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Outlook for Economic Activity and Prices

July 2018



(English translation prepared by the Bank's staff based on the Japanese original)

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Outlook for Economic Activity and Prices (July 2018)

The Bank's View¹

Summary

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- Japan's economy is likely to continue growing at a pace above its potential in fiscal 2018, mainly against the background of highly accommodative financial conditions and the underpinnings through government spending, with overseas economies continuing to grow firmly. From fiscal 2019 through fiscal 2020, the economy is expected to continue on an expanding trend, partly supported by external demand, although the growth pace is projected to decelerate due to a cyclical slowdown in business fixed investment and the effects of the scheduled consumption tax hike.²
 - The year-on-year rate of change in the consumer price index (CPI, all items less fresh food) has been positive but has continued to show relatively weak developments compared to the economic expansion and the labor market tightening. Reflecting such developments, a rise in medium- to long-term inflation expectations has been lagging behind.
 - It has been taking time for the inflation rate to rise compared to an improvement in the economic and employment conditions because the mindset and behavior based on the assumption that wages and prices will not increase easily have been deeply entrenched, due mainly to the experience of prolonged low growth and deflation. Under these circumstances, firms' cautious wage- and price-setting stance as well as households' cautiousness toward price rises have not yet clearly changed, and downward pressure on prices stemming from intensifying competition has been strong in some areas. The large room for firms to raise productivity, as well as technological progress in recent years, are some other contributing factors to these developments.
 - Nonetheless, with the output gap remaining positive, firms' stance gradually will shift toward further raising wages and prices and households' tolerance of price rises will increase. In this situation, further price rises are likely to be observed widely and then medium- to long-term inflation expectations are projected to rise gradually. As a consequence, the year-on-year rate of change in the CPI is likely to increase gradually toward 2 percent, although it will take more time than expected.
 - Comparing the current projections with the previous ones, the projected growth rates are more or less unchanged and the projected rates of increase in the CPI are lower.
 - With regard to the risk balance, upside and downside risks to economic activity are generally balanced in fiscal 2018, but risks are skewed to the downside for fiscal 2019 onward. Risks to prices are skewed to the downside. On the price front, the momentum toward achieving the price stability target of 2 percent is maintained but is not yet sufficiently firm, and thus developments in prices continue to warrant careful attention.
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¹ The text of "The Bank's View" -- the outlook for economic activity and prices as well as the Bank's thinking on the conduct of monetary policy, both of which are based on individual Policy Board members' views -- was decided by the Policy Board at the Monetary Policy Meeting held on July 30 and 31, 2018.

² The July 2018 *Outlook for Economic Activity and Prices* (Outlook Report) assumes that the consumption tax will be raised to 10 percent in October 2019 and that a reduced tax rate will be applied to food and beverages -- excluding alcohol and dining-out -- and newspapers. It also factors in policies concerning the provision of free education based on information available at this point.

I. The Current Situation of Economic Activity and Prices in Japan

Japan's economy is expanding moderately, with a virtuous cycle from income to spending operating. Overseas economies have continued to grow firmly on the whole. In this situation, exports have been on an increasing trend. On the domestic demand side, business fixed investment has continued on an increasing trend with corporate profits and business sentiment maintaining their improving trend. Private consumption has been increasing moderately, albeit with fluctuations, against the background of steady improvement in the employment and income situation. Meanwhile, housing investment has been more or less flat. Public investment also has been more or less flat, remaining at a relatively high level. Reflecting these increases in demand both at home and abroad, industrial production has been on an increasing trend, and labor market conditions have continued to tighten steadily. Financial conditions are highly accommodative. On the price front, the year-on-year rate of change in the CPI (all items less fresh food, and the same hereafter) is in the range of 0.5-1.0 percent. Inflation expectations have been more or less unchanged.

II. Baseline Scenario of the Outlook for Economic Activity and Prices in Japan

A. Baseline Scenario of the Outlook for Economic Activity

With regard to the outlook, Japan's economy is likely to continue its moderate expansion. In fiscal 2018, domestic demand is likely to follow an uptrend, with a virtuous cycle from income to spending being maintained in both the corporate and household sectors, mainly against the background of highly accommodative financial conditions and the underpinnings through government spending. Business fixed investment is likely to continue increasing amid accommodative financial conditions, led mainly by investment intended for domestic capacity expansion in line with the economic expansion, Olympic Games-related investment, and labor-saving investment to address labor shortage. Private consumption is also expected to follow a moderate increasing trend as the employment and income situation continues to improve. Public investment is expected to remain at a relatively high level, mainly reflecting the supplementary budget for fiscal 2017 and Olympic Games-related demand. Exports are expected to continue their moderate increasing trend on the back of the firm growth in overseas economies. On this basis, the economy is likely to continue growing at a pace above its potential in fiscal 2018.³

In fiscal 2019 and fiscal 2020, Japan's economy is expected to continue on an expanding trend, partly supported by external demand, although the growth pace is projected to

³ Under a specific methodology, Japan's potential growth rate is estimated to be in the range of 0.5-1.0 percent. However, the estimate of the potential growth rate varies depending on the methodologies employed and could be revised as the sample period becomes longer over time. Thus, it should be regarded as being subject to a considerable margin of error.

decelerate due to a slowdown in domestic demand. Specifically, the pace of increase in private consumption is projected to be moderate both in fiscal 2019 and fiscal 2020, mainly because it is likely to temporarily turn to a decline due to the effects of the scheduled consumption tax hike in October 2019.⁴ However, exports are projected to maintain their increasing trend on the back of the firm growth in overseas economies. Meanwhile, the pace of increase in business fixed investment is likely to decelerate gradually through fiscal 2020, mainly reflecting cyclical adjustments in capital stock after the prolonged economic expansion, as well as Olympic Games-related demand peaking out; however, the deceleration is expected to be moderate, due partly to growing demand for fixed investment stemming from the increase in exports. Comparing the current projections with the previous ones, the projected growth rates are more or less unchanged.

