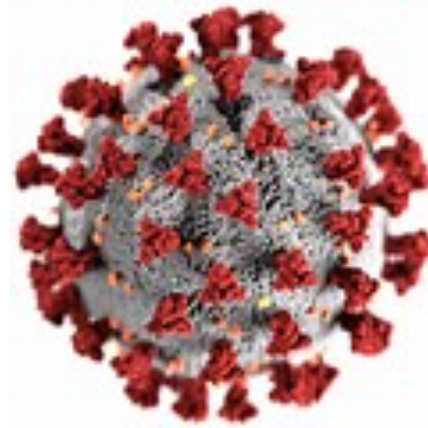


第十二屆香港知識產權研討會
The 12th HongKong IP Conference
2020. 7. 31



2019 冠狀病毒病的全球經濟影響
The Global Economic Impact of COVID-19

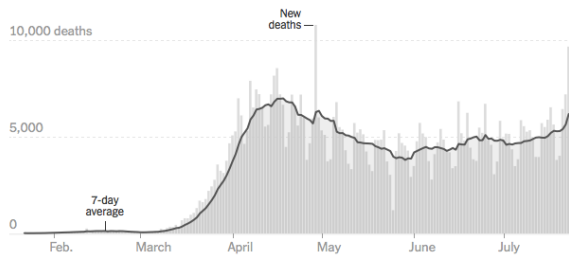
Dongmin Chen 陳東敏
Peking University 北京大學



COVID-19 Pandemic - 7.24.2020

SOURCE: NEW YORK TIMES

New reported deaths by day across the world



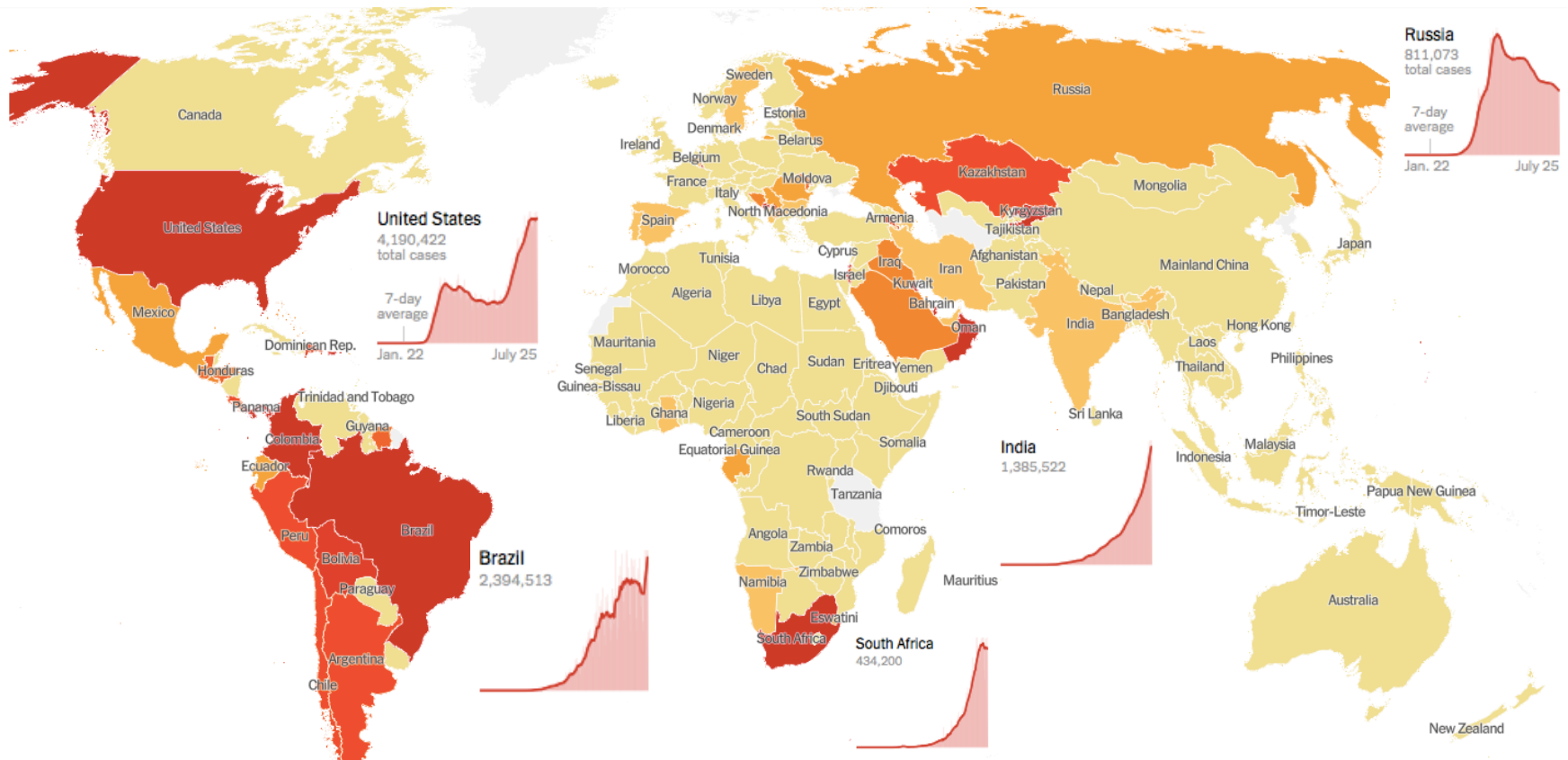
TOTAL CASES

16.0 million+

DEATHS

644,925

Includes confirmed and probable cases where available



Global Economic Impact of COVID-19



THE WORLD BANK
IBRD · IDA

Global Economic Prospects 8 June, 2020

Percentage point differences from January 2020 projections

	2017	2018	2019e	2020f	2021f	2020f	2021f		
World	3.3	3.0	2.4	-5.2	4.2	-7.7	1.6		
Advanced economies	2.5	2.1	1.6	-7.0	3.9	-8.4	2.4		
United States	2.4	2.9	2.3	-6.1	-9.1	4.0	-7.9	-11.4	2.3
Euro Area	2.5	1.9	1.2	-9.1	-12.1	4.5	-10.1	-13.1	3.2
Japan	2.2	0.3	0.7	-6.1	2.5	2.5	-6.8	1.9	
Emerging market and developing economies	4.5	4.3	3.5	-2.5	4.6	-6.6	0.3		
Commodity-exporting EMDEs	2.2	2.1	1.5	-4.8	3.1	-7.4	0.2		
Other EMDEs	6.1	5.7	4.8	-1.1	5.5	-6.2	0.3		
Other EMDEs excluding China	5.4	4.8	3.2	-3.6	3.6	-7.6	-0.8		
East Asia and Pacific	6.5	6.3	5.9	0.5	6.6	-5.2	1.0		
China	6.8	6.6	6.1	1.0	6.9	-4.9	1.1		
Indonesia	5.1	5.2	5.0	0.0	4.8	-5.1	-0.4		
Thailand	4.1	4.2	2.4	-5.0	4.1	-7.7	1.3		
Europe and Central Asia	4.1	3.3	2.2	-4.7	3.6	-7.3	0.7		
Russia	1.8	2.5	1.3	-6.0	2.7	-7.6	0.9		
Turkey	7.5	2.8	0.9	-3.8	5.0	-6.8	1.0		
Poland	4.9	5.3	4.1	-4.2	2.8	-7.8	-0.5		
Latin America and the Caribbean	1.9	1.7	0.8	-7.2	2.8	-9.0	0.4		
Brazil	1.3	1.3	1.1	-8.0	2.2	-10.0	-0.3		
Mexico	2.1	2.2	-0.3	-7.5	3.0	-8.7	1.2		
Argentina	2.7	-2.5	-2.2	-7.3	2.1	-6.0	0.7		
Middle East and North Africa	1.1	0.9	-0.2	-4.2	2.3	-6.6	-0.4		
Saudi Arabia	-0.7	2.4	0.3	-3.8	2.5	-5.7	0.3		
Iran	3.8	-4.7	-8.2	-5.3	2.1	-5.3	1.1		
Egypt ²	4.2	5.3	5.6	3.0	2.1	-2.8	-3.9		
South Asia	6.5	6.5	4.7	-2.7	2.8	-8.2	-3.1		
India ³	7.0	6.1	4.2	-3.2	3.1	-9.0	-3.0		

