Japan's Economic and Price Developments and Future Prospects

Speech at the Meeting of Councillors of Nippon Keidanren (Japan Business Federation) in Tokyo

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(English translation based on the Japanese original)
Introduction

It is a great honor to have this opportunity to address such a distinguished gathering of business leaders in Japan today.

This is the sixth time I have the occasion to give a speech here wrapping up the year. Today, I would first like to talk about the Bank of Japan's view on domestic economic and price developments while looking back on the past six years. Next, I will elaborate on efforts that firms have made so far toward improving productivity, mainly in response to labor shortage, and will then outline future prospects. Lastly, I will explain the Bank's conduct of monetary policy.

I. Japan's Economic and Price Developments

Economic and Price Developments over the Past Six Years

Let me start by looking back at developments in Japan's economy. The economy has improved significantly over the past six years or so since 2013 (Chart 1). The current economic recovery phase, which began in December 2012, is likely to have reached 71 consecutive months this October. If this recovery continues, this month it will match the 73 months of the longest post-war recovery on record. Furthermore, looking at the output gap, which shows the utilization of capital and labor, demand clearly started to exceed supply in late 2016 and the output gap has continued to widen steadily within positive territory for about two years since then.

In addition to this long duration, a significant feature of the current economic recovery phase is that the economic expansion is well-balanced in that it is not led only by a specific sector. Looking at business sentiment by industry in the previous prolonged recovery phase in the mid-2000s, improvement in the economy as a whole was driven by certain parts of the manufacturing sector -- such as automobiles and production machinery -- against the background of favorable developments in exports (Chart 2). On the other hand, business sentiment in sectors such as construction and retailing did not improve clearly throughout the recovery phase. Thus, the degree of improvement in business sentiment differed substantially across industries. In contrast, in the current recovery phase, business sentiment has improved evenly across almost all industries in both the manufacturing and the
nonmanufacturing sector. The well-balanced nature of the recovery is also confirmed by developments in business conditions by firm size (Chart 3). In the past few years, business sentiment has clearly improved not only among large firms but also small and medium-sized firms. This contrasts with the situation in the previous recovery phase, when the degree of improvement differed significantly between the two. In terms of developments by region, too, the current economic recovery does not center only on major metropolitan areas. The active job openings-to-applicants ratios in local areas have substantially exceeded the levels seen during the bubble period and show improvements comparable to those in major metropolitan areas.

One of the reasons for this well-balanced economic recovery is the growth in demand in a wide range of fields. For example, looking at developments in external demand, the previous recovery phase was characterized by notable growth in exports of goods (Chart 4). On the other hand, in the current recovery phase, exports not only of goods but also of services have increased, led by demand from inbound tourism as well as royalties and license fees from the overseas operations of Japanese firms, while growth in external demand as a whole has been moderate. Specifically, the increase in demand from inbound tourism has provided new business opportunities for a wide range of firms, regardless of their region or size. In addition, looking at a breakdown of fixed capital formation in the previous recovery phase, machinery investment increased against the background of growth in exports, while investment in structures such as buildings decreased significantly (Chart 5). In the current recovery phase, investment in both machinery and structures has been increasing. Of these two, the increase in investment in structures is largely attributable to the diversification in investment demand as a result of (1) increases in housing and public investment, (2) investment in office buildings accompanying urban redevelopment projects, (3) the construction of large distribution centers in response to the rapid growth in online shopping, and (4) growing demand for the construction of accommodation facilities to meet demand from inbound tourism.

Let me now talk about price developments in Japan over the past six years. The year-on-year rate of change in the consumer price index (CPI) excluding fresh food turned positive in mid-2013 and temporarily rose to 1.5 percent in spring 2014. However, it then
flattened and subsequently turned negative, mainly due to the significant decline in crude oil prices (Chart 6). Yet, from around late 2016, the CPI started to increase moderately again in line with the output gap turning positive, and recently has been around 1 percent. The year-on-year rate of change in the CPI excluding fresh food and energy, which more clearly shows the underlying trend in prices, has generally continued to be positive for more than five years since mid-2013. Although the CPI has continued to show relatively weak developments compared to the economic expansion and the labor market tightening, the economy at least no longer has been in deflation over the past few years in the sense of a sustained decline in prices.