Looking at the financial conditions on which the above outlook is based, short- and long-term real interest rates are assumed to be in negative territory throughout the projection period as the Bank pursues "Quantitative and Qualitative Monetary Easing (QQE) with Yield Curve Control."⁵ Financial institutions' active lending attitudes, as well as favorable conditions for corporate bonds and CP issuance, are both likely to be maintained and support firms' and households' activities from the financial side. Thus, financial conditions are likely to remain highly accommodative.

Meanwhile, the potential growth rate is expected to follow a moderate uptrend throughout the projection period against the backdrop of the following: progress in implementation of the government's growth strategy, including regulatory and institutional reforms; an increase in labor participation by women and seniors under such strategy; and firms' continued efforts toward improving productivity.

B. Baseline Scenario of the Outlook for Prices

The year-on-year rate of change in the CPI has remained positive, with a positive output gap. However, it has continued to show relatively weak developments compared to the economic expansion and the labor market tightening, mainly against the background of firms' cautious wage- and price-setting stance. In this situation, medium- to long-term

⁴ The consumption tax hike scheduled to take place in October 2019 will affect the GDP growth rates through the following two channels: (1) the front-loaded increase and subsequent decline in demand prior to and after the consumption tax hike and (2) a decline in real income. Although it is subject to considerable uncertainties, the negative impact on the growth rates is expected to be smaller than that on the rate for fiscal 2014, when the last consumption tax hike took place.

⁵ Individual Policy Board members make their forecasts taking into account the effects of past policy decisions and with reference to views incorporated in financial markets regarding future policy. Specifically, each Policy Board member makes an assumption about the future path of short- and long-term interest rates based on their market rates, bearing in mind the difference in the outlook for prices between that presented in the Outlook Report and that of market participants.

inflation expectations have been more or less unchanged with the rise in such expectations lagging behind.

With regard to the outlook, medium- to long-term inflation expectations are projected to rise gradually as firms' stance gradually shifts toward further raising wages and prices with the output gap remaining positive. As a consequence, the year-on-year rate of change in the CPI is likely to increase gradually toward 2 percent, although it will take more time than expected. Comparing the current projections with the previous ones, the projected rates of increase in the CPI are lower.⁶

1. Reasons for a rise in inflation taking time⁷

Since the introduction of QQE in April 2013, Japan's economic and employment conditions have improved significantly, and the output gap also has improved clearly. Under such circumstances, a positive inflation rate, excluding the effects of energy prices, has taken hold, and thus Japan's economy is no longer in deflation, in the sense of a sustained decline in prices.

However, the pace of improvement in prices and inflation expectations has remained slow compared to the improvement in the economic and employment conditions. Basically, this is likely to be attributable to the experience of prolonged low growth and deflation.⁸ After a severe adjustment phase, including the domestic financial crisis in the late 1990s and the global financial crisis, firms' cautious wage- and price-setting stance as well as households' cautiousness toward price rises -- in other words, the mindset and behavior based on the assumption that wages and prices will not increase easily -- became embedded in the economy, and it has been taking time for these factors to change. In addition, the large room to raise productivity, mainly in the nonmanufacturing sector, as

⁶ Assuming that the rise in the consumption tax will be fully passed on to prices of taxable items, excluding those to which a reduced tax rate will be applied, the effect of the October 2019 consumption tax hike on the year-on-year rate of change in the CPI (all items less fresh food) for October 2019 onward is estimated to be 1.0 percentage point; the effect for fiscal 2019 and fiscal 2020 is estimated to be 0.5 percentage point for each year. It also is assumed that the effects of policies concerning the provision of free education will not be reflected in the CPI, as statistical treatment of these effects is not yet decided.

⁷ The situation in which wages and prices do not increase easily and require time to rise compared to the economic and employment conditions also has been observed in major advanced economies, albeit to varying degrees. Although no consensus has been reached, many hypotheses have been pointed out, such as the potential pool of labor supply, the hysteresis effects of the global financial crisis, the expansion of the global supply chain that includes emerging economies, and technological progress such as digitalization. Taking account of this, as well as factors unique to Japan including the experience of prolonged low growth and deflation, this section examines the factors behind the continued relatively weak developments in prices in Japan. For a detailed analysis related to this point, see "Analysis on Wages and Prices" of this issue of the Outlook Report, which is released simultaneously with "The Bank's View" and will be presented as Boxes in "The Background."

⁸ A slight deceleration in the CPI inflation rate after the turn of the fiscal year is partly attributable to temporary factors such as a decline in accommodation fees that tend to fluctuate significantly and a weakening of upward pressure of costs on prices stemming from the yen's appreciation through early spring.

well as the technological progress such as digitalization in recent years, are likely to have allowed firms to maintain their cautious stance toward raising prices and also further intensified competition in some areas, even amid the economic expansion.

In Japan, due to the experience of low growth and deflation coupled with other factors, such as the large room to raise productivity, it is likely to have been taking longer than expected for the responsiveness of prices to the output gap to increase and for inflation expectations, which are strongly affected by the adaptive formation mechanism, to rise. Such sluggishness in prices and inflation expectations also can be explained by households' and firms' following behaviors.