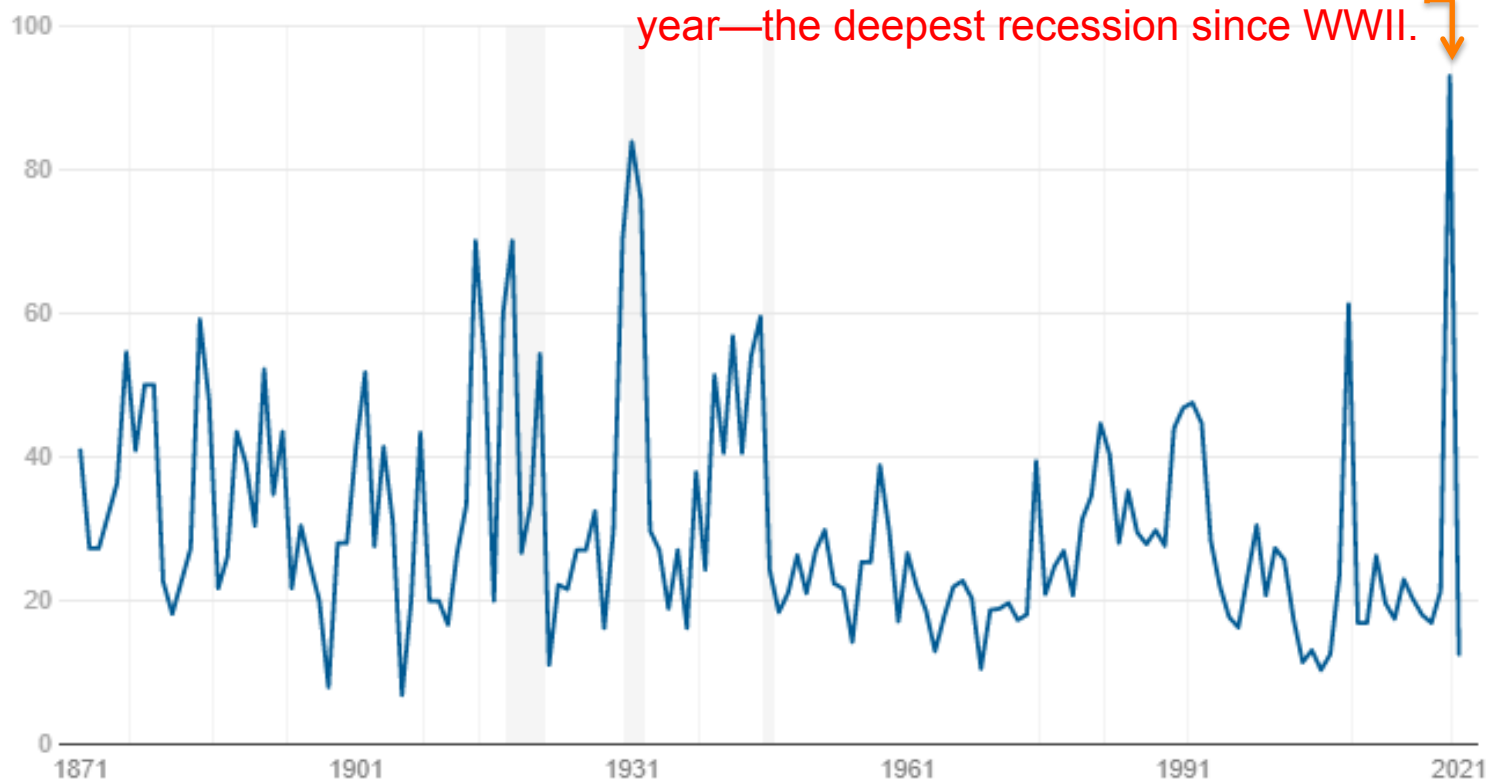
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Global Economic Impact by COVID-19

Most countries are expected to face recessions in 2020

Share of economies in recession, 1871-2021



The proportion of economies with an annual contraction in per capita GDP. Shaded areas refer to global recessions. Data for 2020-21 are forecasts.

Source: World Bank



Economic Impact of COVID-19

31 Companies That Have Filed for Bankruptcy Since the Pandemic Began — and 15 That Could Be Next
AOL JULY 23, 2020



Economic Impact of COVID-19



Virgin Australia
Country: Australia
Founded: 2000
Collapsed: Voluntary administration on April 21 2020

Trans States Airlines
Country: USA
Founded: 1982
Collapsed: April 1 2020



The 23 airlines that have collapsed since Covid-19

Air Deccan
Country: India
Founded: 2017
Collapsed: April 5 2020

Air Georgian
Country: Canada
Founded: 1994
Collapsed: May 29 2020

Air Italy
Country: Italy
Founded: 2018
Collapsed: April 16 2020

AtlasGlobal
Country: Turkey
Founded: 2001
Collapsed: February 12 2020

Avianca
Country: Colombia
Founded: 1919
Collapsed: Filed for bankruptcy May 10 2020

Braathens Regional Airlines
Country: Sweden
Founded: 2016
Collapsed: April 6 2020

Compass Airlines
Country: USA
Founded: 2007
Collapsed: April 5 2020

Ernest Airlines
Country: Italy
Founded: 2015
Collapsed: April 5 2020

Flybe
Country: UK
Founded: 1979
Collapsed: March 5 2020

LATAM Argentina
Country: Argentina
Founded: 2005
Collapsed: June 17 2020

Leeward Islands Air Transport (LIAT)
Country: Antigua
Founded: 1956
Collapsed: June 30 2020

LEVEL Europe
Country: Austria
Founded: 2017
Collapsed: June 18 2020

Miami Air International
Country: USA
Founded: 1990
Collapsed: May 8 2020

NokScoot
Country: Thailand
Founded: 2014
Collapsed: June 26 2020

One Airlines
Country: Chile
Founded: 2013
Collapsed: June 24 2020

RavnAir
Country: USA
Founded: 2013
Collapsed: June 24 2020

South Africa Airways
Country: South Africa
Founded: 1934
Collapsed: Entered liquidation May 2020

