Yicai Research Institute/Yicai Global

Comprehensive Assessment and Ranking Report on the Response to the Covid-19 Pandemic and Economic Recovery of 108 Economies

Executive Summary

October 2020

Contents

Executive Summary

The Covid-19 pandemic and the resulting economic recession have made 2020 a year to remember for the entire world, comparable to the flu pandemic in 1918 and the Great Depression from 1929 to 1933. The situation is likely to continue next year and even for years to come.

The novel coronavirus has posed unprecedented challenges to the global economy. A set of policy mix, including social distancing, quarantine, tracking and contact tracing, etc., have been phased in, although in various degree of strictness in economies that has been hit by Covid-19 to curb the spread of the virus. Policy makers also have implemented massive scale of fiscal and monetary stimulus to bail out the economy as a result of lockdown. Major economies have reopened since May before getting the virus completely under control, which has resulted in a rebound in new cases, a return to record highs and second wave make the global fight against Covid-19 even more complicated.

Covid-19 continues to spread around the world at an even more speedy rate today. Some countries are experiencing a second wave and some have never reached a turning point. Some 38,426,373, people worldwide had been infected as of 10.00 a.m. on Oct. 15(Beijing time), which translates into 51 infections for every 10,000 people.

Global economy suffered the greatest economic recession on record

in the second quarter of 2020. According to the latest WEO report of IMF, world output will suffer 4.4% loss in 2020, with advanced economies and emerging market/developing economies shrinking 5.8% and 3.3% respectively. Moreover, Covid-19 has claimed 1,091,245 lives worldwide as of 10.00 a.m. on Oct. 15(Beijing time), which equals to 14 deaths for every 100,000 people. Secondary disasters from the pandemic continue to unfold and Covid-19 is bringing about fundamental changes to the whole world, what the post Covid-19 world will look like depends on the actions and reactions that policy-makers and people have chosen today.

Yicai Research Institute have compiled an assessment and ranking system jointly with Yicai Global and the Pan-Asia Research Institute of Digital Economy, using 23 detailed indicators to evaluate the performance of 108 countries in handling the Covid-19 pandemic and their economic recoveries. It is hoped that this report will shed some light on “best practices” and provide references for policy makers of the whole world in combating the Covid-19 pandemic, fostering economic recovery as well as adapting to the medium- and long-term structural changes.

1. Methodological Framework

We assessed countries’ handling of the pandemic and their economic recovery in the Level I Index which looks at the response to

Covid-19, economic bailout measures and the degree of international cooperation.

- **“Response to Covid-19”** focuses on countries’ absolute performance in their response to the pandemic, such as confirmed cases, deaths and growth rate of new cases. We examined the situation in each country eight weeks after it reported 100 confirmed Covid-19 cases and deaths to give all the assessed countries the same starting point, as the pandemic arrived at different times in different nations. We found that, based on the experience in major economies, the virus can be brought under control around six weeks if effective measures are quickly put into place.

- Different countries have a different set of healthcare and hygiene conditions and their population densities are not the same which means that they respond to the pandemic differently. For this reason, we have produced a range of indexes to assess their handling of Covid-19, such as giving countries scores based on the relative disparity between two groups of indexes. For example, if the percentage of confirmed cases among the total population of a country with less developed medical care is low, this means the country made greater efforts in response to the virus than other countries. We also included policy effectiveness and the variety of new technologies used to combat the virus in our assessment, such as how quickly they implemented social distancing and

quarantine measures, how responsive the public was to these measures and the variety of digital technologies used.

- **“Economic bailout”** looks at the pandemic’s absolute impact on a country’s economy, including international organizations’ estimate of changes in its economic growth before and after the outbreak, the manufacturing Purchasing Managers' Index and employment confidence index based on Big Data. We also looked at countries’ economic bailout and recovery plans including the scale of their bailouts and their communications with the market. The latter is vital to tackle a crisis.

- **“International cooperation”** focuses on how countries helped other countries to fight the pandemic, such as by providing financial assistance or imposing restrictions on exporting medical supplies. It must be noted that financial assistance only refers to governments’ donation to the World Health Organization’s Covid-19 Solidarity Response Fund because of data availability.

The above three Level I Indexes plus the Level II, Level III and Level IV Indexes constitute our assessment system. The weight of each index is decided based on the absolute results of studying pandemic control measures and respecting the data. The detailed indexes and their weights are listed in the following table. The pandemic and public economic data are as of Aug. 31.

Table 1: Indexes of the Comprehensive Assessment of the World's Response to Covid-19, Economic Recovery and Weights

Level I Index	Level II Index	Level III Index	Level IV Index
Response to Covid-19 (60%)	Policies and Technologies (10%)	Policies (5%)	Timeliness of lockdown, social distancing & isolation
			Trust in political figures
			Public support for policies *
		Technologies (5%)	Vaccine development progress
			Use of digital technologies in pandemic control **
	Effect of Pandemic Control Measures (50%)	Absolute Level (36%)	Coronavirus situation 8 weeks after the number of confirmed cases and deaths exceeded the threshold
			Proportion of confirmed cases, deaths among the country's total population
			Peak of confirmed cases
			Plateau period duration
			Death rate of confirmed cases
		Relative Level*** (Taking into consideration difficulties in pandemic control and policy implementation) (14%)	Global Health Security index: proportion of confirmed cases
			Population density: proportion of confirmed cases
			Number of air trips per capita: proportion of confirmed cases
			Global openness degree: proportion of confirmed cases
			Healthcare quality (Hospital Quality Alliance): proportion of deaths
Economic Bailouts (30%)	Policies (5%)	Bailout plans (4%)	Scale of economic bailout plans for individuals
			Scale of economic bailout plans for businesses
		Communications with market (1%)	Uncertainties in economic policies
	Impact on Economy (25%)	Absolute indexes (25%)	GDP contraction in 2020 (IMF's estimate)
			PMI
			Employment confidence index based on search data
International Cooperation	International Assistance	Donations of funds	Donation to WHO's Covid-19 Solidarity Response Fund

(10%)	(10%)	(8%)	
		Donations of materials (2%)	Ban on Export of Medical Supplies

Notes: *Scored based on subjective opinions according to MIT survey data
** Scored based on subjective opinions according to a variety of digital technologies used in pandemic control
*** The relative level indicates governments' response to the pandemic through the difference between the sub-indexes and the absolute level's indexes. For example, a high proportion of confirmed cases among the total population of a country with good medical care and low population density means the country's government did not do enough to curb the virus' spread.

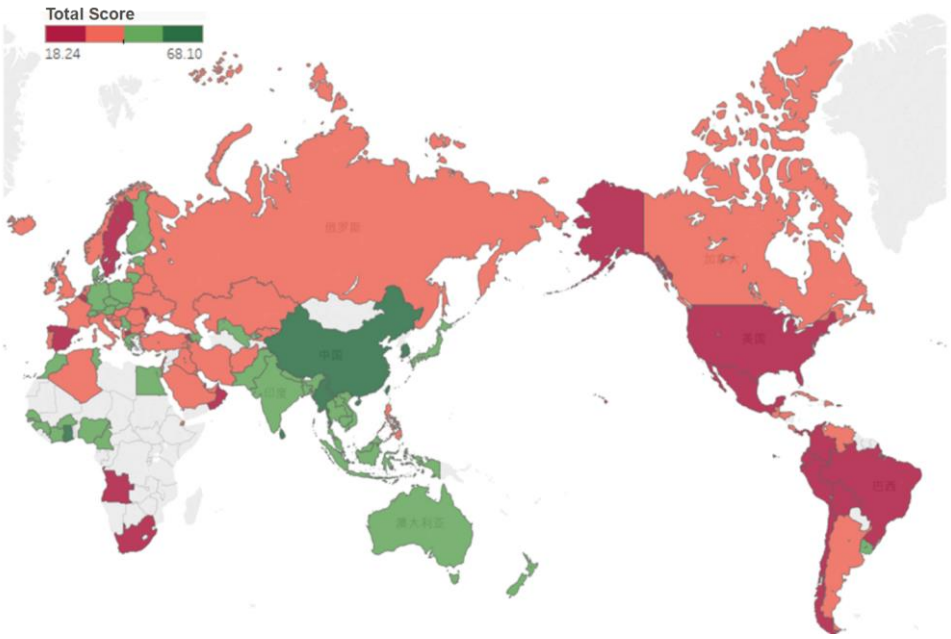
Sources: Yicai Research Institute, Pan-Asia Research Institute of Digital Economy

2. Selection of Sample Countries

Taking into account that the pandemic started in different countries at different times, we chose those countries with over 100 confirmed cases and more than 10 deaths as of June 30 to ensure data availability and to assess as many countries as possible.

3. Ranking Results

Figure 1: Comprehensive Assessment of Major Countries' Response to Covid-19



Note: The higher a country scores, the better its performance amid the pandemic
Sources: Yicai Research Institute, Pan-Asia Research Institute of Digital Economy

Using these criteria, we selected 108 countries covering the majority of the world's regions and population to assess their response to the virus and their economic recovery. Figure1 shows the performance of major countries and regions, and Table 2 specifies the rankings and scores of each country. Not surprisingly, Asia-Pacific countries performed particularly well. China topped the list. South Korea ranked fourth despite the recent new outbreaks of the epidemic. Sri Lanka, Myanmar, Thailand, Vietnam and Cambodia as well as Australia and New Zealand all ranked among the top 10. The best performers in Europe were Denmark and Germany in 21st and 23rd place respectively. Austria, Greece and Switzerland also performed well. Unsurprisingly, the US and Brazil, both countries with leaders who initially downplayed the

problem and with a lack of public support for the government's policies, came 98th and 89th respectively. Sweden, one of the very few countries to opt for the controversial tactic of herd immunity, ranked 90th.