First, firms' wage-setting stance has remained cautious, and it has been taking time for wage increases to fully take hold. While hourly scheduled cash earnings of part-time employees have continued on a clear uptrend, scheduled cash earnings of regular employees have been sluggish. This is partly attributable to the fact that regular employees have a persistent tendency to place priority on the stability of employment over wage increases, due to the experience of employment adjustments under low growth. Firms also have remained cautious about raising wages, partly because medium- to long-term growth expectations are not rising sufficiently. Moreover, while a further increase in labor participation by women and seniors of late has led to a rise in household income as a whole, it has been slowing the pace of wage increases through high wage elasticity of labor supply. These factors result in the low responsiveness of wages to the improvement in the output gap, and are also some of the reasons why inflation expectations do not rise readily.

Second, households' tolerance of price rises has not been increasing clearly. The fact that it has been taking time for wage increases to fully take hold and that cautious views regarding the economic growth and the social security system going forward have been persistent is likely to be one of the reasons why an increase in households' tolerance of price rises has been lagging behind.

Third, firms' price-setting stance has remained cautious even though input prices have been rising and labor costs have been increasing moderately but steadily. In a situation where households' tolerance of price rises has not been increasing clearly, many firms are still concerned about possibly losing customers due to price rises, even with the improvement in the output gap, partly reflecting the experience of price competition under deflation. In these circumstances, firms have been strengthening efforts to absorb upward pressure of costs on prices, such as increasing labor-saving investment and streamlining their business process. These efforts by firms are likely made possible through, for example, the large room to raise productivity, mainly in the nonmanufacturing sector, and the progress in digital technology in recent years.

Fourth, downward pressure on prices stemming from intensifying competition has operated in some areas. For example, mobile-phone related prices have been reduced intermittently, and the price-setting stance of mainly supermarkets has remained cautious, reflecting in part the expansion of online shopping. Such price declines are regarded as negative sectoral price shocks in general, and are expected to dissipate in the long run. However, these developments have been continuing in a wide range of sectors recently, partly due to progress in digital technology, and are likely to have been exerting downward pressure on general prices for a long period of time, coupled with consumers' persistent preference for lower prices and the adaptive formation mechanism of inflation expectations.

While differing somewhat in nature from the aforementioned factors, continued dull responses of administered prices and housing rent, both of which have a substantial weight in the CPI, also are likely to be affecting the sluggishness in prices.

2. Mechanism through which the inflation rate rises

Due to a combination of several factors mentioned so far, it has been taking time for the inflation rate to rise. Nevertheless, moves to raise sales prices are starting to be observed recently at a wide range of firms regardless of industry and size. In addition, as suggested by the active business fixed investment plans, firms' views regarding future prospects appear to have been changing, with the economic and employment conditions continuing to improve.

With regard to the outlook, many of the factors that have been delaying inflation are likely to be resolved gradually as the economy continues on an expanding trend. Although the effects of technological progress, for example, may strengthen going forward, the increase in wages is expected to become more evident, with tight labor market conditions continuing. Under such circumstances, upward pressure on sales prices is likely to increase, as is starting to be observed in the services sector such as in dining-out, and an increase in distribution costs resulting from labor shortage may ease competition among retailers by weakening online retailers' cost competitiveness. In addition, as the effects of rises in labor productivity and non-regular employees' wage levels spread to regular employees' wages, households' tolerance of price rises is expected to gradually increase on the whole, and price rises by firms are likely to be more easily accepted. Furthermore, considering that the so-called baby boomers -- who have been supporting the increase in labor participation by seniors -- are reaching their 70s, the effects of the rise in labor participation constraining wage increases are likely to become moderate.

Thus, factors that have been constraining CPI inflation are expected to be resolved gradually and the year-on-year rate of change in the CPI is likely to increase gradually toward 2 percent. This can be explained by the following factors that determine general

price inflation, such as the output gap and medium- to long-term inflation expectations.

First, the output gap -- which shows the utilization of labor and capital -- has widened within positive territory on the back of the steady tightening of labor market conditions and a rise in capital utilization rates. Going forward, as the economy continues its moderate expansion, the output gap is expected to widen further within positive territory in fiscal 2018 and remain substantially positive in fiscal 2019 and fiscal 2020. As firms' stance shifts toward further raising wages and prices and households' tolerance of price rises increases with the output gap remaining positive, further price rises are likely to be observed widely.

Second, medium- to long-term inflation expectations have been more or less unchanged recently. As for the outlook, such expectations are likely to follow an increasing trend and gradually converge to 2 percent on the back of the following: (1) in terms of the adaptive component, as further price rises come to be observed widely, as mentioned earlier, inflation expectations are likely to increase through a rise in the observed inflation rate, and (2) in terms of the forward-looking component, the Bank will pursue monetary easing through its strong commitment to achieving the price stability target, which will be effective in pushing up inflation expectations toward 2 percent.⁹

Third, regarding import prices, the recent rise in crude oil prices will push up the CPI for fiscal 2018, but this effect is likely to wane moderately.

Meanwhile, the increase in labor participation by women and seniors that has become clear recently, as well as firms' strengthening of efforts to absorb upward pressure of costs on prices by raising productivity, are likely to weaken upward pressure on wages and prices in the short term, as noted earlier. From a longer-term perspective, however, the two aforementioned factors are expected to increase upward pressure on wages and prices. Specifically, such moves may alleviate structural problems, including a decline in the labor force, and raise the productivity of Japan's economy as a whole, thereby strengthening its growth potential. As quite a few corporate managers have relatively low growth expectations, due in part to the population decline, firms' spending behavior can be expected to become active as the economy's growth potential rises. In addition, as the natural rate of interest increases together with the rise in the growth potential of Japan's economy, the effects of the Bank's monetary easing are likely to be enhanced.