SunExpress Deutschland
Country: Germany
Founded: 2011
Collapsed: June 26 2020

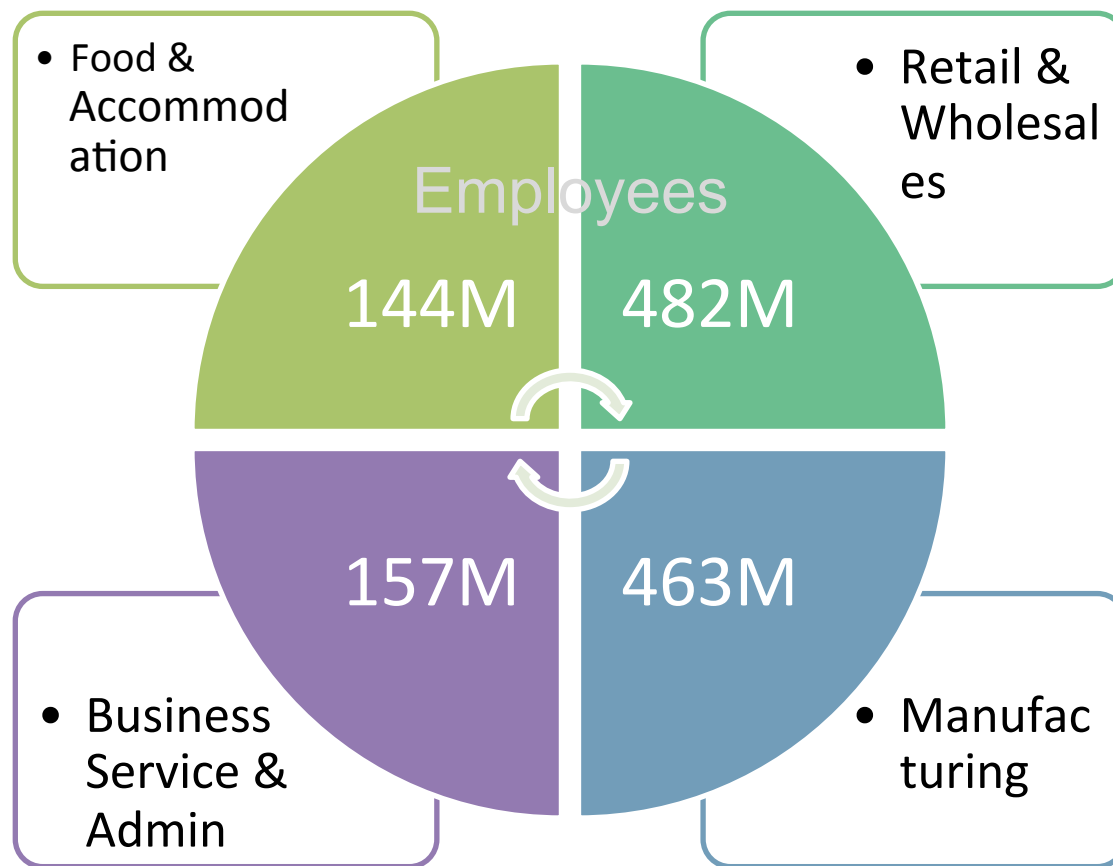
TAME EP
Country: Ecuador
Founded: 1962
Collapsed: May 19 2020

Tigerair Australia
Country: Australia
Founded: 2007
Collapsed: March 25 2020

- 2020 Q2 net loss of 1.6b, 87.1% down in revenue, Cash burn 40M/day, 3rd quarter 25M/day;
- Raised 16B, sell stocks, corp bond, debt, since the pandemic
- Hit by steep decline in engine business
- Report ~2b loss quarterly.

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Worst Affected Business Sectors



37.5% Global Employment

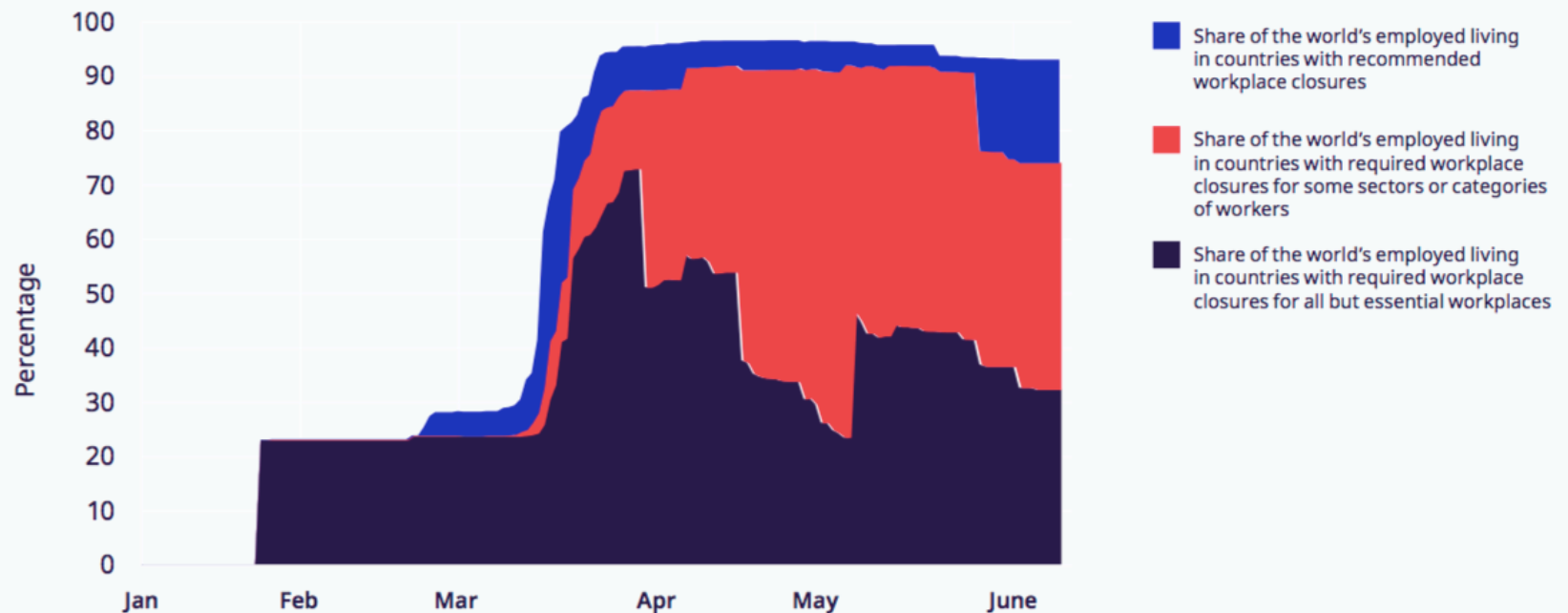
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Work Place Closure from COVID-19