Table 2: Comprehensive Assessment of Major Countries' Response to Covid-19 and Their Economic Recovery

Rank	Country	Comprehensive Assessment Score	Covid-19 Control Score	Covid-19 Control Rank	Economic Recovery Score	Economic Recovery Rank	International Cooperation Score	International Cooperation Rank
1	China	68.1	75.1	1	66.5	2	31.0	25
2	Sri Lanka	59.2	70.8	3	49.1	12	20.0	33
3	Ghana	58.8	70.9	2	47.4	18	20.0	33
4	South Korea	57.6	63.6	8	55.0	8	29.6	26
5	Myanmar	56.3	57.2	20	66.6	1	20.0	33
6	Australia	55.6	55.2	25	57.9	4	51.1	15
7	Thailand	55.4	68.7	5	37.9	49	28.1	32
8	New Zealand	55.1	60.1	15	45.6	22	53.0	12
9	Vietnam	54.0	57.5	19	55.4	7	28.1	31
10	Cambodia	53.7	69.2	4	33.9	62	20.0	33
11	Brunei	53.2	62.1	12	46.5	21	20.0	33
12	Malaysia	52.3	67.5	6	39.2	45	-	88
13	Pakistan	51.2	61.2	14	48.3	15	-	88
14	Cameroon	51.2	61.8	13	40.4	40	20.0	33
15	Tunisia	51.0	62.9	10	37.5	50	20.0	33
16	Azerbaijan	51.0	46.8	58	43.1	33	100.0	1
17	Nepal	50.3	65.6	7	29.9	71	20.0	33
18	Japan	50.3	50.2	41	48.6	13	55.9	8
19	Cote d'Ivoire	50.2	50.8	39	46.9	19	56.5	7
20	Guinea	50.0	57.6	18	30.4	70	62.9	6
21	Denmark	49.2	44.7	60	46.6	20	83.9	2
22	Indonesia	49.2	52.2	34	59.5	3	-	88
23	Germany	48.2	49.7	44	49.7	10	34.4	24
24	Austria	48.1	48.5	51	45.4	23	53.5	11
25	Poland	48.0	52.0	36	49.3	11	20.0	33
26	Laos	47.9	63.1	9	26.6	80	20.0	33
27	Slovakia	47.8	56.0	24	30.9	69	49.7	19
28	Czech Republic	47.8	53.7	30	42.3	34	28.8	28
29	Singapore	47.6	49.2	47	43.9	32	49.1	20
30	Cyprus	47.5	57.0	21	27.2	76	51.6	13

31	Burkina Faso	47.3	62.7	11	25.6	84	20.0	33
32	Uruguay	46.4	56.0	23	36.1	55	20.0	33
33	Nigeria	45.4	57.7	17	29.5	72	20.0	33
34	Senegal	45.3	55.1	26	34.1	61	20.0	33
35	Greece	45.1	52.4	33	38.7	48	20.0	33
36	Switzerland	45.1	42.4	65	55.8	6	28.8	29
37	Egypt	44.8	54.4	28	40.7	39	-	88
38	Finland	44.4	47.1	56	36.7	53	51.2	14
39	Serbia	44.3	42.3	66	41.0	37	66.4	4
40	Luxembourg	44.1	45.4	59	39.3	44	50.5	18
41	Morocco	44.0	56.1	22	34.4	58	-	88
42	Estonia	43.9	52.1	35	25.2	87	50.8	16
43	Uzbekistan	43.7	50.6	40	44.6	28	-	88
44	Lithuania	43.6	54.6	27	29.3	73	20.0	33
45	India	43.2	49.4	46	45.3	25	-	88
46	Bangladesh	43.2	49.9	43	44.2	30	-	88
47	The Philippines	43.0	52.6	32	31.5	67	20.0	33
48	Djibouti	42.3	54.3	29	25.8	83	20.0	33
49	Hungary	42.0	47.1	57	39.0	47	20.0	33
50	Turkey	41.9	50.1	42	39.5	42	-	88
51	Norway	41.9	48.1	52	25.4	85	53.8	10
52	Slovenia	41.6	47.8	55	26.8	78	49.0	21
53	Canada	41.4	35.8	79	48.6	14	54.0	9
54	Belarus	40.7	48.1	53	39.4	43	-	88
55	The Islamic Republic of Iran	40.3	43.0	64	48.2	16	-	88
56	Venezuela	39.9	44.7	61	36.9	51	20.0	33
57	Israel	39.2	44.2	62	35.6	56	20.0	33
58	UK	38.8	29.4	93	44.6	27	78.1	3
59	Dominican Republic	38.3	39.7	70	41.8	35	20.0	33
60	Cuba	38.1	60.1	16	0.0	108	20.0	33
61	Algeria	38.0	49.5	45	20.9	95	20.0	33
62	Afghanistan	37.9	48.7	50	22.3	94	20.0	33
63	Latvia	37.7	51.4	37	5.9	105	50.5	17
64	Kazakhstan	37.5	36.7	76	51.6	9	-	88
65	Italy	37.4	31.6	88	45.3	24	48.2	22
66	Bulgaria	37.3	49.1	48	26.1	82	-	88
67	Bosnia and Herzegovina	37.2	40.3	69	36.7	52	20.0	33
68	Guatemala	37.0	37.8	73	40.9	38	20.0	33
69	Croatia	36.9	51.4	38	13.5	100	20.0	33
70	Iraq	36.6	41.8	67	31.8	66	20.0	33

71	The Kyrgyz Republic	36.2	35.0	80	44.1	31	20.0	33
72	Ireland	35.7	31.6	89	34.3	59	64.4	5
73	Honduras	35.5	33.3	85	45.1	26	20.0	33
74	United Arab Emirates	35.5	43.1	63	25.3	86	20.0	33
75	Romania	34.9	40.6	68	28.7	75	20.0	33
76	Albania	34.9	48.8	49	12.2	101	20.0	33
77	Russian Federation	34.9	35.9	77	44.4	29	-	88
78	Ukraine	34.7	48.0	54	19.6	96	-	88
79	Netherlands	34.7	33.7	83	41.7	36	20.0	33
80	Saudi Arabia	34.4	33.7	82	34.3	60	38.6	23
81	Costa Rica	34.3	37.1	75	40.4	41	-	88
82	Lebanon	34.2	53.1	31	7.8	104	-	88
83	Kuwait	33.5	28.7	95	47.6	17	20.0	33
84	Portugal	33.2	38.6	72	26.7	79	20.0	33
85	Iceland	31.6	37.1	74	24.5	93	20.0	33
86	Argentina	31.0	32.1	87	32.6	64	20.0	33
87	France	30.9	34.2	81	25.1	88	28.4	30
88	Qatar	30.5	39.4	71	16.2	99	20.0	33
89	Brazil	30.5	18.5	105	57.9	5	20.0	33
90	Sweden	30.1	28.6	96	36.5	54	20.0	33
91	Ecuador	28.7	32.4	86	31.0	68	-	88
92	North Macedonia	27.5	30.0	91	25.0	90	20.0	33
93	Bahrain	27.5	30.1	90	24.8	91	20.0	33
94	Belgium	27.5	29.2	94	26.5	81	20.0	33
95	Panama	27.1	25.4	100	33.0	63	20.0	33
96	Oman	27.1	35.9	78	18.5	97	-	88
97	Columbia	25.4	24.4	102	29.3	74	20.0	33
98	US	25.4	25.1	101	24.7	92	29.2	27
99	Bolivia	24.7	18.2	106	39.1	46	20.0	33
100	Armenia	23.1	21.6	104	27.2	77	20.0	33
101	Moldova	22.9	29.4	92	17.5	98	-	88
102	Spain	22.9	22.3	103	25.0	89	20.0	33
103	San Marino	22.4	33.7	84	0.6	107	20.0	33
104	Chile	22.4	16.6	107	34.7	57	20.0	33
105	Mexico	20.9	27.7	97	7.8	103	20.0	33
106	Peru	20.6	14.8	108	32.3	65	20.0	33
107	Angola	18.3	25.7	98	2.8	106	20.0	33
108	South Africa	18.2	25.7	99	9.5	102	-	88

Note: Data as of Aug. 31

Source: Yicai Research Institute

The Yicai Research Institute used the SEIR epidemiological model, as well as our self-developed “social network-based virus transmission model “to predict the state of the pandemic in different nations. The SEIR model, classing people as either Susceptible, Exposed, Infectious or Removed,’ which assumes that asymptomatic cases are always present and bases its calculations on earlier disease trajectories, showed that countries with strict epidemic prevention policies, such as China, South Korea and Italy, all had the pandemic under control and logged R0 (Basic Reproduction Number) lower than 1 in July. The social network-based model, which assumes that the regional increase of Covid-19 cases constitutes a new outbreak of the pandemic, showed that those countries that had the outbreak under control in its early stages and then saw new clusters emerge that results to R0 bigger than 1 in July, indicating that consistent epidemic prevention and control measures are essential.

Table 3: R0 in Major Nations

Countries	SEIR Model		Social Network Model	
	First Two Months After Covid-19 Outbreak	July 2020	First Two Months After Covid-19 Outbreak	July 2020
China	2.43	0.18	1.9	N.A.
Korea	2.7	0.57	3.5	1.7
India	3.46	3.53	2.6	3.2
The US	3.43	3.1	3.43	1.88
The UK	3.18	0.95	3	0.64

Germany	2.9	0.68	3.2	1.1
Italy	3.5	0.43	3.5	0.8
Brazil	3.56	3.32	3.0	1.24
Sweden	3.63	1.2	2.7	0.46
Vietnam	2.55	0.16	3.8	N.A.

