White Paper on International Economy & Trade 2020 – Summary

By Policy Planning & Research Office, Trade Policy Bureau, Ministry of Economy, Trade & Industry (METI)

Introduction

The Covid-19 outbreaks require the reconsideration of the existing economy and society. This year's White Paper focuses on the limits of face-to-face interaction as the essence of the Covid-19 crisis and analyzes the global structure that the Covid-19 crisis revealed: the geographic concentration of production, and the slowdown in logistics and human movement that touched off disruptions in global supply chains, as well as an "every country for itself" response to the emergency. The White Paper then takes a new look at the past, present, and future of globalization through the concept of "unbundling" proposed by Richard Baldwin, professor of International Economics at the Graduate Institute, Geneva. The Covid-19 crisis occurred with globalization already in transition; all countries are now accelerating the digitalization process in response to the crisis. Japan, too, must take this crisis as an occasion to move forward with digitalization.

Based on this analysis, the White Paper recommends the creation of a resilient economy and society by making global supply chains more resilient, accelerating digitalization, and evolving human interactions, and the establishment of a new, rules-based international trade system by maintaining unifying forces for international cooperation.

I. The Covid-19 Crisis & the Global Economy

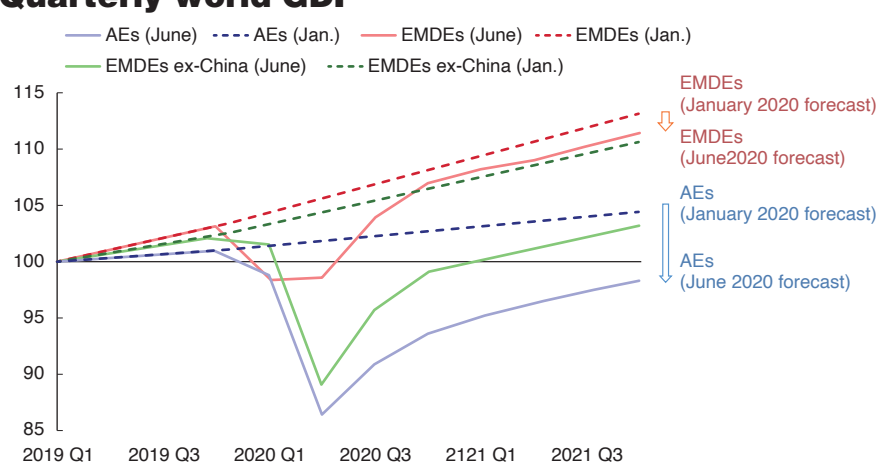
The world is facing the worst economic crisis in the postwar period because of the impact of the coronavirus pandemic *(Chart 1)*. In essence, the Covid-19 crisis, the economic crisis triggered by the coronavirus pandemic, is attributable to the fact that face-to-face interaction has been limited in many countries due to travel and shelter-in-place restrictions imposed in order to contain Covid-19 outbreaks.

Those restrictions have affected the economy on both the supply and demand sides. On the supply side, because of the stagnancy of the movement of people as well as the limits on person-to-person interaction, production activities and logistics operations came to a halt, causing a shortage of goods. Moreover, the restrictions have resulted in the disruption of global supply chains because of the advances in the international division of labor, and the provision of non-essential services, including entertainment and restaurant dining, has been suspended due to lockdowns and voluntary business restraints.

On the demand side, as a result of shelter-in-place restrictions, voluntary restraints, and travel restrictions intended to contain Covid-19 outbreaks, demand for services involving face-to-face interaction shrank and demand for durable goods also fell steeply. Furthermore, the supply and demand shocks have had spillover effects on income and employment. As there has been a considerable impact on employment, mainly in face-to-face service industries, the Covid-19 crisis has raised unemployment rates to the highest levels since the Great Depression in the 1930s. In short, uncertainties over the future course of the pandemic, rising unemployment rates, and sluggish income have caused consumption and investment to decline rapidly, triggering a vicious cycle of economic shocks.

CHART 1

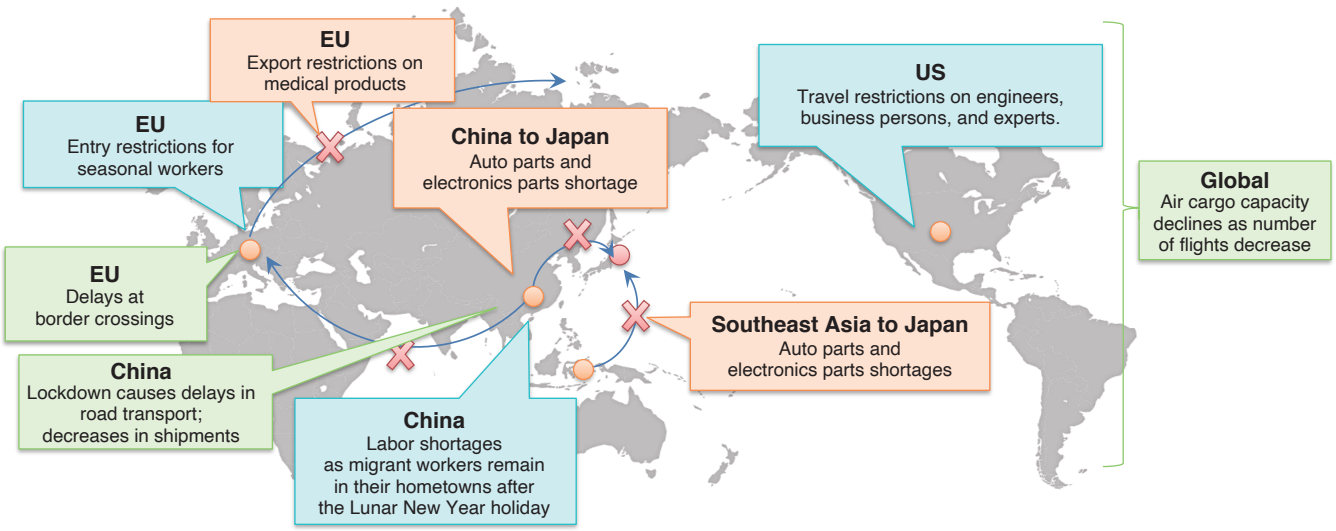
Quarterly world GDP



Notes: 2019 Q1=100; AEs = Advanced economies; EMDEs = Emerging markets & developing economies.
Source: IMF Blog 6/24, IMF WEO June 2020, and IMF staff calculations

CHART 2

The disruption of supply chains



Source: Global Trade Alert, JETRO "Regional information and analysis", Cabinet Office "Economy watchers survey", Sixfold, Baldwin "Supply chain contagion waves: Thinking ahead on manufacturing 'contagion and reinfection' from the COVID concussion"

II. What the Covid-19 Crisis Reveals About the Structures of Our World

(1) Covid-19 outbreaks and the risks to supply chains

Covid-19 outbreaks caused multiple disruptions of supply chains worldwide that began in China and broadened to Europe and the United States. The supply chain disruptions reflected industrial as well as national and regional characteristics. The risk of supply disruption materialized in relation to the following supply chain elements: (i) efficient production systems (lean inventories and geographical concentration of production in cost-competitive countries), (ii) flexible logistics combining land, marine and air transportation, and (iii) the smooth movement of people.

First, the geographic concentration of production: It became clear that production was geographically concentrated at the global level with respect to some products, such as electrical machinery and electronic parts. Regarding auto parts, the geographical concentration of production did not increase at the global level. However, as automobile production involves numerous parts and complex production processes, supply chains have been disrupted due to the suspension of production of some parts.

Logistics: Many industries use a wide variety of transportation modes to acquire materials, creating industrial interdependence. It became clear that because of this, supply chains would be thrown into confusion when any one of the land, maritime, or air transport modes shut down.

Human mobility: Many countries closed their borders in the face of Covid-19 outbreaks, leading to disruptions in the movement of people and logistics that impacted supply chains.

In short, the attention attracted to production systems, logistics, and human mobility as the elements of supply chains as a result of the coronavirus pandemic has led us to recognize anew both the cost effectiveness and efficiency and the risks of supply chains *(Chart 2)*.

(2) Growing concentration of supply chains

Progress in globalization has been accompanied by the worldwide geographic concentration of production for certain goods. For example, concentration is up for electric machinery and electronic parts, but on a downward trend for vehicle parts. That said, as China and Mexico have enhanced their presence as production bases in recent years, Japan and the US have been increasing the degree of concentration of their imports *(Chart 3-1, 3-2 & 3-3)*.

(3) Logistics disruptions and supply chains

Foremost among the causes of logistics disruptions during the ongoing crisis are the shelter-in-place restrictions and restrictions on movement. Some cross-border trade became more time-consuming with the introduction of procedures to check for infection during customs and quarantine among other things. Land transport was affected by the closure of some roads and railway tracks, maritime transportation by closure of some ports, and air transportation by the decline in the number of passenger aircraft flights.

While global trade is largely conducted by maritime transportation tonnage-wise, air transportation accounts for a significant portion in

CHART 3-1
China's share of each country's imports

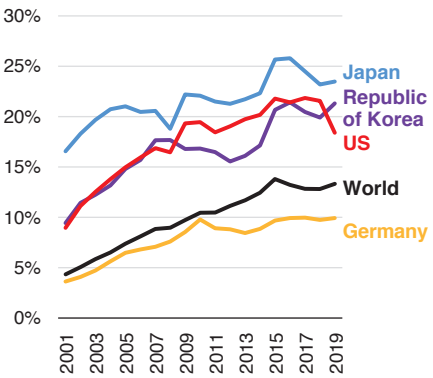
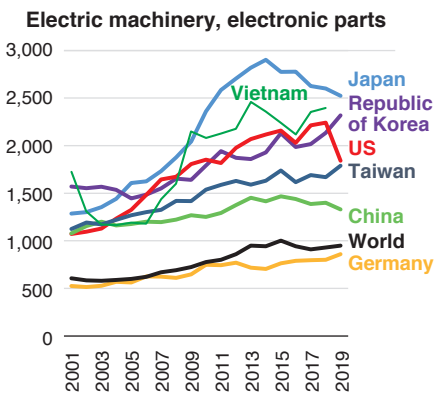


CHART 3-2
Import concentration index
(HHI index of importing countries)



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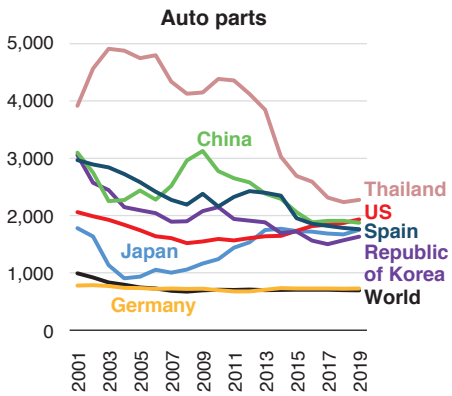


Note: The HHI index is used to measure concentration of suppliers to imports. Higher index shows higher concentration. If Country A imports from Country B that accounts for 50% of total imports of Country A, from Country C (30%), and Country D (20%), the HHI index of Country A is calculated as follows:$50^2+30^2+20^2=3,800$. If Country A imports from only one country, the index is $100^2=10,000$ as the maximum. If Country A is near to a major production country, the HHI index of the country may be large.
Source: International Trade Centre

terms of value. For example, roughly 40% of Japan's international trade by value is conducted by air while the corresponding figure for the US is roughly 30%. This is caused by the growing use of air transportation as the scope of the international division of labor expands for the production of high value-added products. Using air transportation, which requires less time than maritime transportation, encouraged the development of the "just in time" production system.

Land transportation and warehouses account for much of the logistics costs for the economy as a whole, since the logistics is not completed even after the goods cross borders by way of maritime or air transportation until they pass through domestic land transportation, i.e. delivery by truck and rail, as well as warehouses. However, many industries use multiple means of transportation to procure materials and are themselves mutually connected. This means that supply chains will be thrown into confusion if any one of land transportation, warehouses, maritime transportation, or air transportation goes missing.

As Covid-19 was spreading and supply chains were being disrupted, substitutions were made such as the use of air transportation to avoid land and maritime routes. But this remained a supplementary means and was insufficient for maintaining the pre-existing logistics networks. The challenge is to look beyond the locations of production and identify how to connect them and integrate them in the logistics networks that deliver products to consumers, keeping the need for redundancy in supply chains in mind.

(4) Cross-border movement of people, urban concentration of population

Until now, cross-border movement of people has stimulated trade and investment. This relationship has been particularly strong in emerging and developing economies, where the cross-border movement of people and trade and investment activities have been mutually reinforcing. On the other hand, due to restrictions imposed on cross-border movement of people as a result of the Covid-19 crisis, trade costs, which had been falling in recent years, have risen and trade and investment have become very stagnant.

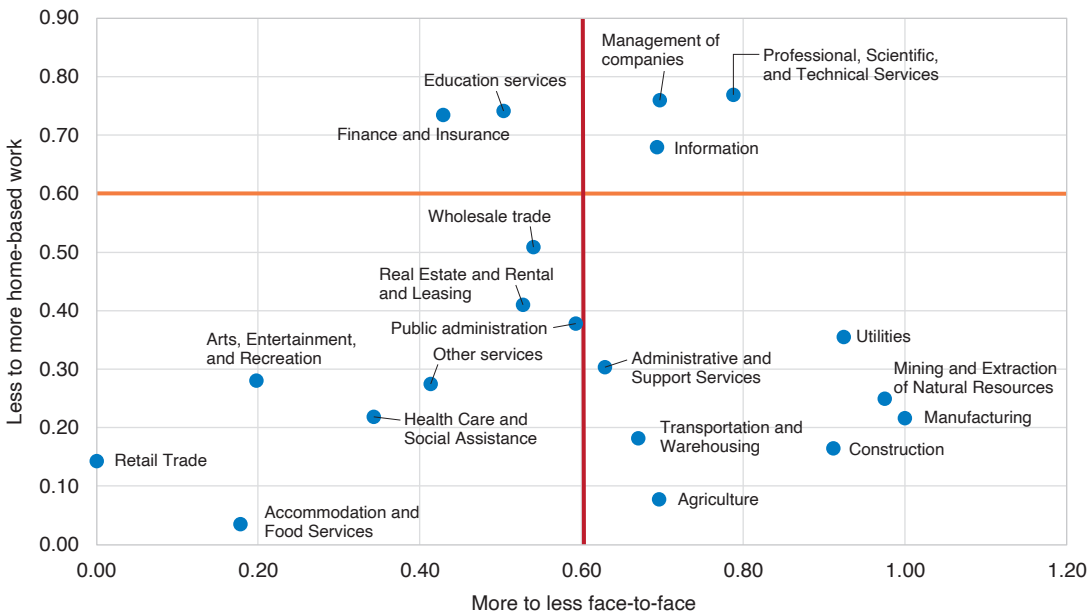
One prominent feature of the coronavirus pandemic is that outbreaks expand especially in urban areas, where service industries and people are concentrated and people from various countries mingle with each other. This has led to a rise in communication costs in industries in which face-to-face interaction is important. The impact of the coronavirus pandemic varies from industry to industry, depending on two perspectives: whether face-to-face interactions are necessary and whether at-home work (remote work) is possible. This indicates the importance of evaluating the impact of the coronavirus pandemic from the viewpoint of the evolution of human interaction *(Chart 4)*.

(5) Increase in trade-restrictive measures

As demand for personal protective equipment, including face masks and protective gowns, has grown explosively, shortages of medical supplies have become serious in various regions. As a result, some governments have adopted emergency measures focusing on satisfying their domestic needs. If necessary supplies are not available in regions where Covid-19 outbreaks are escalating

CHART 4

Home-based work & face-to-face interactions do not always go hand-in-hand



Source: Avdiu, Besart; Nayyar, Gaurav, 2020. When Face-to-Face Interactions Become an Occupational Hazard: Jobs in the Time of COVID-19 (English). Policy Research Working Paper, No. WPS 9240; COVID-19 (Coronavirus). Washington, D.C.: World Bank Group

because of the weakening of international cooperation, worldwide containment of the outbreaks will become difficult, posing a global risk. To resolve this problem, it is necessary to prepare for crises and cooperate with other countries in emergencies.

Meanwhile, although the US-China trade friction has reduced trade and investment by both countries, exports from Southeast Asia to the US have increased and China has started to invest in a greater variety of countries, including its neighbors. Trade-restrictive measures implemented in this situation, which serve as impediments to efforts to mitigate the impact of the coronavirus pandemic, have reminded us of the importance of ensuring the continuous movement of goods. However, distrust of multilateral frameworks is not a symptom unique to the US-China trade friction; it is a phenomenon observed globally, for example in the form of Brexit or the malfunctioning of the World Trade Organization's Appellate Body.

(6) Expanded economic digitalization, growing dominance of mega platform businesses, and rapid social implementation of innovative technologies associated with the impact of the Covid-19 crisis

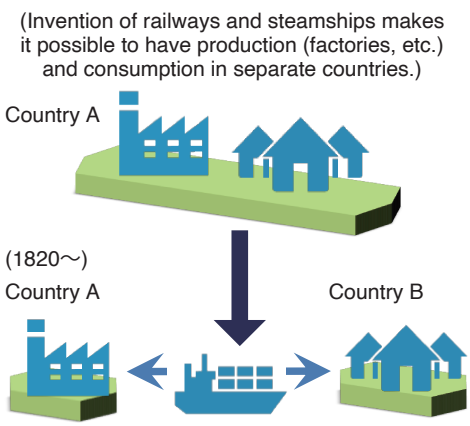
In recent years, digital technology has transformed the economy and society, accelerating the expansion of digital trade, including cross-border e-commerce, and the adoption of IT in social activities. As a result, the industrial structure is shifting from the "value chain model" to the "layer model". The network effect has contributed to the growing presence of mega platform businesses, whose net profits have grown fivefold over the past 10 years (their share increased from 6% to 13%). Their growing dominance coincides with a decline in industrial dynamism indicated by decreases in new market entries and exits.

During the Covid-19 crisis, the digitalization of the economy and society have accelerated rapidly, as shown by the spread of e-commerce and online communication. Moreover, there are growing needs for digital technology as a means to gather infection and contact-tracing information in order to contain Covid-19 outbreaks, or as a means of communication that enables the continuation of business operations while minimizing person-to-person interaction, such as online business meetings, so technological innovation stimulated by the impact of the Covid-19 crisis and social implementation of new technologies have made progress. As a result, there has been debate on how to strike a balance between privacy and public health.

(7) "Dollar concentration" and growing risk for emerging and developing economies

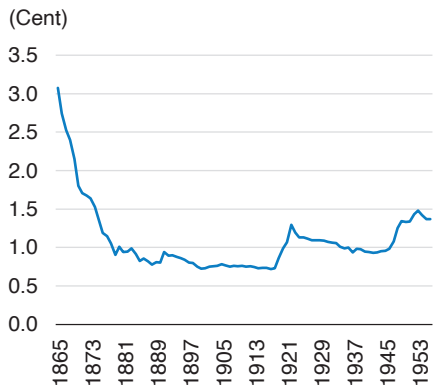
As a result of increased concentration of trade and credit transactions in the US dollar, particularly in emerging and developing economies, it has become clear that in the event of a crisis,

CHART 5-1
The first unbundling



Source: Richard Baldwin and Fukunari Kimura

CHART 5-2
Transportation costs in the US



Note: This data is derived from revenue per ton-mile railroad in the US.
Source: Fred, Federal Reserve Bank of St. Louis

economic risks are concentrated in emerging and developing economies that are dependent on natural resources and tourism and which bear the burden of dollar-denominated debts. The capital flight from emerging and developing economies that has been seen is a manifestation of the "dollar concentration" risk.

One prominent feature of financing in recent years is that a system that facilitates fund flows that do not go through the US has been developed. In this situation, Asian emerging economies have been building supply chains with a broad supplier base while increasing their exposure to dollar-based credit. It has become clear that as a result, supply chains may fail to function effectively when the growing "dollar concentration" risk disrupts payment to suppliers.

III. Globalization Past, Present & Future

(1) Globalization past, present and future as seen from the viewpoint of the "three unbundlings"

From the viewpoint of unbundling, globalization can be conceived as a historical process in which the costs of moving goods, moving ideas (e.g., technological knowhow and data), and moving people have continued to fall as the result of technological progress. This has not proceeded all at once, but rather, various constraints have been overcome one after another.

In the first unbundling (from 1820 to 1990), the Industrial Revolution fostered innovation in transportation, lowering the cost of moving goods and resulting in the separation of production and consumption across national borders. But while the international division of labor taking advantage of comparative advantages intensified, the cost of moving ideas and people did not fall as much. This resulted in the concentration of industries in developed economies *(Chart 5-1 & 5-2)*.

In the second unbundling, the information and communication technology (ICT) revolution occurring around 1990 reduced the cost of moving ideas (e.g. technological knowhow and data) with the result that factories began crossing borders in the same manner as the goods that they had been producing. As a result, international trade in parts increased, global supply chains developed, and the wage gap between developed economies and emerging and developing economies narrowed *(Chart 6-1 & 6-2)*.

In the third unbundling, the acceleration of digital technology since around 2015 has made the virtual cross-border movement of people feasible, reducing the cost of the movement of people. This has made it possible to separate "tasks" at the individual level. Combined with the use of robotics, this had opened the curtains for the era of a global virtual workplace, where a worker in one country provides services in another country. It was during this third unbundling that Covid-19 outbreaks occurred, accelerating the digitalization of economic and social activities.

During the history of the unbundlings, the role of nation states has changed, from upholding free trade, to the welfare state, to small government. Going forward, expectations will grow for nation states to play an active role in providing livelihood security, supporting human capital investment, and developing digital infrastructure *(Chart 7-1 & 7-2)*.

(2) Development of the global economy through globalization

The global economy has grown significantly through dramatic advances in technology and growth in trade since the Industrial

Revolution that began in the United Kingdom around 1820 slashed transportation costs and achieved the first unbundling. Global GDP in 2019 reached $85.9 trillion, a 50-fold increase from 1960. A look at global GDP in the Common Era shows that the global economy has grown rapidly since the Industrial Revolution.

Globalization from the end of World War II to around 1990 developed largely through trade in goods and the movement of people. Global trade in goods grew significantly since 1960, reaching approximately $10 trillion in 1990, a rise to approximately 30% of global GDP.

Next, as we take a look at the movement of people, immigration has steadily increased, with a noticeable rise in immigration from high-income countries in recent years. The international migrant stock accounts for approximately 3% of the global population.

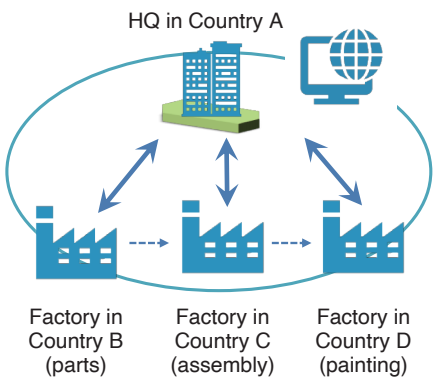
(3) Globalization and Japan

In the period from the end of World War II through the second half of the 20th century, the Japanese economy achieved rapid growth

CHART 6-1

The second unbundling

(Efficient progress management utilizing email makes it possible to set up factories for different steps in the production process in separate countries.)

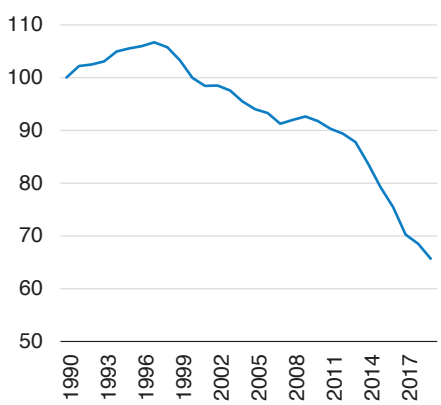


Source: Richard Baldwin and Fukunari Kimura

CHART 6-2

Communications costs in the US

(1990=100)



Note: This data is derived from the US PCE price index of communication.

Source: Fred, Federal Reserve Bank of St. Louis

CHART 7-1

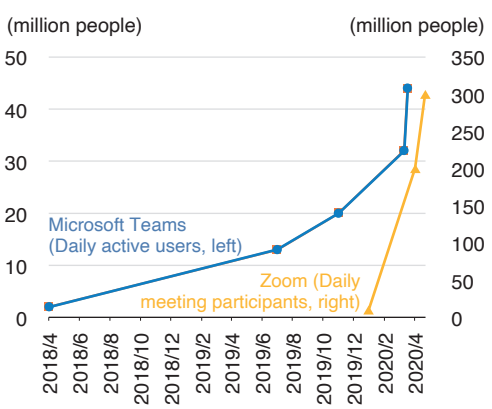
The third unbundling

(Diversification of IT tools makes it possible for [physically distant] individuals to work together as if they were in the same office.)

Source: Richard Baldwin and Fukunari Kimura

CHART 7-2

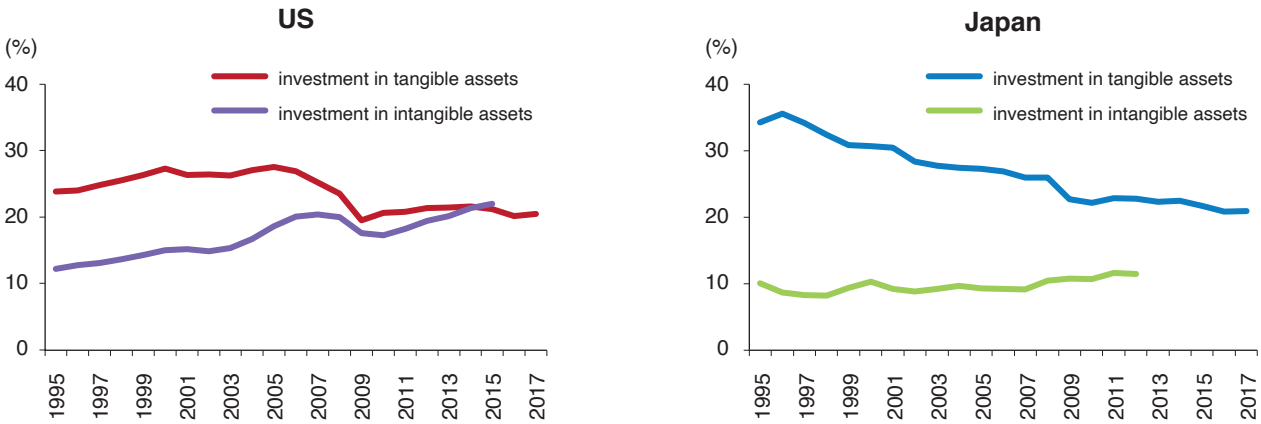
Online communication tool
(Teams and Zoom)



Source: Microsoft, Zoom video communications

CHART 8

Investments in tangible & intangible assets (ratio to GDP)



Source: based on INTAN-Invest, SPINTAN, JIP Database 2015, Penn World Table 9.1, etc., with reference to the Japan Center for Economic Research

while enjoying the benefits of the advance of globalization and free trade amid the deepening of its link with the global economy. In particular, when the international division of labor was making headway during the second unbundling, Japan contributed to the building of global supply chains, mainly in East Asia, thanks to its network of economic partnership agreements.

In recent years, the primary income balance (securities investment income, dividends, etc.) has underpinned Japan's current account surplus, reflecting a change in how Japanese companies are earning income. The change indicates that Japan has shifted from a trade-based current account surplus to an investment-based current account surplus (from a "trade nation" to an "investment nation") by taking advantage of the continuing high growth of Asia.

(4) Global progress and the challenges that remain

The proportion of the global population living below the international poverty line determined by the World Bank has dropped significantly, from 35.9% in 1990 to 10% in 2015. Extreme poverty is declining with the growth of the global economy. This is one example of the growth of the global economy resulting in absolute benefits.

While the global economy is growing as a whole, poverty, as well as economic inequality between countries, is declining, challenges remain, and one of them is the concentration of wealth. In 2019, the 26 richest people of the world had as much wealth as the poorest 3.8 billion people, according to one report.

The national and regional distribution of wealth shows that India and Africa are where much of the global population living in extreme poverty is concentrated, China, which has achieved rapid growth in recent years, accounts for much of the global middle income class, and North America and Europe boast high-income and wealthy populations. But even North America and Europe have certain levels of low-income people and low-wealth holders. Inequality may be receding at the global level, but economic inequality exists both nationally and regionally.

(5) The shift to the third unbundling in the world and challenges for Japan

In the process of the third unbundling, service industries are also expected to face a new situation exemplified by the international division of labor and the AI-human division of labor. To deal with this situation, it is important to develop technology such as 5G and AI that support social infrastructure. Indeed, countries around the world are formulating AI strategies and developing digitalization-related institutional frameworks, such as the European Union's General Data Protection Regulation.

In Japan, too, in order to deal with the new industrial revolution being driven by the third unbundling, it is important to promote investment in and the use of digital technology and infrastructure and to develop institutional frameworks. While Japan boasts a highly developed ability to utilize ICT, it faces challenges in investing in digital and other intangible property and utilizing it *(Chart 8)*.

Japan is contributing to international rule-making concerning the digital economy. At the time of the 2019 G20 Summit, Japan exercised leadership in launching the Osaka Track, which promotes such rule-making based on the concept of Data Free Flow with Trust. At a time when cyberspace is critical for technology and service innovations, it is necessary to introduce an innovative governance method for controlling the risks involved in such technologies and services. Therefore, it is important to promote governance innovation that spurs technology and service innovation and realizes social value at the same time.

IV. The Way Forward for the World & Japan to Realize an Ideal Society

(1) Upgrading of globalization

Domestic measures by themselves will not end a pandemic, in which infections spread worldwide; a global response is required. The construction of the Bretton Woods system and other postwar frameworks for global cooperation, promotion of regional cooperation and integration, frameworks for cooperation in trade and other specific fields, and the like: this wide range of frameworks for international cooperation, i.e. "global governance", has been constructed. However, divisive forces have been at work against global governance in recent years. As mistrust towards existing multilateral frameworks grow, some countries prioritize themselves during emergencies.

Covid-19 outbreaks revealed the lack of worldwide preparedness for acting cooperatively. At the same time, some action has been taken at the national-leader and cabinet-official levels to maintain the unifying force of the international community and promote international cooperation. To resolve global challenges by enhancing the unifying force of international cooperation, it is essential to upgrade globalization.

(2) Building resilient supply chains

Geographical concentration of production in pursuit of efficiency proceeded amid the globalization of production activities, with the result that the risk of supply disruption emerged during the current crisis. In light of this, it is necessary to build resilient supply chains that can flexibly respond to new crises. To that end, there are three perspectives that must be taken into consideration: (1) response that is suited to the nature of the goods, (2) public-private cooperation that makes flexible response possible during a crisis, and (3) the transition from "efficiency-first" supply chains to "flexible and timely" supply chains, including the diversification of procurement sources and optimization of inventory levels.

First, it is necessary to consider measures that are suited to the nature of the goods. Demand for masks, protective clothing, ventilators, blankets, and other emergency supplies increases dramatically during emergencies. However, since it is impractical to secure the supply capacity for emergencies during normal times for these goods, it is important to construct supplementary supply systems that are not affected by international circumstances. Flexible international cooperation, when emergencies occur, is also necessary to supplement this. As for industrial materials for important industries that are essential to Japan with global supply chains, the balance between efficiency for competition during normal times is important, given the emergence of supply bottlenecks during emergencies. It is important to promote security through such means as diversifying procurement sources for food, energy, minerals, and other goods whose domestic production faces physical limitations,

As for public-private cooperation, flexible cooperation between the public and private sectors has been observed in relation to Covid-19 outbreaks. In the EU, the development of pharmaceuticals by private-sector pharmaceutical firms is being promoted by funds provided under a public-private partnership with the European Federation of Pharmaceutical Industries and Associations, entitled the Innovative Medicines Initiative. Flexible cooperation such as this is important to transition to resilient supply chains.

In the transition to "flexible and timely" supply chains, it is important to acquire a detailed understanding of the supply chains to enable flexible responses to unforeseen emergencies. By building production systems using digital technology during normal times as well as emergencies, it can be expected that redundancy can be compensated for by greater efficiency, while it will also be possible to track supply-chain disruptions in real-time during emergencies. As for optimizing the distribution of production bases, the risk of disrupting supply chains can be expected by diversifying supply sources during normal times, while swiftly and flexibly securing alternative goods can be expected by switching supply sources during emergencies.

(3) Evolution of human communication

Irreversible changes are occurring in society regarding human communication with Covid-19 outbreaks. Human interaction is changing as online communication increases among other things. Going forward, we may enter an era in which face-to-face communication is used only when it is absolutely necessary. It is essential to contribute to the evolution of communication by taking advantage of the current crisis as an opportunity for social change in order to promote the use of digital technology, including remote work, and accelerate human capital investment. To contain Covid-19 outbreaks, it is necessary to restrict activities involving face-to-face interaction. This suggests the possibility that in order to overcome constraints on communication, the development and social implementation of digital technology may rapidly accelerate, leading to irreversible social change.

(4) Toward the Sustainable Development Goals (SDGs)

Achieving the SDGs is crucial to dealing with new global crises and risks such as pandemics, including the ongoing Covid-19 pandemic, and environmental issues. All actors, including states, companies, NGOs, and individuals, should work together to actively make social investments so that global social challenges can be resolved and global sustainability can be enhanced through the promotion of international cooperation. Meanwhile, many organizations point out that massive funds are necessary to achieve the SDGs. One of the solutions to bridge the financing gap that has

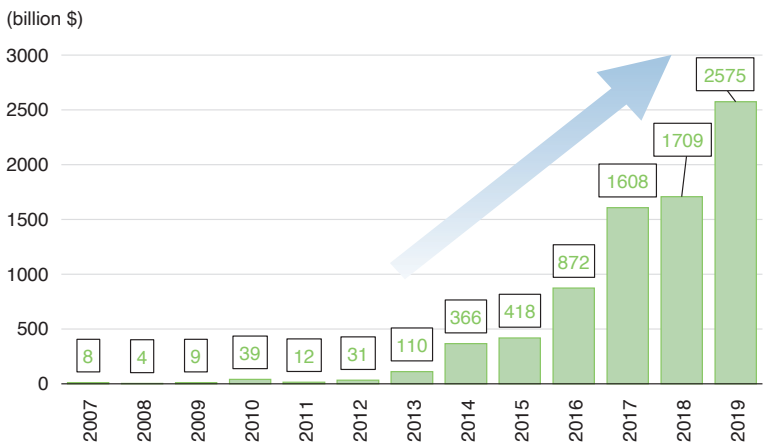
been receiving attention is environmental, social, and governance-based (ESG) investing, which has been increasing in recent years. ESG investing has been on the rise since 2006, when the United Nations established the Principles for Responsible Investment. The concepts underlying ESG are highly compatible with the SDGs, and ESG investing is important to achieving the SDGs *(Charts 9 & 10)*.

(5) Creation of new businesses through co-creation with emerging countries in accelerating digitalization of the world

In order for Japan to maintain sustainable growth in the future, it must develop and strengthen a mechanism whereby it actively engages with emerging and developing economies and grows together with them.

CHART 9

The trend of green bond issuance

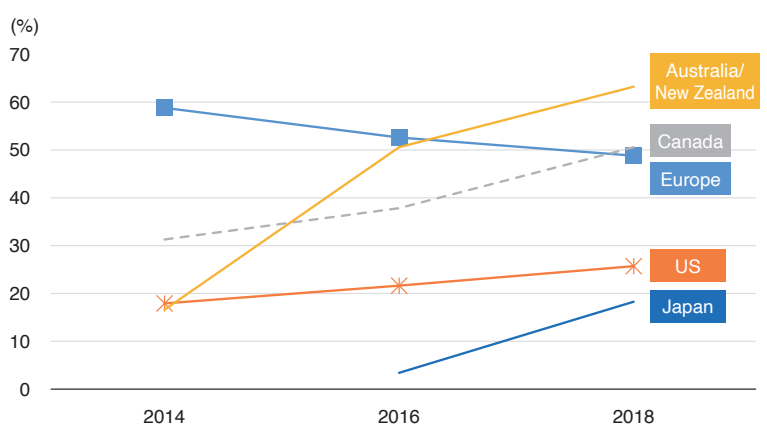


Note: Green bonds are bonds issued by private companies, international organizations, national and local governments to raise funds for environmental projects, such as combatting global warming, pollution prevention and control, biodiversity conservation, and sustainable water resources management, with limited use.

Source: The Green Bond Issuance Promotion Platform, Climate Bonds Initiative

CHART 10

Proportion of sustainable investing relative to total assets



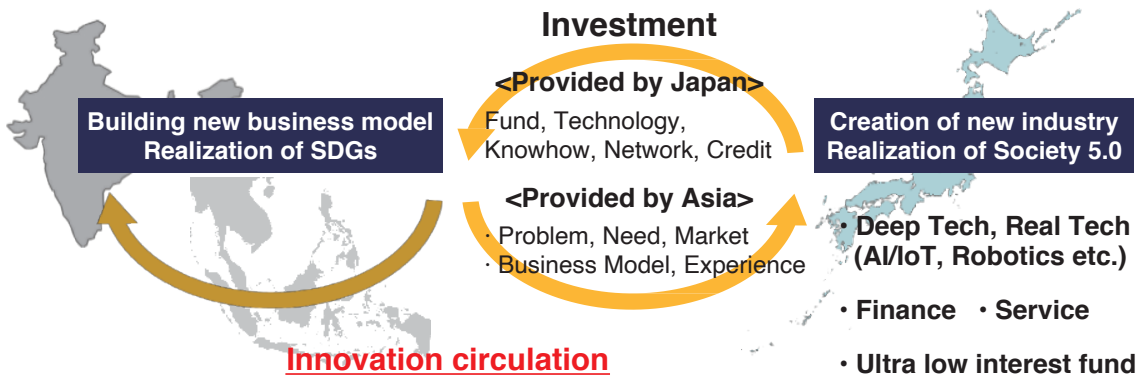
Note (1): In 2014, data for Japan was combined with the rest of Asia, so this information is not available.

Note (2): ESG investments take into account not only financial information, but also environmental, social and governance initiatives. Given that the SDGs are a universal goal, investors should consider the following in evaluating whether each company's ESG efforts to address the SDGs can be a criterion for judgment.

Source: 2018 Global Sustainable Investment review

CHART 11

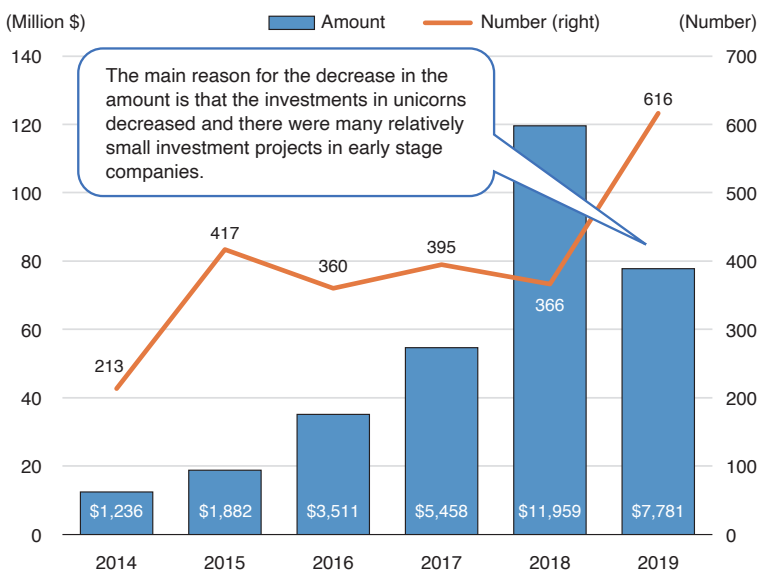
Asia digital transformation



Source: METI

CHART 12

Investment in ASEAN digital companies



Source: Cento Ventures, "Southeast Asia Tech Investment in 2019"

Countries with underdeveloped social infrastructure experienced Covid-19 outbreaks just as growing firms that used digital technology to solve social problems were emerging. For example, Asian emerging economies are leapfrogging in digitalization as companies in this region are developing apps for collecting contact-tracing information.

It is important for Japan to strategically deploy its financial, human, and technological resources and knowhow to Asian emerging countries and promote the concept of the Asia Digital Transformation, which aims to create new businesses through cooperation with emerging economy companies *(Charts 11 & 12)*.

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