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The true nature of the Novel Coronavirus problem and stock price highs despite concerns that business results may worsen

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Summary

- The impact of the Novel Coronavirus (COVID-19) on economic activity depends on how quickly the situation returns to normal – will it keep within the range of recoverable damage, or reach a scale such that damage is irreversible? Assuming a risk-averse economic entity, increasing uncertainty could invite diminishing equilibrium of economic activity. At this time it is impossible to foresee the ultimate scale of impact on the economy. The only thing we can do is to continue monitoring the situation as it develops, and keep an eye on probability distribution, telling us whether or not economic activity has fallen into conditions of diminishing equilibrium. In this report, we examine the impact that COVID-19 could have on the Japanese economy, while being careful to avoid over-confident assumptions.

- Due to the halts in production in China, which were already occurring in the Jan-Mar period, local Japanese subsidiaries may see their sales reduced by around 685.2 bil yen, while operating profit could decline by 206.5 bil yen and net profit by 162.6 bil yen. There are major concerns that Japan's exports may decline by 288 bil yen, with domestic production declining by 59 bil yen. Meanwhile, if the number of Chinese tourists visiting Japan drops by one million persons, travel services receivables could be forced down about 200 bil yen. What's more, declines in Japanese consumption and third-country demand would be added to this. In addition to direct effects such as these, we must also remain vigilant regarding the multiplier effect, which could spread through secondary routes such as employment and capital expenditure.

- With recovery in both domestic and overseas demand already at a worrisome pace, the addition of the impact of the COVID-19 outbreak is resulting in unavoidable downward revisions in corporate business results for the time being. Yet despite this, global stock markets, centering on the US, are maintaining their resilience. Behind this lies none other than the power of monetary easing. In this context, the economy has a fair amount of underlying strength, plus, we should remain aware that the trend in monetary policy in the US considered the impact of COVID-19 to be relatively minor.

- FRB Chairman Powell indicated that the direction of the FRB's asset purchase program would be toward reduction starting in July this year. This of course does not mean immediate confusion in the US financial markets. However, we must remain vigilant, since in a country which shows no signs of recovery even as the time approaches when the FRB plans to reduce liquidity supply, downward pressure could be brought on economic activity through the financial markets.

The true nature of the Novel Coronavirus problem

The real GDP growth rate for Oct-Dec 2019 (1st preliminary est) suffered a major decline at -6.3% q/q annualized (-1.6% q/q)[1]. The main reason was the reactionary decline following on last minute demand prior to the consumption tax hike in October 2019, and does not necessarily suggest that tough times lie ahead. There were other factors bringing negative pressure as well, including typhoons, which caused progress in housing investment to become stagnant, and an unusually warm winter, which brought downward pressure on consumption of semi-durable goods such as clothing. The weather factor cannot be ignored. Taking an overly pessimistic view of the future of Japan's economy based purely on negative performance in the past would be unreasonable.

Rather, concerns about the future of Japan's economy are more in negative factors which have not appeared in the past. For instance the negative wealth effect which is purely an effect of the recent consumption tax hike has been for the most part resolved by the various countermeasures implemented by the government, such as the reward points program for use of cashless payment[2]. Meanwhile, sales of televisions and computers are favorable due to the fact that the Windows 7 operating system will no longer be supported, as well as special demand associated with the Olympics. But once these factors have fallen away, there is a good possibility that the pace of recovery in consumption will be inhibited to some extent in the future.

Meanwhile, taking a look at overseas demand, one worrisome point is that exports to the advanced nations, which had been exhibiting underlying strength up through the first half of 2019, have begun to shift into a declining trend in the area of durables and capital goods, which were lagging in terms of decline. There are two factors which can be pointed out as the main cause of the decline. First, the effects of the US tax cut in 2018 means that the cyclical economic slowdown is coming late to the US where adjustment has just begun. Additionally, it is impossible to ignore the decline in demand for capital goods due to the downturn in global factory operating rates in the manufacturing industry which began since 2018.

Judging from this background we concluded in a past outlook that Japan's economy in 2020 would just barely maintain positive growth, remaining at a low-altitude cruise[3]. Now another downside risk has been added to the mix – the Nobel Coronavirus (COVID-19) outbreak which began in China. At this time it is impossible to foresee the ultimate scale of impact on the economy. However, it is too big of a problem to ignore. In this report, we examine the impact that COVID-19 could have on the Japanese economy, while being careful to avoid over-confident assumptions.

Lack of reliable information is the essence of the problem

In the first place, why is it assumed that COVID-19 will have a major impact on the economy? As has been frequently pointed out, as of this point in time, COVID-19 is not nearly as big of a health hazard as is influenza, which is rampant now that it is in season. Even so, this new virus is feared so much that its impact on the economy is expected to become serious. The fundamental reason for this is the huge amount of uncertainty and the many unknowns about the illness.

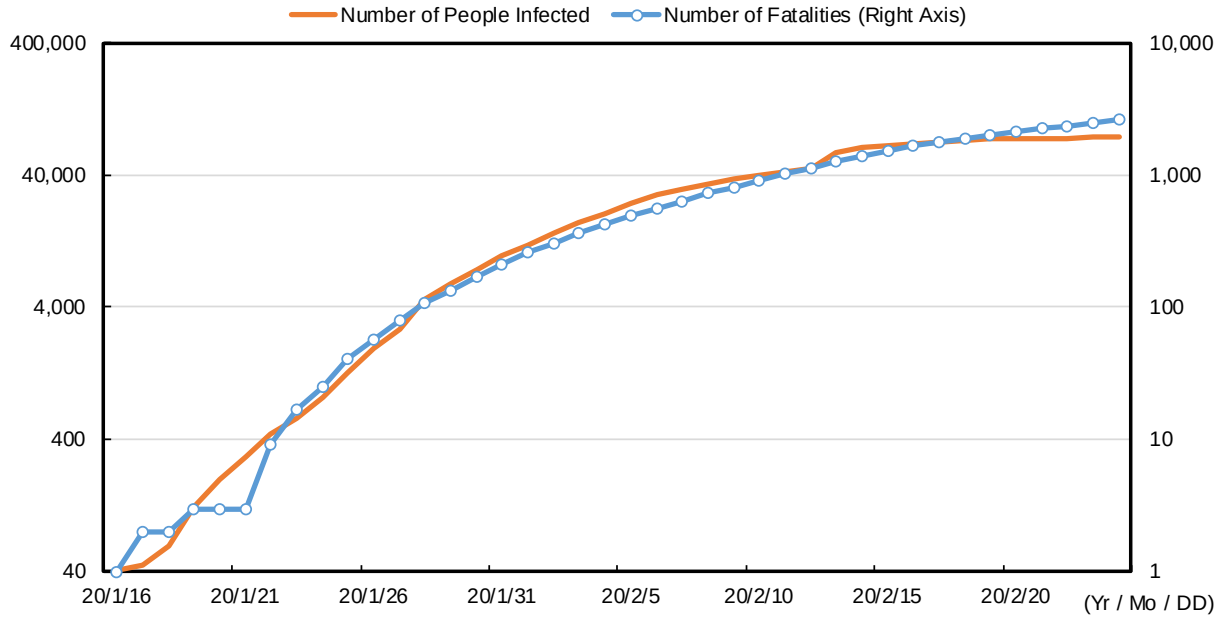
First of all, the virus is a new one (or "novel"), and countermeasures have not been properly established.