⁹ Medium- to long-term inflation expectations can be regarded as consisting of two components: a forward-looking component, in which inflation expectations converge to the price stability target set by the central bank, and a backward-looking, or adaptive, component that reflects the observed inflation rate. For details, see the Bank's *Comprehensive Assessment: Developments in Economic Activity and Prices as well as Policy Effects since the Introduction of Quantitative and Qualitative Monetary Easing (QQE)* released in September 2016.

III. Risks to Economic Activity and Prices

A. Risks to Economic Activity

The following four factors are upside and downside risks to the Bank's baseline scenario regarding the economy.

The first is developments in overseas economies. Specifically, the following are considered as risks: the U.S. macroeconomic policies and their impact on global financial markets; the consequences of protectionist moves and their effects; developments in emerging and commodity-exporting economies including the effects of the two aforementioned factors; negotiations on the United Kingdom's exit from the European Union (EU) and their effects; and geopolitical risks.

The second risk is the effects of the consumption tax hike scheduled to take place in October 2019. It is likely that the effects of the front-loaded increase and subsequent decline in demand prior to and after the consumption tax hike and of the decline in real income will depend on consumer sentiment, the employment and income situation, and developments in prices.

Third, firms' and households' medium- to long-term growth expectations may be either raised or lowered depending on the following: efforts to address medium- to long-term issues such as the aging population; developments in regulatory and institutional reforms, particularly in the labor market; innovation in the corporate sector; and the employment and income situation.

Fourth, in the event that confidence in fiscal sustainability in the medium to long term declines, the economy may deviate downward from the baseline scenario through increasing concerns regarding the future and the rises in long-term interest rates associated with them. On the other hand, there is also a possibility that the economy will deviate upward from the baseline scenario if confidence in the path toward fiscal consolidation strengthens and concerns regarding the future are alleviated.

B. Risks to Prices

Other than risks to economic activity, the specific factors that could exert upside and downside risks to prices are as follows. The first factor is developments in firms' and households' medium- to long-term inflation expectations. Although inflation expectations are likely to follow an increasing trend, there is a risk that a rise in such expectations will lag further behind through the adaptive formation mechanism, if it takes longer than projected for firms' stance to shift toward further raising wages and prices and actual inflation consequently remains relatively sluggish.

The second factor is the fact that there are items for which prices are not particularly responsive to the output gap. The dull responses of administered prices and housing rent may continue to constrain the rise in CPI inflation for a long period. In addition, downward pressure on prices of mainly goods and services that are difficult to differentiate may last longer than expected if competition among firms intensifies further, due mainly to changes in the distribution system and deregulation.

Third, developments in foreign exchange rates and international commodity prices going forward, as well as the extent to which such developments will spread to import prices and domestic prices, may lead prices to deviate either upward or downward from the baseline scenario.

IV. Conduct of Monetary Policy

In the context of the price stability target, the Bank assesses the aforementioned economic and price situation from two perspectives and then outlines its thinking on the future conduct of monetary policy.¹⁰

The first perspective involves an examination of the baseline scenario for the outlook. The year-on-year rate of change in the CPI is likely to increase gradually toward 2 percent, although it will take more time than expected. Even though it is necessary to carefully examine the risks to economic activity and prices, the momentum toward achieving the price stability target of 2 percent appears to be maintained. This is because (1) firms' stance is likely to gradually shift toward further raising wages and prices with the output gap remaining positive, and (2) medium- to long-term inflation expectations have been more or less unchanged and are projected to rise gradually as further price rises come to be observed widely.

The second perspective involves an examination of the risks considered most relevant to the conduct of monetary policy. With regard to the outlook for economic activity, upside and downside risks are generally balanced in fiscal 2018, but risks are skewed to the downside for fiscal 2019 onward. Regarding the outlook for prices, risks are skewed to the downside, especially concerning developments in medium- to long-term inflation expectations. Examining financial imbalances from a longer-term perspective, there is no sign so far of excessively bullish expectations in asset markets or in the activities of financial institutions. In addition, prolonged downward pressure on financial institutions' profits under the continued low interest rate environment could create risks of a gradual pullback in financial intermediation and of destabilizing the financial system. However, at this point, these risks are judged as not significant, mainly because financial institutions

¹⁰ As for the examination from two perspectives in the context of the price stability target, see the Bank's statement released on January 22, 2013, entitled "The 'Price Stability Target' under the Framework for the Conduct of Monetary Policy."

have sufficient capital bases.

As for the conduct of monetary policy, the Bank will continue with "QQE with Yield Curve Control," aiming to achieve the price stability target of 2 percent, as long as it is necessary for maintaining that target in a stable manner. It will continue expanding the monetary base until the year-on-year rate of increase in the observed CPI (all items less fresh food) exceeds 2 percent and stays above the target in a stable manner. As for policy rates, the Bank intends to maintain the current extremely low levels of short- and long-term interest rates for an extended period of time, taking into account uncertainties regarding economic activity and prices including the effects of the consumption tax hike scheduled to take place in October 2019. It will examine the risks considered most relevant to the conduct of monetary policy and make policy adjustments as appropriate, taking account of developments in economic activity and prices as well as financial conditions, with a view to maintaining the momentum toward achieving the price stability target.

(Appendix)

Forecasts of the Majority of Policy Board Members

y/y % chg.