**Recent Economic Developments and Risks concerning Overseas Economies**

As I just outlined, Japan's economic activity and prices have improved significantly over the past six years. Currently, the economy is continuing its moderate expansion. Although the real GDP growth rate for the July-September quarter of 2018 was negative on a quarter-on-quarter basis, this likely is mainly because of the series of natural disasters, which temporarily have exerted downward pressure on such components as exports, production, and tourism. In fact, looking at developments since October, these components have started to increase again after the decline in the July-September quarter (Chart 7).

As for the outlook, Japan's economy is likely to continue its moderate expansion. Regarding this outlook, however, it is necessary to bear in mind that uncertainties have recently been growing, mainly with respect to developments in overseas economies. In particular, it is necessary to pay close attention to recent protectionist moves, including the trade friction between the United States and China. While the results of the recent *Tankan* (Short-Term Economic Survey of Enterprises in Japan) show that the impact of this problem on Japan's economy so far likely has been limited, some firms have voiced that it is difficult to accurately gauge the potential impact at this point given that economies have become increasingly interdependent through global supply chains. Protectionist policies clearly do not benefit any economy, and it is likely that a brake will be put on excessive protectionist moves at some point. However, if we regard this problem of trade friction as part of the broader issue of determining the future relationship between the United States and China, it is undeniable that resolving the trade friction may take time. In this case, there is also a risk
that the impact of this problem on trade activities and economic activities in various economies could become complex and broad-based, and that, depending on future developments, the negative impact could be amplified through a deterioration in business sentiment and instability in financial markets. Attention also needs to be paid to other risks originating from overseas economies such as the possibility that the United Kingdom could end up with a no-deal Brexit, the possibility that policy rate hikes in the United States could lead to capital outflows from emerging economies, and various geopolitical risks including those in the Middle East. Although the Chinese economy has continued to see stable growth on the whole, relatively weak developments have been observed in part, as seen in the recent deceleration in the pace of improvement in business sentiment in the country's manufacturing sector. Whether this is due to the effects of the trade friction or a slowdown in domestic demand resulting from factors such as deleveraging is something that needs to be investigated.

Meanwhile, the stock market has continued to be somewhat unstable. The fluctuations in the stock market are likely to be partly attributable to changes in perception of the various risk factors surrounding the global economy that I mentioned earlier. The Bank will continue to carefully examine developments in global financial markets and in the various underlying risk factors.

II. Efforts toward Improving Productivity

Robustness of the Economy

As just explained, there are various risks surrounding the outlook for economic activity. As I will elaborate later, however, the robustness of the domestic and overseas economies to shocks appears to have increased. One of the reasons for this is the efforts made by firms so far, and I think that it is necessary for these efforts to continue further. Let me now focus on the efforts that firms have made so far toward improving productivity and outline how continuing improvement in productivity can be expected to boost the growth potential of Japan's economy and also address structural challenges such as the declining and aging population.
At this meeting exactly a year ago, I brought up the problem of labor shortage and mentioned that Japan's economy can be expected to overcome this constraint and continue to grow. Firms have been making substantial progress so far in this regard. Amid the tightening of labor market conditions in the past few years, many firms have been actively undertaking labor-saving and efficiency-improving investment and streamlining business processes to establish more efficient business operations. These efforts have been boosted by the technological progress especially in information technology in recent years, as seen in the significant increase in software investment in sectors such as construction, retailing, as well as accommodations, eating and drinking services, where labor shortage is becoming acute (Chart 8).

As just seen, positive efforts to improve labor productivity in response to the recent tightening of labor market conditions are spreading among many firms in Japan. However, quite a few firms have voiced doubt over the sustainability of economic growth going forward. Even though the longest economic recovery in the post-war era has been achieved and demand has increased to such a degree that firms suffer from labor shortage more acute than during the bubble period, not a few firms have expressed cautious views about the future. The recent increase in uncertainties surrounding overseas economies likely has led to a more cautious sentiment among firms to some extent. In addition, there is also a possibility that the experience of prolonged low growth and deflation makes such uncertainties appear greater. However, there is no need to fall into excessive pessimism for reasons I will now explain.

First, let us take a look at overseas economies. Despite various risks, overseas economies have continued to grow firmly on the whole, with domestic demand in many economies continuing on an increasing trend. In the World Economic Outlook (WEO) released by the International Monetary Fund (IMF) in October, although forecasts were somewhat revised downward from the previous ones released in July, the annual real GDP growth rates for 2018 and 2019 are both projected to be 3.7 percent, continuing to mark relatively high growth close to the peak registered since the global financial crisis (Chart 9). As for the U.S. economy, prospects for the long-term growth potential have improved compared to some time ago. Another important point is that no overheating of the economy or notable
financial imbalances have been observed. Although the economic recovery of the United States has continued for more than 110 consecutive months, which is longer than Japan's current recovery phase, so far no signs of the spread of a bubble can be detected. This is partly because the pace of growth has been moderate during this period and various financial regulations based on lessons learned from the global financial crisis have been put in place. Given these observations, the continuing stable growth of the U.S. economy -- the growth engine of the global economy -- provides substantial grounds for confidence in Japan's economy as well.

Second, the diversification of growth sectors of Japan's economy is also an important factor enhancing the robustness of the economy. I mentioned earlier that services exports have made a substantial contribution to growth in external demand, while investment in structures has significantly contributed to growth in fixed capital formation, and such well-balanced growth is likely to raise the resilience of Japan's economy to future shocks.

Third, a point worth mentioning is that the profitability of Japanese firms has improved. Even more than the level of corporate profits, what is important in this context is the nature of these profits. While corporate profits have been improving over the past six years, until around 2016, the main reason was the decline in crude oil prices. Meanwhile, sales volumes did not increase very much and turnover also remained more or less flat (Chart 10). It is said that profit improvements taking this form are unlikely to spur active and forward-looking behavior such as increases in business fixed investment. However, over the past two years or so, the nature of the improvements in profits has changed in that they have been accompanied by increases in sales volumes and turnover. This indicates that firms can have greater confidence in their profits, which is more likely to lead to increases in business fixed investment.

**Future Prospects**

Based on the observations I just highlighted, even if there were some kind of shock, Japan's economy and the global economy likely are sufficiently robust to withstand it. Under these circumstances, with firms continuing to actively make efforts toward improving productivity, it can be expected that the various concerns will be gradually resolved as
Japan's economy continues to grow in a sustainable manner. Needless to say, labor productivity is defined as the value added per unit of labor input and represents the earning power per worker or unit of labor input such as the hourly labor input. As can be seen from this definition, raising labor productivity can be divided into two parts: efforts to save labor input, which is the denominator; and efforts to increase value added, which is the numerator. As I mentioned earlier, in the past few years, Japanese firms have made efforts to reduce labor input through such measures as labor-saving investment, reflecting the tightening of labor market conditions. Such efforts have been particularly pronounced in the nonmanufacturing sector, where there remains substantial room for productivity improvements compared to other economies. In fact, Japan is exhibiting the highest pace of growth in labor productivity among G7 countries (Chart 11). In order to further improve labor productivity, it is important to increase value added, which is the numerator of labor productivity. To this end, it is necessary to further create and exploit potential demand. Examples of the successful creation of new demand are provided by products in which Japan has an advantage such as cosmetics or sake (rice wine). Domestic sales of these products to tourists visiting Japan have led to repeat sales abroad when the tourists returned home, leading to an increase in turnover. In addition, the diversification and advances in housekeeping services, security services, and household electrical appliances can be regarded as creating demand stemming from the rapid increase in dual-working and senior households. Furthermore, new technologies such as rapidly advancing artificial intelligence (AI) and big data are likely to be powerful tools to exploit potential demand that otherwise cannot be captured. For example, the development of new means of transportation through self-driving systems and the provision of preventive medical services using real-time data of people's health condition have been attracting attention as businesses with future potential that did not exist before.

Naturally, there is no specific method to create and exploit potential demand, and it can be said that innovative efforts play an important role. One of the things needed to this end is securing imaginative and creative human capital. While there are a number of key points to securing human capital -- such as creating appropriate work environments including via working-style reforms -- increasing wages through sustainable productivity improvements is another important point. Pushing ahead with labor-saving investment in response to the
labor shortage ultimately is likely to help to grasp opportunities to capture new demand through increasing wages and securing superior human capital.

For firms engaged in creating and exploiting such potential demand, the government's growth strategy and structural reforms offer great opportunities. The Bank is actively supporting firms' investment activities by maintaining highly accommodative financial conditions through powerful monetary easing. I would like firms to take advantage of this excellent environment and continue to pursue efforts toward improving productivity. The ultimate driver of economic growth is the animal spirit of firms. We hope to achieve sustainable growth of Japan's economy as a whole, with the government, the Bank, and firms working together as one.

III. The Bank's Conduct of Monetary Policy

Lastly, I will talk about the Bank's monetary policy.

As stipulated by the Bank of Japan Act, the Bank's monetary policy conduct "shall be aimed at achieving price stability, thereby contributing to the sound development of the national economy." Based on this, the Bank has set a price stability target of 2 percent and conducts monetary policy with the aim of creating a virtuous cycle in the economy in which the inflation rate rises moderately along with increases in corporate profits, employment, and wages. While the government's growth strategy and flexible fiscal policy should provide strong support to achieve such sustainable economic growth, the Bank's stance to fulfill its role and do its utmost to achieve the price stability target has remained and will remain unchanged.

Of course, as experience shows, the economic and price situation can change as a result of a range of factors. Therefore, in fulfilling its mandate, the Bank needs to pursue the monetary policy that is most appropriate to the situation at the time while weighing up its benefits and costs. This view is held not only by the Bank of Japan but is shared by central banks worldwide and will not change regardless of the kind of policy measures adopted.
When the Bank introduced quantitative and qualitative monetary easing (QQE) six years ago, Japan's economy was not recovering and the year-on-year rate of change in the CPI was negative, far from the price stability target of 2 percent. Under these circumstances, the benefits of adopting bold monetary easing measures significantly outweighed the costs. The Bank therefore judged it appropriate to take drastic measures focusing on achieving the price stability target of 2 percent at the earliest possible time and embarked on bold measures that were substantially different from those in the past, such as the significant expansion of the monetary base.

Such powerful monetary easing likely played a role in the substantial improvement of Japan's economy. On the price front, the economy already is no longer in deflation in the sense of a sustained decline in prices. However, prices have continued to show relatively weak developments compared to the economic expansion and the labor market tightening, and it is still taking time to achieve the price stability target. Moreover, recently, downside risks mainly regarding overseas economies have come to warrant further attention. In this somewhat complicated situation, what is required is to persistently continue with the current powerful monetary easing while taking account of both the positive effects and the side effects -- that is, the benefits and costs -- of monetary easing in a balanced manner. This is exactly the kind of situation in which policy sustainability and durability is important.

Let me elaborate. In terms of positive effects, it is necessary to maintain a positive output gap -- a driver for inflation -- for as long as possible under the current framework of "QQE with Yield Curve Control" and thereby firmly sustain the momentum toward 2 percent inflation. At the July Monetary Policy Meeting (MPM), the Bank introduced forward guidance for policy rates and made clear that it would "maintain the current extremely low levels of short- and long-term interest rates for an extended period of time." This is also a measure that clarifies the Bank's policy stance of continuing with the current powerful monetary easing.

On the other hand, in order to strengthen the sustainability and durability of this powerful monetary easing, the side effects of the policy also warrant attention. In the first half of this year, it was pointed out that the functioning of the Japanese government bond (JGB) market
had deteriorated under the Bank's large-scale JGB purchases, as seen, for example, in somewhat rigid interest rate formation. Therefore, at the July MPM, the Bank also decided to conduct market operations and asset purchases in a more flexible manner. As a result, the degree of market functioning has improved, with JGB yields moving upward and downward again in tandem with stock prices and U.S. interest rates. In addition, the Bank is aware that prolonged downward pressure on financial institutions' profits, with the low interest rate environment and severe competition among financial institutions continuing, could create risks of a gradual pullback in financial intermediation and of destabilizing the financial system. Although these risks are judged as not significant at this point, mainly because financial institutions have sufficient capital bases, it is necessary to pay close attention to future developments, including from the perspective of maintaining policy sustainability and durability.

As explained, the Bank will proceed step by step toward achieving the price stability target under the powerful monetary easing while taking into account in a balanced manner not only the benefits of monetary easing but also its costs. It is likely to take more time than expected to achieve the price stability target, and uncertainties regarding the outlook have heightened further. However, firmly maintaining the momentum toward achieving 2 percent inflation through such policy conduct will ultimately help to ensure the price stability target is achieved at the earliest possible time without putting an excessive burden on the real economy and the functioning of financial intermediation.

**Conclusion**

It seems that we are almost out of time. Today, I looked back on the economic recovery over the past six years and talked in some detail about firms' efforts toward improving productivity so far and future prospects. I also touched upon the possibility that responding to the recent labor shortage and actively proceeding with measures such as labor-saving investment will ultimately help firms to secure talented human capital and create and exploit new demand. The Bank will provide its utmost support for such efforts by firms through maintaining highly accommodative financial conditions.
2019 is the year of the boar in the Japanese Zodiac. While boars tend to have a reputation of heading to a target only in a bold way, experts say that they are brave and at the same time actually are extremely cautious animals. In 2019, the Bank will continue to steadily work toward achieving the price stability target. During the process, it will thoroughly examine various risks including those regarding developments in overseas economies. Although we should not be overly pessimistic, it is always necessary to calmly watch the surroundings. Based on this, the Bank will weigh up the benefits and costs of its policies and implement the policies most appropriate to the situation at the time.

In little more than four months, the Heisei era will draw to a close and make way for a new era. Taking this juncture as an opportunity to look at Japan's economy from a broader perspective, the impact of the prolonged deflation of the past persists in the form of cautious wage setting and a reluctance to accept price rises. At the same time, however, the cautious attitude on the part of firms and households has been dissipating slowly but steadily on the back of the economic expansion and tight labor market conditions over the past few years. In the new era that is about to start, the Bank will continue to firmly fulfill its responsibility as the central bank in order to ensure the achievement of the price stability target and contribute to sustainable economic growth.

I would like to close my speech by expressing my sincere hope that the year 2019 will be a wonderful one for all of you.

Thank you for your attention.
Introduction

I. Japan's Economic and Price Developments
II. Efforts toward Improving Productivity
III. The Bank's Conduct of Monetary Policy

Conclusion
I. Japan's Economic and Price Developments

Japan's Economy

Chart 1

Real GDP

Output Gap

Notes: 1. Shaded areas indicate recession periods.
2. The output gap is based on BOJ staff estimations.
Sources: Cabinet Office; Bank of Japan.

Notes: 1. Shaded areas in the left chart indicate recession periods. There is a discontinuity in the data in December 2003 due to a change in the survey framework.
2. The figure for the peak during the previous prolonged recovery for "general-purpose, production and business oriented machinery" in the right chart is that for "industrial machinery."
Source: Bank of Japan.

Well-Balanced Economic Recovery (by Industry)

Business Conditions DI (Tankan)

Comparison of Peaks in the Previous Prolonged Economic Recovery Phase with Current Levels

<table>
<thead>
<tr>
<th>Category</th>
<th>Previous Prolonged Recovery</th>
<th>Current Recovery (CY 2018 Average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron and steel</td>
<td>55</td>
<td>34</td>
</tr>
<tr>
<td>Motor vehicles</td>
<td>39</td>
<td>24</td>
</tr>
<tr>
<td>General-purpose, production and business oriented machinery</td>
<td>38</td>
<td>33</td>
</tr>
<tr>
<td>Ceramics, stone and clay</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Non-manufacturing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>-12</td>
<td>24</td>
</tr>
<tr>
<td>Retailing</td>
<td>-3</td>
<td>1</td>
</tr>
<tr>
<td>Wholesaling</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Transport and postal activities</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Services for individuals</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

Notes: 1. Shaded areas in the left chart indicate recession periods. There is a discontinuity in the data in December 2003 due to a change in the survey framework.
2. The figure for the peak during the previous prolonged recovery for "general-purpose, production and business oriented machinery" in the right chart is that for "industrial machinery."
Source: Bank of Japan.
I. Japan's Economic and Price Developments

Well-Balanced Economic Recovery
(by Enterprise Size and Area)

Chart 3

**Business Conditions DI by Enterprise Size (Tankan)**

DI ("favorable" - "unfavorable"), % points

- Large enterprises
- Small enterprises

"Favorable"

"Unfavorable"

Notes: 1. Shaded areas indicate recession periods.
2. In the left chart, there is a discontinuity in the data in December 2003 due to a change in the survey framework.
3. In the right chart, "three metropolitan areas" refer to the Tokyo area (Tokyo, Kanagawa, Saitama, Chiba, and Ibaraki prefectures), the Osaka area (Osaka, Hyogo, Kyoto, and Nara prefectures), and the Nagoya area (Aichi and Mie prefectures). "Nonmetropolitan areas" are areas other than the three metropolitan areas. Figures for 2018/Q4 are those for October.

Sources: Ministry of Health, Labour and Welfare; Bank of Japan.

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I. Japan's Economic and Price Developments

Diversification in Exports

**Previous Prolonged Economic Recovery Phase**
(February 2002 – February 2008)

change from CY 2001, real, tril. yen

- Goods
- Services
- Exports

**Current Economic Recovery Phase**
(December 2012 –)

change from CY 2012, real, tril. yen

Note: Figures for 2018 are Q1 - Q3 averages on a seasonally adjusted annualized basis.
Source: Cabinet Office.
I. Japan's Economic and Price Developments

**Chart 5**

Diversification in Investment in Tangible Assets (Fixed Capital Formation)

*Previous Prolonged Economic Recovery Phase (February 2002 – February 2008)*

Change from CY 2001, real, tril. yen

- Machinery and equipment, etc.
- Buildings and structures
- Total

*Current Economic Recovery Phase (December 2012 –)*

Change from CY 2012, real, tril. yen

Note: Figures for 2018 are Q1 - Q3 averages on a seasonally adjusted annualized basis.
Source: Cabinet Office.

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I. Japan's Economic and Price Developments

**Chart 6**

Consumer Prices

Note: Figures are adjusted for changes in the consumption tax rate.
Source: Ministry of Internal Affairs and Communications.
I. Japan's Economic and Price Developments

Recent Exports of Goods, Production, and Number of Foreign Visitors

**Real Exports**  
<table>
<thead>
<tr>
<th>Year</th>
<th>CY 10</th>
<th>CY 11</th>
<th>CY 12</th>
<th>CY 13</th>
<th>CY 14</th>
<th>CY 15</th>
<th>CY 16</th>
<th>CY 17</th>
<th>CY 18</th>
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</thead>
<tbody>
<tr>
<td>Value</td>
<td>s.a., CY 2015=100</td>
<td></td>
<td></td>
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**Industrial Production**  
<table>
<thead>
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<th>Year</th>
<th>CY 10</th>
<th>CY 11</th>
<th>CY 12</th>
<th>CY 13</th>
<th>CY 14</th>
<th>CY 15</th>
<th>CY 16</th>
<th>CY 17</th>
<th>CY 18</th>
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<tbody>
<tr>
<td>Value</td>
<td>s.a., CY 2015=100</td>
<td></td>
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</tbody>
</table>

**Number of Foreign Visitors to Japan**  
<table>
<thead>
<tr>
<th>Year</th>
<th>CY 10</th>
<th>CY 11</th>
<th>CY 12</th>
<th>CY 13</th>
<th>CY 14</th>
<th>CY 15</th>
<th>CY 16</th>
<th>CY 17</th>
<th>CY 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>s.a., ann., mil. persons</td>
<td></td>
<td></td>
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</table>

Notes:  
1. The figure for real exports for 2018/Q4 is the October-November average.  
2. The figure for industrial production for 2018/Q4 is that for October.  
3. The figure for the number of foreign visitors to Japan for 2018/Q4 is the October-November average. Seasonally adjusted figures are BOJ staff estimates.  
Sources: Ministry of Finance; Ministry of Economy, Trade and Industry; JAPAN NATIONAL TOURISM ORGANIZATION; Bank of Japan.

II. Efforts toward Improving Productivity

Progress in Labor-Saving Investment

**Employment Conditions DI (Tankan)**  
| Year | FY 05 | FY 06 | FY 07 | FY 08 | FY 09 | FY 10 | FY 11 | FY 12 | FY 13 | FY 14 | FY 15 | FY 16 | FY 17 | FY 18 |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Value | reversed, DI ("excessive" - "insufficient"), % points |

**Software Investment (Tankan)**  
<table>
<thead>
<tr>
<th>Year</th>
<th>FY 05</th>
<th>FY 06</th>
<th>FY 07</th>
<th>FY 08</th>
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<th>FY 16</th>
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<tbody>
<tr>
<td>Value</td>
<td>FY 2005 = 100</td>
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Note: Figures for software investment for fiscal 2018 are based on plans in the December 2018 survey.  
Source: Bank of Japan.
II. Efforts toward Improving Productivity

Global Economy

Growth Rate of the Global Economy

Potential Growth Rate of the U.S. Economy (Estimates)

Sources: IMF; CBO.

2. Shaded areas in the left chart indicate recession periods.
3. Figures for 2018 in the right chart are Q1 - Q3 averages on a seasonally adjusted annualized basis (BOJ staff estimates).
Source: Ministry of Finance.
II. Efforts toward Improving Productivity

International Comparison of Labor Productivity

_Growth Rate of Labor Productivity_

ann., y/y % chg. (CY 2010-2017 average)

_Grade of Labor Productivity_

CY 2017, U.S.=100

Note: The charts are based on PPP-adjusted real labor productivity per hour.
Source: Conference Board.