[1] For details see the DIR Report dated 17 February 2020, *Oct-Dec 2019 1st Preliminary GDP Estimate: GDP suffers major negative growth due to reactionary decline following last minute demand associated with consumption tax hike (-1.6% q/q, and -6.3% q/q annualized),* by Shunsuke Kobayashi.
[2] For details see the DIR Report dated 20 September 2019, *Thorough analysis of consumption tax hike countermeasures and their effects: Comprehensive examination of income effect and substitution effect by age group, and industry*, by Shunsuke Kobayashi and Yutaro Suzuki.
[3] For details see the DIR Report dated 27 December 2019, *Outlook for Japan's Economy in 2020: The key to regaining accelerated growth: recovery scenario for the global manufacturing industry*, by Shunsuke Kobayashi and Yutaro Suzuki.

Secondly, there are doubts as to how much daily reports of numbers of people infected can be trusted. As is shown in Chart 1, statistics published by the Chinese government on the number of people infected and the mortality rate produces a curve that is all too smooth. Whether this is merely a coincidence, or whether it is falsification of data, or on the other hand whether there are simply limitations in testing capacity, or the result of a primitive approach to calculating the statistics, the truth is unknown. But it is precisely because of these unknowns that households have their guard up. The result is that people go out as little as possible and consumer activity stagnates.

The third factor is a related argument. That is, there is no way that we can predict when the virus will be brought under control. For this reason corporations are extremely conservative in drawing up their business plans, and feel forced to take a risk avoidance approach. This causes production, investment, and employment to stagnate.

Time Series Transition of Number of People Infected by COVID-19 and Death Rate in China (Logarithmic Scale) **Chart 1**



Source: National Health Commission of the People's Republic of China; compiled by DIR.

Economic impact has two points of equilibrium

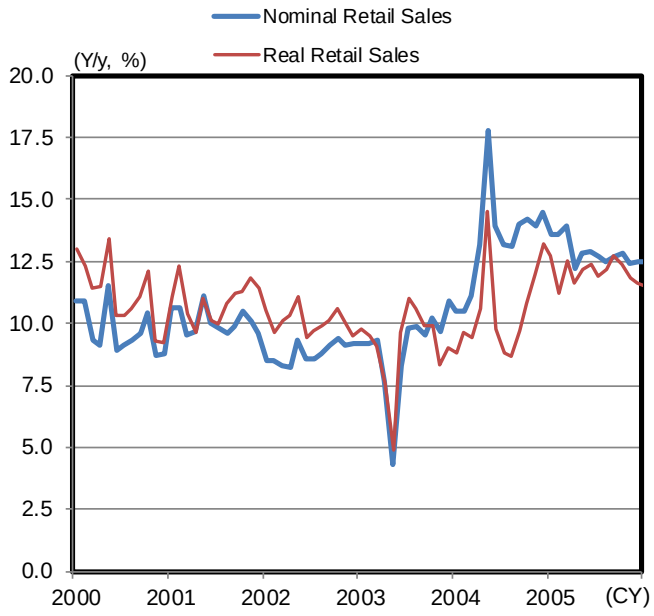
The question of whether it will keep within the range of recoverable damage, or reach a scale such that damage is irreversible depends on how quickly the virus can be brought under control.

As for the question of recoverable damage, we believe that the following is the most likely scenario: First of all, the speed with which the COVID-19 virus is spreading will slow down. Once the situation calms down, households will use the savings they made from temporarily holding back on spending, and shift it over to additional consumption. Meanwhile, corporations will become active in production activities again after temporarily holding back, and focus on restoring inventory. Capital expenditure and employment will also be implemented according to original plans. Looking back at the SARS epidemic of 2003, which is often referred to in this context, economic activity in China centering on consumption temporarily suffered a major decline, but then later, pent-up demand appeared, and was a help in encouraging the growth rate to accelerate again. Moreover, no decline in capital expenditure was detected during the SARS epidemic (Chart 2). However, in order for the same sort of quick recovery to occur this time around, in addition to the situation being brought under control quickly, there are two more assumptions, both of which must be fulfilled: household employment and income outlooks must not be on the low side, and the future cash flow outlook for corporations cannot be on the low side.

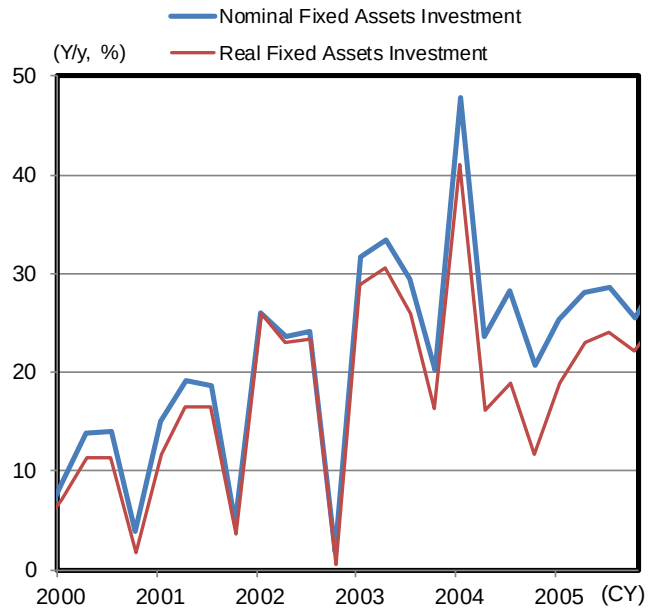
If the opposite occurs, the second scenario (irreversible damage) will come into play. As the situation moves into the long-term, opportunities will be lost due to items being out of stock, and the number of bankruptcies will increase due to the difficulty of obtaining financing. Loss of employment and income will occur and consumption will be sluggish. The decline in willingness to carry out capital investment will also bring a downturn in economic activity overall to a lower level from which it may be difficult to resurface. Assuming a risk-averse economic entity, increasing uncertainty could invite diminishing equilibrium of economic activity. These are the logical consequences according to the standard teaching of economics.