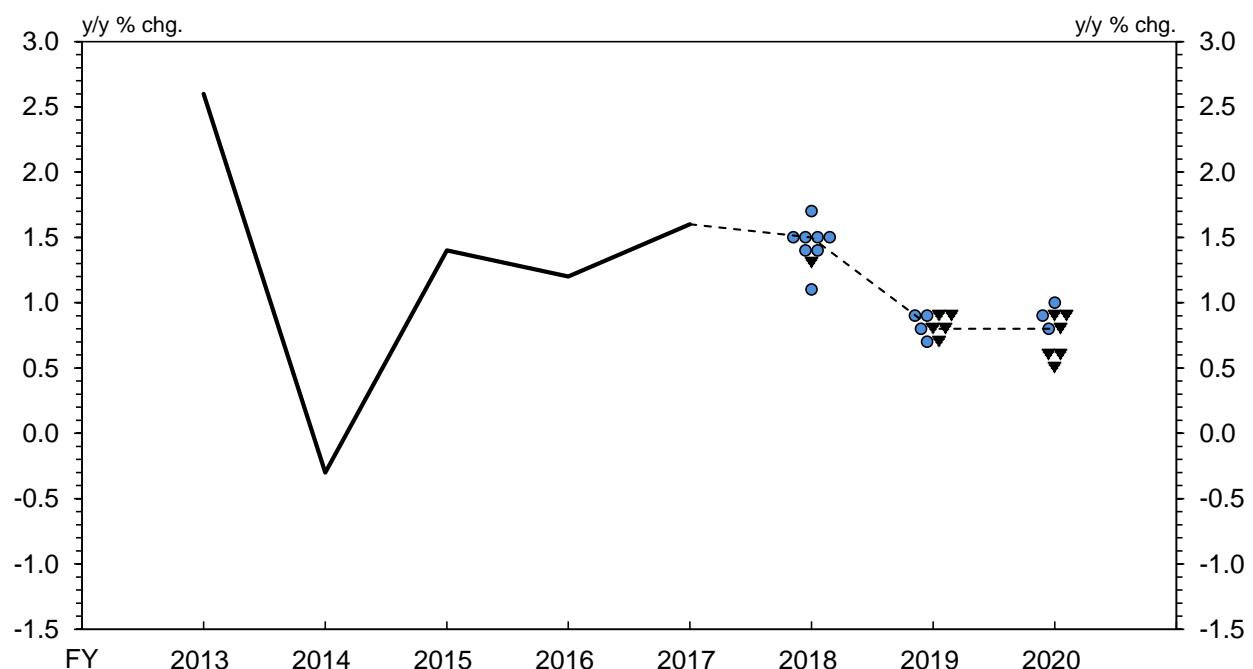
	Real GDP	CPI (all items less fresh food)	Excluding the effects of the consumption tax hike
Fiscal 2018	+1.3 to +1.5 [+1.5]	+1.0 to +1.2 [+1.1]	
Forecasts made in April 2018	+1.4 to +1.7 [+1.6]	+1.2 to +1.3 [+1.3]	
Fiscal 2019	+0.7 to +0.9 [+0.8]	+1.8 to +2.1 [+2.0]	+1.3 to +1.6 [+1.5]
Forecasts made in April 2018	+0.7 to +0.9 [+0.8]	+2.0 to +2.3 [+2.3]	+1.5 to +1.8 [+1.8]
Fiscal 2020	+0.6 to +0.9 [+0.8]	+1.9 to +2.1 [+2.1]	+1.4 to +1.6 [+1.6]
Forecasts made in April 2018	+0.6 to +1.0 [+0.8]	+2.0 to +2.3 [+2.3]	+1.5 to +1.8 [+1.8]

Notes: 1. Figures in brackets indicate the medians of the Policy Board members' forecasts (point estimates).