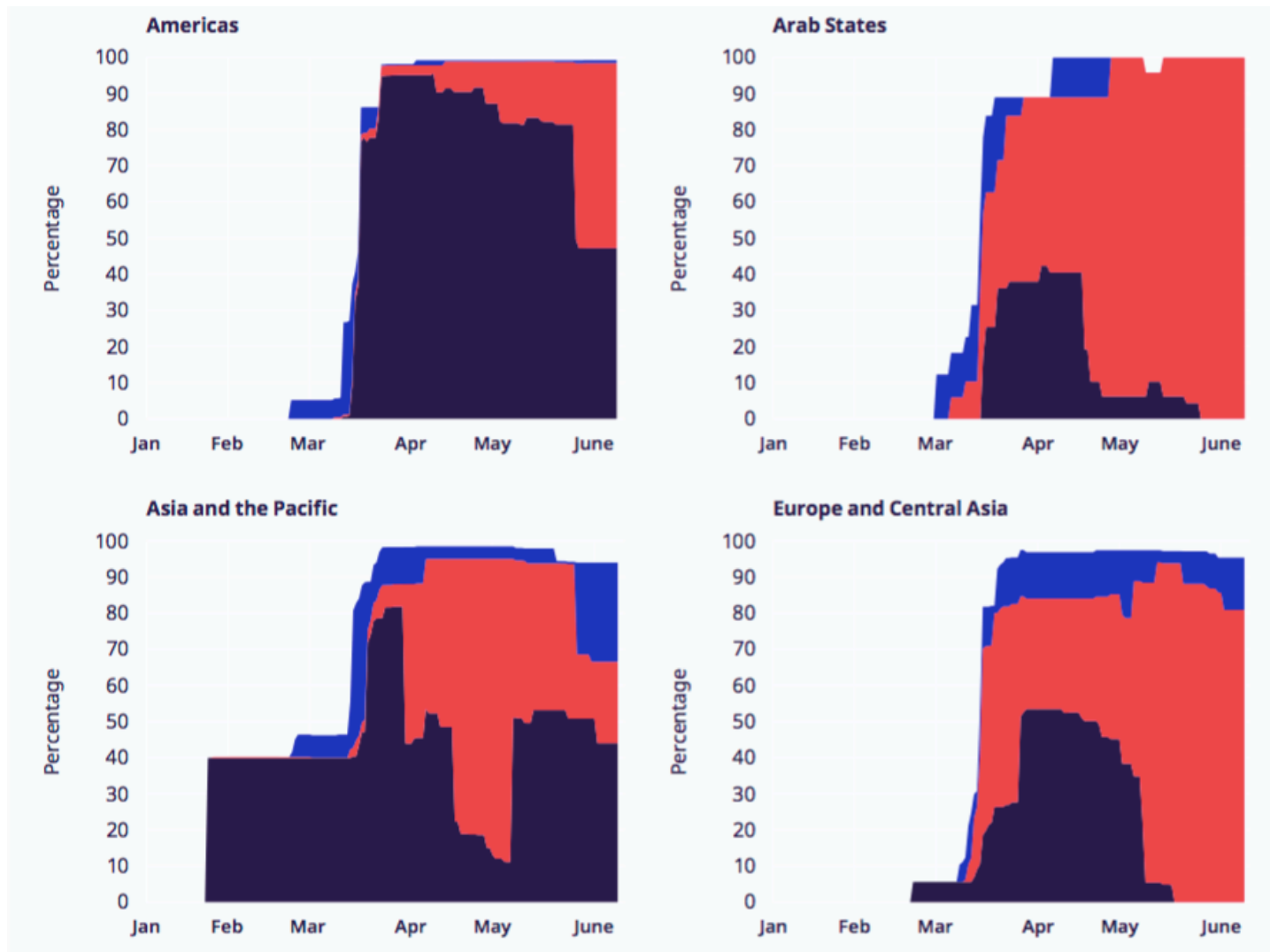
► **Figure 1. Share of world's employed in countries with workplace closures, 1 January-15 June 2020 (percentage)**



Note: The shares of workers in countries with required workplace closures for some sectors or categories of workers and countries with recommended workplace closures are stacked on top of the share of workers in countries with required workplace closures for all but essential workplaces.

Source: ILOSTAT database, ILO modelled estimates, November 2019; Oxford COVID-19 Government Response Tracker.

Work Place Closure from COVID-19



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Working – hours Loss 2020 Q1-Q2 from COVID-19 Lock-Down

Reference area	2020 Q1			2020 Q2		
	Equivalent number of full-time jobs (40 hours/week) (millions)	Equivalent number of full-time jobs (48 hours/week) (millions)	Percentage hours lost (%)	Equivalent number of full-time jobs (40 hours/week) (millions)	Equivalent number of full-time jobs (48 hours/week) (millions)	Percentage hours lost (%)
World	185	155	5.4	480	400	14.0
Americas	13	11	3.0	80	70	18.3
<i>Latin America and the Caribbean</i>	10	9	3.6	55	47	20.0
Central America	1	1	1.1	16	13	19.2
South America	9	7	4.8	38	32	20.6
<i>Northern America</i>	3	2	1.8	25	21	15.3
Arab States	2	2	3.1	10	8	13.2
Asia and the Pacific	150	125	7.1	280	235	13.5
<i>Eastern Asia</i>	115	95	11.6	100	85	10.4
<i>South-Eastern Asia and the Pacific</i>	7	6	2.1	44	37	12.6
South-Eastern Asia	7	6	2.1	42	35	12.7
<i>Southern Asia</i>	26	21	3.4	135	110	17.9
Europe and Central Asia	13	11	3.4	55	45	13.9
<i>Northern, Southern and Western Europe</i>	8	6	4.2	29	24	15.7
Northern Europe	1	1	3.1	7	6	15.3
Southern Europe	3	3	5.3	10	9	18.0
Western Europe	3	3	4.0	12	10	14.3
<i>Eastern Europe</i>	3	3	2.6	15	12	11.6
<i>Central and Western Asia</i>	2	2	2.7	10	8	13.6



International
Labour
Organization

Lockdown measures affecting almost 2.7 billion workers – four in five of the world's workforce.