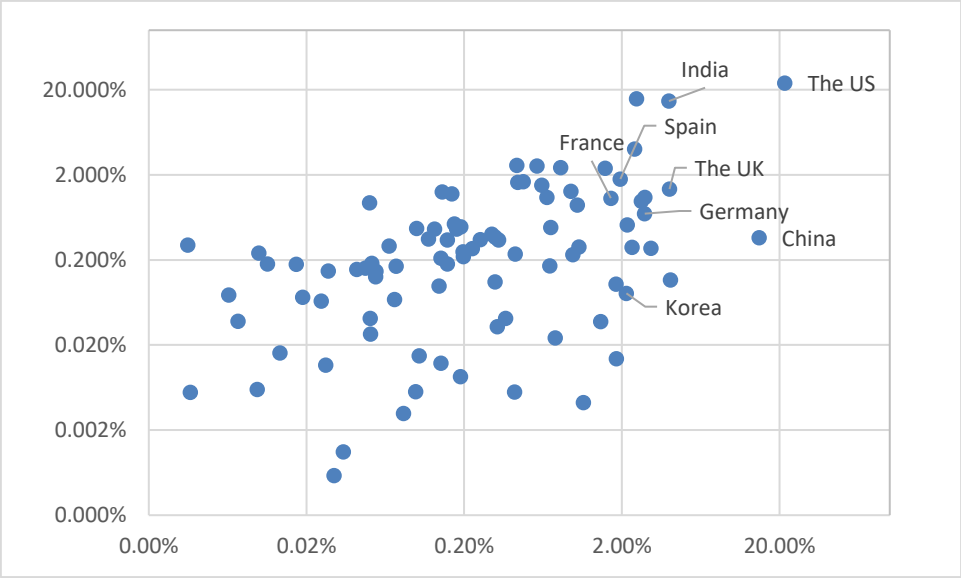
Source: Yicai Research Institute

Public health infrastructure, population density and population mobility vary from country to country which means each country faces a different set of challenges in its fight against the pandemic. We used the aircraft passenger database compiled by the International Air Transport Association to make the evaluation's results more rational and to take population mobility as a gauge. This database includes all air travel statistics (both between and within countries) throughout 2018. We used it as a baseline to compare with the collective number of confirmed Covid-19 cases in various nations that the World Health Organization made public (as of Aug. 31).

We calculated the proportion of global air passenger volume to the overall number of confirmed Covid-19 cases in each nation. The correlation coefficient of these two figures was 0.66, which means the proportion of a country's global air passenger volume accounts for about two-thirds of its total confirmed cases. For instance, Italy's proportion of global air passenger volume reached 0.67 percent, and the number of its confirmed Covid-19 cases was 1.09 percent as of Aug. 31.

Figure 2: Proportion of Confirmed Covid-19 Cases and Global Air

Passenger Volumes



Notes: The horizontal axis refers to the proportion of global air passenger volume and the vertical axis is the proportion of confirmed Covid-19 cases.

Source: Yicai Research Institute, World Bank

Nations' efforts in the fight against Covid-19 can be compared once the baseline for measuring the novel coronavirus infection is determined. The method we adopted was to 'calculate Covid-19 gaps,' which is the proportion of global air passenger volume in 2018 minus the corresponding proportion of confirmed Covid-19 cases. A 'positive' gap means the country performed better than the benchmark level in the prevention and control of Covid-19. Brazil had the largest negative gap at minus 13.14 percent, indicating that the disease's infection rate exceeded the projection we could make using air passenger data. China boasted the biggest positive gap at 14.46 percent, showing that we did achieve some success regarding the prevention of the virus' spread, and the ranking corresponded with the evaluation's results.

Strict and all-encompassing social distancing and quarantine

measures can quickly eliminate the virus' transmission routes. The possibility of adopting such measures worldwide, however, is very small. Under pressure, some nations restarted their economy in May before the Covid-19 pandemic was completely under control. The aim should be to prevent repeated, large-scale outbreaks of the disease while enabling a stable economic recovery. This should prevent the occurrence of secondary disasters including 'bank runs' for medical resources. Effective testing, tracking and tracing are also needed so as to reboot the economy in an orderly way.

Table 4: Economic Performance of Major Countries

Countries	2020 GDP Contraction (IMF Estimates in June)	Purchasing Managers' Index in August	Second-Quarter GDP Growth	First-Half GDP Growth
China	-4.8%	53.1	3.2%	-1.6%
Korea	-4.3%	48.5	-2.9%	-0.8%
India	-11.5%	52	N.A.	N.A.
The US	-10.1%	50.9	-21.7%	N.A.
The UK	-11.6%	55.2	-21.7%	N.A.
Germany	-9.0%	52.2	-11.7%	-6.7%
Italy	-13.3%	53.1	-17.3%	-11.4%
Brazil	-11.1%	58.2	N.A.	N.A.
Sweden	-8.3%	N.A.	N.A.	N.A.
Vietnam	-3.8%	45.7	0.4%	1.8%

Sources: International Monetary Fund, HIS Markit, Wind, Yicai Research Institute

Table 5: Top 30 Nations with Highest Economic Bailout Scores

Ranking	Countries	Economic Bailout Scores	Ranking	Countries	Economic Bailout Scores
1	Myanmar	66.6	16	Islamic Republic of Iran	48.2
2	China	66.5	17	Kuwait	47.6
3	Indonesia	59.5	18	Ghana	47.4
4	Australia	57.9	19	The Republic of Côte d'Ivoire	46.9
5	Brazil	57.9	20	Denmark	46.6
6	Switzerland	55.8	21	Brunei	46.5
7	Vietnam	55.4	22	New Zealand	45.6
8	Korea	55.0	23	Austria	45.4
9	Kazakhstan	51.6	24	Italy	45.3
10	Germany	49.7	25	India	45.3
11	Poland	49.3	26	Honduras	45.1
12	Sri Lanka	49.1	27	The UK	44.6
13	Japan	48.6	28	Uzbekistan	44.6
14	Canada	48.6	29	Russian Federation	44.4
15	Pakistan	48.3	30	Bangladesh	44.2

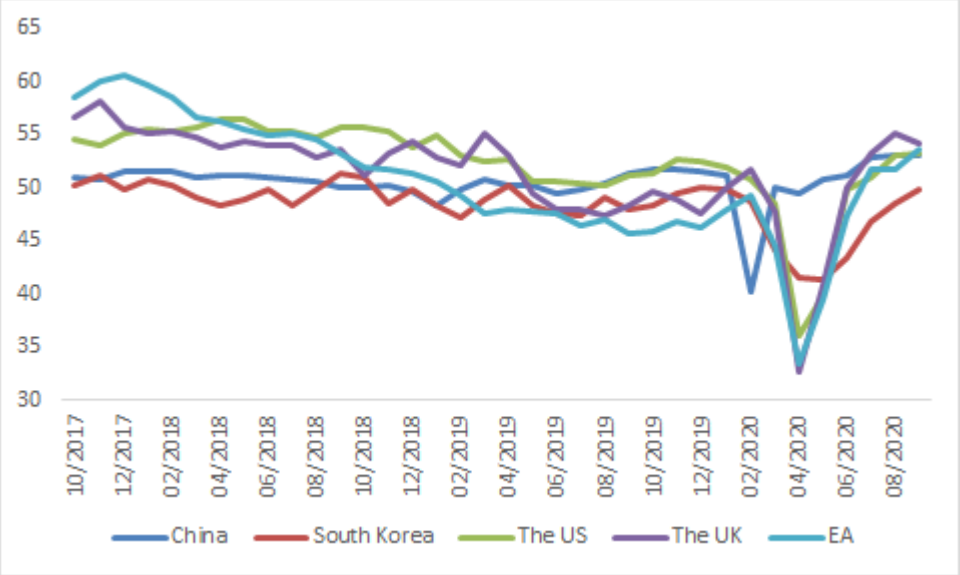
Note: Statistics as of Aug. 31.

Source: Yicai Research Institute

Myanmar scored the most points in terms of economic bailouts, while China, Australia, Korea, Germany, Japan and Canada were all in the top 15 places. Asian countries in general performed well.

The purchasing managers' indexes of major economies already began to expand in September, according to the latest economic data. China and Korea, which were able to get the pandemic under control at an early stage, had a smaller economic decline in the first half. The economic performance of major nations shows that curbing the spread of Covid-19 is the key to economic recovery.

Figure 3: Manufacturing PMI for Major Countries



Source: Wind

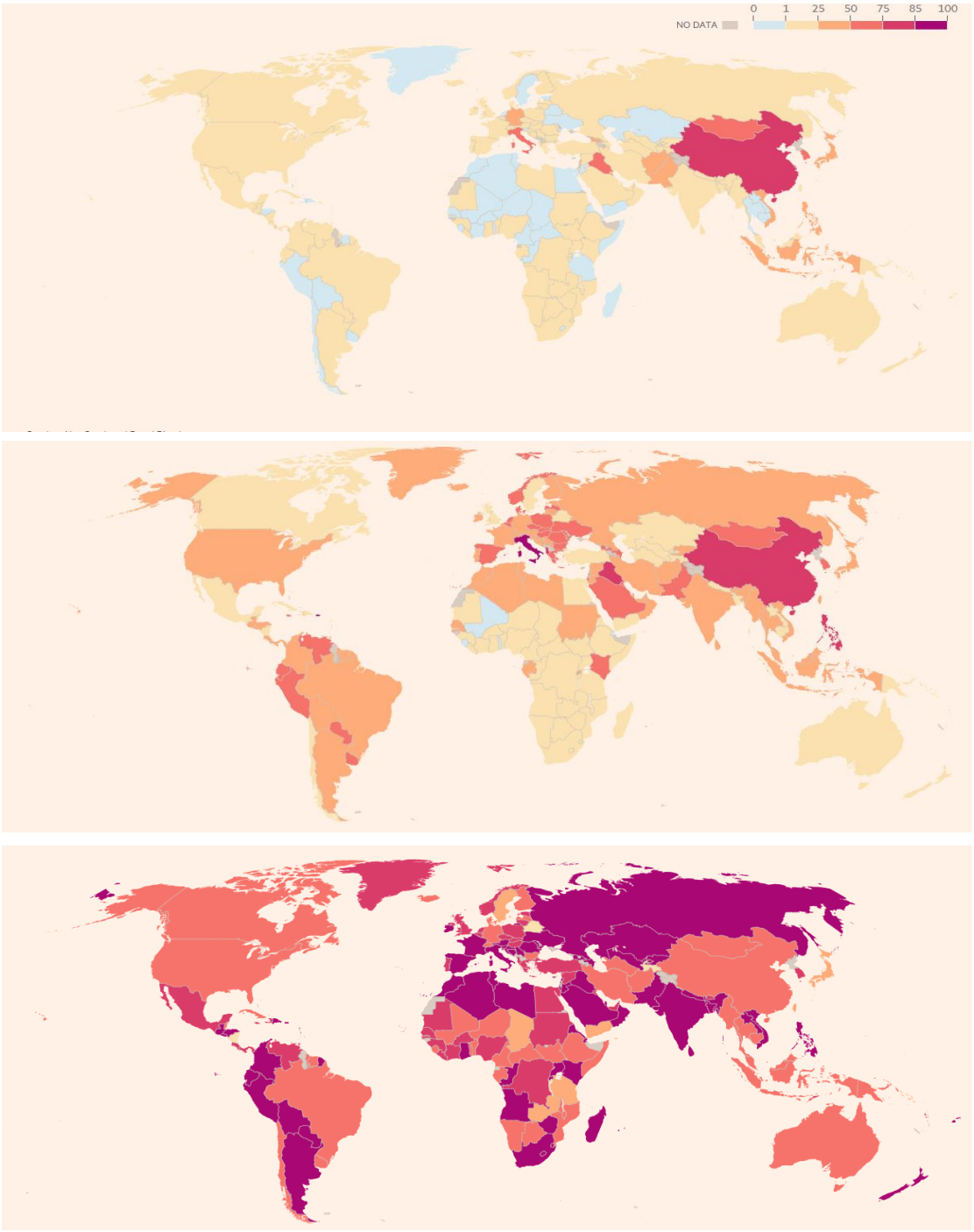
4. Containing Covid-19

The measures that mankind has taken to deal with Covid-19 are identical to those used during previous epidemics. Controlling population mobility and preventing cross infection remain the most effective means to curb the further spread of the disease.