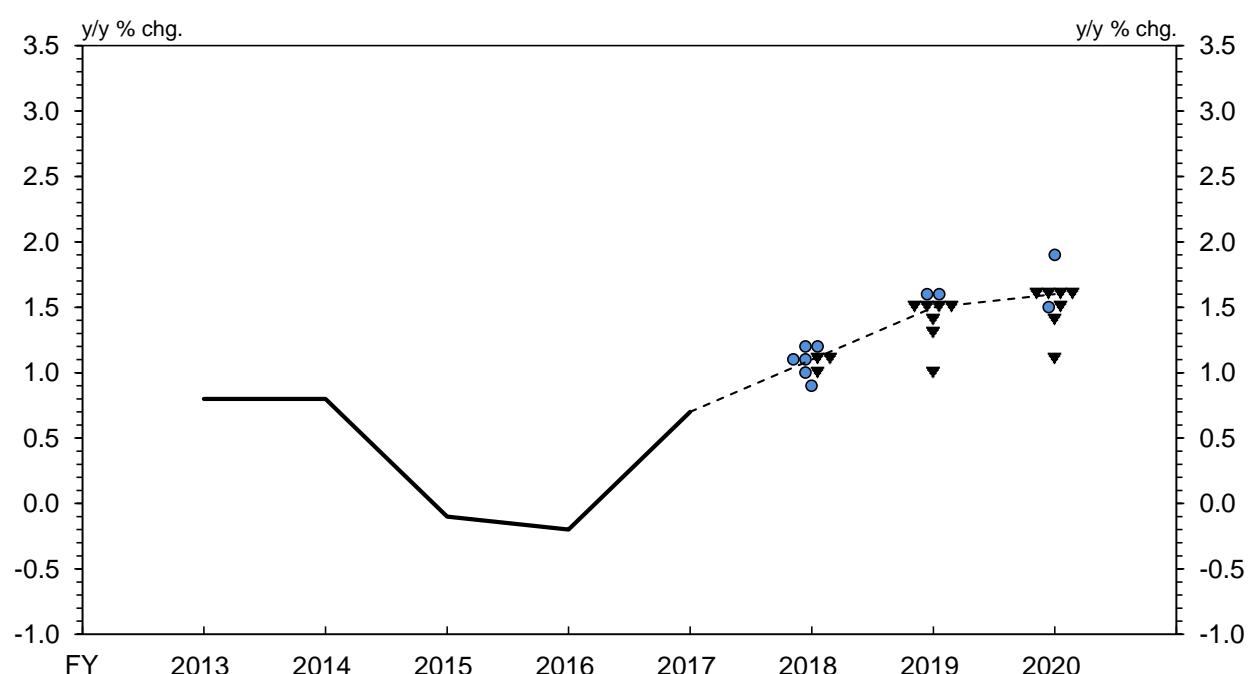
2. The forecasts of the majority of the Policy Board members are constructed as follows: each Policy Board member's forecast takes the form of a point estimate -- namely, the figure to which he or she attaches the highest probability of realization. These forecasts are then shown as a range, with the highest figure and the lowest figure excluded. The range does not indicate the forecast errors.
3. Individual Policy Board members make their forecasts taking into account the effects of past policy decisions and with reference to views incorporated in financial markets regarding future policy. Specifically, each Policy Board member makes an assumption about the future path of short- and long-term interest rates based on their market rates, bearing in mind the difference in the outlook for prices between that presented in the Outlook Report and that of market participants.
4. The consumption tax hike scheduled to take place in October 2019 -- to 10 percent -- and the reduced tax rate to be applied to food and beverages -- excluding alcohol and dining-out -- and newspapers are incorporated in the forecasts, but individual Policy Board members make their forecasts of the CPI based on figures excluding the direct effects of the consumption tax hike. The forecasts for the CPI for fiscal 2019 and fiscal 2020 that incorporate the direct effects of the consumption tax hike are constructed as follows. First, the contribution to prices from the tax hike is mechanically computed on the assumption that the tax increase will be fully passed on for taxable items. The CPI will be pushed up by 0.5 percentage point for each year. Second, this figure is added to the forecasts made by the Policy Board members. While it is assumed that the effects of policies concerning the provision of free education will not be reflected in the CPI as statistical treatment of these effects is not yet decided, the effects of such policies are factored in by individual Policy Board members for their forecasts of the real GDP growth rates, based on information available at this point.

Policy Board Members' Forecasts and Risk Assessments

(1) Real GDP



(2) CPI (All Items Less Fresh Food)



Notes: 1. Solid lines show actual figures, while dotted lines show the medians of the Policy Board members' forecasts (point estimates).

2. The locations of ○, △, and ▼ in the charts indicate the figures for each Policy Board member's forecasts to which he or she attaches the highest probability. The risk balance assessed by each Policy Board member is shown by the following shapes: ○ indicates that a member assesses "upside and downside risks as being generally balanced," △ indicates that a member assesses "risks are skewed to the upside," and ▼ indicates that a member assesses "risks are skewed to the downside."

3. Figures for the CPI exclude the direct effects of the consumption tax hikes.

The Background¹¹

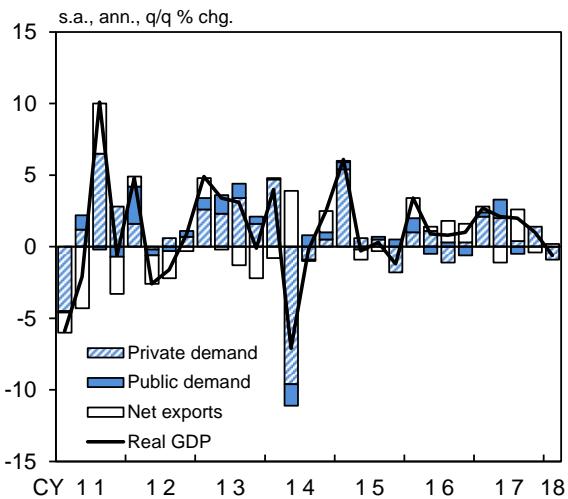
I. The Current Situation of Economic Activity and Its Outlook

A. Economic Developments

Looking back at Japan's economy since the April 2018 Outlook Report, the real GDP growth rate for the January-March quarter of 2018 was minus 0.2 percent on a quarter-on-quarter basis and its annualized rate was minus 0.6 percent, representing negative growth for the first time in nine quarters (Chart 1). While private consumption was more or less flat and business fixed investment as well as net exports contributed to an increase in real GDP only slightly, housing investment and inventory investment contributed to a decline.¹² However, the decline in the real GDP growth rate for the January-March quarter is attributable to temporary developments such as sluggishness in private consumption resulting from a rise in fresh food prices and weather conditions, and Japan's economy is likely to be growing at a pace above the potential growth rate as a trend, which is estimated to be in the range of 0.5-1.0 percent (Chart 2).