Working – hours Loss 2020 Q2-Q3 from COVID-19 Lock-Down



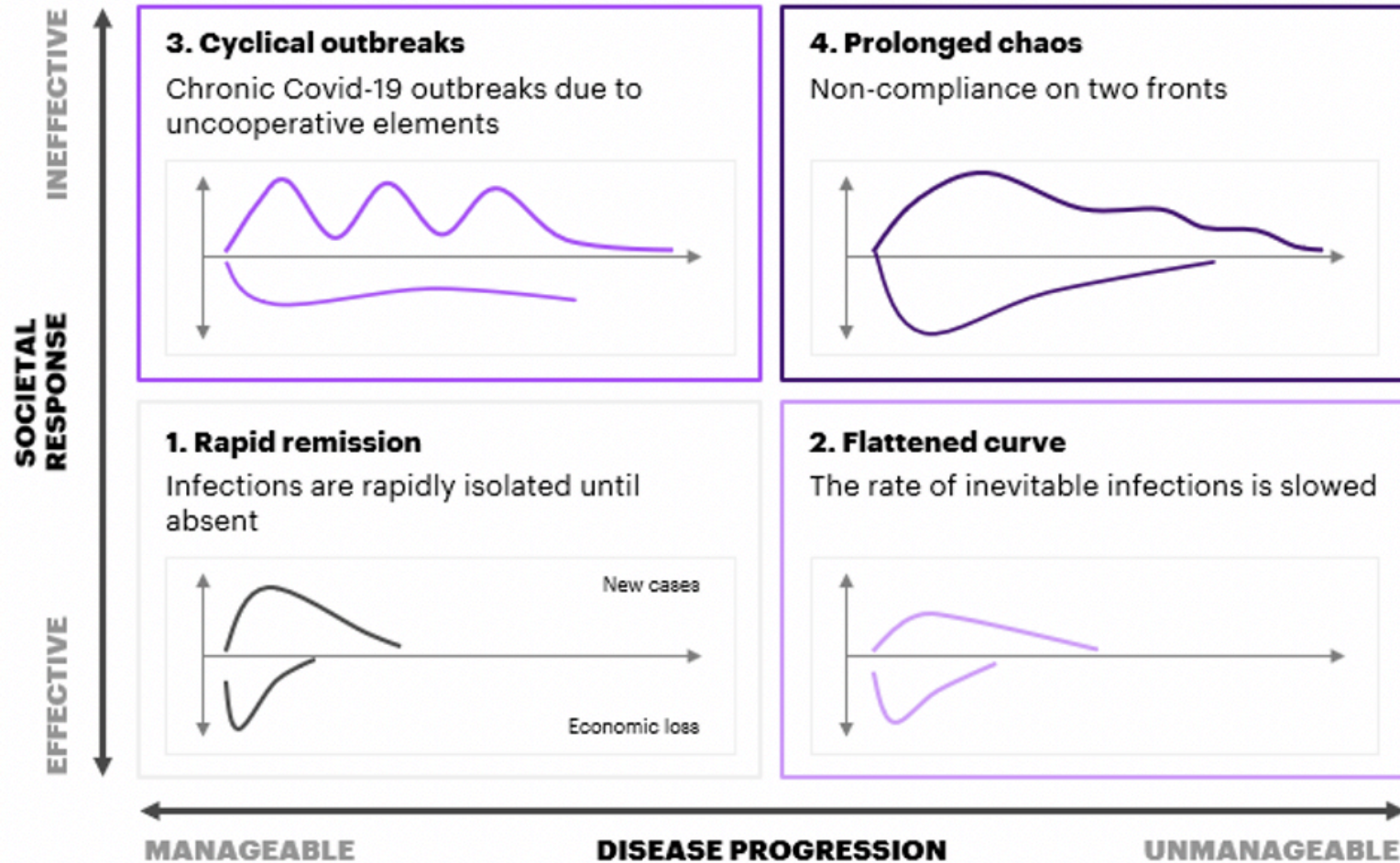
International
Labour
Organization

	Q2 2020		Baseline scenario		Pessimistic scenario		Optimistic scenario	
	Hours lost	Equivalent number of full-time jobs (48 hours/week)	Hours lost	Equivalent number of full-time jobs (48 hours/week)	Hours lost	Equivalent number of full-time jobs (48 hours/week)	Hours lost	Equivalent number of full-time jobs (48 hours/week)
	%	millions	%	millions	%	millions	%	millions
World	14.0	400	4.9	140	11.9	340	1.2	34
Africa	12.1	45	3.5	13	10.8	40	-0.1	0
Americas	18.3	70	7.8	29	15.6	60	2.5	9
Arab States	13.2	8	3.9	2	11.9	7	-0.1	0
Asia and the Pacific	13.5	235	4.5	80	11.5	200	1.2	21
Europe and Central Asia	13.9	45	5.4	18	10.6	35	1.2	4

Notes: (1) Negative values indicate a recovery to above pre-crisis levels. (2) See Technical Annex 4 for details of the various scenarios.



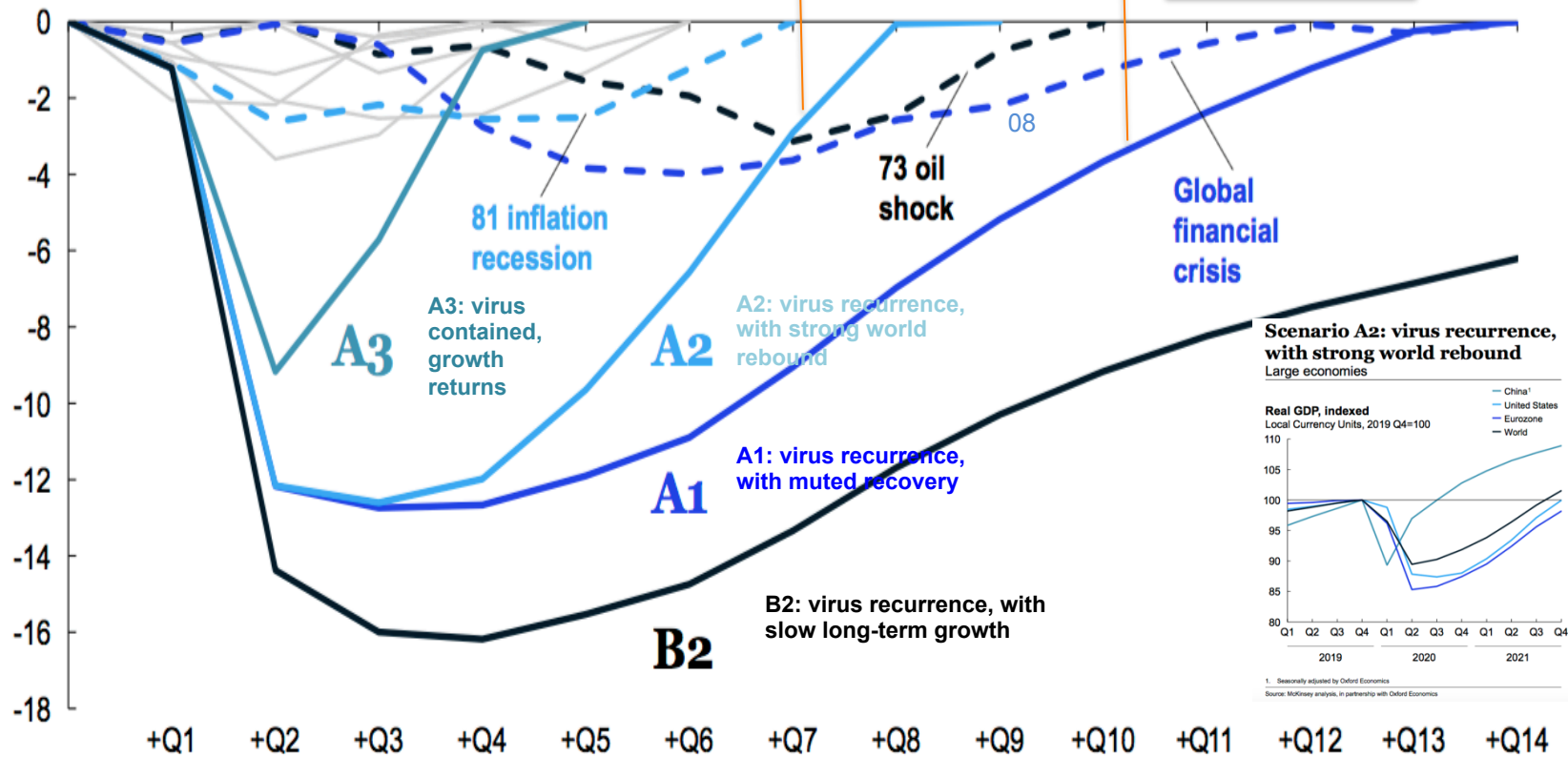
COVID-19 Development Scenarios



Economic Recovery Scenarios

United States, comparison of post-WWII recessions

% real GDP draw-down from previous peak



Source: Bureau of economic analysis, McKinsey team analysis, in partnership with Oxford Economics