- Lockdowns, Social Distancing and Quarantine

Figure 4: Rigorousness Index of Lockdowns

March 1 (first picture)
March 15 (middle picture)
April 1 (last picture)



Note: The darker the colors, the stricter the lockdowns

Source: FT

Most countries have implemented ‘Suppression’ measures in the hope of preventing the virus’ spread by restricting activities and encouraging social distancing and quarantine. However, the specific

measures and the timing and degree of their implementation have varied.

China was the first country to conduct curbing measures, according to the rigorousness index of lockdowns compiled by the UK's Financial Times. Other Asian nations, including South Korea and Vietnam, also carried out large-scale prevention measures. European, North American and African nations were rather late in bringing in strict suppression measures and some of their policies were not carried out in full. For instance, only some states in the US conducted lockdowns and the US had looser restrictions on social distancing and quarantine on April 1, compared with those applied in major developed nations in Western Europe which were also encountering a Covid-19 outbreak.

Many countries succumbed to economic pressure and kickstarted their economy when the pandemic was not yet under control and the number of new cases was still peaking. New Covid-19 cases have been on the rise since the global economic restart in early May. The number of new cases per week reached round 1.8 million people as of the end of August, more than triple that of the 550,000 per week at the beginning of May.

The results of our evaluation show that Covid-19 infection rates (or the proportion of confirmed cases among the whole population) of the countries that gained higher scores in terms of pandemic prevention

work are generally very low, including China and South Korea, despite the rapid spread of Covid-19 across the world.

Asia, as a whole, achieved a noticeably good performance in the fight against Covid-19. Eight of the top 10-ranked countries were on the continent, with China and South Korea in 1st and 8th place respectively. Another major economy that did well in terms of pandemic prevention was Australia, which ranked 25th.

The low infection rate has to some degree flattened the curve of the pandemic and lowered the peak number of cases in order to enable healthcare systems to 'trade time for space.' This allows hospitals and clinics to get ready to receive critically-ill patients to avoid 'bank runs' on healthcare resources and prevent the tragedy of death should a great number of patients not be able to receive treatment in time. Such 'bank runs' happened during the early stages of the Covid-19 outbreak in Italy. A huge number of medical staffers were infected due to inadequate medical supplies, which intensified the lack of medical resources, making the death rate in Italy rise far above the global average. The lives that were lost are an irretrievable loss to human society. This is also the absolute cost that the world's nations have to pay amid their fight against Covid-19. Reducing the peak, or 'flattening the sombrero,' can effectively lower the death rate.

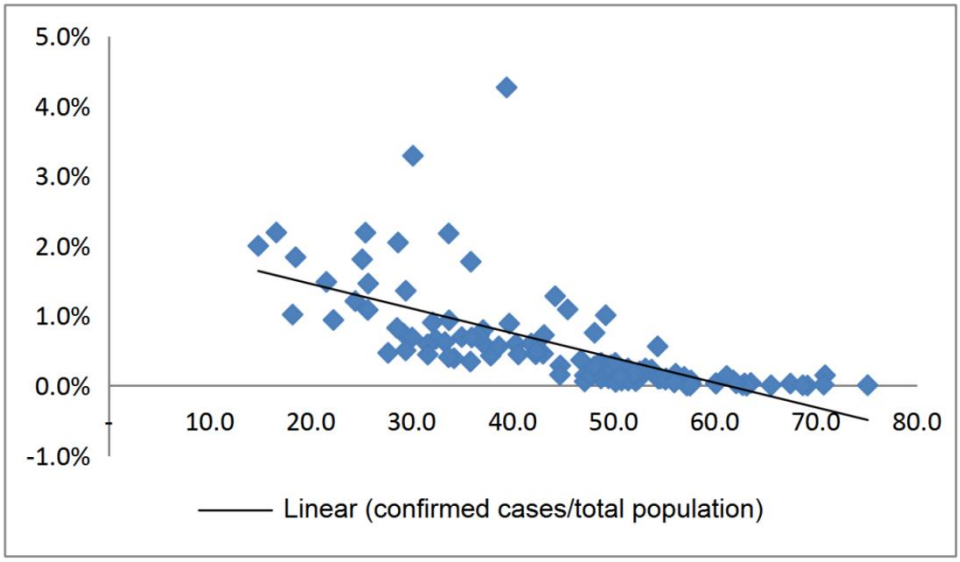
Table 6: Top 30 Countries with Highest Scores in Fight against Covid-19

Rankings	Countries	Scores	Rankings	Countries	Scores
1	China	75.1	16	The Republic of Cuba	60.1
2	Ghana	70.9	17	Federal Republic of Nigeria	57.7
3	Sri Lanka	70.8	18	The Republic of Guinea	57.6
4	Cambodia	69.2	19	Vietnam	57.5
5	Thailand	68.7	20	Myanmar	57.2
6	Malaysia	67.5	21	The Republic of Cyprus	57.0
7	Nepal	65.6	22	Morocco	56.1
8	Korea	63.6	23	Uruguay	56.0
9	Laos	63.1	24	The Slovak Republic	56.0
10	The Republic of Tunisia	62.9	25	Australia	55.2
11	Burkina Faso	62.7	26	The Republic of Senegal	55.1
12	Brunei	62.1	27	The Republic of Lithuania	54.6
13	Republic of Cameroon	61.8	28	Egypt	54.4
14	Pakistan	61.2	29	The Republic of Djibouti	54.3
15	New Zealand	60.1	30	The Czech Republic	53.7

Note: Data as of Aug. 31.

Source: Yicai Research Institute

Figure 5: Strong Negative Correlation between Epidemic Prevention Scores and Proportion of Confirmed Cases among Total Population



Note: The horizontal axis is the epidemic prevention score, while the vertical axis is the proportion of confirmed cases among the total population

Sources: Yicai Research Institute, IMF

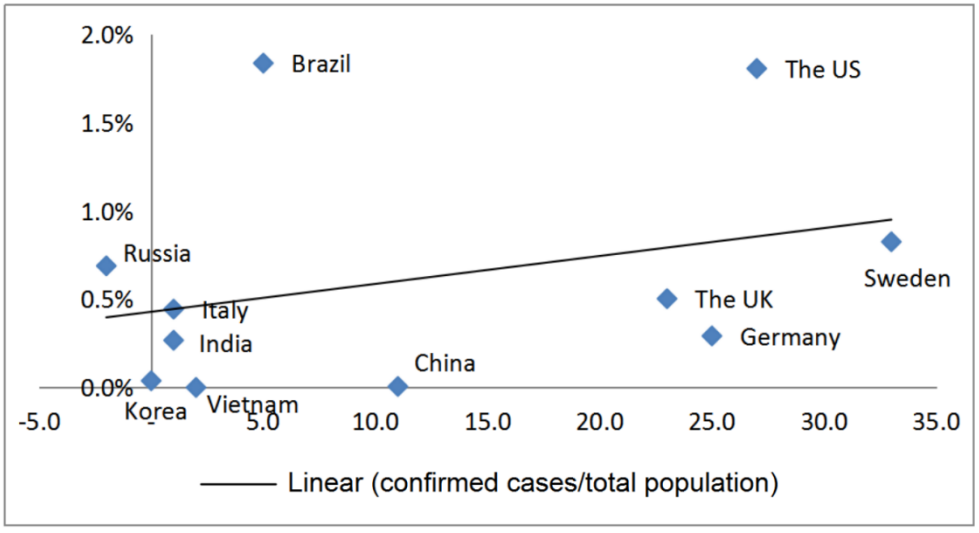
- **Policy Timing and Public Cooperation**

Our assessment shows that the timely introduction of epidemic prevention policies by governments, together with a good degree of cooperation from the public, is key to quickly stopping the spread of the disease.

Once more than 100 cases have been confirmed, it becomes a critical point in the epidemic's transmission. The sooner the government imposes social distancing measures, the easier it is to control the outbreak. However, if citizens are unwilling to cooperate or even distrust the government, then even the swift introduction of social distancing measures cannot achieve good results. To take Brazil as an example, it implemented social distancing measures as early as March 12, at the same time as some major European countries. But Brazil had a much

higher proportion of confirmed cases than these European countries by the end of August. The president refused to wear a mask outside and epidemic control measures were significantly impacted by disagreements between the central and local governments. If a country performs poorly in these two aspects, with the late announcement of social distancing measures and the limited implementation of epidemic control measures (such as people refusing to wear masks), the spread of the disease can be even worse than in countries with 'herd immunity' such as Sweden. This is the situation that the US finds itself in.