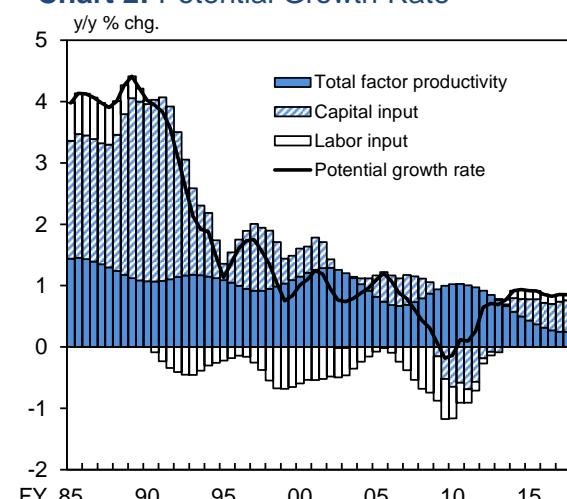
Under such circumstances, labor market conditions have continued to tighten steadily (Chart 3). The output gap -- which captures the utilization of labor and capital -- has widened

Chart 1: Real GDP



Source: Cabinet Office.

Chart 2: Potential Growth Rate



Source: Bank of Japan.
Note: Based on staff estimations.

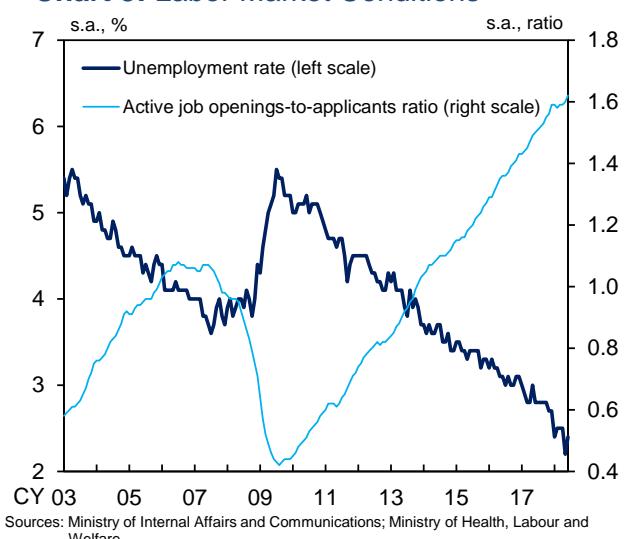
¹¹ "The Background" provides explanations of "The Bank's View" decided by the Policy Board of the Bank of Japan at the Monetary Policy Meeting held on July 30 and 31, 2018.

¹² The growth rate of final demand (GDP minus inventory investment) plus imports -- which exclude the effects of inventory investment and imports from GDP -- has increased, registering 0.1 percent on a quarter-on-quarter basis.

within positive territory and was in the range of 1.5-2.0 percent for the January-March quarter (Chart 4).^{13, 14} Monthly indicators since April suggest that the uptrend in the output gap is likely to continue. Therefore, Japan's economy has continued to expand moderately, with a virtuous cycle from income to spending operating.

With regard to the outlook, Japan's economy is likely to continue growing at a pace clearly above its potential through fiscal 2018, mainly against the background of highly accommodative financial conditions and the underpinnings through government spending, with overseas economies continuing to grow firmly. From fiscal 2019 through fiscal 2020, the economy is expected to continue on an expanding trend, partly supported by external demand, although the growth rate is projected to decelerate from fiscal 2018. This is likely to be attributable to (1) the deceleration in business fixed investment reflecting cyclical adjustments in capital stock as well as Olympic Games-related investment peaking out, combined with (2) a temporary decline in private consumption due to the scheduled consumption

Chart 3: Labor Market Conditions



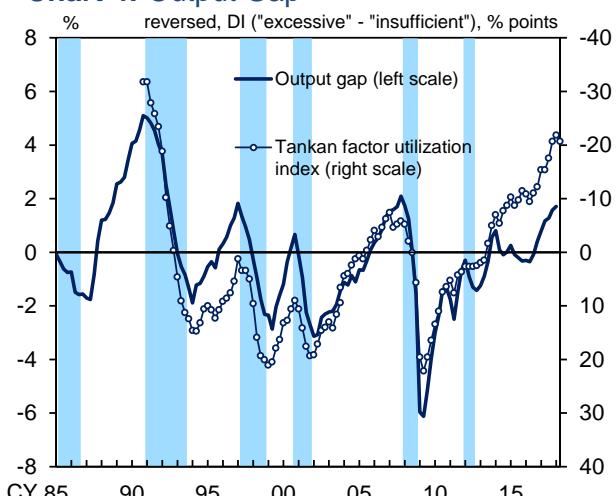
¹³ The estimation of the output gap by the Research and Statistics Department of the Bank of Japan is characterized by the use of various indicators that correspond to utilization rates of labor and capital, both of which are production factors, instead of directly using GDP statistics. Thus, the output gap could improve even when the actual growth rate is below the potential growth rate. In fact, the output gap improved in the January-March quarter, due mainly to a significant improvement in the labor input gap on the back of a sharp rise in the labor force participation rate (Chart 24). For the estimation method of the output gap, see the Bank's research paper "Methodology for Estimating Output Gap and Potential Growth Rate: An Update" released in May 2017.

¹⁴ As for capital stock data -- which are used for the estimation of the output gap and the potential growth rate -- those prior to 1994 that were previously based on the JIP database have been rebased to data from the Cabinet Office's Capital Stocks of Fixed Assets statistics, in response to the release of the retroactive series by the Cabinet Office.

tax hike.^{15,16} Comparing the current projections with the previous ones, the projected growth rates are more or less unchanged.

Details of the outlook for each fiscal year are as follows. In fiscal 2018, the economy is likely to maintain a moderate expansion with demand at home and abroad increasing in a well-balanced manner. Specifically, exports are projected to continue increasing moderately, reflecting the firm growth in overseas economies. Business fixed investment is also expected to continue to see a steady increase amid accommodative financial conditions, led mainly by investment intended for domestic capacity expansion in line with the economic expansion, Olympic Games-related

Chart 4: Output Gap



Source: Bank of Japan.