In order to guard against this negative chain of events, both China and Japan are carrying out emergency bridge financing. These measures are most certainly on target. However, the most important policy issue to keep economic impact at a minimum is the containment of the disease so that it does not spread further. It goes without saying that eliminating the sense of unpredictability and uncertainty is also an essential point.

Sales and Capital Expenditure in China Around Time of SARS Outbreak **Chart 2**



Source: National Bureau of Statistics of China; compiled by DIR.



Source: National Bureau of Statistics of China; compiled by DIR.

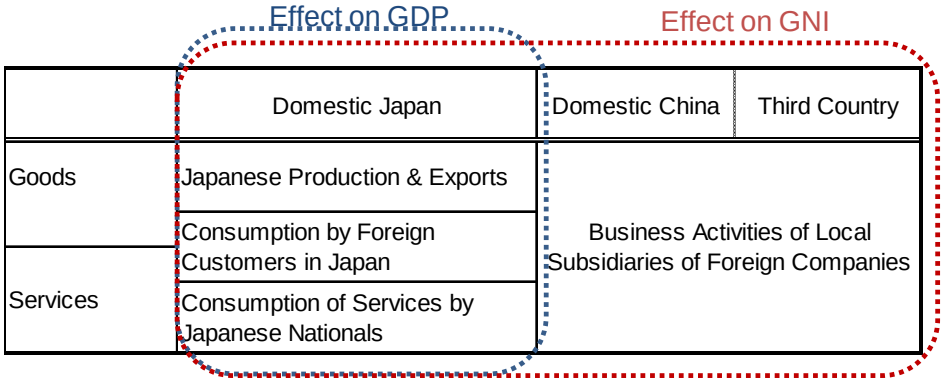
Impact on Japan's economy and corporate performance (by industry) using a bottom-up approach

Using the arguments in the previous section as our assumptions, we now take a look at the impact of COVID-19 on the Japanese economy. It is extremely difficult, even dangerous, to perform a top-down calculation of these effects using a macro approach with bold assumptions. First of all, it is impossible to predict the total scale of impact on the economy or when the situation will return to normal. Secondly, this case differs from macro variables such as fiscal and monetary policy, or tariffs, in that it is highly likely that the effects will be unevenly distributed.

Hence in this section we do the next best thing and take the accumulation of events that have already occurred, and considering how those might affect Japan's economy. The only problem with the bottom-up approach is that often omissions and double-counts can occur. Therefore we have set up a framework where as far as goods and services are concerned, we look at domestic supply in China, domestic supply in Japan, and domestic supply in third countries. In this way we can approach a total of 6 categories (2x3=6).

However, due to data constraints, we actually used the analytic approach shown in Chart 3. Our analysis starts with supply of goods and services in locations outside Japan (China and third countries). Here we used the business activities of local Japanese subsidiaries. As for the impact on domestic supply of services in Japan, we also took into consideration differences in services offered, and examined two categories – entities receiving service fees from overseas, and services whose customers are Japanese nationals. In addition to the above, we also looked at Japanese production and exports, bringing the total number of categories taken into consideration to four.

Framework Used in Analyzing Impact of COVID-19 on Japan's Economy and Corporate Performance
Chart 3



Source: Compiled by DIR.

Impact on business activities of local Japanese subsidiaries

Looking at the activities of local subsidiaries of Japanese companies located in China (including Hong Kong), we see that sales total 54.8 tril yen, while net profit stands at 2.8 tril yen (FY2017 results, Chart 4). Looking at results by industry, we see that the majority is accounted for by transport equipment and wholesale trade. As for events which have already occurred, the number of business days declined considerably in January and February due to the extended Chinese New Year's holiday. In most cases there was around a week's delay in reopening for business, and as a result, whether looking at it on a business day basis or on a calendar basis, it has been confirmed that the number of operating days during the Jan-Mar period will be pushed down by around 9%. Of course, to a certain extent companies can catch up after reopening for business, but even so, it will be extremely difficult to pull off a complete recovery from the lower operating rate during the Jan-Mar period.

Chart 4 illustrates a hypothetical situation in which operations are halted for 5% of a quarter, and provides an estimate of the impact on corporate earnings. This would mean a decline in sales totaling 685.2 bil yen. Next we estimate the impact on profits from which we subtract a cost ratio of 69.9% and the corporate tax rate of 21.2%, giving us an estimated result of declines of 206.5 bil yen in operating profit and 162.6 bil yen in net profit.

In addition, it goes without saying that we also must take into consideration the effect of the slowdown in China-related business activities on Japanese subsidiaries in third countries. With the supply chain disrupted, there is an extremely high probability of secondary effects in countries with especially close economic ties to China.

In this particular case it is difficult to come up with exactly the right assumptions, however, using the same method, we provide an estimate of the impact on corporate earnings in a case where business operations are interrupted for 1% of the quarter in Asian countries excluding China. In this case results show downward pressure of 187.8 bil yen on sales, 67.3 bil yen on recurring profit, and 48.2 bil yen in downward pressure on net profit (Chart 5). Here also, on a by industry basis, the majority of business is accounted for by transport equipment and wholesale trade.

Business Activities in China (Including Hong Kong) and Estimate of Impact of COVID-19 Chart 4

FY2017 Results of Local Japanese Subsidiaries in China (Including Hong Kong) (Unit: Y100bil, %)

	Sales	Cost of Sales	Cost Ratio	Current Net Profit	Corporate Tax Etc.	Corporate Tax Rate	Amount in Exports from Japan
Total	548,167	382,970	69.9	28,138	7,592	21.2	230,360
Manufacturing	337,836	231,802	68.6	19,090	5,803	23.3	115,020
Beverages and Foods	18,313	5,555	30.3	789	443	36.0	446
Textile products	4,644	3,358	72.3	253	75	22.9	774
Pulp, paper and wooden products	2,973	2,398	80.6	334	35	9.4	962
Chemical products	11,206	7,880	70.3	593	211	26.2	7,291
Petroleum and coal products	5,903	917	15.5	-30	x	x	424
Ceramic, stone and clay products	2,873	1,599	55.7	162	25	13.4	1,655
Iron and steel	10,544	9,645	91.5	205	71	25.8	4,617
Non-ferrous metals	10,076	6,824	67.7	345	75	17.8	3,488
Metal products	5,835	4,822	82.6	179	55	23.4	1,369
General-purpose machinery	12,405	10,138	81.7	692	188	21.4	2,025
Production machinery	9,759	7,062	72.4	647	124	16.1	4,836
Business oriented machinery	11,128	7,829	70.4	250	111	30.7	1,490
Electrical machinery	21,502	15,817	73.6	995	300	23.2	4,696
Information and communication electronics equipment	51,530	45,224	87.8	1,611	484	23.1	34,044
Transportation equipment	143,238	90,631	63.3	11,146	3,416	23.5	42,984
Miscellaneous manufacturing products	15,907	12,103	76.1	919	x	x	3,919
Non-manufacturing	210,331	151,168	71.9	9,047	1,789	16.5	115,340
Agriculture, forestry and fishery	249	212	85.4	16	2	12.4	37
Mining	x	x	x	x	x	x	1
Construction	1,560	1,012	64.9	32	10	23.8	132
Information and communications	2,296	1,488	64.8	77	23	23.1	424
Transport and postal services	7,593	4,906	64.6	177	74	29.3	878
Wholesale trade	177,061	130,562	73.7	7,349	1,313	15.2	110,095
Retail trade	8,933	6,192	69.3	35	40	53.5	1,372
Services	7,832	4,056	51.8	687	106	13.3	2,169
Other non-manufacturing	x	x	x	x	222	x	233

Effects if Quarterly Sales Changed by 5% (Unit: Y100bil, %)

	Sales	Operating Profit	Current Net Profit	Amount in Exports from Japan
Total	6,852	2,065	1,626	2,880
Manufacturing	4,223	1,325	1,016	1,438
Beverages and Foods	229	159	102	6
Textile products	58	16	12	10
Pulp, paper and wooden products	37	7	7	12
Chemical products	140	42	31	91
Petroleum and coal products	74	62	x	5
Ceramic, stone and clay products	36	16	14	21
Iron and steel	132	11	8	58
Non-ferrous metals	126	41	33	44
Metal products	73	13	10	17
General-purpose machinery	155	28	22	25
Production machinery	122	34	28	60
Business oriented machinery	139	41	29	19
Electrical machinery	269	71	55	59
Information and communication electronics equipment	644	79	61	426
Transportation equipment	1,790	658	503	537
Miscellaneous manufacturing products	199	48	x	49
Non-manufacturing	2,629	740	617	1,442
Agriculture, forestry and fishery	3	0	0	0
Mining	x	x	x	x
Construction	19	7	5	2
Information and communications	29	10	8	5
Transport and postal services	95	34	24	11
Wholesale trade	2,213	581	493	1,376
Retail trade	112	34	16	17
Services	98	47	41	27
Other non-manufacturing	x	x	x	x

Source: Ministry of Economy, Trade and Industry; compiled by DIR.

Business Activities in Asia (Excluding China) and Estimate of Impact of COVID-19 Chart 5

FY2017 Results of Local Japanese Subsidiaries in Asia (Excluding China) (Unit: Y100bil, %)

	Sales	Cost of Sales	Cost Ratio	Current Net Profit	Corporate Tax Etc.	Corporate Tax Rate	Amount in Exports from Japan
Total	751,382	482,098	64.2	24,799	7,057	22.2	124,447
Manufacturing	436,289	294,164	67.4	16,361	5,220	24.2	65,664
Beverages and Foods	11,116	6,656	59.9	638	199	23.8	208
Textile products	4,722	3,751	79.4	196	40	17.0	460
Pulp, paper and wooden products	4,936	3,712	75.2	240	56	18.8	657
Chemical products	39,755	29,780	74.9	2,805	515	15.5	5,292
Petroleum and coal products	8,000	462	5.8	54	x	x	108
Ceramic, stone and clay products	5,853	2,823	48.2	241	64	21.1	1,159
Iron and steel	12,298	10,914	88.7	222	82	27.0	3,570
Non-ferrous metals	14,898	13,217	88.7	469	87	15.6	2,876
Metal products	6,057	4,391	72.5	260	57	18.1	854
General-purpose machinery	9,328	7,909	84.8	332	109	24.8	1,371
Production machinery	12,370	9,249	74.8	902	163	15.3	3,022
Business oriented machinery	8,955	4,351	48.6	298	52	14.9	615
Electrical machinery	21,303	16,412	77.0	1,474	208	12.4	2,576
Information and communication electronics equipment	46,067	34,363	74.6	1,138	216	16.0	15,588
Transportation equipment	215,745	134,871	62.5	6,404	3,177	33.2	25,430
Miscellaneous manufacturing products	14,887	11,302	75.9	688	x	x	1,879
Non-manufacturing	315,093	187,933	59.6	8,438	1,837	17.9	58,784
Agriculture, forestry and fishery	206	112	54.2	-1	x	x	30
Mining	x	x	x	x	x	x	x
Construction	8,633	6,675	77.3	216	109	33.5	111
Information and communications	7,467	2,355	31.5	-37	33	-769.3	166
Transport and postal services	8,691	4,620	53.2	164	74	31.1	706
Wholesale trade	239,924	154,367	64.3	6,184	1,194	16.2	55,253
Retail trade	15,405	8,486	55.1	271	66	19.6	965
Services	25,945	7,654	29.5	337	143	29.8	1,376
Other non-manufacturing	x	x	x	x	185	x	176

Effects if Quarterly Sales Changed by 1% (Unit: Y100bil, %)

	Sales	Operating Profit	Current Net Profit	Amount in Exports from Japan
Total	1,878	673	482	311
Manufacturing	1,091	355	242	164
Beverages and Foods	28	11	8	1
Textile products	12	2	2	1
Pulp, paper and wooden products	12	3	2	2
Chemical products	99	25	20	13
Petroleum and coal products	20	19	x	0
Ceramic, stone and clay products	15	8	6	3
Iron and steel	31	3	2	9
Non-ferrous metals	37	4	3	7
Metal products	15	4	3	2
General-purpose machinery	23	4	2	3
Production machinery	31	8	6	8
Business oriented machinery	22	12	10	2
Electrical machinery	53	12	11	6
Information and communication electronics equipment	115	29	24	39
Transportation equipment	539	202	102	64
Miscellaneous manufacturing products	37	9	x	5
Non-manufacturing	788	318	249	147
Agriculture, forestry and fishery	1	0	x	0
Mining	x	x	x	x
Construction	22	5	2	0
Information and communications	19	13	x	0
Transport and postal services	22	10	6	2
Wholesale trade	600	214	173	138
Retail trade	39	17	13	2
Services	65	46	26	3
Other non-manufacturing	x	x	x	0

Source: Ministry of Economy, Trade and Industry; compiled by DIR.

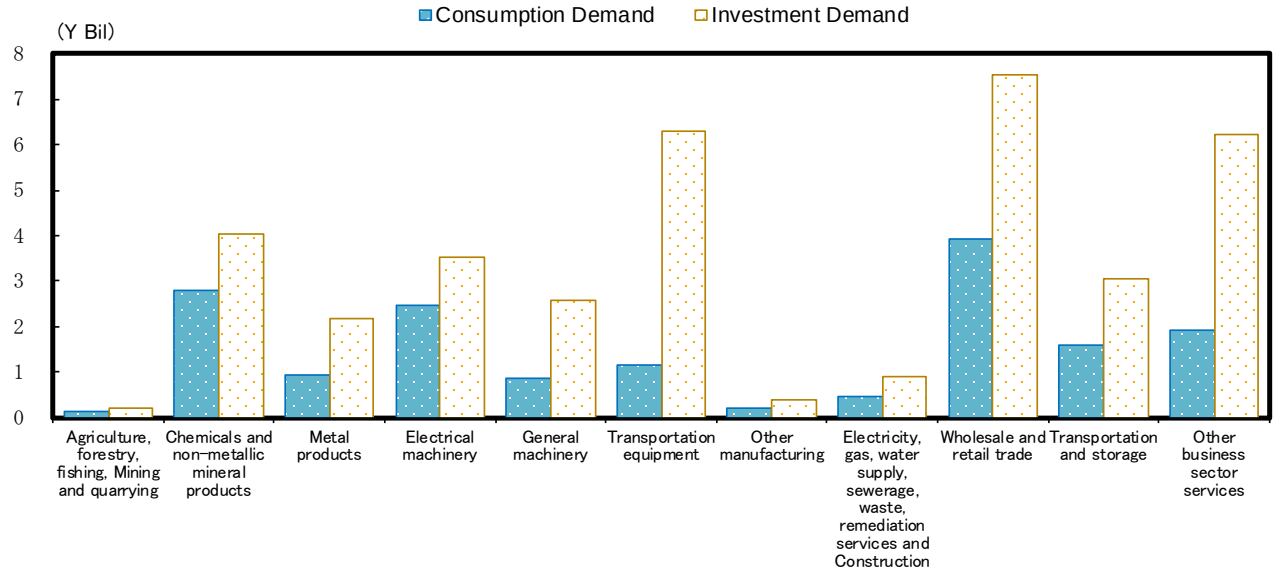
Impact on Japanese domestic production activities

Next we examine the impact of COVID-19 on Japan's domestic production activities through the decline in exports. Japan's exports to China total 14.7 trillion yen (CY2019 results, same applies to the below, source: Trade Statistics of Japan). It is difficult to determine how much of this amount may be effected, however, if we use the same approach as in the previous section, we can see that, using only amounts imported by local Japanese subsidiaries in China for our estimate, there could be declines of 288 billion yen in China, and 31.1 billion yen in the rest of Asia (excluding China) (Chart 4 & 5). Meanwhile, by industry we see that as before, most of this is accounted for by transport equipment and wholesale trade, but with an important additional note that in this case there would also be a major impact on information and communications equipment.

However, there are two problems with this approach. First, a decline in Japan's exports does not mean a decline in Japan's domestic production. Looking at the major factors of production – parts, materials, and machinery – we first have to exclude that portion making up these items which is imported. In other words, the estimates mentioned above may be excessive. On the other hand, the second problem is that if demand in China declines, third countries other than the Asian nations will also experience slowdowns in production activities, and here we have to consider the indirect effect of causing Japan's exports to decline.

In consideration of the above arguments, we used the OECD's Trade in Value Added Database (TiVA) and included the value-added concept in our estimates of possible declines in Japan's domestic production. In producing our estimate we made use of work in this area by Naoto Saito, Chief Researcher at DIR, who has estimated that the COVID-19 epidemic will cause China's GDP growth rate to fall into the 4% range. We assume that China's economic growth rate will fall by 2%pt over the period of a quarter. The results of our estimate are shown in Chart 6. Downward pressure on domestic production is estimated at a total of 59 billion yen. To estimate on an industry by industry basis we used the same method as previously and found that transportation equipment, wholesale and retail trade would again be effected, while in addition, chemicals and non-metallic mineral products, metal products, electrical machinery, general machinery, and other business sector services also stand out as likely being effected according to this estimate.

Impact on Japan's Domestic Production Assuming that Demand in China Declines by 2% on a Quarterly Basis, or 0.5% on an Annual Basis **Chart 6**



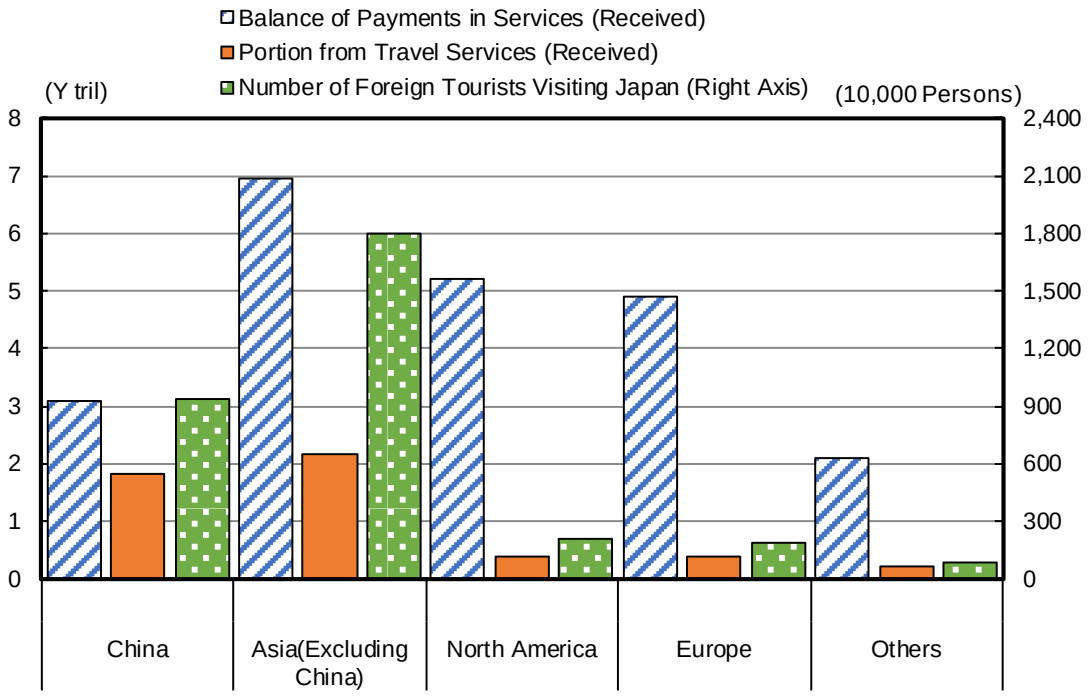
Source: OECD; compiled by DIR.
Notes: 1) Amount changed assumes value-added export structure of 2015.
2) Exchange rate set at $1=￥110

Impact on inbound tourism demand

Next we look at the impact on service fees from overseas. First we take a look at the actual values. The worldwide total of fees received for services is 22.3 trillion yen. Of this amount, travel services total 5.0 trillion yen. Foreign tourists visiting Japan totaled 32,140,000 (most recent quarter, Oct. 2018 – Sept. 2019 actual results, same period used below). Of this total amount, fees received for services from China totaled 3.1 trillion yen. Of this amount, travel services totaled 1.8 trillion yen with foreign visitors to Japan totaling 9,330,000.

There is little room for argument that catastrophic damage has occurred in this area. According to a recent DIR report dated 2020 February 7, (*Fears of Negative Growth in Japan's Economy due to Coronavirus: Real GDP growth rate lowered by 1%pt or more as Coronavirus spreads and situation is prolonged.*, by Keiji Kanda and Akane Yamaguchi), the impact of a decline in Chinese visitors to Japan totaling one million is estimated to have an impact of about 200 billion yen. It has been reported in the news that group tours totaling more than 400,000 people have already been cancelled. Hence a decline in Chinese tourists visiting Japan totaling one million is a realistic estimate. In addition, if we take into consideration that the number of foreign visitors to Japan other than the Chinese will also gradually be affected, and that fees received for services other than travel related will also feel the impact, it is highly possible that the ultimate impact could increase markedly in the future.

Amounts Received for Services, Travel Services, and Number of Tourists Visiting Japan by Major Country or Region (Actual Results for Most Recent Quarter) Chart 7



Source: Ministry of Finance, Bank of Japan, Japan Tourism Agency; compiled by DIR.
Note: Figures are totals from most recent quarter (Oct. 2018 – Sept. 2019).

Impact on Japanese consumption

Finally, we must also examine the impact on Japanese consumption. Even when we consider the fact that Japan's annual private sector consumption is huge at approximately 300 trillion yen, it is impossible to measure what the impact on Japan's economy via this route might be. It is not possible to perform a truly insightful analysis using the data available at this time. There is no shortage of reports in the media that there are noticeable effects various areas including leisure, transportation, department stores, and the food industry, but there is a lack of aggregate data necessary to grasp the full impact. We can of course refer to similar cases such as the SARS epidemic, but there is no guarantee that the impact will

be the same as the current situation. On the other hand, we could cast our net wider and look at special demand for sanitary goods and software whose purpose is to perform telecommuting work, as well as the spread of e-commerce consumption. But in either case, we will have to wait until next month when the February consumption related statistics are available.

So far we have examined four major routes through which the direct effects of the COVID-19 epidemic could bring downward pressure on economic activity. If impact remains in the long-term on employment and capital investment, then we could begin seeing secondary effects. We must remain vigilant regarding the possibility of secondary effects (in other words the multiplier effect) which makes the initial phenomena even worse. Again, the question of whether or not the multiplier effect occurs depends on how quickly the problem can be brought under control. All we can do is to continue monitoring the situation as it develops. For the time being, the question of whether the impact of the COVID-19 on economic activity will keep within the range of recoverable damage or reach a scale such that damage is irreversible can only be answered by keeping a close watch on changes in probability distribution.

The true nature of stock price highs despite concerns that business results may worsen

With recovery in both domestic and overseas demand already at a worrisome pace, the addition of the impact of the COVID-19 outbreak is resulting in unavoidable downward revisions in corporate business results for the time being. There is little room for doubt that uncertainties are on the increase, and that these must be taken into consideration when coming up with an outlook for business results. The "Goldilocks Economy," which the financial markets had been hoping for since last fall, is already showing less likelihood of fulfilling the first and third of the three conditions necessary for it to appear[4] – the three conditions are (1) the economy shifts into a recovery, (2) monetary easing policies continue, and (3) economic uncertainties are limited.

Yet despite this, global stock markets, centering on the US, are maintaining their resilience. Behind this lies none other than the power of monetary easing. It is common knowledge that Central banks in the US, Japan, and Europe shifted to quantitative easing last fall. In addition, the Chinese government began supplying liquidity. As a result, interest on government bonds as well as spreads on corporate bonds soon found themselves in a tight position, which continues despite concerns about economic downturn. It appears that abundant liquidity around the world is supporting risk asset prices.

However, a rise in the prices of financial assets which does not reflect reality as seen in the economy and corporate business performance is the very definition of an economic bubble. Some attention needs to be paid to the possibility of reducing the liquidity supply in order to bring about a soft landing of the bubble at a time when the need to support the economy is diminishing.

In this context, the economy has a fair amount of underlying strength, plus, we should remain aware that the trend in monetary policy in the US considers the impact of COVID-19 to be relatively minor. As is shown in Chart 8, the FRB is currently increasing its portfolio assets again. The FRB has stated that this policy aims at providing a supply of liquidity to the money market. Moreover, it says that the policy is to be continued at least through the first half of 2020. Conversely, there will still be room for policy change after the second half of 2020. As the FRB has asserted, the purpose of the policy is for liquidity supply only, and not in order to prop up the economy through lower interest rates. Now, if we take this statement literally, it should not be at all odd if the FRB halts its increase in assets in the near future, or at least slows the pace as long as the malfunctioning of the money market, which occurred sporadically between 2018 and 2019, does not recur.

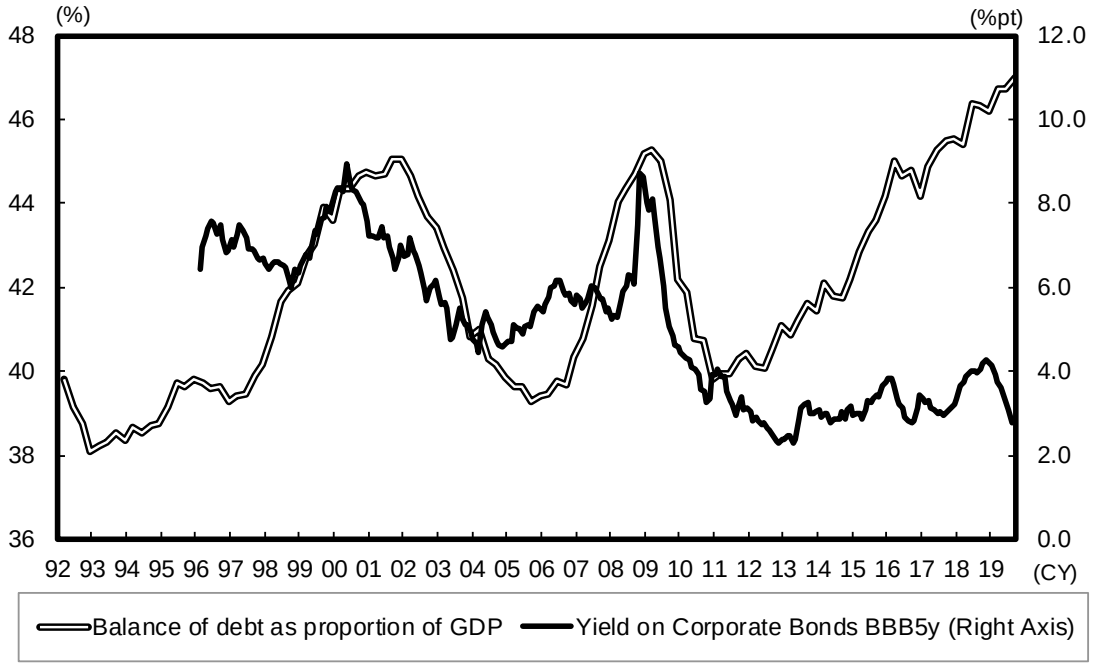
Details and Trends in FRB Quantitative Easing Policy **Chart 8**

		Total	Treasury	T-bill	MBS
2017	Oct-Dec	▲10 bil$	▲6 bil$	-	▲4 bil$
2018	Jan-Mar	▲20 bil$	▲12 bil$	-	▲8 bil$
	Apr-Jun	▲30 bil$	▲18 bil$	-	▲12 bil$
	Jul-Sep	▲40 bil$	▲24 bil$	-	▲16 bil$
	Oct-Dec	▲50 bil$	▲30 bil$	-	▲20 bil$
2019	Jan-Apr	▲50 bil$	▲30 bil$	-	▲20 bil$
	May-Jul	▲35 bil$	▲15 bil$	-	▲20 bil$
	Aug-Oct 1H	0 bill$	＋20 bil$	-	▲20 bil$
	Oct 2H-	＋30 bil$	＋20 bil$	＋30 bil$	▲20 bil$
	Nov-	＋60 bil$	＋20 bil$	＋60 bil$	▲20 bil$

Source: FRB; compiled by DIR.
Note: All figures are monthly maximums.

[4] For details see the DIR Report dated 29 January 2020, *2020 Global Risk Analysis: Examining the pitfalls of the "Goldilocks" economic scenario,* by Shunsuke Kobayashi and Yutaro Suzuki.

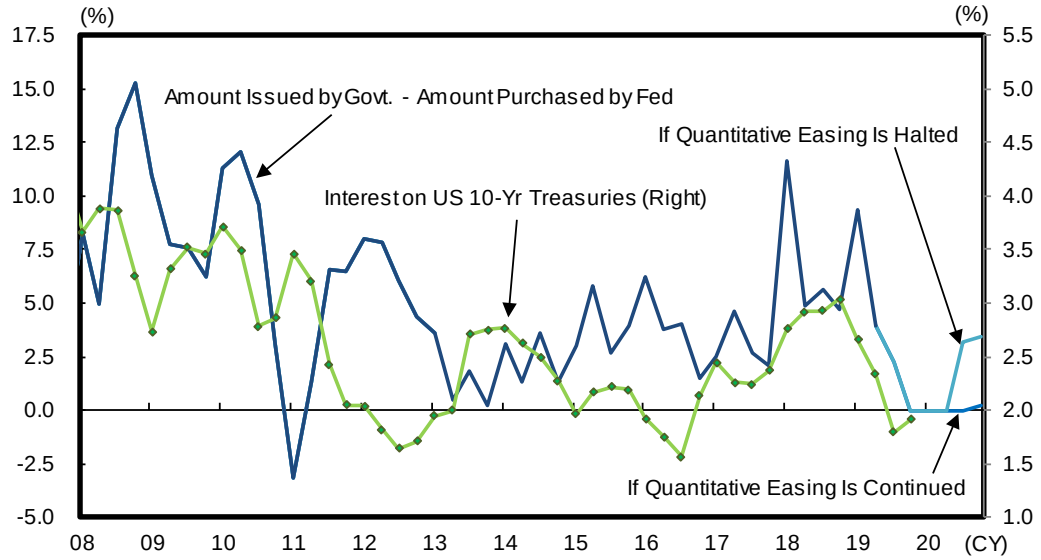
Outstanding Debt of US Corporations as a Proportion of GDP, and Interest on Corporate Bonds[5] **Chart 9**



Source: FRB, BEA, S&P, Haver Analytics; compiled by DIR.

Regarding this point, Chairman Powell made an extremely important statement at the press conference held after the Federal Open Market Committee (FOMC) met on January 28-29. A sufficient level of reserves must be maintained until April when supply and demand of funds is at its tightest due to tax payments. The general criterion for a sufficient reserve on deposits is around 1.5 trillion dollars, as Powell has stated on several occasions. However, as was stated in the monetary policy report issued on February 7, reserve on deposits has already reached 1.6 trillion dollars. Therefore, as long as the US economy remains favorable, there is a bigger chance that we can expect the FRB to begin reducing liquidity supply in the second half of 2020. It goes without saying that this will not cause immediate confusion in the US financial markets. However, we must remain vigilant, since in a country which shows no signs of recovery even as the time approaches when the FRB plans to reduce liquidity supply, downward pressure could be brought on economic activity through the financial markets.

Net Issuance of US Treasuries (as a Portion of GDP), and Trends in Interest on 10-Yr Bond **Chart 10**



Source: FRB, CBO, Haver Analytics; compiled by DIR.
Notes: Figures after July 2019 calculated by DIR based on FRB and CBO estimates.

[5] This report uses credit ratings assigned by Standard & Poor's, which is not registered with Japan's Financial Services Agency pursuant to Article 66, Paragraph 27 of the Financial Instruments and Exchange Act.

Japan's Economic Outlook No.204

	FY19 (Estimate)	FY20 (Estimate)	FY21 (Estimate)	CY19	CY20 (Estimate)	CY21 (Estimate)
Main economic indicators						
Nominal GDP (y/y %)	1.2	1.1	1.2	1.3	0.8	1.2
Real GDP (chained [2011]; y/y %)	0.4	0.4	0.7	0.7	-0.1	0.8
Domestic demand (contribution, % pt)	0.6	0.3	0.7	0.9	0.0	0.7
Foreign demand (contribution, % pt)	-0.2	0.1	0.1	-0.2	-0.1	0.1
GDP deflator (y/y %)	0.8	0.7	0.4	0.6	0.9	0.4
Index of All-industry Activity (y/y %)*	-0.6	-0.1	0.8	-0.0	-0.8	0.9
Index of Industrial Production (y/y %)	-3.0	-0.6	1.7	-2.8	-1.9	1.7
Index of Tertiary Industry Activity (y/y %)	0.0	0.1	0.6	0.5	-0.5	0.7
Corporate Goods Price Index (y/y %)	0.1	0.1	0.7	0.2	0.1	0.6
Consumer Price Index (excl. fresh food; y/y %)	0.6	0.2	0.4	0.7	0.3	0.3
Unemployment rate (%)	2.3	2.5	2.5	2.3	2.5	2.5
Government bond yield (10 year; %)	-0.11	-0.05	-0.05	-0.11	-0.05	-0.05
Balance of payments						
Trade balance (Y tril)	0.8	3.2	3.7	0.6	3.0	3.6
Current balance ($100 mil)	1,853	1,980	2,040	1,840	1,952	2,023
Current balance (Y tril)	20.3	21.9	22.5	20.1	21.4	22.2
(% of nominal GDP)	3.7	3.9	4.0	3.6	3.8	3.9
Real GDP components						
(Chained [2011]; y/y %; figures in parentheses: contribution, % pt)						
Private final consumption	-0.2 (-0.1)	0.1 (0.1)	0.6 (0.3)	0.1 (0.1)	-0.4 (-0.2)	0.7 (0.4)
Private housing investment	1.3 (0.0)	-1.5 (-0.0)	0.1 (0.0)	1.9 (0.1)	-1.8 (-0.1)	-0.0 (-0.0)
Private fixed investment	0.0 (0.0)	0.2 (0.0)	1.4 (0.2)	0.9 (0.2)	-0.9 (-0.1)	1.6 (0.2)
Government final consumption	2.5 (0.5)	1.1 (0.2)	1.0 (0.2)	1.9 (0.4)	1.6 (0.3)	1.0 (0.2)
Public fixed investment	4.1 (0.2)	0.3 (0.0)	-0.8 (-0.0)	3.1 (0.2)	1.7 (0.1)	-0.8 (-0.0)
Exports of goods and services	-1.8 (-0.3)	0.1 (0.0)	1.5 (0.3)	-1.8 (-0.3)	-1.1 (-0.2)	1.7 (0.3)
Imports of goods and services	-0.4 (0.1)	-0.3 (0.1)	1.0 (-0.2)	-0.8 (0.1)	-0.5 (0.1)	1.0 (-0.2)
Major assumptions:						
1. World economy						
Economic growth of major trading partners	2.9	3.0	3.3	3.0	3.0	3.2
Crude oil price (WTI futures; $/bbl)	56.6	52.0	52.0	57.0	52.3	52.0
2. US economy						
US real GDP (chained [2012]; y/y %)	2.2	2.0	2.0	2.3	2.0	2.0
US Consumer Price Index (y/y %)	2.0	2.0	2.0	1.8	2.1	1.9
3. Japanese economy						
Nominal public fixed investment (y/y %)	5.7	1.4	0.0	4.7	3.1	0.0
Exchange rate (Y/$)	108.9	109.7	109.7	109.0	109.7	109.7
(Y/€)	120.9	119.0	119.0	122.2	119.3	119.0

Explanatory Document of Unregistered Credit Ratings

In order to ensure the fairness and transparency in the markets, Credit Rating Agencies became subject to the Credit Rating Agencies' registration system based on the Financial Instruments and Exchange Act. In accordance with this Act, in soliciting customers, Financial Instruments Business Operators, etc. shall not use the credit ratings provided by unregistered Credit Rating Agencies without informing customers of the fact that those Credit Rating Agencies are not registered, and shall also inform customers of the significance and limitations of credit ratings, etc.

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1) Duty of good faith.
2) Establishment of control systems (fairness of the rating process, and prevention of conflicts of interest, etc.).
3) Prohibition of the ratings in cases where Credit Rating Agencies have a close relationship with the issuers of the financial instruments to be rated, etc.
4) Duty to disclose information (preparation and publication of rating policies, etc. and public disclosure of explanatory documents).

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■ Credit Rating Agencies

[Standard & Poor's]

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[Moody's]

The Name of the Credit Rating Agencies Group, etc

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The name and registration number of the Registered Credit Rating Agency in the group: Moody's Japan K.K. (FSA commissioner (Rating) No.2)

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Based on the information received from issuers or from public sources, the credit risks of the issuers or obligations are assessed. MIS adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MIS considers to be reliable. However, MIS is not an auditor and cannot in every instance independently verify or validate information received in the rating process.

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[Fitch]

The Name of the Credit Rating Agencies group, etc

The name of the Credit Rating Agencies group: Fitch Ratings ("Fitch")
The name and registration number of the Registered Credit Rating Agency in the group: Fitch Ratings Japan Limited (FSA commissioner (Rating) No.7)

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February 2020