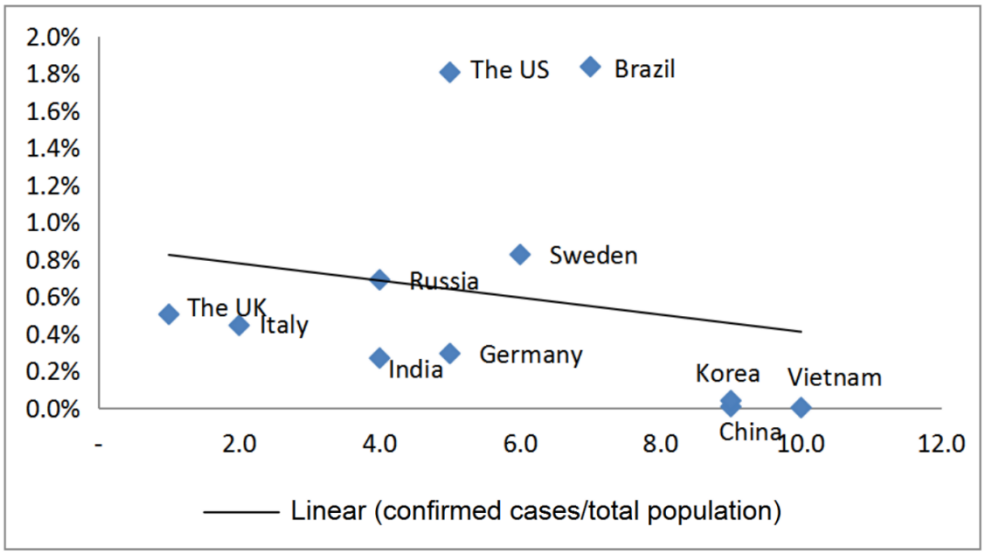
Figure 6: Timing of Implementation of Social Distancing Measures and Proportion of Confirmed Cases among Total Population



Note: The horizontal axis is the time it took to implement social distancing measures (number of days after/before confirmed cases topped 100), while the vertical axis is the proportion of confirmed cases among the total population

Sources: Yicai Research Institute, IMF

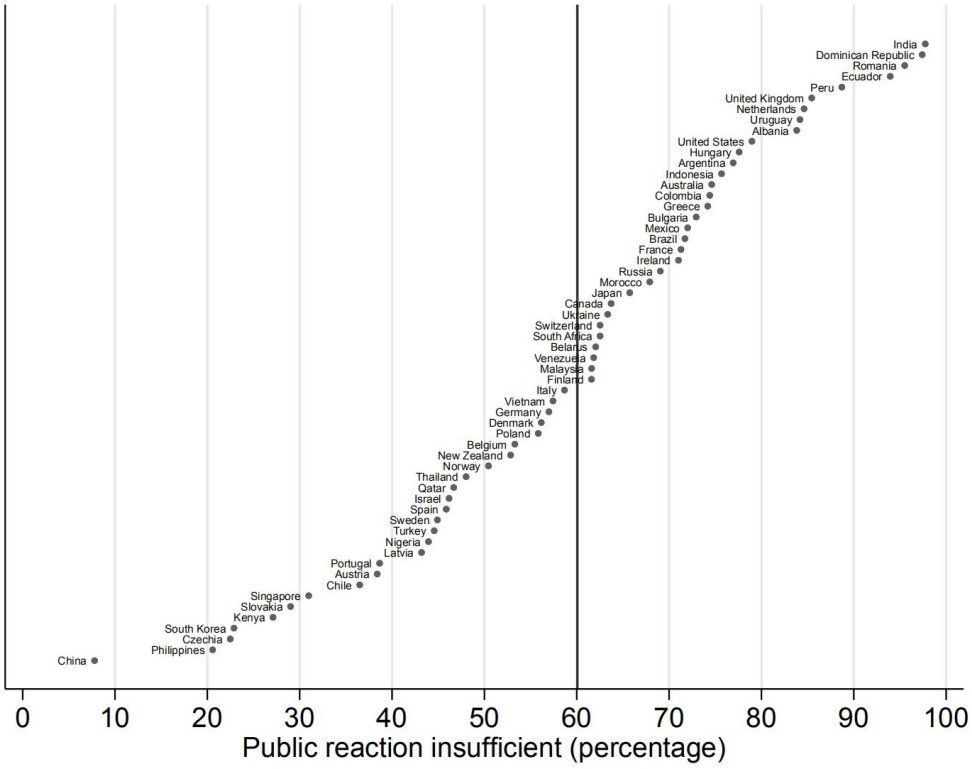
Figure 7: Degree of Public Cooperation and Proportion of Confirmed Cases among Total Population



Note: The horizontal axis is the degree of public cooperation, and the vertical axis is the proportion of confirmed cases among the total population

Sources: Yicai Research Institute, IMF

Figure 8: Is There Enough Public Cooperation to Deal with the Epidemic? (Survey by Massachusetts Institute of Technology)



Sources: National Bureau of Economic Research, MIT

- **Digital Technologies**

More governments are beginning to actively explore the use of digital technology in the fight against the epidemic. In the early stages, some countries used digital technology to fight the epidemic and achieved positive results. For example, China uses a so-called 'QR health code' and South Korea uses a mobile app to remind quarantined people not to leave designated areas. If operators detect someone crossing the line, a text message will be sent to inform the person and he/she will be reported to the relevant department. It can be said that precise social distancing based on digital technology is an important part of both China’s and the South Korean fight against the epidemic.

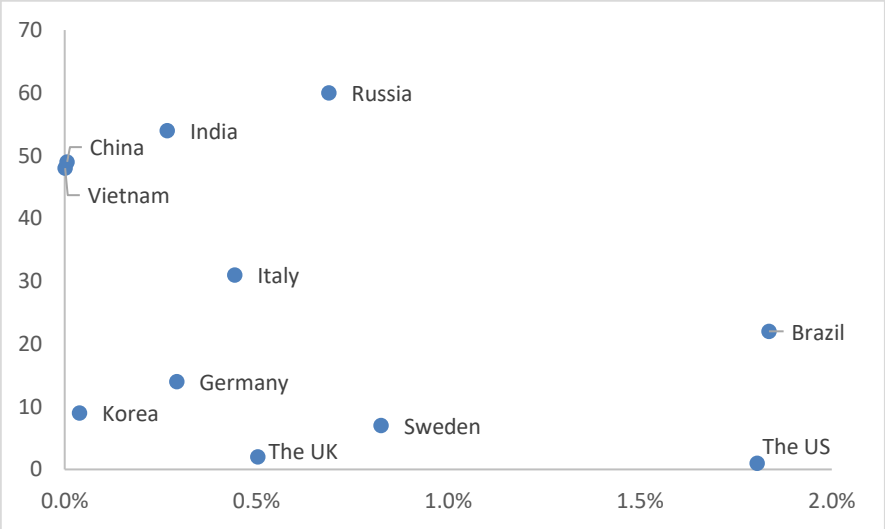
Personal location data can be highly sensitive. People worry about the abuse of personal privacy data. Tracking apps' frequent use of personal privacy data blurs the line between privacy protection and ensuring public health security. The European Commission released the 'Guidance on Apps Supporting the Fight Against the Covid-19 Pandemic in Relation to Data Protection' in April to ensure that citizens' personal data is adequately protected when they use the apps, so as to increase public trust in innovative applications and ensure maximum participation by citizens.

- **Western vs Eastern**

Our assessment shows that developed countries in the West that had a higher rank on the global health security index generally lagged

behind East Asian and some Southeast Asian countries on their epidemic control score. Considering the dense populations in Asia, it is very important to analyze the reasons behind this phenomenon. Based on our framework, the following five aspects are the main factors contributing to East Asian countries' successful fight against the epidemic. They are: swift response and timely warning, the establishment of national-level special institutions to coordinate epidemic prevention and control efforts, the implementation of complete quarantine measures to cut off the source of infection, ensuring the supply of medical supplies and improving testing capacity and treatment levels as well as providing prompt, accurate and transparent disclosure of information.

Figure 9: Global Health Security Index Ranking and Proportion of Confirmed Cases among Total Population



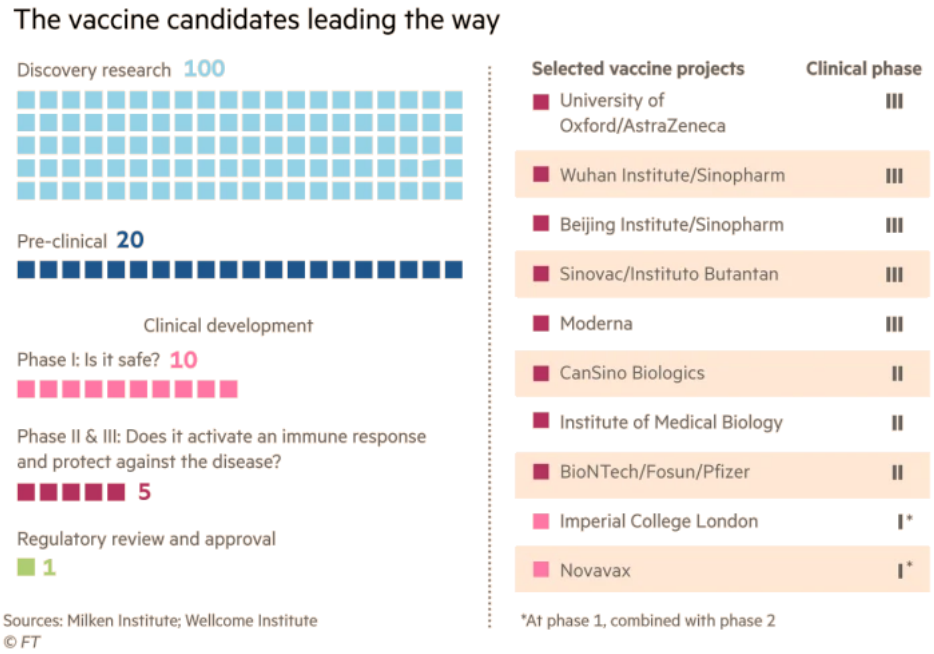
Note: The horizontal axis is the proportion of confirmed cases among the total population, and the vertical axis is the global health security index ranking (the higher the ranking, the better the pandemic prevention ability)

Sources: Yicai Research Institute, IMF

- **Global Vaccine Competition**

Vaccines are the key to overcoming the epidemic, and drug companies have stepped up research and development of these vaccines. As of early September, 33 out of 321 Covid-19 vaccines in development had started clinical trials. Of them, the most advanced ones have entered phase Ⅲ clinical trials and are expected to publish their results by the end of the year. It took several decades to research and develop vaccines for the hepatitis B virus, yet it has only taken a few months to do the same for Covid-19. This is because it has become a contest of strength among the world's scientific and technological powerhouses.

Figure 10: Vaccine R&D Progress (as of Aug. 10)



Sources: Milken Institute, Wellcome Institute, FT

Governments have spent tens of billions of US dollars on Covid-19 vaccines and reserved some four billion doses with an uncertain delivery

date. Goldman Sachs estimates that emerging markets can only cover less than a third of their citizens on average. Vaccine producers project that it will not be possible to inoculate everyone in developing countries until 2024.

5. Economic Bailout

The novel coronavirus had been detected in 215 countries and regions worldwide as of Aug. 31. The global economy will contract by 4.9 percent, a level comparable to the Great Depression in the early 20th century, according to an IMF estimate in June. In a previous severe global financial crisis in 2009, the world's economy shrank by only 1.7 percent.

Economic activities have stagnated due to epidemic prevention policies, with the consumption and export-oriented sectors hit particularly hard. Forced or voluntary social distancing, economic blockades, declining incomes and weak consumer confidence have led to a significant decline in consumption and service sector output, a synchronized recession that resonates globally through trade.

Countries have launched unprecedented economic rescue packages to prevent economic collapse and subsequent humanitarian disasters. These measures include not only assistance to individuals (such as health insurance support, payments to low-income people and unemployment benefits), but also economic assistance programs for commercial enterprises (such as corporate credit support). Referring to the IMF's

classification method, we have identified three bailout measures.

A. Government Spending

Governments maintain the financial condition and liquidity of households and businesses by increasing public investments, providing industrial support funds and expanding unemployment benefits. The specific methods include:

- Income subsidies and cash transfer schemes for workers and businesses, as well as paid sick leave and family leave for infected staff members who need to self-isolate and those who have to stay home to care for their children during school closures (France, Japan, South Korea, Singapore, Spain, the United Kingdom).
- Cash transfer schemes targeting low-income households and the temporary extension of career or unemployment benefits (Germany, Japan, UK, the US).
- Supporting businesses to avoid layoffs by cutting working hours during an epidemic. The German government subsidizes companies and pays social security contributions for the number of working hours cut. The Japanese government subsidizes companies that can avoid lay-offs during the downturn. Italy's government has expanded the beneficiaries of its income-subsidy

fund to include the unemployed. The governments of South Korea, Singapore and the US are providing temporary direct subsidies to hard-hit companies, including individual businesses.

- The public spending plan the Chinese government prepared at an early stage was put in place ahead of schedule and focused in particular on supporting the public health sector and providing unemployment benefits and a broader social safety net.

B. Government Income

Governments are slashing social security contributions, deferring payments and reducing value-added taxes to ensure that households and businesses have adequate liquidity. Specific measures include:

- Extending the rules on the carrying forward of loans to alleviate difficulties, so as to support the cash flow needs of enterprises; providing temporary tax cuts and exemptions to individuals and companies most impacted by the pandemic.
- Deferring the deadlines to pay social premiums and lowering the amount of prepaid taxes.
- Governments could also consider granting special investment allowances for projects carried out over a period of time, such as manufacturing when medical equipment is in short supply, or temporarily lowering VAT rates to deal with supply restriction and to support demand. The Chinese government eased tax burdens

on players in the most vulnerable sectors, including transportation, tourism and hospitality. The UK government exempted small firms in hard-hit industries from property taxes for one year.

- Some governments allow cash-strapped firms to defer staff salaries and VAT payments (China, Italy, Japan and Vietnam) or to defer VAT payments due the next quarter to the end of the fiscal year (Italy and South Korea). China has opened up VAT rebates and temporarily reduced social security payment rates for some companies.

C. Liquidity Support

Many individuals and companies around the world face a drop in income, unemployment or bankruptcy because of liquidity problems. In response, governments are providing cash flow support to companies and individuals through loans, guarantees and other forms of support. Specific measures include:

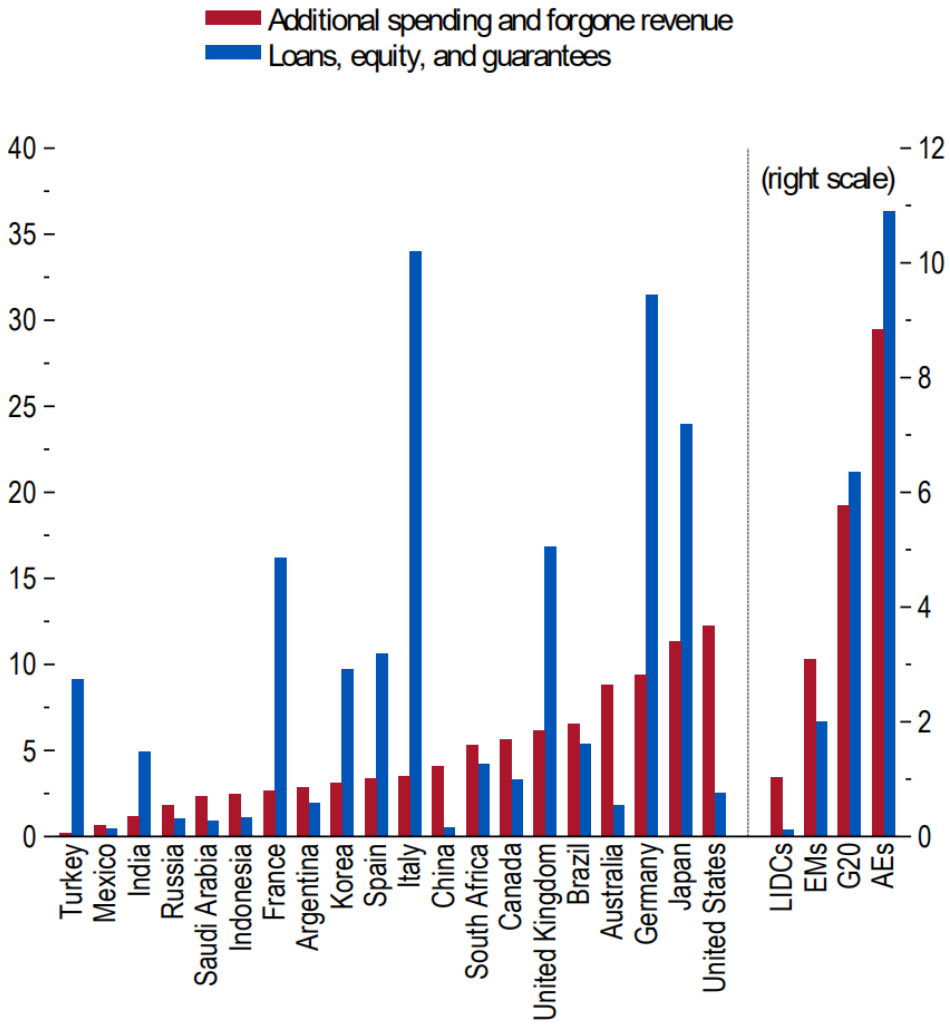
- The governments of South Korea, Thailand and the United Kingdom have provided temporary loans to businesses and households affected by the outbreak.
- The Australian government has subscribed to 50 percent of the AUD40 billion (USD28.1 billion) in unsecured loans that local banks have offered to small and medium enterprises, in which

the holders have the right to share interest (a single subscription is capped at AUD250,000 (USD175,683)).

- So far, global liquidity support including loans provided by governments, capital injections and secured commercial loans (sometimes provided by state-owned financial institutions or state-owned enterprises) is expected to come to as much as USD4.5 trillion, far greater the size of government spending and revenue. Among the countries proving huge liquidity support are France, Germany, Italy, Japan, UK and the US.

Of the major countries, emerging markets are spending less on the three above bailout plans than developed countries. China is less dependent on bailout policies thanks to its early containment of the epidemic and a lower level of economic recession.

Figure 11: Major Economies' Degree of Dependency on Bailout Policies



Source: IMF

These relief policies will greatly worsen the financial situation of many countries. For those countries (mostly developed ones) whose public sector debt accounted for more than 100% of GDP before the epidemic, the pandemic relief measures will further restrict room for maneuver for future fiscal policies.

The fiscal deficit of all countries in the world this year will account for 9.9 percent of GDP, according to the IMF. The fiscal deficit rate of advanced economies will reach 10.7 percent. The deficit rates of the US,

the Eurozone and Japan will be 15.4 percent, 7.5 percent and 7.1 percent respectively. The fiscal deficit rate of emerging market economies will reach 9.1 percent while China and India will each have deficit rates of 11.2 percent and 7.4 percent.