Notes: 1. The output gap is based on staff estimations.

2. The Tankan factor utilization index is calculated as the weighted average of the production capacity DI and the employment conditions DI for all enterprises.

The capital and labor shares are used as weights. There is a discontinuity in the data in December 2003 due to a change in the survey framework.

3. Shaded areas indicate recession periods.

¹⁵ The July 2018 Outlook Report assumes that the consumption tax will be raised to 10 percent in October 2019 and that a reduced tax rate will be applied to food and beverages -- excluding alcohol and dining-out -- and newspapers.

¹⁶ The scheduled consumption tax hike in October 2019 will have some impact on the GDP growth rates, mainly due to changes in household spending, through the following two channels: (1) the front-loaded increase and subsequent decline in demand prior to and after the consumption tax hike and (2) the decline in real income. At present, the negative impact of the tax hike on the growth rates for fiscal 2019 and fiscal 2020 is expected to be smaller than that on the rate for fiscal 2014, when the last consumption tax hike took place. This is mainly due to the following: (1) there are technical factors that, as the consumption tax hike is scheduled to take place in the middle of fiscal 2019, the front-loaded increase and subsequent decline in demand prior to and after the hike will offset each other during that fiscal year -- although they will push down the growth rate for fiscal 2020 -- and that the effects of the decline in real income will be dispersed over fiscal 2019 and fiscal 2020; (2) the increase in the consumption tax rate is smaller than that of the previous tax hike and a reduced tax rate will be applied to some items; (3) the provision of free education as well as various measures to reduce the household burden of the tax hike will be implemented; and (4) before the previous tax hike, there likely was a front-loaded increase in demand in anticipation of the second round of the tax hike. For the increase in the net burden on households around the time of consumption tax hikes, see Box 1 in the April 2018 Outlook Report. It should be noted, however, that the impact of the consumption tax hike is uncertain and varies depending, for example, on developments in consumer sentiment.

investment, and labor-saving investment stemming from labor shortage. Private consumption will likely maintain its momentum as the employment and income situation continues to improve. Meanwhile, public investment is projected to remain at a high level, mainly underpinned by the supplementary budget for fiscal 2017 and Olympic Games-related demand. On this basis, the real GDP growth rate for fiscal 2018 is projected to exceed the potential and the output gap is likely to continue improving.

In fiscal 2019, the growth pace is projected to decelerate, mainly due to a slowdown in domestic demand. Private consumption is expected to increase its momentum in the first half of the fiscal year, reflecting the front-loaded increase in demand prior to the scheduled consumption tax hike, and then start declining in the second half of the fiscal year, pushed down by the subsequent decline in demand following the tax hike and the decline in real income. However, exports are projected to maintain their increasing trend on the back of the firm growth in overseas economies, and thereby underpin the economy. Meanwhile, business fixed investment is likely to decelerate gradually under cyclical downward pressure resulting from capital stock adjustments, combined with the effects of Olympic Games-related investment peaking out; however, the deceleration is expected to be moderate, due partly to growing demand for fixed investment stemming from the increase in exports. As a result of these developments, the economy is expected to continue on an expanding trend, although the growth rate for fiscal 2019 is projected to decelerate from the previous fiscal year.

In fiscal 2020, private consumption and housing investment are expected to gradually head toward a recovery after declining in the second half of fiscal 2019. Exports are likely to continue their increasing trend. On the other hand, business fixed investment will likely decelerate somewhat as pressure stemming from cyclical adjustments in capital stock heightens, although the increase in exports is likely to continue stimulating investment demand. Meanwhile, expenditure on mainly temporary facilities in hosting the Olympic Games is expected to underpin the economy. Under such circumstances, the economy is expected to continue on an expanding trend in fiscal 2020.

Meanwhile, the potential growth rate is expected to follow a moderate uptrend throughout the projection period against the backdrop of the following: progress in implementation of the government's growth strategy, including regulatory and institutional reforms; an increase in labor participation by women and seniors under such strategy; and firms' continued efforts toward improving productivity.

B. Developments in Major Expenditure Items and Their Background

Government Spending

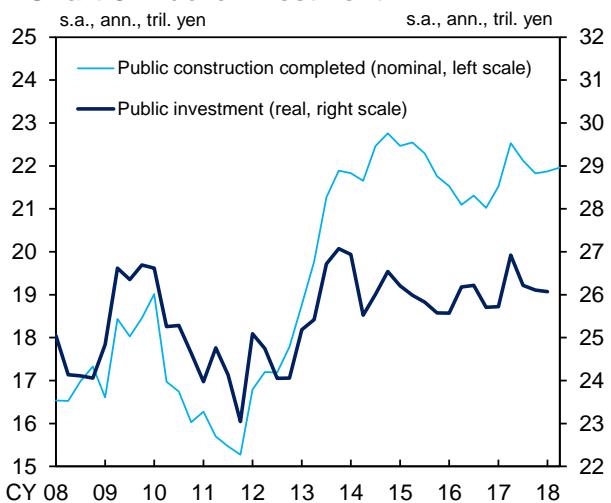
Public investment has been more or less flat, remaining at a relatively high level (Chart 5). As for the outlook, it is expected to remain at a relatively high level, mainly underpinned by the supplementary budget for fiscal 2017 and Olympic Games-related construction.

Overseas Economies

Overseas economies have continued to grow firmly on the whole (Chart 6). The business sentiment of manufacturing firms on a global basis has maintained its improving trend, although it recently has declined somewhat, and the world trade volume has continued to recover (Charts 7 and 12). