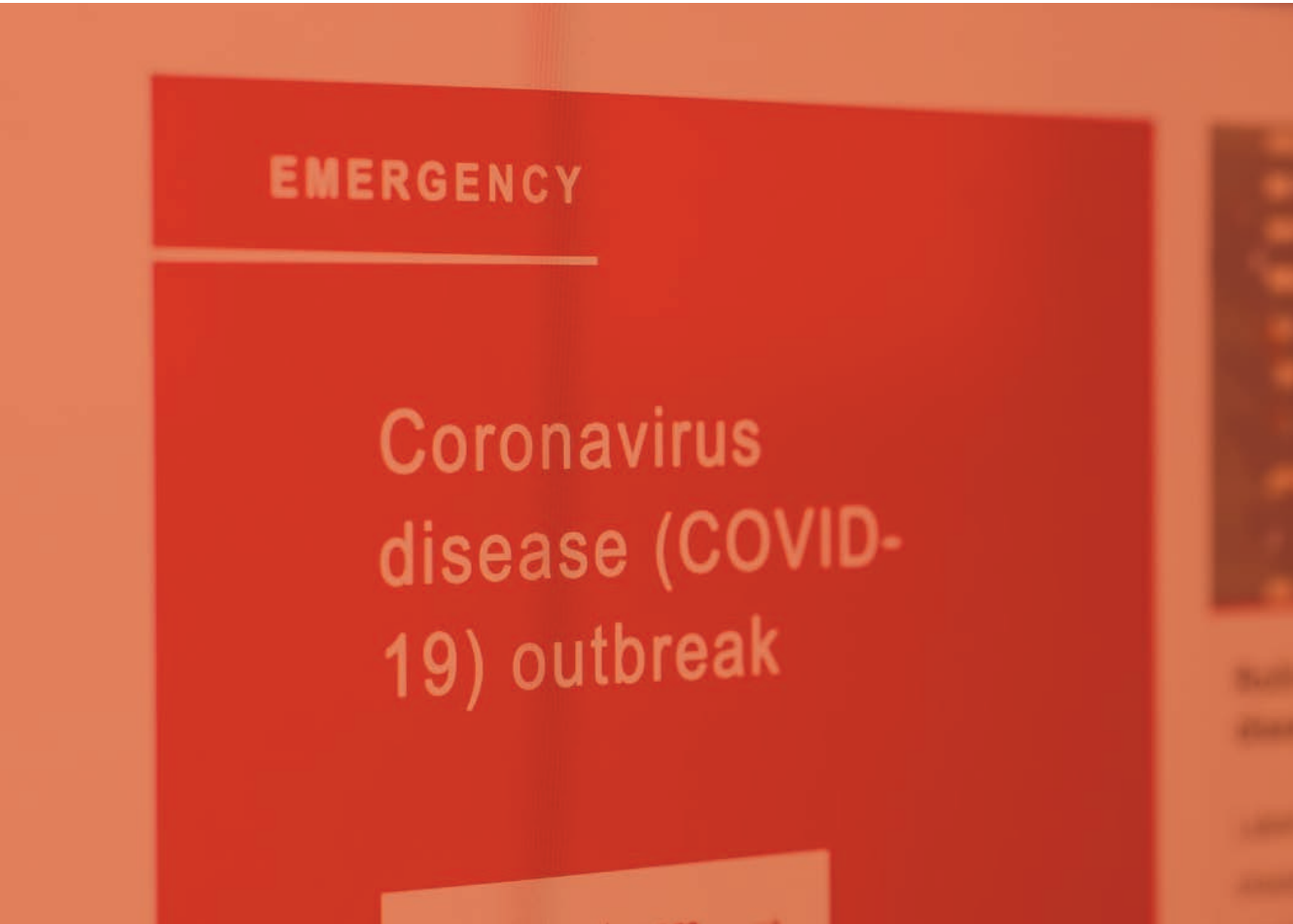




Borda Technology

# Coronavirus & It's Implications

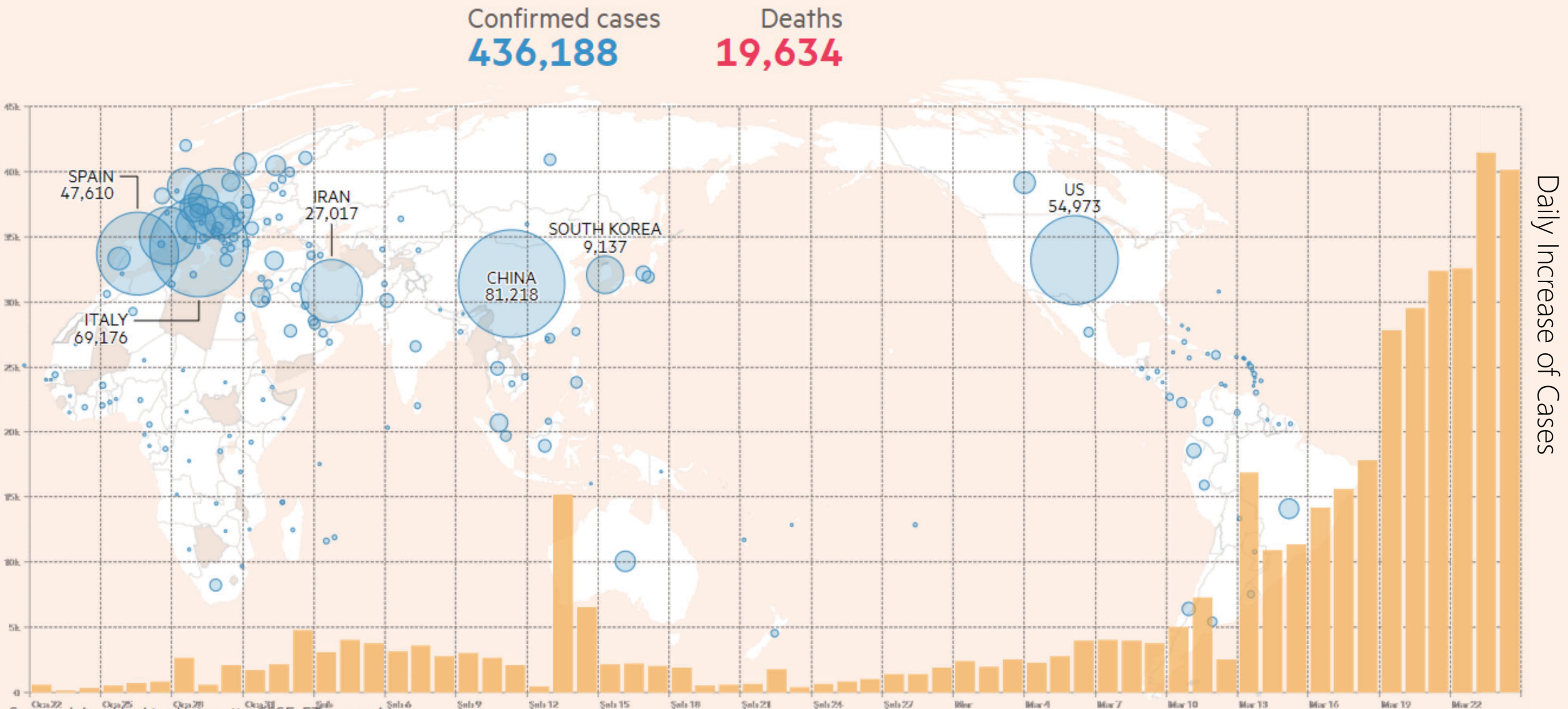
25 March 2020



- **Current Status**
  - Health Outlook
  - Global Financial Markets
- **The Battle**
  - How West Differs From East
  - Monetary & Fiscal Stimulus
- **What's Next**
  - Possible Healthcare Outcomes
  - Financial Consequences
- **The New Normal**
  - Effect on Mega-Trends
  - Change in Healthcare
  - Borda Positioning

