Scenario Analysis on the Iran Sanctions and Its Impact on the International Oil Market

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Introduction

On May 8, 2018, President Trump of the United States announced that all US sanctions against Iran that had been lifted based on the Joint Comprehensive Plan of Action (JCPOA) would be re-imposed while announcing US withdrawal from the agreement. Companies that had started doing business with Iran under the JCPOA are now required to leave the country by the deadlines set by the United States. Those that do not terminate business with Iran in the sectors that the US designates, by August 6 or by the second deadline of November 4, will be subject to sanctions by the US.

The US action has caused many companies' withdrawal from Iran. The US has also demanded that key importers of Iranian crude[1] in Europe and Asia must reduce imports from Iran to zero. The importers are now considering how to respond to this demand, and consequently, Iranian oil exports are likely to plunge starting from the second half or the end of 2018. Iran is a major oil producer, exporting approximately 2.5 mb/d, and a significant decline in its exports could have a material impact on the stability of the international oil market and oil prices. Indeed, the US demand to cut imports to zero has already triggered a market reaction, causing Brent crude to jump temporarily to nearly $80. The situation surrounding Iran is becoming a key factor in projecting future oil prices.

The US withdrawal also poses an existential threat to the JCPOA framework, which aims to deter nuclear weapons development by Iran. The JCPOA was originally designed to bring economic benefits to Iran such as restarting oil exports and attracting large-scale investments in exchange for significantly curtailing its nuclear development program. However, if oil exports stop and if it becomes impossible for foreign companies to continue business with Iran, the much-anticipated economic benefits for Iran would disappear as a result of US pressure, and Iran will no longer have any incentive to remain in the JCPOA. This may have various repercussions on Iran's domestic situation over time and could destabilize not only the country itself but also the surrounding region. It is a critical juncture in discussing the future of the Middle East and international energy.

Based on this background, the IEEJ held a workshop on July 5, 2018 to analyze future developments

[1] Including crude oil and condensate.

in situation surrounding Iran and its impact on the international oil market, using the scenario planning method[2], with the participation of IEEJ researchers[3] with expertise in Iran, US politics, Middle East, and the international oil market. Various scenarios for the future of the situation surrounding Iran and its impact on the international oil market are summarized below.

1. Basic conditions/assumptions for the scenario development
   - The scenarios cover the period from the autumn of 2018 to around 2020.
   - First, scenarios for Iran and the international situation surrounding Iran were discussed, and their impact on the international oil and energy markets was developed.
   - Through the discussion in the workshop, "whether the US sanctions will reduce Iran's oil exports to zero" was selected as the structural branching point for the scenarios. Scenario A featured the assumption of "reduction to zero" and Scenario B was based on the assumption of "instant drop to around 1 mb/d (but not zero)".
   - The moves of various countries involved (stakeholders) will play an important role regarding the branching factor. In this analysis, how China will act was assumed to have the greatest effect on the branching factor.
   - As preconditions for the scenarios, unless the scenario stories themselves deviate from these assumptions, we assumed that (1) the growth rate of the world economy will be in the higher 3% range as indicated by the IMF's latest World Economic Outlook, (2) global oil demand will grow by around 1.3 to 1.4 mb/d per year, US oil output will surge by 1.7 mb/d in 2018 and 1.2 mb/d in 2019, and non-OPEC oil output will increase moderately driven by the rise in US output as indicated by the IEA's latest Monthly Oil Market Report. We also assumed that Venezuela's output will continue to fall as social and economic turmoil persists.

2. Outline of the story up to the branching point

- The US demands Iran to change its course of action as described in US State Secretary Pompeo's "12 requirements from Iran".[4] To force the country to change its actions, the US has announced a policy to reduce Iran's oil export revenues to "zero" and demands importing countries stop

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[2] Scenario planning is a method for analyzing highly uncertain future situations. Various factors come into play when analyzing the future of a certain problem area. This method assumes outlooks for the world and the future having completely different structures, by extracting the most important yet uncertain elements and setting the outlooks based on the different ways in which they will develop. By formulating various possible "future scenarios" that have a coherent internal logic rather than merely forecasting the future as a continuation of the present or by analyzing trends, the method aims to contribute to strategic decision-making on actions and policies for the respective future situations.

[3] Participating researchers: Koichiro Tanaka, President, JIME Center; Sachi Sakanashi, Acting President, JIME Center; Shuji Hosaka, Vice President, JIME Center; Akiko Yoshioka, Senior Researcher, JIME Center; Shigeto Kondo, Research Fellow, JIME Center; Amane Kobayashi, Research Fellow, JIME Center; Ichiro Kutani, Senior Research Fellow, Strategy Research Unit; Shoichi Itoh, Senior Analyst, Strategy Research Unit; Tetsuo Morikawa, Senior Economist, Fossil Energies & International Cooperation Unit; Yoshikazu Kobayashi, Senior Economist, Fossil Energies & International Cooperation Unit; Ken Koyama, Chief Economist, Managing Director.

[4] On May 21, 2018, US State Secretary Pompeo announced 12 conditions required of Iran, demanding a halt to its uranium enrichment program, full acceptance of investigations and an end to its missile tests and support to terrorists.

importing Iranian oil.

- Iran tries its best to build a mechanism to continue its oil exports and trade even after the US withdrawal from the JCPOA. The country calls on the EU for cooperation in maintaining the JCPOA and begins talks with Russia, China, and India on continuing business transactions.

3. Outline of Scenario A

(1) The story in which Iranian oil imports decline to zero

- The governments of the EU, Japan, and South Korea will defy the US demand to stop taking delivery of Iranian oil. Particularly, the EU will continue to take a stance that receiving a certain amount of Iranian oil is important for maintaining the JCPOA. However, the private companies of those countries that actually take delivery of Iranian oil will no longer be able to do so in the face of the US sanctions pressure, as not only chartering oil tankers and covering contracts with insurance will be subject to sanctions, but also the financial institutions that process the payments for the imports will also need to avoid secondary sanctions. Forced to choose between the US and Iran, these countries will have no choice but to stop taking delivery of Iranian oil for the sake of their business with the US.
- China, on which Iran relies most for continuing its oil export business (importing 0.65 mb/d as of May 2018), will choose to stop doing business with Iran as the US-China trade war escalates. This may be done in exchange for the US giving some kind of benefit to China in the trade war in exchange for China cutting its oil import from Iran to zero.
- Meanwhile, Russia has an “oil for goods” deal with Iran in preparation for possible disruptions in Iranian oil exports. This barter arrangement, in which Russia takes delivery of Iranian oil and pays for it with Russian products, was signed as “Plan B” just in case the nuclear deal was not reached in 2014. However, it suddenly becomes useful following the US withdrawal from the JCPOA. In this case, small quantities of Iranian oil will be exported based on the deal although in official statistics the exports will be “zero.”

(2) Iran’s domestic and international situation (politics, economy)

- Iran’s economy will deteriorate further. Inflation will accelerate due partly to currency depreciation, and the unemployment rate will worsen. The youth unemployment rate, which is currently over 30%, will rise further, destabilizing the society. As a result, protests like the ones seen at the end of 2017 will erupt again.
- Since the US has implied that it will try to destabilize Iran “from inside,” the Iranian security authorities regard domestic protests as a sign of foreign intervention and will heighten their vigilance. This will cause a severe crackdown on “protests staged as conspiracy of external forces.” If the Iranian society becomes unstable, hardliners in charge of public security will gain influence.

- The Rouhani administration's already shaky policy of seeking international collaboration will weaken further with the rise of the hardliners, who will claim that there is no need to remain in the JCPOA when Iran cannot export oil and there is no foreign investment or business coming into the country. As this claim strengthens, the possibility of Iran's withdrawal from the JCPOA rises.
- As the moves for Iran's withdrawal become apparent, the possibility of Iran expanding its nuclear program, with or without declaring to do so, will start to be recognized in and outside the country. As a result, tensions will rise in the Middle East and the geopolitical risk will increase. In particular, Israel will react most harshly and will once again start to threaten to destroy Iran's nuclear facilities with "limited air strikes."
- If Israel does carry out air strikes on Iran's nuclear facilities, the situation in Iran and the Middle East will immediately become volatile and destabilize. Regional tensions surrounding Israel and Iran will soar, possibly involving the US, Saudi Arabia, and others. Destabilization may further accelerate depending on whether and how Iran retaliates against the limited air strikes.
- To prevent retaliation by Iran, Israel may conduct some kind of operation against the Shiite militant group Hezbollah in southern Lebanon to weaken their power ahead of striking Iran. Such moves will further cause the destabilization of the entire Middle East region.
- Even if Israel does not carry out air strikes, the geopolitical risk will remain extremely high with constant military tensions. In the meantime, Iran will experience extreme economic hardship, due to losing its oil export business and the growing difficulty in keeping trading business. The people will grow increasingly frustrated, causing severe problems for Iran's internal governance. Meanwhile, Iran will grow weaker due to its economic problems and containment policy by the US.
- If Iran weakens, its actions and activities in various Middle Eastern countries may shrink, which will be taken positively by those countries in the region that have always considered Iran a problem (such as Saudi Arabia).

(3) International oil and energy situation

- The loss of Iranian oil exports (2.5 mb/d) will greatly tighten the supply-demand balance in the international oil market.
- To control the rise in oil prices, parties to the joint production cut such as OPEC and Russia will fully implement the increase in real output announced at the OPEC meeting in June 2018.
- The supply that will be lost from the oil market may exceed up to 3 mb/d by including the supply from Venezuela as well as Libya, which is currently facing regional instability.
- The oil producers that can boost their output quickly in a given period are limited to the Gulf oil producers and Russia. Saudi Arabia, which has the largest surplus production capacity, will play

the central role in the production increase. The country will raise its output quickly from 10 mb/d in May 2018 to 11 mb/d. Raising output will require six to twelve months as some additional investments are needed. However, Saudi Arabia will take steps to expand its production capacity to meet the market demand for oil.

- Aside from Saudi Arabia, Gulf countries such as Kuwait and the UAE will also contribute to the increase. Iraq and Russia may also boost their output by 0.3 to 0.5 mb/d each. Furthermore, as oil prices soar as mentioned later, the increase in US shale oil output will accelerate toward the end of 2018 to 2019.
- Thanks to the significant production increase mainly by Saudi Arabia, the supply-demand balance will only just be maintained “on a flow basis” in the international oil market despite the loss of Iran’s oil exports and Venezuela’s shrinking production. However, the market will be haunted by the fear of a supply shortage and will be extremely nervous about geopolitical risks and supply disruptions.
- Another problem will be the loss of surplus supply capacity. Saudi Arabia will push production almost to full capacity to maintain the supply-demand balance, alongside other OPEC members and Russia. As a result, surplus capacity to respond to contingencies will be lost even though supply will meet demand “on a flow basis,” making the market prone to overreact.
- This situation will simultaneously produce two types of risk: the loss of surplus production capacity, and extremely high geopolitical risk caused by tensions inside and outside Iran following the loss of its oil exports.
- Under such a severe supply-demand environment and geopolitical risks, oil prices will soar to around $80 to $100/bbl. Prices will be highly volatile and fluctuate wildly based on changes in supply-demand factors and geopolitical risks, and supply disruptions in oil-producing countries.
- Furthermore, in the event of an escalation of geopolitical risks in the Middle East, limited air strikes and other military actions on Iran’s nuclear facilities, oil prices will surge far beyond $100. If at this stage, oil-related facilities of the region’s key producers sustain damage for reasons including Iran’s counterattacks or the safety of navigation through the Strait of Hormuz or the Strait of Bab el-Mandeb, oil prices will soar even higher.
- If oil prices rise toward $100, the US will decide to release its strategic petroleum stocks to stabilize prices even if no one follows suit. Should a further rise in prices or supply disruptions occur, the IEA will take emergency measures including releasing its stocks.
- In the US, discussions on reintroducing the ban on oil exports to lower domestic oil prices will gain momentum under the “America First” policy, and depending on the situation, exports will indeed be banned again.
- However, the supply-demand balance will start to improve somewhat and the rise in oil prices will ease from 2019 when the US and Russia begin fully increasing their output, especially from

later in the year. Saudi Arabia will steadily increase its production, and Iraq's production will gradually increase. Nevertheless, OPEC's surplus production capacity will remain low without Iranian oil exports and prices will continue to fluctuate nervously.

- Soaring oil prices will also affect other fossil energy markets, particularly LNG. In Asia where oil-linked pricing is mainstream, the issue of the Asia premium of LNG prices may return.
- The rise in LNG prices will reduce demand for LNG for power generation, which is replaceable and price-sensitive. This trend will be more evident in emerging countries where the use of coal-fired thermal power will rise.
- On the supply side, US LNG, which is based on a different pricing system and is relatively cheap, will become competitive. US LNG exports will increase mainly in Northeast Asia as importers try to maximize their US LNG imports.
- The rise in LNG prices will boost new liquefaction projects that await investment decisions. However, as the rise will make LNG even less competitive compared to coal and renewable energy, not all projects on the waiting list will move forward.
- The rise in the overall energy prices will widen the gap between supply costs and retail prices in importing countries that subsidize their energy prices. As discussions on stopping subsidies gain steam, the countries will face the dilemma of not being able to stop subsidies because of the high prices and will suffer worsening finances.
- To deal with the soaring oil prices and the rising geopolitical risks that caused them, developed countries as well as major oil consumers in Asia will begin earnest efforts to substitute oil with other energies. Efforts to toughen auto fuel standards and promote the use of innovative automobiles such as EVs will accelerate, which will suppress oil demand after the target analysis period of this scenario.

4. Outline of Scenario B

(1) The story in which Iranian oil imports remain at around 1 mb/d

- Sensing mounting frustration among US allies due to the unilateral withdrawal of the US from the JCPOA, China will continue to import Iranian oil and remain cooperative with Iran. Furthermore, similar to the era of tough sanctions before the signing of JCPOA, Chinese companies will fill the vacuum as European and Japanese companies withdraw. Alternatively, as the US-China trade war escalates, the US could show leniency toward China's imports of Iranian oil in exchange for some significant benefits in the negotiations with China.
- As China continues to trade with Iran despite the US "toughest sanctions" against Iran, the EU, Japan, and South Korea will also continue to trade with Iran, albeit in significantly smaller volumes, emphasizing the importance of "preserving the JCPOA."
- India and Turkey will also continue to import Iranian oil although in reduced volumes.

- The story described above is Scenario B1 or the "Muddle Through" Scenario in which Iranian oil exports will continue as US allies and others find a middle ground with the US through negotiations.
- Meanwhile, if the EU, China, and others keep confronting the US while US insists on reducing Iran's oil deliveries to zero, those companies could continue to take delivery of Iranian oil with the threat of imposing retaliatory economic sanctions on US companies, even though the US imposes economic sanctions on companies of these countries. This scenario, while the ongoing trade war intensifies, would result in the extreme deterioration of US trade and economic relations with the EU, China, and others (Scenario B-2: Trade and Economic Confrontation Scenario).

(2) Internal and external situation of Iran (politics, economy)

(B-1) Muddle Through Scenario

- If Iran's oil exports fall by half to 1 mb/d in the Muddle Through Scenario, Iran will choose to stay quiet under the storm of the Trump Administration to "endure for two years until the 2020 US presidential election." However, the economic situation will remain severe and the domestic situation will destabilize. Being able to export 1 mb/d of oil, Iran's economy will not deteriorate drastically but will not improve either.
- Even with Iran losing half its oil exports, Israel will continue to suspect that Iran might be secretly developing nuclear weapons. With Iran unable to dispel doubts, Israel will team up with Saudi Arabia and demand that the US take "an even tougher Iran policy" including regime change.
- To counter the pressure by the US, Iran will intervene further in countries such as Syria, Yemen, and Lebanon and strengthen its ties with Turkey, Iraq, and Qatar.
- Facing resistance from China, the US Iran policy will reach a dead end. President Trump will seek some kind of a "deal" with Iran in an effort to be re-elected in 2020. To achieve a deal, the US may threaten Iran with military strikes, as it has done with North Korea, to pressure Iran to accept its demands.

(B-2) Trade and Economic Confrontation Scenario

- In the Trade and Economic Confrontation Scenario, the confrontation between the US and major countries (EU, China, and others) will deepen, with severe repercussions on the world economy.
- Aiming for re-election, President Trump will try hard to achieve some scores in US relations with Iran. He may initially seek a deal, but if this proves difficult, may threaten military attacks, raising regional tensions.

(3) International oil and energy situation

(B-1) Muddle Through Scenario

- Under the Muddle Through Scenario, Iran will lose less oil exports than under Scenario A. The fall in Iran's oil output will be offset by an output increase up to 11 mb/d by Saudi Arabia as well as an increase by Russia and Iraq. OPEC's surplus production capacity will hit a historic low, but the margin will remain slightly larger than under Scenario A.

- Consequently, oil prices will rise but to a lesser extent than in Scenario A and will remain at around $70 to $80/bbl, the same as levels during late July, after a very short period of volatility.
- After the start or spring of 2019 when the increase in production in the US and Russia begins to take effect, Saudi Arabia and OPEC countries will return to normal production levels as will the surplus production capacity of OPEC.
- The geopolitical risks regarding Iran will remain high but the supply-demand balance in the international oil and energy markets will remain generally stable.
- However, there will be a shift in the presence of countries in Iran. Western energy companies will downsize their business in Iran while Chinese companies will gain momentum and step up energy-related investment plans in Iran.

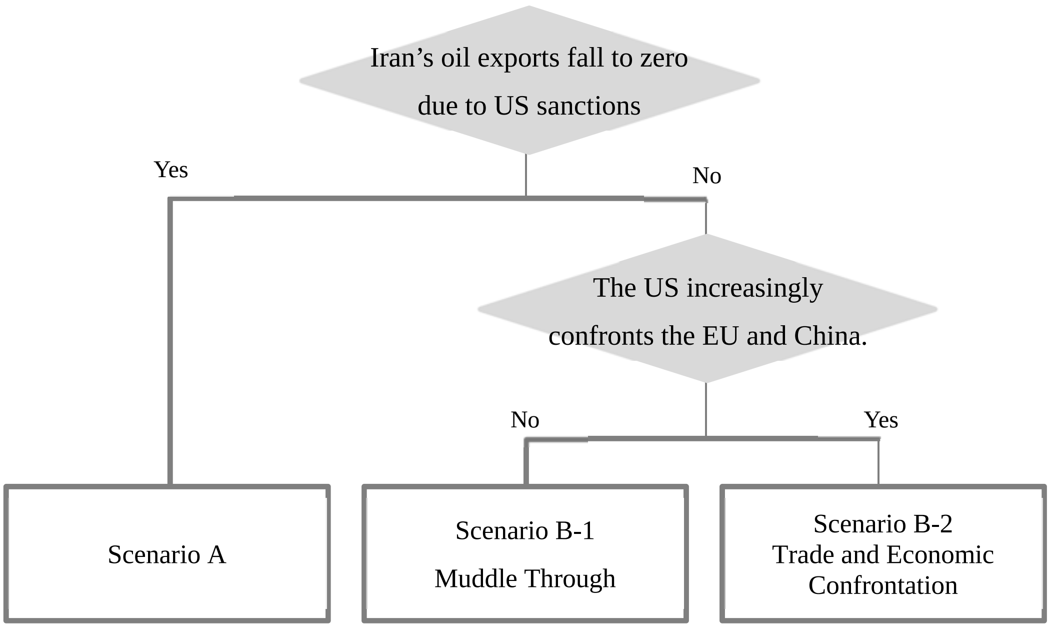
(B-2) Trade and Economic Confrontation Scenario

- Under the Trade and Economic Confrontation Scenario, the supply of Iranian oil will follow a similar supply-demand scenario to that of the Muddle Through Scenario immediately after the supply falls. That is, the fall will be covered by increased production mainly from Saudi Arabia and oil prices will eventually settle at around $70 to $80/bbl after a temporary period of high volatility.
- The trade and economic confrontation of the US against the EU, China, and others will spread recession from developed countries to the world. The impact of recession in developed countries will reach developing countries that provide raw materials and labor.
- This will significantly slow the increase in economy-related oil demand, or depending on the circumstances, demand will even decrease first after the Lehman crisis in 2008 and 2009.
- The global oil supply will remain in surplus despite the drop in production in Iran, and oil prices will head toward $50/bbl after the spring of 2019 when the heating-season demand ceases.
- OPEC countries and Russia will restart talks on a joint production cut and will agree on one at the OPEC meeting in June 2019. However, as the confrontation between the US and the EU, China, and others will take time to resolve, economic recovery, that is, the recovery in oil demand, and an upturn in oil prices will be pushed back into 2020.
- In Asia, low oil prices will suppress oil-price-linked LNG prices. Potential demand will be tapped, accelerating the increase in demand for natural gas in Asia. On the supply side, LNG imports from the US will decrease, and investment decisions on new liquefaction plants will be withheld except for competitive projects such as Qatar's plans to raise production.
- The low energy prices will somewhat dampen energy conservation efforts and the momentum to shift to low-carbon energies.

5. Conclusion and implications

- Using “whether or not the US sanctions will reduce Iran’s oil exports to zero” as the branching point, the possible situations in 2020, which will differ greatly depending on the scenario, were examined. Scenario A is based on a story in which Iran’s oil exports become zero while in Scenario B, the exports are maintained at around 1 mb/d. Scenario B branches further into two sub-scenarios.
- The turn in Scenario B is caused by the US relations with the EU, China, and others. In the Muddle Through Sub-Scenario, a middle ground is reached in the negotiations with the US and Iran’s oil exports are maintained, while in the Trade and Economic Confrontation Sub-Scenario, the US relations with the EU, China, and others deteriorate drastically over trade and economic issues.

Figure Scenario branching points and key points of the international oil and energy markets



	Scenario A	Scenario B-1	Scenario B-2
Oil market	Supply-demand balance tightening and surplus production capacity crunch	Situation relatively calm thanks to increased production by Saudi Arabia and others	Economic slowdown causes a supply glut
Oil prices	$80 to $100/bbl range. Could rise further in some cases	$70 to $80/bbl range	Head toward $50/bbl
Other energies	LNG demand slows as prices soar with oil, giving coal a competitive edge	–	Low LNG prices exploit potential demand. FIDs for new liquefaction projects are delayed

- In Scenario A in which Iran's oil exports drop to zero, oil supply may tighten to extreme levels from around 2018 to early 2019 depending on the pace of Saudi Arabia's production increase and the loss of exports of other countries besides Iran, with oil prices fluctuating wildly at high levels. This would cause serious risks to supply security for Japan and other importers, with high energy import prices gravely affecting the macroeconomy. This scenario must be avoided.
- However, with the US having decided to take a tough stance, the available options for avoiding this scenario are limited.[5] Nevertheless, as the US and Russia are assumed to have substantial capacity for increasing production, if this capacity can be tapped into within a few months, the market can be stabilized on "a flow basis" even if Iranian oil is lost. If so, a realistic option would be to analyze ways to endure several months of a possible large supply-demand gap and prepare accordingly.
- This would include, for example on the supply side, establishing a scenario for releasing stocks to stabilize the domestic market, while on the demand side, developing emergency measures to tentatively reduce oil demand. Though time is limited, these measures should be prepared not only by the government but by involving industry as well. It is important to make the effects of such measures widely known to the public to keep their lives stable.
- Even if supply and demand are in balance on a flow basis, a decrease in the supply-demand buffer for contingencies would cause serious problems for market stability. It is crucial for Japan and other IEA countries to build oil stocks, as well as maintain the surplus production capacity of oil producers, particularly Saudi Arabia.
- Even if Iran's oil exports partially remain, the relations of the US with the EU, China, and others will greatly affect the future situation. Serious problems may be avoided in 2020 if the countries involved strive to maintain conciliatory relations, but the situation will require monitoring if confrontation with the US intensifies.
- In such a case, the prices of energy including oil will fall overall, from which Japan will benefit in terms of energy. However, Japan will not be immune to the global economic slump as its impact spreads. The "Trade and Economic Confrontation Scenario" may be most desirable for Japan in terms of energy in the short term, but not for the overall economy in the long term.
- In this analysis, we attempted to estimate variations in the future situation up to 2020 by drawing up stories that branch out into rather extreme scenarios. The final point to note through this analysis is the importance of stable international oil and energy markets. Instability in the market in volume or price not only poses a risk to energy security and the macroeconomy but also affects medium- to long-term investments by amplifying future uncertainty.
- An unstable investment cycle may also trigger a negative cycle by causing instability of the

[5] On July 30, President Trump said that he would meet with Iranian President Hassan Rouhani "with no preconditions."

market. Furthermore, in climate action, which is closely linked with modern energy policies, stable medium- to long-term investments are essential. The world must continue to make joint efforts to address instability in the international oil and energy markets in view of its severe negative impact.

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