McKinsey & Company

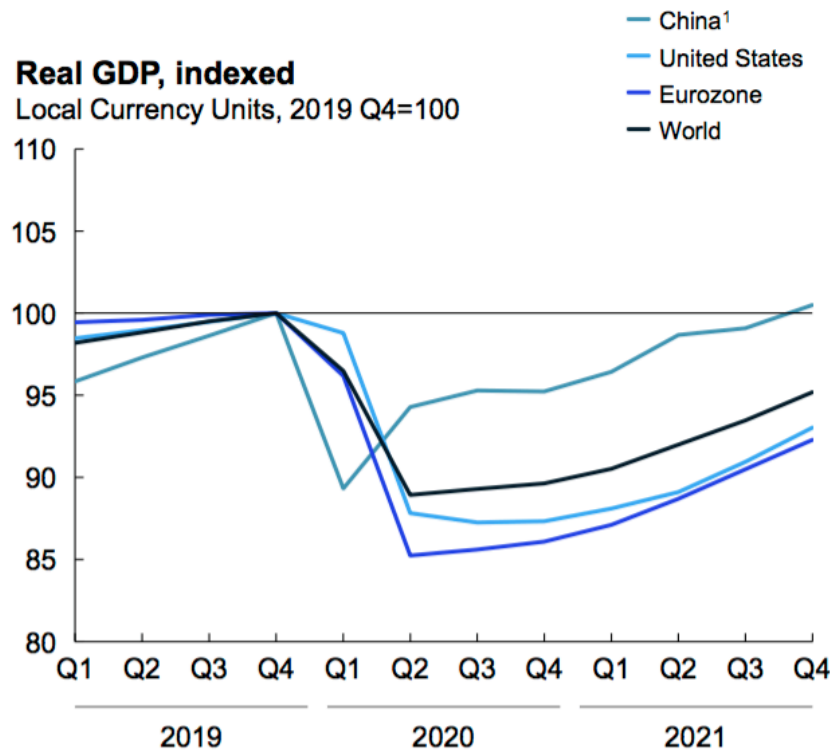




Economic Recovery Scenarios

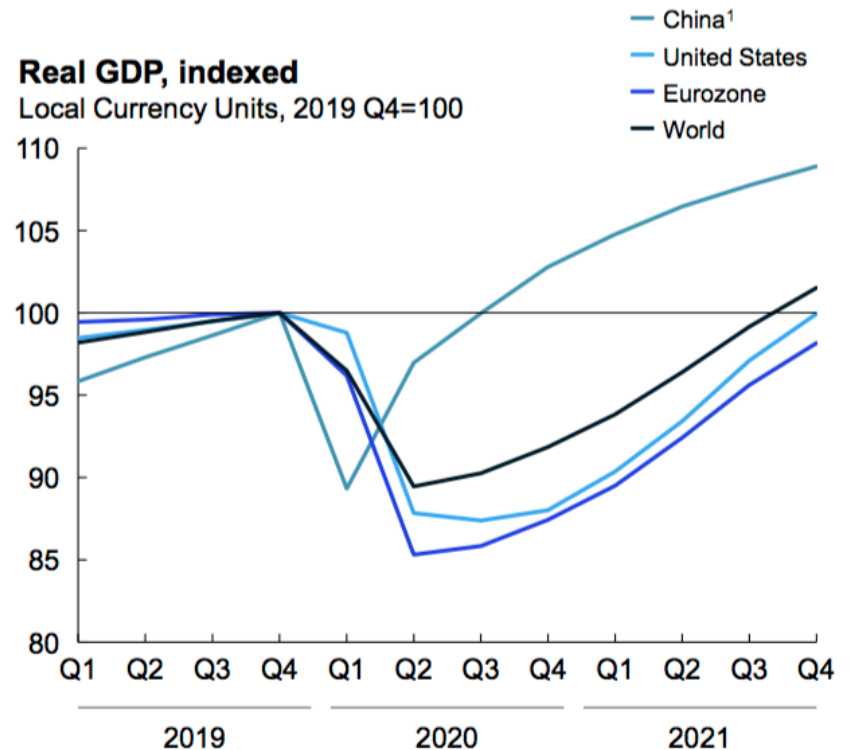
Scenario A1: virus recurrence, with muted recovery

Large economies



Scenario A2: virus recurrence, with strong world rebound

Large economies



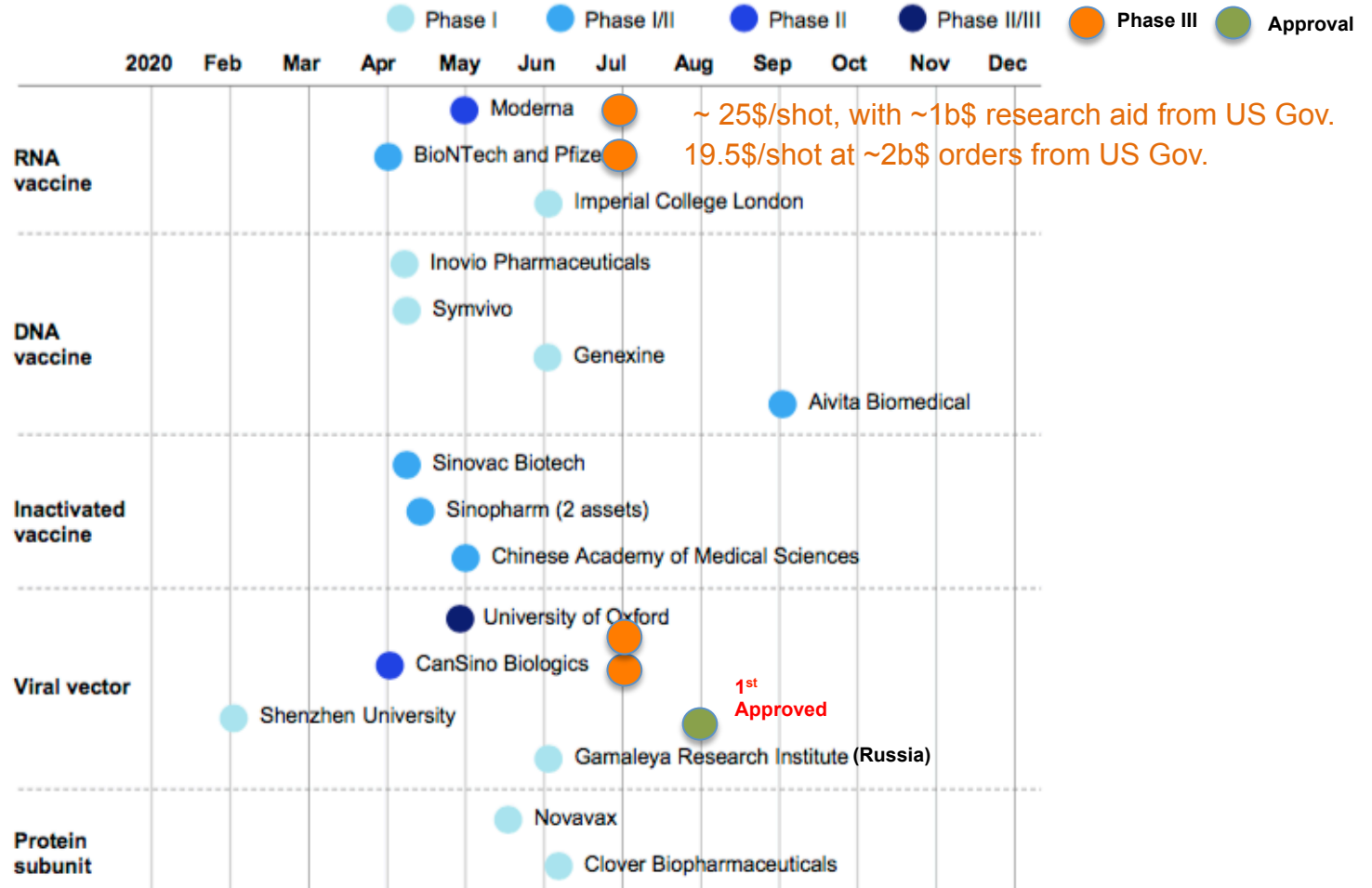
1. Seasonally adjusted by Oxford Economics

Source: McKinsey analysis, in partnership with Oxford Economics



COVID-19 Vaccine Development

There are 17 COVID-19 vaccine candidates in clinical trials...



1. [WHO](#)
2. [Milken Institute COVID-19 tracker](#)
3. [Time.com](#)
4. [NCBI](#)
5. [Natalawreview.com](#)
6. [Cen.acs.org](#)

Source: [Reuters](#), [Time](#), [Clinicaltrials.gov](#), [NYTimes](#)

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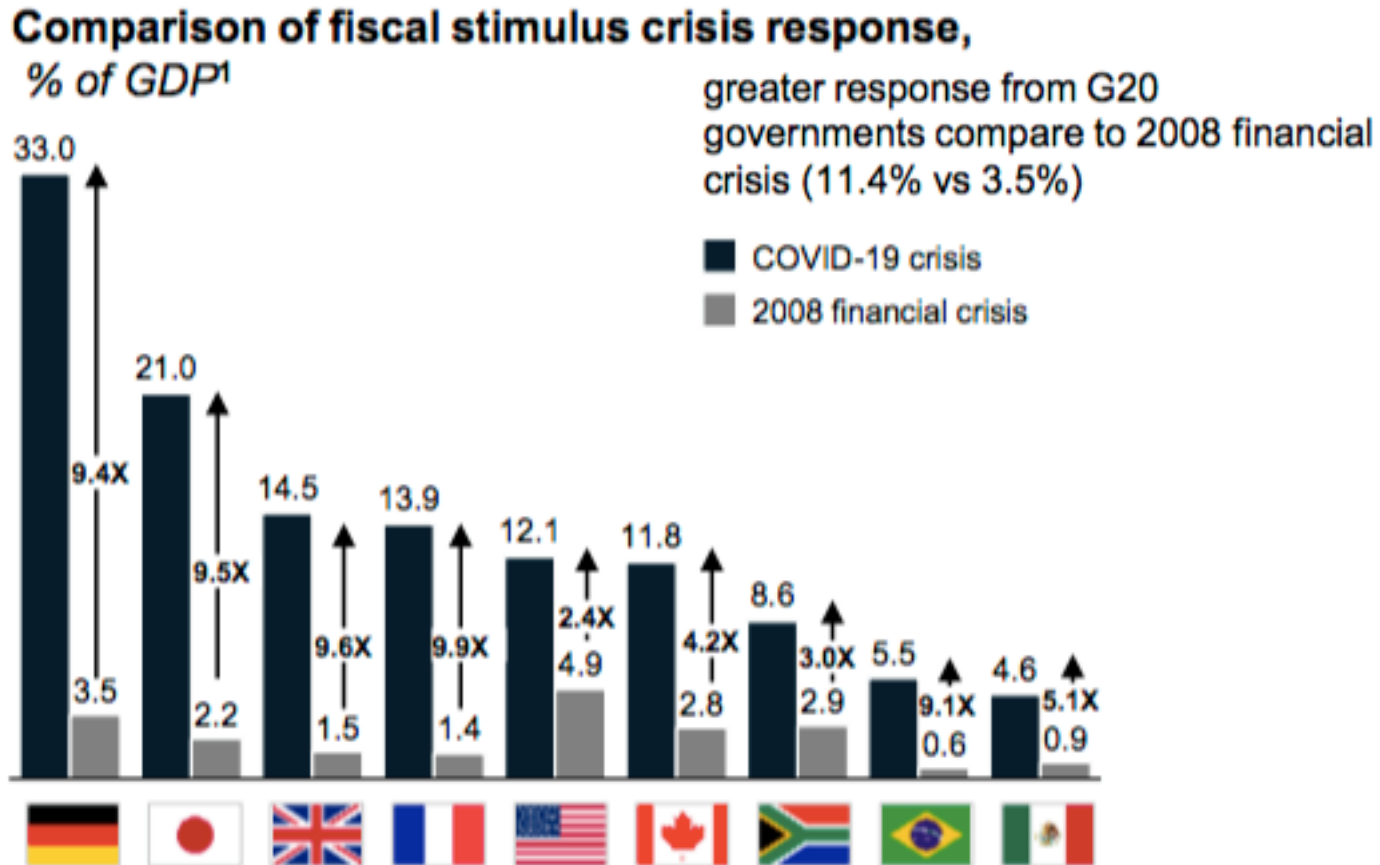
Will COVID-19 Vaccine be Available in next 12-18 months

	Reasons to believe a vaccine could be available by mid-2021	Potential roadblocks that could prevent a vaccine by mid-2021
Virus characteristics	Limited evidence that SARS-CoV-2 is mutating at a rapid rate, with similar patterns of low mutation rates observed in other COVID ¹	The longer the virus is in circulation in the population, the greater the chance of a potential mutation which could affect vaccine efficacy ¹
Unprecedented pipeline	220+ vaccine candidates in development with ~16 vaccines in human clinical trials ² First candidate was created 42 days after the virus was sequenced ³	No COVID-19 vaccines have been approved by any regulatory agency Limited data available on safety and efficacy profiles of vaccine candidates
Technology platforms	Vaccine candidates span 8+ technologies with broad range of attributes, including novel platforms (e.g., mRNA, DNA) with potential for faster development timelines ^{1,4}	Several of the platforms most advanced in development for COVID-19 vaccines (e.g., mRNA, DNA) have 0 approved products for human use ⁶
Regulatory	Potential for expedited regulatory approval timelines ⁵ Emergency Use Authorization being considered by FDA regulators ⁵	Multiple unknowns remain regarding the disease ⁷ and some novel vaccine technology platforms

[Msphere.asm.org](https://msphere.asm.org)



Government Stimulus





Chinese Government Stimulus



25个省区市公布了未来的投资规划，2.2万个项目总投资额达49.6万亿元，其中2020年度计划投资总规模7.6万亿元。

Chinese Government Stimulus



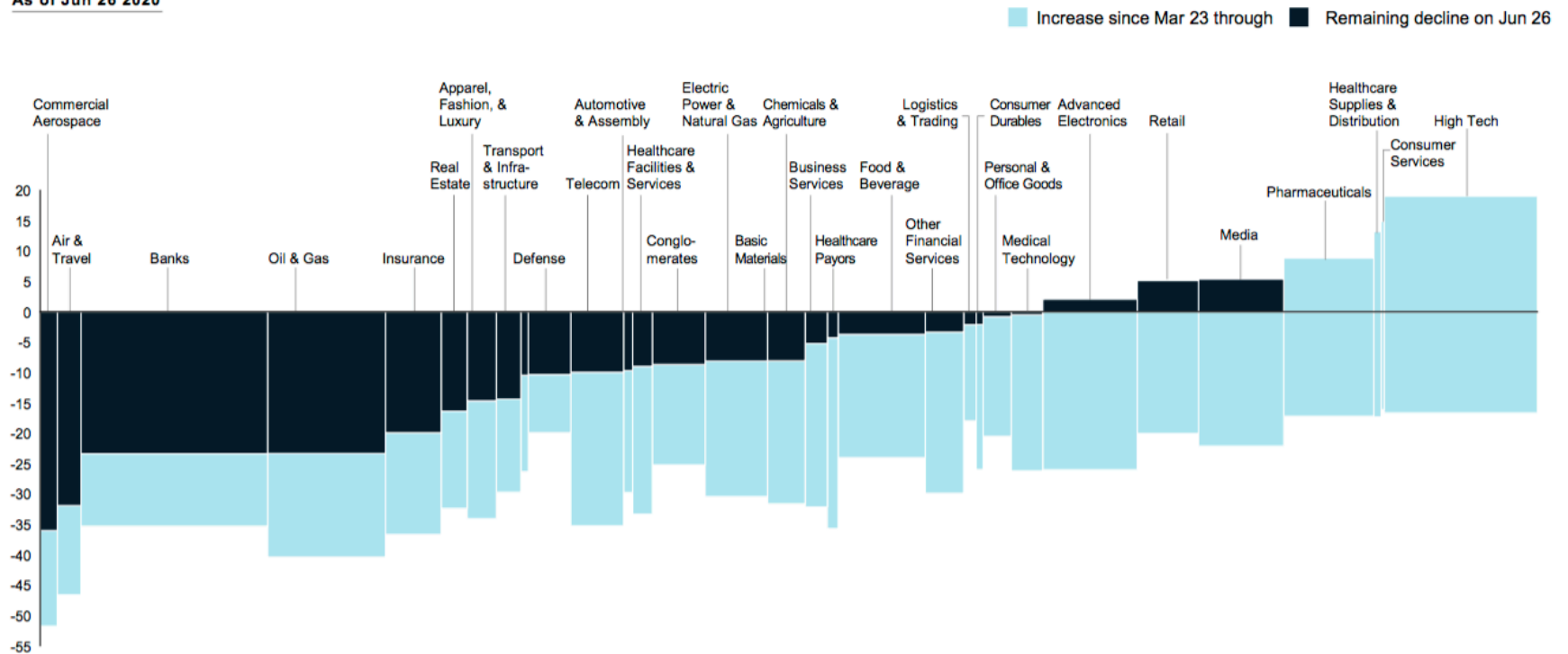
- 國內循環為主體，國內國際雙循環相互促進；
- 內需為先，進口替代；
- 重組供應鏈 (resiliency)；
- 提高直接融資(stock Market)；
- 大力發展5G與數字經濟：
 - 線上教育；
 - 互聯網醫療；
 - 居家／線上辦公；

Impact of COVID-19 on US Stock Market

Many industries have recovered most of their share price drop from recent months, some are up YTD

Weighted average year-to-date local currency shareholder returns by industry in percent¹. Width of bars is starting market cap in \$

As of Jun 26 2020



1. Data set includes global top 5000 companies by market cap in 2019, excluding some subsidiaries, holding companies and companies who have delisted since

Source: Corporate Performance Analytics, S&CF Insights, S&P

McKinsey & Company 50





Impact of COVID-19 on China Stock Market



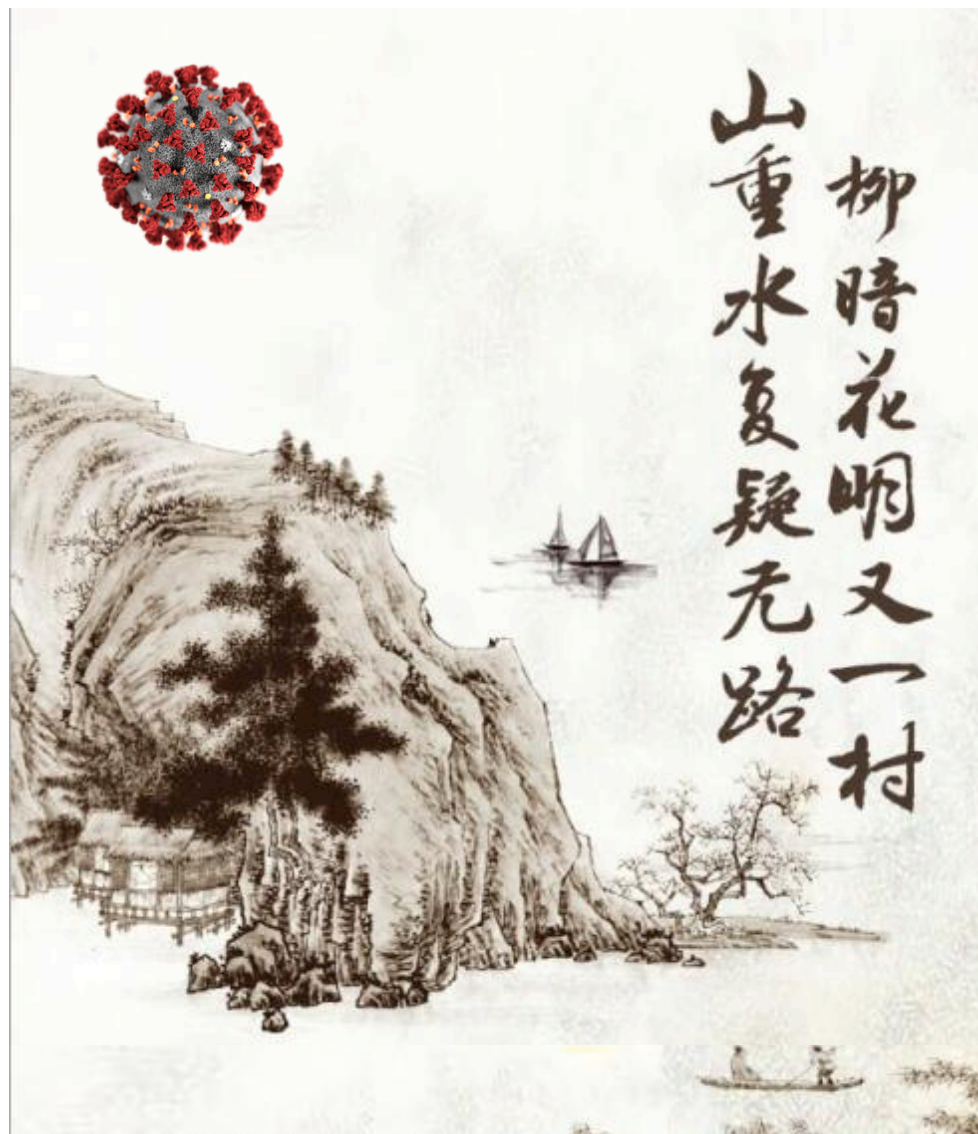
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Impact of COVID-19 on China Stock Market



仅供内部学习参考， 请勿复制



Thank You!

Dongmin Chen
Peking University



第十二屆香港知識產權研討會
The 12th HongKong IP Conference
2020. 7. 31

Panel Discussion: IP and Artificial Intelligence

Moderator: Prof. Dongmin CHEN
Institute of Interdisciplinary Sciences, Peking University

演讲 Presentations:

◆ Prof. Jyh-An LEE 李治安教授 - 香港中文大学法律学院助理院长兼副教授
主题:当人工智能遇见知识产权

Topic: Roadmap to Artificial Intelligence and Intellectual Property

◆ Prof. Yahong LI 李亚虹教授 - 香港大学法学院副教授，大学技转办副主任
主题:医疗人工智能在 **2019** 冠状病毒病大流行危机中的最优专利政策

Topic: The Optimal Patent Policy of Medical AI in the Crisis of COVID-19 Pandemic

◆ Prof. Tianxiang HE 何天翔教授 - 香港城市大学法律学院助理教授
主题:独创性作为 AI 生成作品在中国获得著作权保护的障碍

Topic: Originality as an Obstruction for Copyright Protection over AI-generated Contents in China