## Mapping the coronavirus outbreak

As of 12:34pm Mar 25 GMT



Source: Johns Hopkins University, CSSE; FT research

© FT

*Europe now accounts for 3 out of 4 new cases*

European countries initially struggled to convince their citizens & even politicians:

“

**“We must not change our habits. Our economy is stronger than fear: let’s go out for an aperitivo, a coffee or to eat a pizza.**

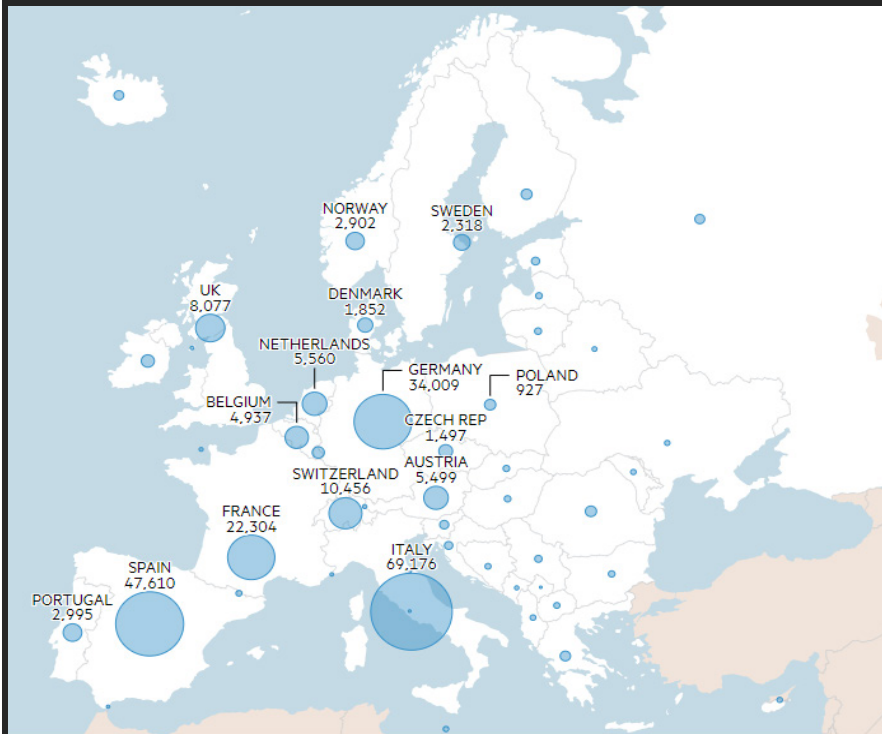
*Nicola Zingaretti, Leader of Democratic party, Italy.*

Tested positive for coronavirus on March 7.



Thousands of women marched against gender inequality to mark International Women’s Day in Madrid, Spain, on March 8, 2020

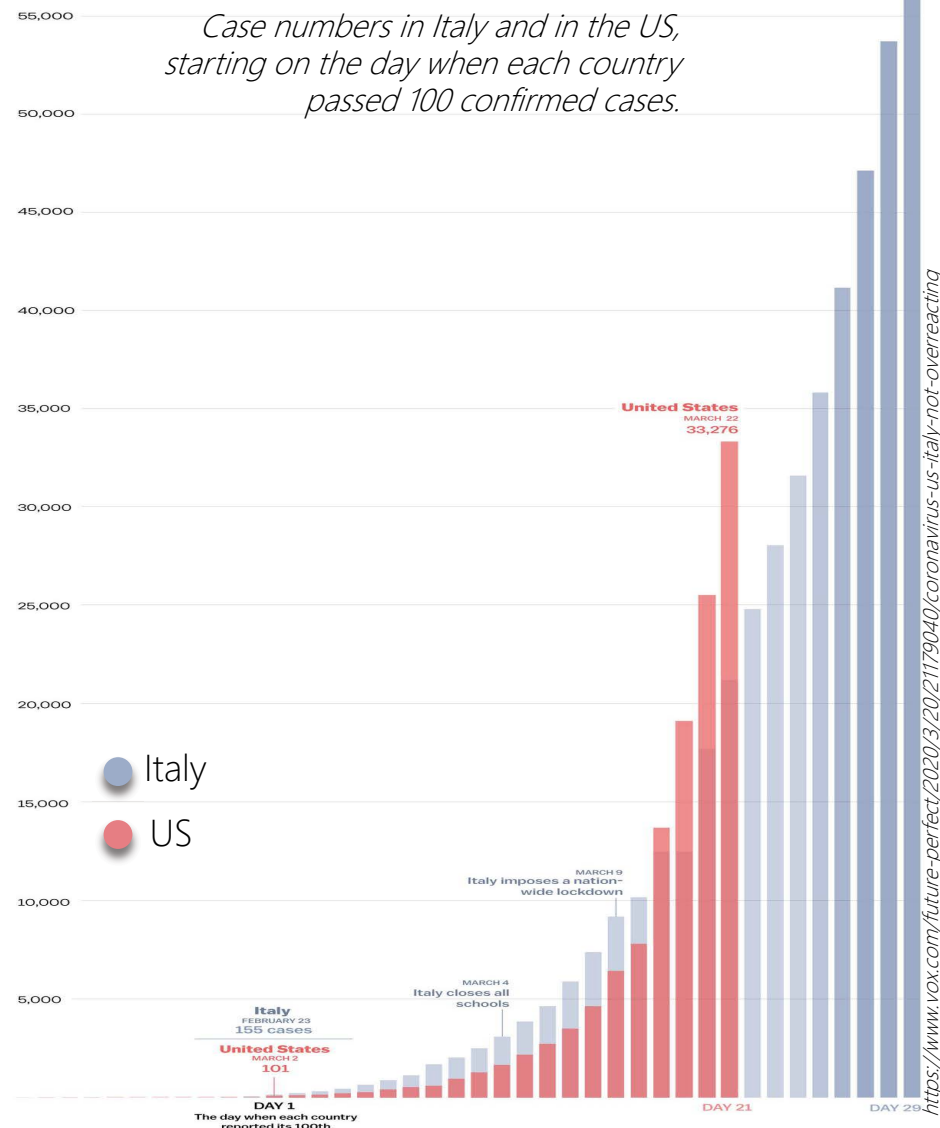
Case numbers have now passed 100 in 35 European countries



Source: Johns Hopkins University, CSSE; FT research  
© FT

US has a steeper curve compared to Italy

*Case numbers in Italy and in the US, starting on the day when each country passed 100 confirmed cases.*