Table 7: Fiscal Balance as a Percentage of Gross Domestic Products in US Dollars

									Projections
	2012	2013	2014	2015	2016	2017	2018	2019	2020
World	**-3.8**	**-2.9**	**-2.9**	**-3.3**	**-3.4**	**-3.0**	**-3.1**	**-3.7**	**-9.9**
Advanced Economies	**-5.5**	**-3.7**	**-3.1**	**-2.6**	**-2.6**	**-2.3**	**-2.6**	**-3.0**	**-10.7**
United States[1]	-8.0	-4.6	-4.0	-3.6	-4.3	-4.5	-5.7	-5.8	-15.4
Euro Area	-3.7	-3.0	-2.5	-2.0	-1.4	-0.9	-0.5	-0.7	-7.5
France	-5.0	-4.1	-3.9	-3.6	-3.5	-2.8	-2.3	-3.0	-9.2
Germany	0.0	0.0	0.6	0.9	1.2	1.2	1.9	1.4	-5.5
Italy	-2.9	-2.9	-3.0	-2.6	-2.4	-2.4	-2.2	-1.6	-8.3
Spain[2]	-10.7	-7.0	-5.9	-5.2	-4.3	-3.0	-2.5	-2.6	-9.5
Japan	-8.6	-7.9	-5.6	-3.8	-3.7	-3.1	-2.4	-2.8	-7.1
United Kingdom	-7.6	-5.5	-5.6	-4.6	-3.3	-2.5	-2.2	-2.1	-8.3
Canada	-2.5	-1.5	0.2	-0.1	-0.5	-0.1	-0.4	-0.4	-11.8
Others	0.4	0.2	0.2	0.1	0.7	1.4	1.4	0.0	-5.3
Emerging Market and Middle-Income Economies	**-0.9**	**-1.5**	**-2.5**	**-4.4**	**-4.8**	**-4.1**	**-3.8**	**-4.8**	**-9.1**
Excluding MENAP Oil Producers	-1.9	-2.3	-2.7	-4.0	-4.4	-4.0	-4.0	-5.0	-9.0
Asia	-1.6	-1.8	-1.9	-3.3	-3.9	-4.0	-4.5	-6.0	-9.9
China	-0.3	-0.8	-0.9	-2.8	-3.7	-3.8	-4.7	-6.4	-11.2
India	-7.5	-7.0	-7.1	-7.2	-7.1	-6.4	-6.3	-7.4	-7.4
Europe	-0.7	-1.5	-1.4	-2.7	-2.9	-1.8	0.4	-0.7	-6.1
Russia	0.4	-1.2	-1.1	-3.4	-3.7	-1.5	2.9	1.9	-4.8
Latin America	-2.9	-3.2	-5.0	-6.8	-6.2	-5.4	-5.2	-4.0	-6.7
Brazil	-2.5	-3.0	-6.0	-10.3	-9.0	-7.9	-7.2	-6.0	-9.3
Mexico	-3.7	-3.7	-4.5	-4.0	-2.8	-1.1	-2.2	-2.3	-4.2
MENAP	5.6	3.9	-1.5	-8.5	-9.6	-5.8	-2.9	-3.8	-9.8
Saudi Arabia	11.9	5.6	-3.5	-15.8	-17.2	-9.2	-5.9	-4.5	-12.6
South Africa	-4.4	-4.3	-4.3	-4.8	-4.1	-4.4	-4.1	-6.3	-13.3
Low-Income Developing Countries	**-2.0**	**-3.3**	**-3.2**	**-3.8**	**-3.7**	**-3.6**	**-3.8**	**-4.1**	**-5.7**
Nigeria	0.2	-2.3	-2.1	-3.2	-4.0	-5.4	-4.3	-5.0	-6.4
Oil Producers	**1.6**	**0.4**	**-1.1**	**-4.2**	**-4.6**	**-2.6**	**-0.6**	**-1.0**	**-7.6**
Memorandum									
World Output (percent)	**3.5**	**3.5**	**3.6**	**3.5**	**3.4**	**3.9**	**3.6**	**2.9**	**-3.0**

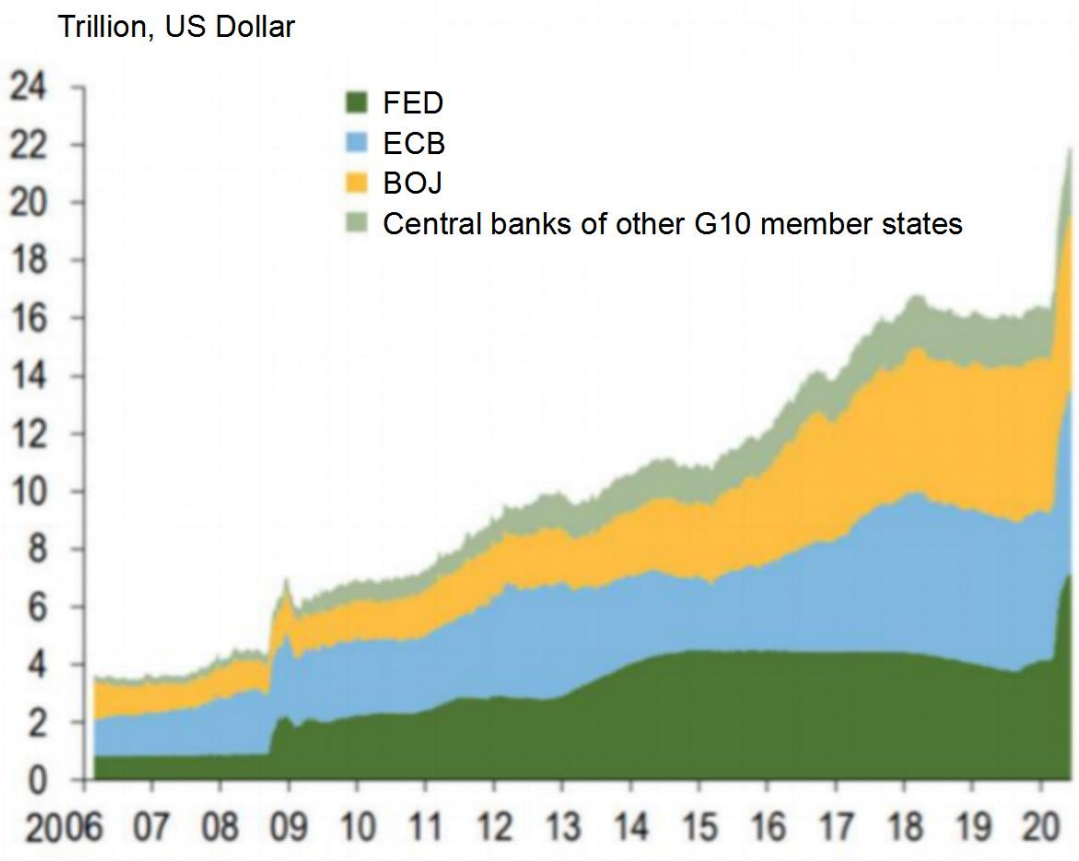
Source: IMF

D. Quantitative Easing During the Novel Coronavirus Pandemic

As the global economy and financial markets have been seriously impacted by the pandemic, central banks in many countries have adopted unprecedented easing policies. For developed countries,

quantitative easing has become a common monetary policy tool since the last global financial crisis. Central banks, including the US Federal Reserve and the Bank of Japan, have even introduced an "unlimited quantitative easing" policy that does not have an upper limit on the scale of quantitative easing. For emerging markets, many economies have adopted quantitative easing measures for the first time. On the day of announcing quantitative easing measures, the risk-free interest rates of emerging market economies fell even more than developed economies. The central bank balance sheet of the Group of Ten has reached a historic USD22 trillion, according to the IMF.

Figure 12: Changes in the Central Bank Balance Sheet of the Group of Ten



Source: IMF

Table 8: Quantitative Easing Policies Announced by Major Central Banks during the Pandemic

Country	Central Bank	Date	QE Size	Asset Type of Purchase
Developed Economies				
US	Federal Reserve	3/16/2020	USD700 billion	National debt, MBS
US	Federal Reserve	3/23/2020	Unlimited	National debt, MBS, corporate debt
UK	Bank of England	3/19/2020	GBP200 billion	National debt, corporate debt
Eurozone	European Central Bank	3/18/2020	EUR750 billion	National debt

Japan	Bank of Japan	4/26/2020	Unlimited national debt, JPY20 trillion corporate bonds	National debt, corporate debt
Canada	Bank of Canada	3/27/2020	CAD3.5 billion per week	National debt
Australia	Reserve Bank of Australia	3/19/2020	Unlimited	National debt
New Zealand	Reserve Bank of New Zealand	3/23/2020	NZD30 billion	National debt
Sweden	Swedbank	3/16/2020	SEK300 billion	National debt
Emerging Market Economies				
Israel	Bank of Israel	3/23/2020	ILS50 billion	National debt
Republic of Korea	Bank of Korea	3/25/2020	Unlimited reverse repo for three months	Reverse repo
Republic of Colombia	Bancolombia	3/24/2020	COP12 trillion	National debt
South Africa	South African Reserve Bank	3/25/2020	Not Clear	National debt
Poland	National Bank of Poland	3/17/2020	Not Clear	National debt
Poland	National Bank of Poland	4/8/2020	Not Clear	National debt, government securities
Romania	National Bank of Romania	3/20/2020	Not Clear	Reverse repo, local government securities
Hungary	National Bank of Hungary	3/24/2020	Considering continuing buying MBS	National debt, MBS
Hungary	National Bank of Hungary	4/28/2020	HUF1 trillion of national debt and HUF300 billion of MBS	National debt, MBS
Croatia	Croatian National Bank	3/13/2020	Not Clear	National debt
Republic of the Philippines	Bangko Central ng Pilipinas	3/24/2020	PHP300 billion	National debt
Mexico	Bank of Mexico	4/21/2020	MXN100 billion	National debt, corporate

				debt
Republic of Turkey	Central Bank of the Republic of Turkey	3/31/2020	Not Clear	National debt
India	Reserve Bank of India	3/20/2020	INR400 billion	National debt
Indonesia	Bank Indonesia	4/1/2020	Not Clear	National debt

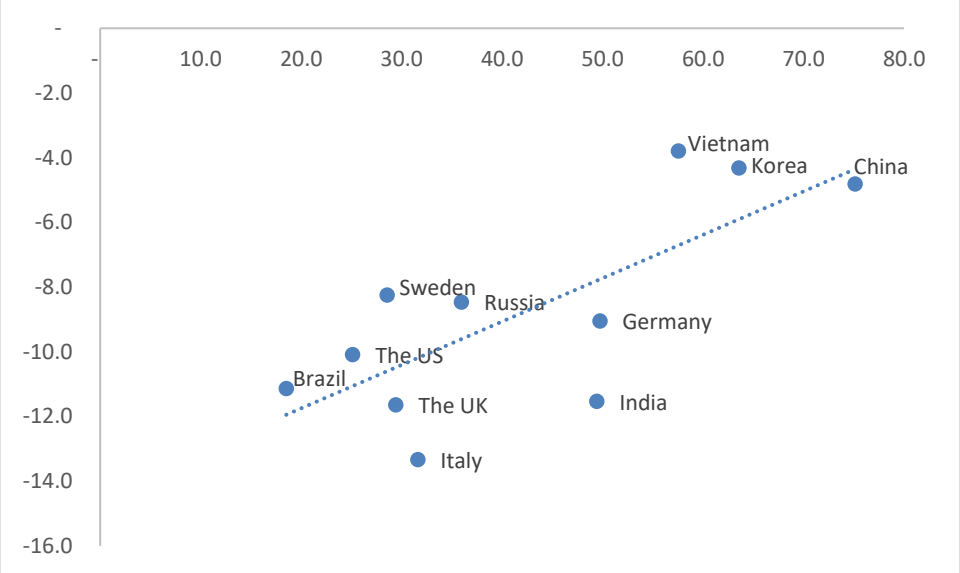
Source: IMF

Pandemic control and economic relief are two sides of the fight against Covid-19. The goal is to help society get through this public health crisis more smoothly. Some believe that economic losses are the cost of fighting the epidemic, because strict social distancing policies will affect the economy from both the supply and demand sides. However, our studies do not support this view. The relationship between the two is not always the same. Countries with high epidemic prevention scores will suffer relatively less economic impact according to our assessment. If a country can quickly prevent the epidemic from spreading, it will reduce the lockdown period and thus reduce the impact on consumer confidence and lessen the economic fallout.