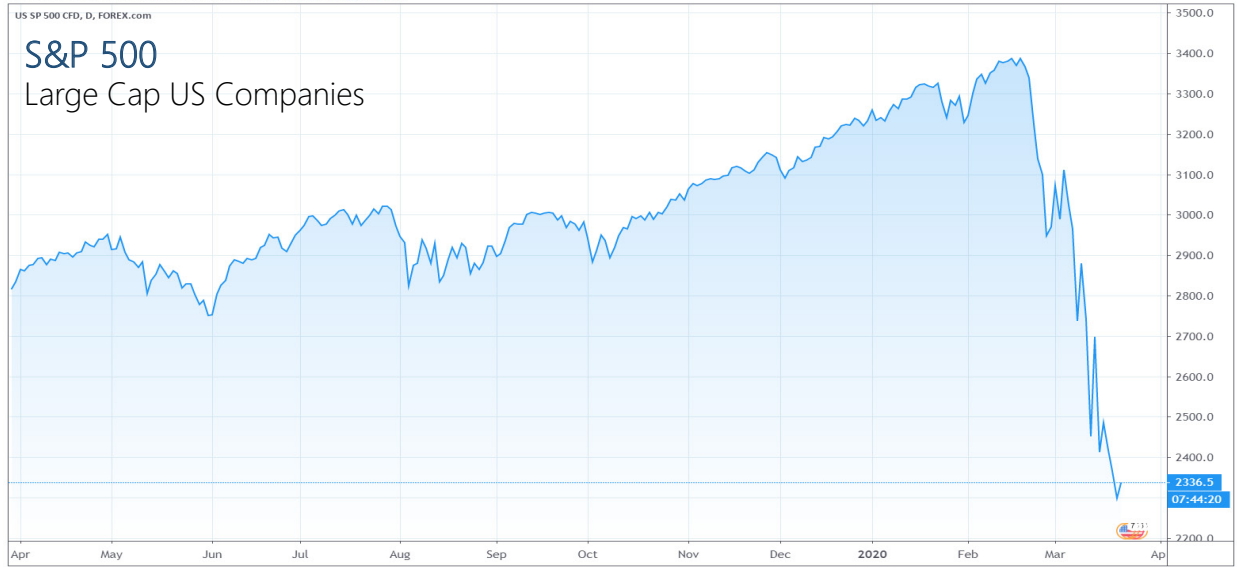


Note: Johns Hopkins data tracker did not report any new data for Italy on March 12.  
Source: 2019 Novel Coronavirus COVID-19 (2019-nCoV)  
Data Repository by Johns Hopkins CSSE



*Investors are dumping all assets, trying to cash in & wait due to uncertainty. Stocks are down as much as 30%\*.*

emtoki published on TradingView.com, March 23, 2020 13:15:41 UTC  
FOREXCOM:SPXUSD, D 2336.5 ▲ +35.9 (+1.56%) O:2300.6 H:2398.0 L:2184.6 C:2336.5

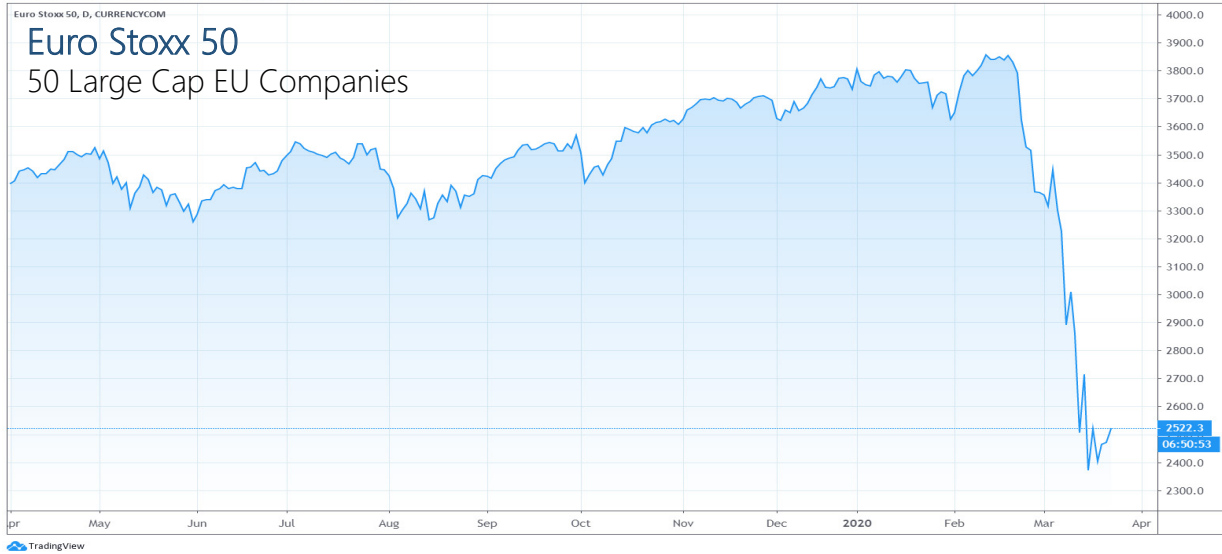


emtoki published on TradingView.com, March 23, 2020 13:19:05 UTC  
TVC:UKOIL, D 26.34 ▲ +1.04 (+4.11%) O:25.19 H:26.68 L:24.72 C:26.34



TradingView

emtoki published on TradingView.com, March 23, 2020 13:24:07 UTC  
CURRENCYCOM:EU50, D 2522.3 ▲ +47.7 (+1.93%) O:2342.8 H:2608.3 L:2338.7 C:2522.3



emtoki published on TradingView.com, March 23, 2020 13:29:06 UTC  
TVC:DX1, D 102.08 ▲ +0.14 (+0.13%) O:101.95 H:102.98 L:101.70 C:102.08

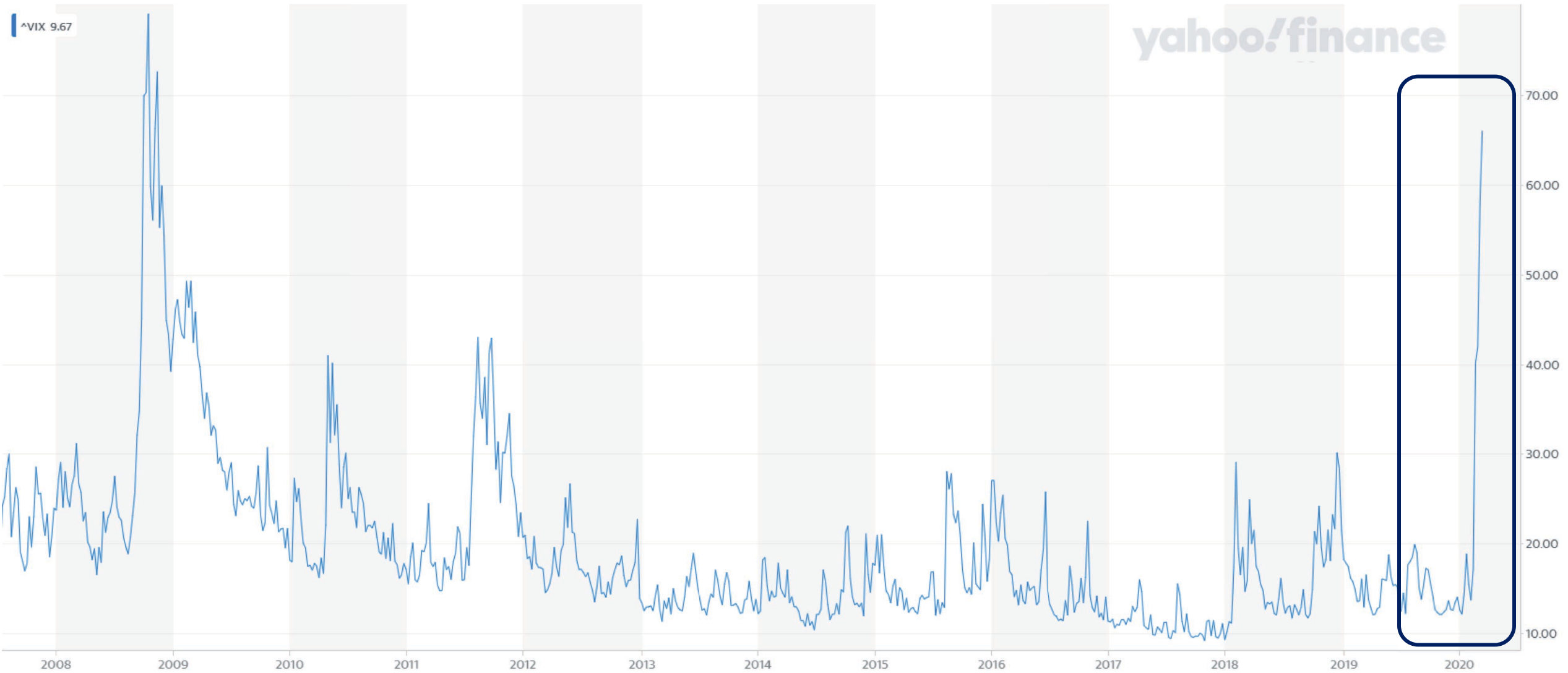


TradingView

\*as of March 23

# Fear Is In Complete Command

*Fear Index (VIX\*) is highest since the Great Recession in 2008, anticipating more volatility.*



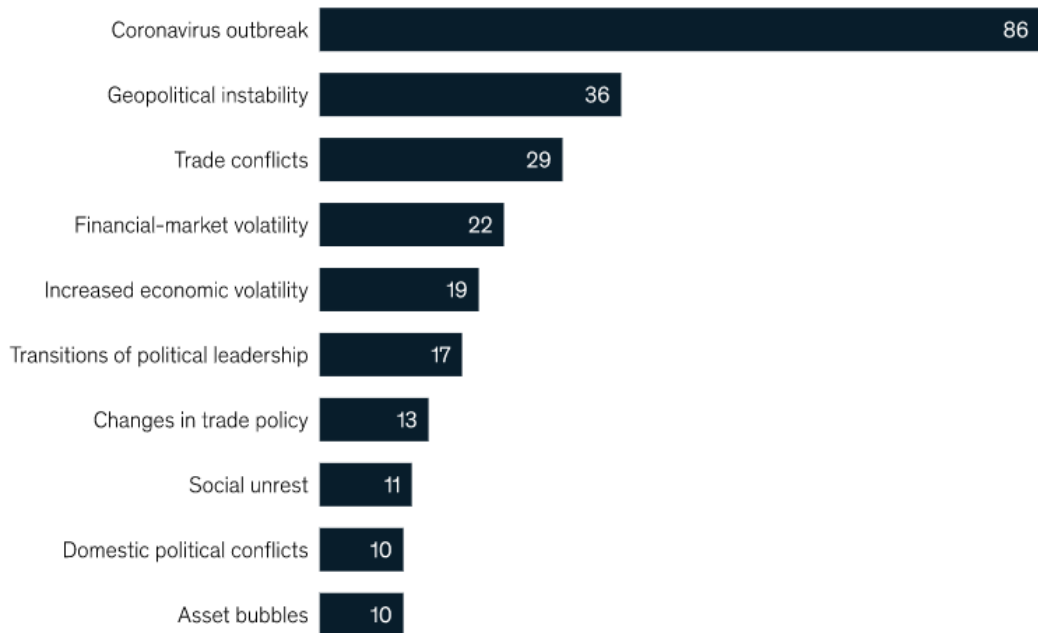
\*VIX, is a real-time market index that represents the market's expectation of 30-day forward-looking volatility

*McKinsey Global Economic Survey on March 2020 show business leaders expectations are sore.*

## Coronavirus is now the largest risk for economic growth

**The coronavirus outbreak, a new risk, dominated the list of most-cited threats to global economic growth.**

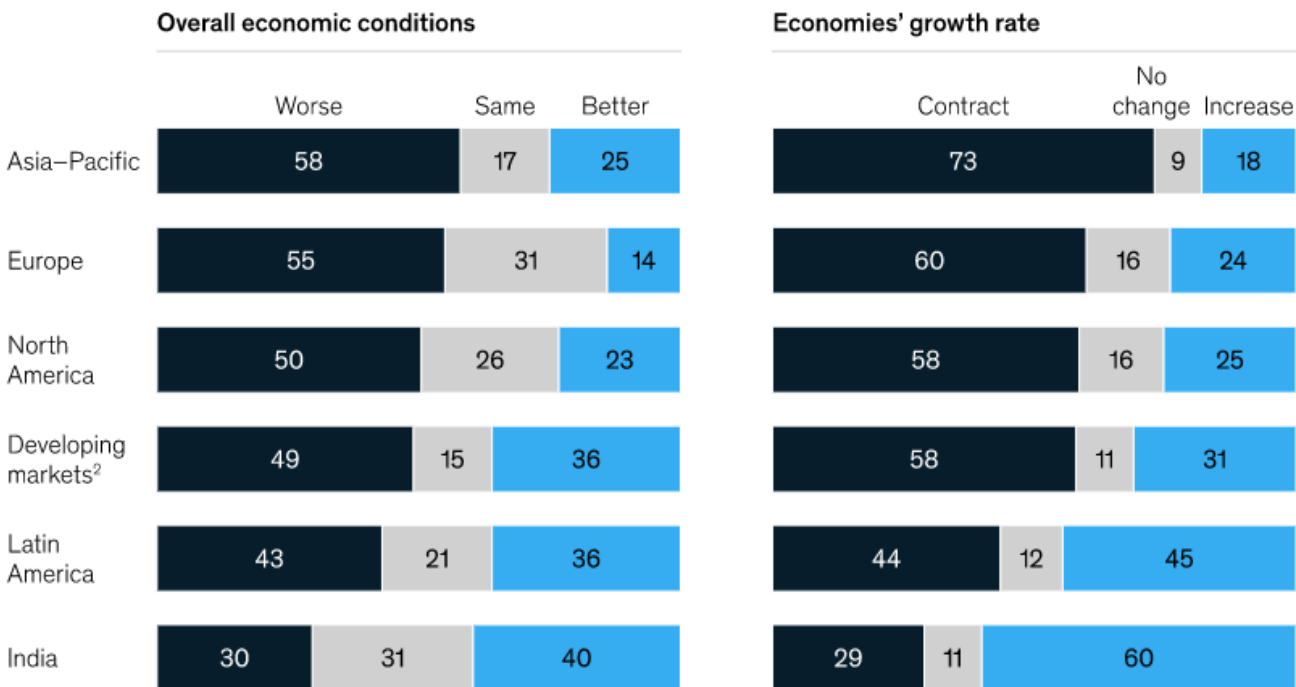
Potential risks to global economic growth in the next 12 months, % of respondents<sup>1</sup>



<sup>1</sup>The online survey was in the field from March 2 to March 6, 2020. Out of 16 risks that were presented as answer choices. Respondents who said "other," "no particular risk," or "don't know" are not shown; n = 1,152.

## 60% of executives believe their economies will shrink

**Expected changes in respondents' countries in the next 6 months, % of respondents, by office location<sup>1</sup>**



<sup>1</sup>The online survey was in the field from March 2 to March 6, 2020. Figures may not sum to 100%, because of rounding. In the Asia-Pacific, n = 119; in Europe, n = 436; in North America, n = 260; in developing markets, n = 163; in Latin America, n = 73; and in India, n = 101.

<sup>2</sup>Includes respondents in China, the Middle East, and North Africa.

*Consumers are cutting back their spending & already reporting reduced income.*

## All nonobligatory spending is being reduced

### Consumers expect to spend more only on must-have categories.

Expected spend per category over the next 2 weeks compared to usual,<sup>1</sup> net intent<sup>2</sup>

■ Increase ■ Stay the same ■ Decrease

Groceries	+14	Footwear	-47
Snacks	-7	Apparel	-50
Tobacco products	-14	Jewelry	-53
Take out/delivery	-22	Accessories	-55
Alcohol	-23	Entertainment at home	+3
Non-food child products	+4	Books/magazines/newspapers	-10
Household supplies	+1	Consumer electronics	-36
Personal care products	-11	Out of home entertainment	-63
Skincare and makeup	-38	Petcare services	-35
Furnishing and appliances	-44	Fitness and wellness	-40
		Personal care services	-49

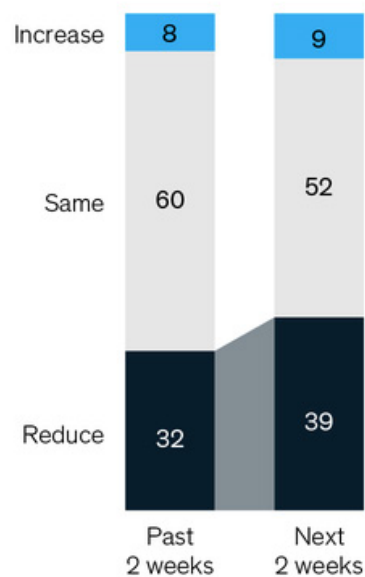
<sup>1</sup>Q: Over the next 2 weeks, do you expect that you will spend more, about the same, or less money on these categories than usual?

<sup>2</sup>Net intent is calculated by subtracting the % of respondents stating they expect to decrease spending from the % of respondents stating to increase spending.  
Source: McKinsey & Company M&S COVID-19 US Consumer Pulse Survey 3/16–3/17/2020 n = 1,042 sampled and weighted to match US gen pop 18+ years

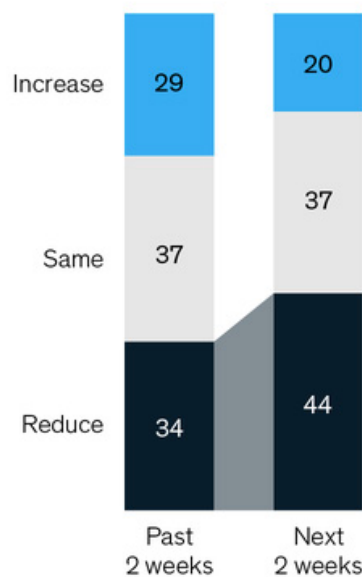
## Consumers are not expecting a quick resolution

### One-third of US consumers already report reduced income.

Change in household income,<sup>1,2</sup>  
% of respondents



Change in household spending,<sup>1,2</sup> % of respondents



Expected timeline<sup>3</sup>

**~70%**

of respondents believe their finances will be impacted by more than 2 months due to the coronavirus situation

<sup>1</sup>Q: How has the coronavirus (COVID-19) situation affected your (family) overall available income and spending in the past 2 weeks?

<sup>2</sup>Q: How do you think your overall available income and spending may change in the next 2 weeks?

<sup>3</sup>Q: How long do you believe you need to adjust your routines, given the current coronavirus (COVID-19) situation, before things return back to normal in the US (eg, government lifts restrictions on events/travel)?

Source: McKinsey & Company M&S COVID-19 US Consumer Pulse Survey 3/16–3/17/2020 n = 1,042 sampled and weighted to match US gen pop 18+ years



# The Battle



## Consequences in West Can Be More Severe Due To:

- Testing
- Hospital Infrastructure
- Culture & Regime
- Previous outbreaks in Asia

“

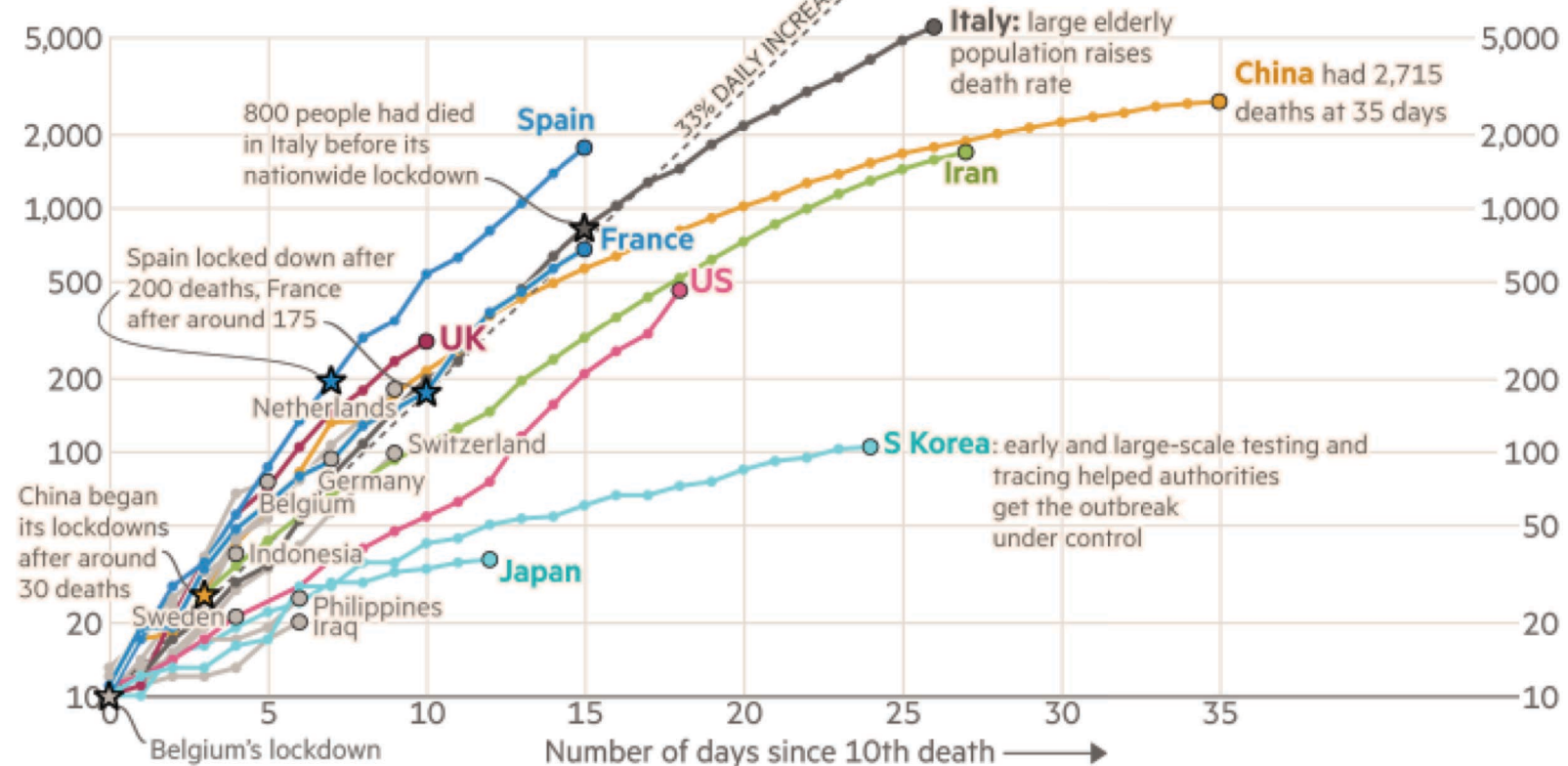
**The earliest a vaccine would be deployable, is in a year to a year and a half, no matter how fast you go**

*Anthony Fauci, National Institute of Allergy and Infectious Diseases*

## Coronavirus deaths in Italy, Spain and the UK are increasing much more rapidly than they did in China

Cumulative number of deaths, by number of days since 10th death

Nationwide lockdowns: ★



FT graphic: John Burn-Murdoch / @jburnmurdoch

Source: FT analysis of Johns Hopkins University, CSSE; Worldometers. Data updated March 22, 19:00 GMT

© FT



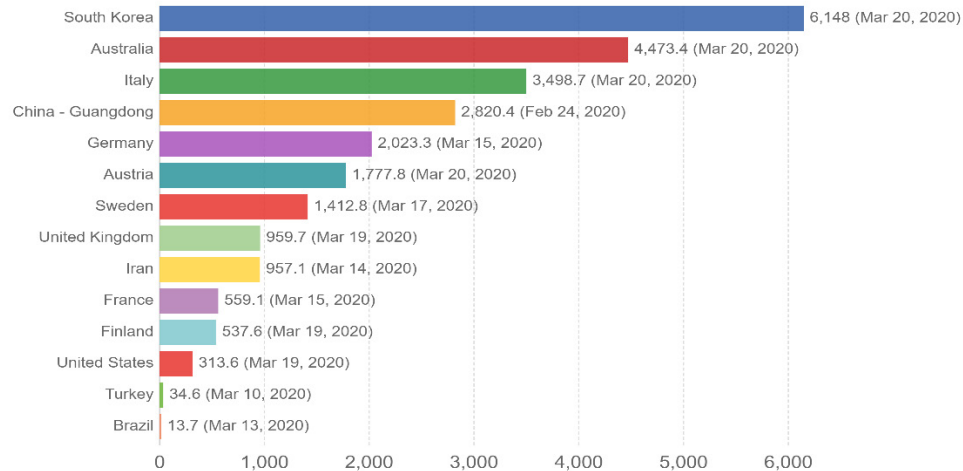
## Testing:

West has ramped up testing after March 10 but is still behind.

### Total COVID-19 tests performed per million people

Most recent data as of 20 March [18.00GMT]. Data collected by Our World in Data from official country reports. For some countries the number of tests corresponds to the number of individuals who have been tested, rather than the number of samples.

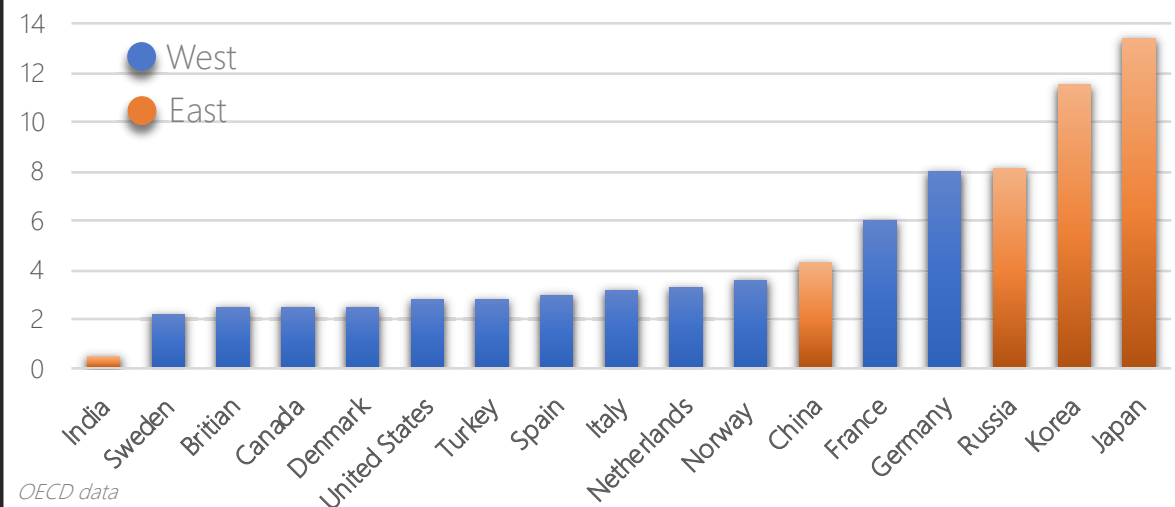
Our World  
in Data



Source: Our World in Data  
Note: Data for the United States corresponds to estimates from the COVID-Tracking Project.

OurWorldInData.org/coronavirus • CC BY

## Hospital Infrastructure: Hospital Beds Per 1000 people



OECD data

## Culture & Regime

### East

Authoritarian culture, centralized management, fewer liberties

"Government have authority to collect mobile phone, credit card, and other data from those who test positive to reconstruct their whereabouts. Information is shared on social media apps that allow others to determine whether they may have crossed paths with an infected person."



### West

Individualistic, democratic management, plenty of "rights"

Opinion Coronavirus

**Coronavirus monitoring poses dangers for civil liberties**

'Temporary' restrictions on freedom can become dangerously permanent

<https://www.sciencemag.org/news/2020/03/coronavirus-cases-have-dropped-sharply-south-korea-whats-secret-its-success>

## Previous Outbreaks in Asia

### Diseases such as SARS & MERS came with valuable lessons:

- > Healthcare infrastructure & spending (China public health spending increased by 14X from 2003-2018)
- > Importance of testing.
- > Increased public awareness on health.
- > Transparent public health data.
- > Health insurance covering up to 100% of population.

<https://www.scmp.com/business/china-business/article/3075095/what-has-chinas-public-healthcare-system-learned-twin>  
<https://www.sciencemag.org/news/2020/03/coronavirus-cases-have-dropped-sharply-south-korea-whats-secret-its-success>

Central Banks & Governments are declaring unprecedented measures for economies.

“

**This war will be long, it will be violent, and we must mobilise all our national, European and G7 forces**

Bruno Le Maire, France's finance minister



**United States:** Federal Reserve Announced to purchase **\$700 Billion** of securities. On March 23. Fed pledged unlimited bond buying to steady market . A **\$2 Trillion** stimulus package, including giving away \$1000 to citizens is in negotiation.



**European Union:** European Central Bank announced monetary “Bazooka”: a **€750 billion** Pandemic Emergency Purchase Program.



**Germany:** pledged unlimited cash to businesses hit by the coronavirus, under the stability fund of **€750 billion**.



**UK:** deploy **£330bn** worth of government-backed loans and guarantees equivalent to 15 per cent of UK gross domestic product, as well as £20bn in other direct measures.



**France:** will guarantee **€300 billion** of bank loans to businesses & additional €45 billion of emergency measures.



**Spain:** announced **€100 billion** of loans and guarantees described as the “biggest mobilisation of resources in the country’s democratic history”.



What's  
Next

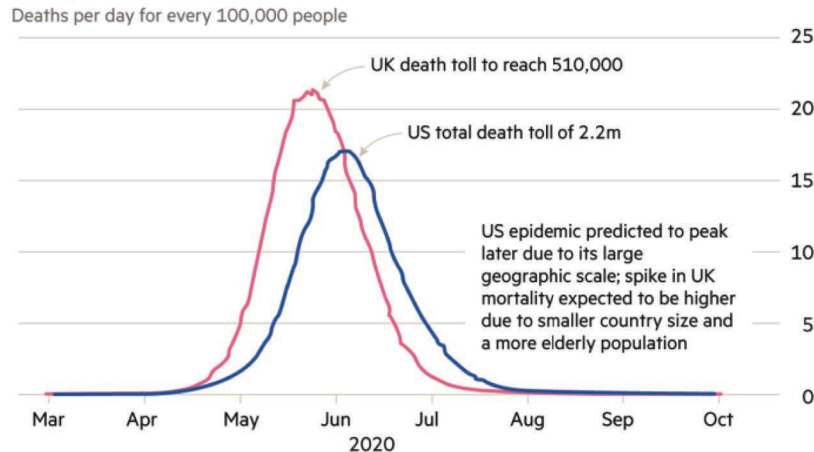




All applicable models show Covid-19 will have material health and/or economic impact on countries. Thus, objective is not to stop but to extend effects of the infection over time .

Imperial College coronavirus model argue 8 out of 10 people will be infected and millions may die if the pandemic is **ignored**.

## The impact of coronavirus without any controls or spontaneous change in behaviour



Option is ruled out by all countries facing the virus.

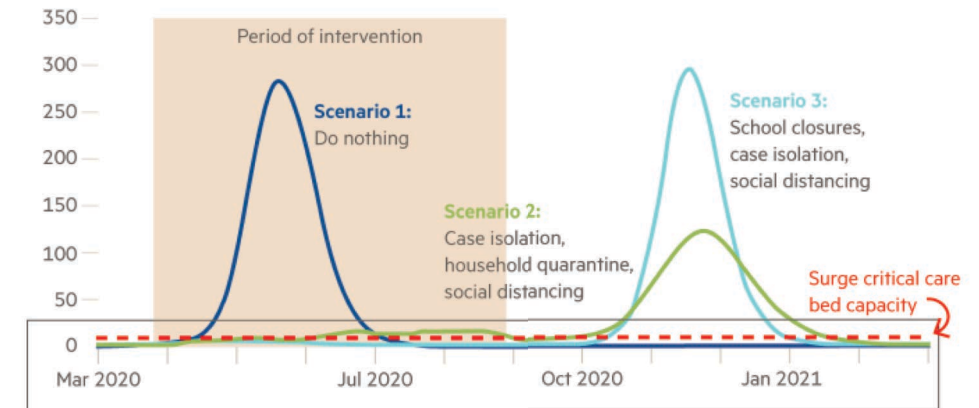
In a **mitigation** scenario (scenario 2) which people stay home for a week if they show symptoms, quarantining their household, and urging over-70s to keep a distance from others, healthcare infrastructure is still far from sufficient.

## Suppression

scenario: lockdown on movement, isolating people with symptoms, reducing everyone's social contact by 75 per cent, quarantining households and closing schools and universities for five months may be successful in the short-term but economic repercussions can be devastating.

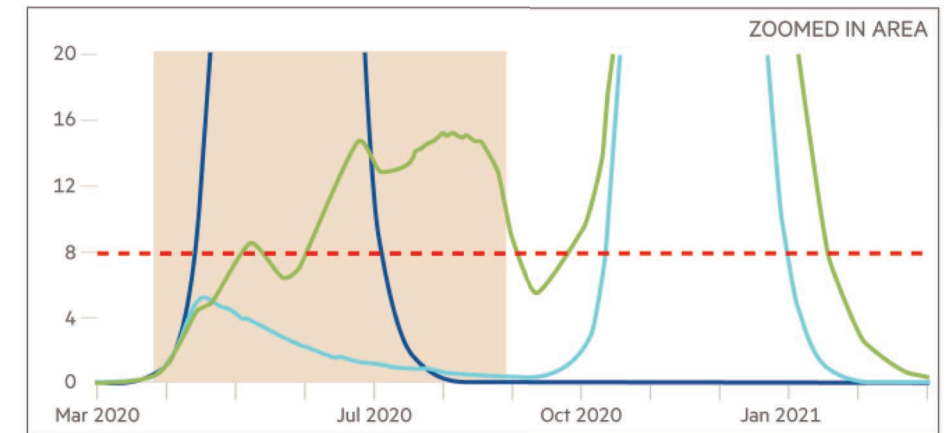
## Second wave of infections could arise if suppression strategies not maintained

Critical care beds occupied per 100,000 people



Harsher restrictions during intervention period can limit transmission...

...but restrict herd immunity leading to a possible second wave of infection once interventions are lifted



Source: Ferguson, N. M. et al (Imperial College Covid-19 Response Team)  
© FT

*Pandemic creates a unique challenge for hyper-connected economies: A simultaneous demand & supply shock. Everywhere.*

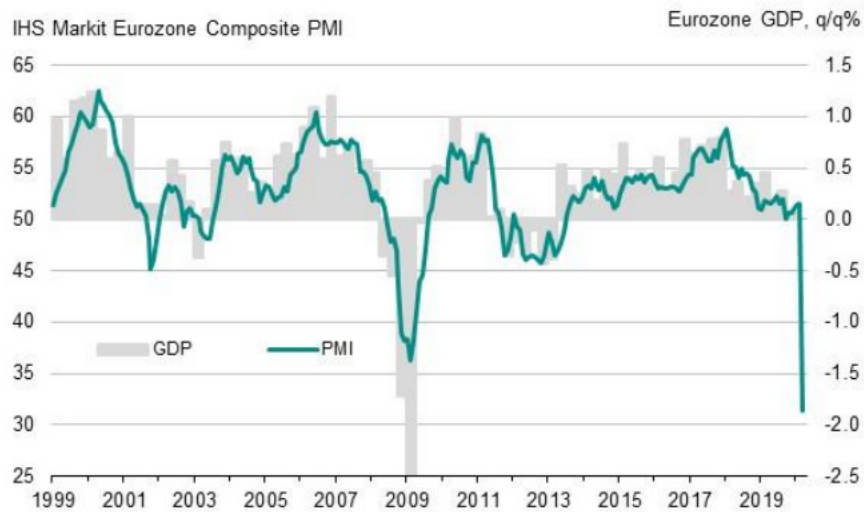
Covid-19 disrupted the equilibrium & created a 2-way shock.

- Demand shock: Consumers are buying less products and services.
- Supply shock: Supply chains are disrupted, production capabilities are crippled.

**Coronavirus economic impact  
'will be severe,' at least as bad  
as Great Recession, says IMF**

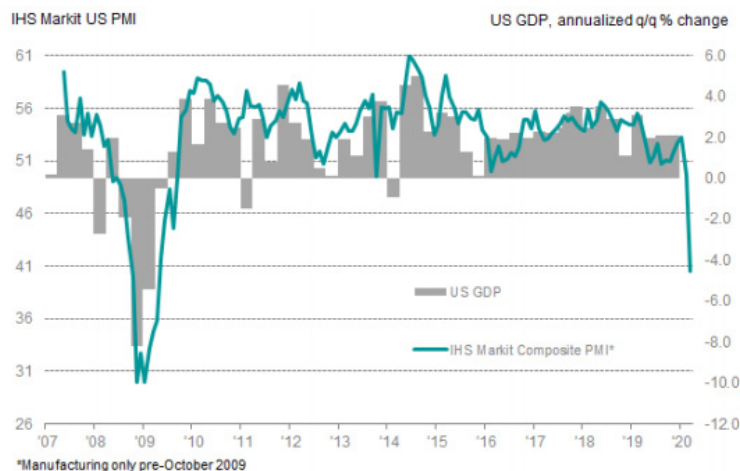
Purchasing Manager Indexes show "largest collapse in business activity ever recorded" in Europe. US is lagging thanks to fewer cases, but it is still early to draw conclusion.

## IHS Markit Eurozone PMI and GDP



Sources: IHS Markit, Eurostat.

## IHS Markit Composite PMI and U.S. GDP



Sources: IHS Markit, U.S. Bureau of Economic Analysis

## Rise in global unemployment

between

5.3  
Million

24.7  
Million

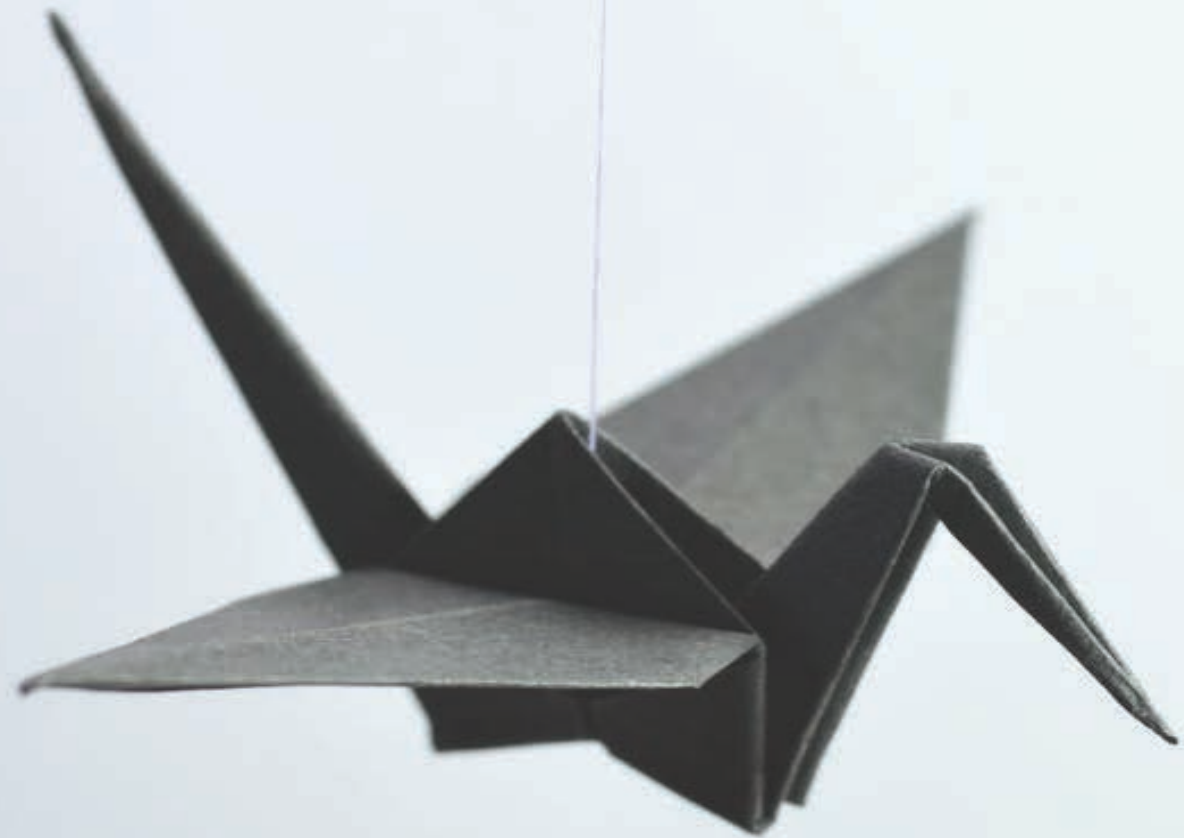
people

&

Income loss of  
\$840 billion to \$3.4 trillion.

[https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS\\_738742/lang--en/index.htm](https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_738742/lang--en/index.htm)

New  
Normal



Weaponization of Interconnectedness: Domino effect caused by the hyper-connectivity: Economies, value chains, news, people & behaviors are all intertwined.



## De-Globalization May Gain Momentum

### Political

- Politicians & Public is blaming China for the outbreak, this is a good opportunity for populist leaders to capitalize on.
- Jobs can be created with domestic investments.

### Strategic

- Countries prioritize their own needs in a case of crisis. Dependency on other countries has risks.
- Ability to produce strategic goods and to become self-sufficient in key sectors has shown invaluable.

### Economical

- Thanks to the automation and Industry 4.0, less labor is required for manufacturing jobs. Advantage of cheap labor force in emerging countries is dissipating.

## Sociological Effects

- A war-era like societal trauma can **change consumer behavior**: Spending may drop, savings may increase.
- **Physically disconnected, digitally connected way of living** may surge: Distance learning, remote working etc.
- Tendency towards **authoritarianism**: Strong actions and dedicated leadership is required to tackle coronavirus. Leaders may further enjoy their new "rights".



*Demographic shifts & technology were already shaping healthcare. Current pandemic will speed up the process. Public & private entities will accelerate investment on healthcare system, infrastructure & technologies to prepare for the next shock like China did after SARS outbreak.*

### Healthcare System

- Reactive healthcare approach will give place to proactive healthcare in the long-term.
- Systems to maximize coordination of healthcare entities & stakeholders will be implemented.
- Attempts to create nationwide insurance policies will increase.
- Healthcare data will be more transparent with appropriate de-identification measures.
- Studies to improve public awareness on healthcare, diseases & crises management will be conducted.

### Healthcare Infrastructure

- Nationwide hospital modernization & capacity improvement initiatives will become a top priority.
- Technical & regulatory infrastructure for Telehealth & Telemedicine will be set up.
- Predictive health & mass testing capabilities will be developed.
- Funding & talent funneling towards healthcare startup ecosystem will swell.

### Technologies

- Artificial Intelligence will help building predictive & prescriptive applications by analyzing healthcare & genomic data.
- Internet of Things will make it possible to gather & interpret “phygital” data on patient, asset, staff & environment.
- 5G will enable fast & reliable transfer of large amounts of data for remote monitoring, telehealth, telemedicine purposes. Applications in AR & VR will be improved.



*There are many alignments with incoming "New Normal" in healthcare.*

## Envisioned Synergies And Catalyzers For Borda Operations

# Healthcare System

Ways to gather accurate healthcare related data automatically will ensure transparent & data-driven management. In nationwide applications, this approach will enable a holistic view and make the whole system manageable. Public bodies may enforce hospitals to use IoT solutions to monitor their operations, measure KPI's and allocate resources.

# Healthcare Infrastructure

Developed Asian countries have close to 4x bed capacity when compared with developed Western countries. A wave of new hospital investments in Europe & North America will most likely take place.

Besides increasing bed quantity, service quality & operational efficiency in existing hospitals will be a main concern, solutions that help to address those issues will be in great demand. Borda already has solutions for these requirements and we expect demand to grow exponentially.

# Technologies

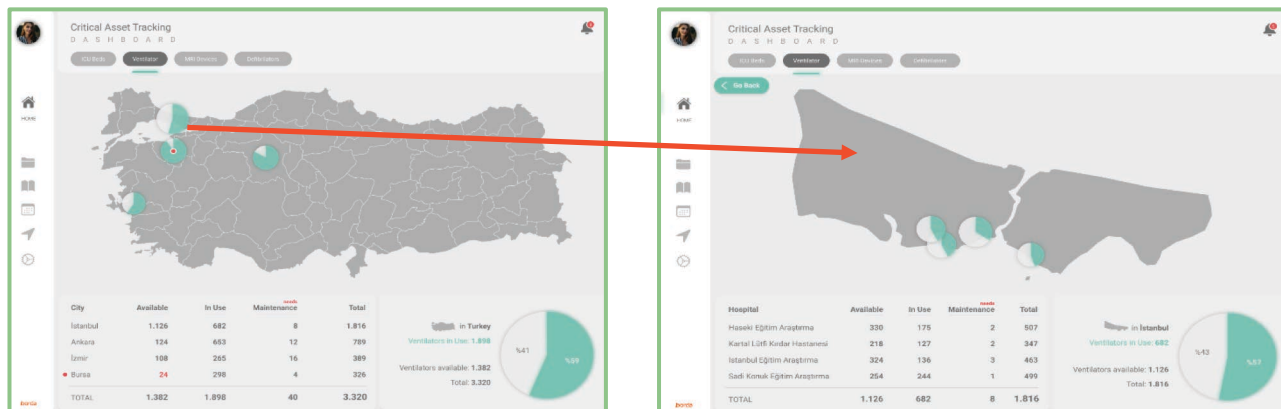
Internet of Things, Artificial Intelligence and 5G will become essential tools for healthcare transformation. Borda leverage all those technologies to improve hospital operations.



## 1- Critical Asset Management

We believe that the accurate collection of ventilator utilization data in a single center will save many lives by contributing a lot in the following issues:

- > Guiding an ambulance carrying a patient
- > Shifting idle devices to the required regions and hospitals
- > Making correct planning



## 2- Covid19 Positive Isolation Tracking

To prevent the spread of the disease, it is necessary to make sure that people in quarantine or isolation do not leave their pre-defined area. This area may be a hospital, hospital room, hotel room, or house. In such a breakout or epidemic, it is complicated to control people under quarantine individually. With patient safety solutions, any location changes can be automatically tracked by making people under quarantine wear wristbands. When the system detects any person's attempt to move out of the previously determined area, it alerts the relevant personnel along with real-time location information.

### Patient



Patient Throughput Management

Patient Safety

Infant Safety

Covid19 Positive Isolation Tracking

### Asset



Asset Management

Asset Utilization

Asset Safety

Critical Asset Management

### Staff



Staff Utilization

Staff Safety

### Facility



Location-Aware Work Demand Management

Environmental Monitoring

**borda**

Healthcare, Operationally Aware

THANK YOU

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