If we take China and South Korea as examples, both countries implemented strict epidemic prevention measures in the early stages of the outbreak and used advanced digital technology to carry out epidemic prevention policies. Both countries had the disease basically under control by March. The two countries then gradually got back to work and

resumed production. The IMF expects the GDP of the two countries to only contract slightly this year. According to second-quarter economic data, China's economy has already resumed growth.

Figure 13: Pandemic Control Score and GDP Contraction in 2020 (%)



Note: The horizontal axis is the pandemic control index, and the vertical axis is the predicted contraction of each country's GDP in percentages based on October 2019 data and the latest world economic outlook.

Source: Yicai Research Institute, IMF

6. Economic Rebooting and Recovery

Governments' policy focus and framework need to change as the goal shifts from pandemic control to rebooting the economy. For example, during the health crisis, the focus is to suppress the virus at all costs and dispense rapid economic assistance to companies and individuals. The main policy measures include tax relief, payments and other liquidity measures. In the economic recovery phase, as businesses get back to work and production gradually resumes, the focus is on how to manage virus transmission and provide structural support to specific

industries. Specific measures include short-term stimulus policies, increased public investment and more structural measures to promote employment.

Table 9: Shift of Policy Focus

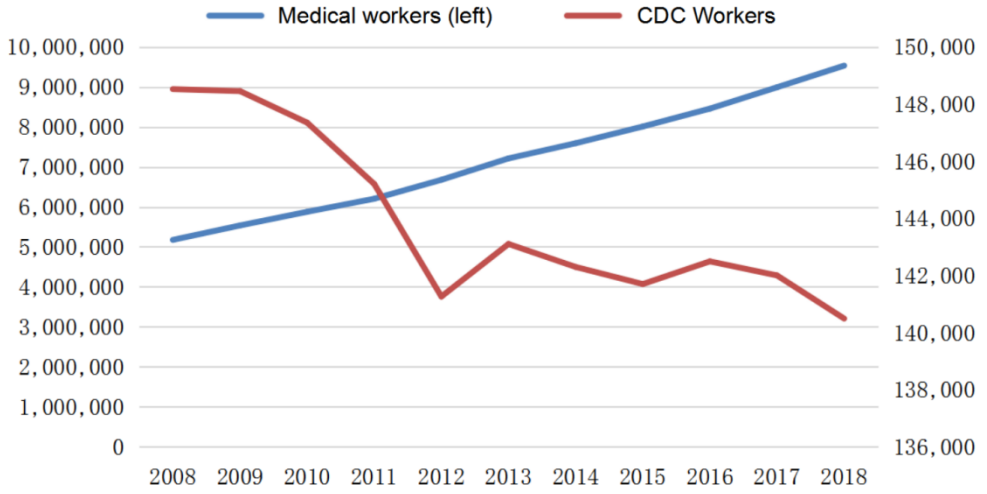
	Pandemic Control Policies	Economic Recovery Policies
Policy focus	● Contain the virus and the public health crisis at all costs ● Quickly support the economy during the crisis	● Effectively manage public health risks ● Support industries with targeted economic measures
Major policies and measures	● Tax cuts/exemptions/deferrals ● Payments ● Subsidies with goods ● Loans/government assurance ● Debt reductions/exemptions	● Short-term stimulus to speed up economic recovery ● Investment in public merchandise that can improve productivity ● Support for employment and entrepreneurship ● Employment training and support for job changes

Source: AMRO

Public health investment is very important considering the future state of the epidemic. The low-interest-rate environment provides an opportunity to implement proactive fiscal policies to support short-term demand, making public health investment profitable. One purpose of

boosting investment in the public health sector is to ensure that public health resources are abundant, which will affect the return on investment in certain fields. In addition to increasing financial support for public health, the government can also use preferential policies to ensure that the private sector is willing to invest. The public health system focused on medical care rather than disease control in the past. This also needs to be changed. If we take China as an example, the number of medical workers jumped by 84.2 percent nationwide from 2008 to 2018, while those in the Chinese Center for Disease Control and Prevention fell by 5.4 percent over the same period.

Figure 14: Chinese Medical Workers and CDC workers



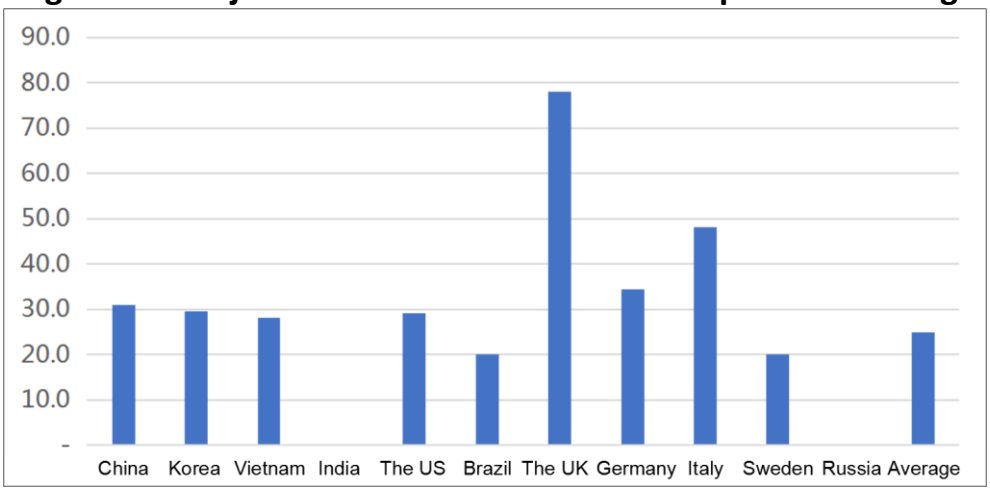
Source: Wind

7. International Cooperation

The pandemic has made international cooperation vital. Global problems including the pandemic can only be solved with effective and

strong international cooperation. Many countries chose to tighten export controls during the epidemic. However, due to the high scarcity of epidemic control supplies amid the rapid spread of pandemic, this led to the suspension and disruption of global supply chains. Our study examined the performance of countries assisting others in fighting the epidemic, including providing financial assistance and restricting exports of medical supplies. China has performed well in this area due to its strong manufacturing capabilities and early control of the epidemic.

Figure 15: Major Countries' International Cooperation Ratings



Source: Yicai Research Institute

Our assessment reviewed countries' donations to the World Health Organization's COVID-19 Solidarity Response Fund, which shows how active countries are in international cooperation. From this perspective, most countries' performance is basically in line with their economic scale. The only exception is the United States, which has quite a low score in this area. The US notified the United Nations on July 6 of its intention to

formally withdraw from the WHO and end its 72-year membership.

International cooperation amid the Covid-19 pandemic also includes the following fields:

- **Global debt reduction.** At the G20 meeting held during the pandemic it was agreed to suspend the debts of over 75 least-developed countries. The Executive Board approved relief on debt service for 25 member countries that are eligible for support from the Catastrophe Containment and Relief Trust, with a further four countries expected to request such relief in the future. The approval enables the disbursement of grants from the CCRT for repayment of debts due to the IMF over the next six months, with potential extensions, up to a maximum of two years. China is also participating in the G20's multilateral debt mechanism. These are all positive measures given the sharp rising debt levels of low-income countries amid the global recession. However, international cooperation still has a long way to go.

- **New Special Drawing Rights issuance and distribution.** In April, many politicians and economists around the world proposed that the IMF should issue Special Drawing Rights during this special period to strengthen aid to the global financial safety net and resources, and give more to poor and least-developed countries via optimized processes to improve aid efficiency. A more aggressive plan is to issue USD1 trillion more SDRs (according to former British Prime Minister Gordon Brown

and former US Treasury Secretary Lawrence Summers). The SDR issuance and quota allocation have not made any progress yet due to clear opposition from the United States.

- **Currency swap.** Emerging market countries have seen the largest capital outflow in history since the beginning of this year, and many underdeveloped countries have or will face a US dollar crisis. The Federal Reserve has taken action to integrate several central banks of emerging markets into its currency swap system. Economists suggest including more central banks and the IMF into the Federal Reserve's currency swap system and to suppress excessive exchange rate fluctuations (or excessive appreciation of the US dollar) when necessary to avoid severe debt and currency crises in emerging markets.

- **Food security.** Some major grain exporting countries have imposed restrictions on grain exports during the pandemic, which may disrupt the world's grain market and be detrimental to global political stability. International cooperation needs to ensure world food security and remove food export controls through consultation and policy coordination. The G20 should publicly commit to intervention if food prices on the global markets rise.

- **Governance reform of global multilateral institutions.** The governance of the WHO has attracted much attention during the epidemic. Meanwhile, the World Trade Organization may encounter a

breakthrough in governance reform when selecting a new director-general. Though the reform of the Bretton Woods institutions including the IMF, the World Bank and the WTO is difficult, it is the only way to rebuild effective global governance in the post-epidemic era.

- **“Digital taxes” to address global issues.** All parties paid great attention to global digital platform giants during the pandemic, with monopolies, competition policies, taxation and data protection being the focus. Collecting a “digital tax” on the world's largest digital platforms to fund global challenges, such as climate change, WHO financing and new WTO mechanisms, is an innovative measure that the G20 may consider.

In brief, the Covid-19 pandemic will coexist with mankind before effective vaccines can be widely put into use. Effective governance that responds quickly using technological means and which can depend on public support is an effective strategy to deal with the pandemic. Covid-19 will eventually pass, but more epidemics will follow. Large-scale investment in public health is the only way to respond to and prevent future epidemics. Meanwhile, global policymakers have introduced economic and financial policies of unprecedented intensity and scale due to the economic fallout and the great recession caused by the epidemic, which will profoundly affect the future. National and public governance capabilities, economic growth momentum and resource mobilization capacity are key to determining the future strength of nations.

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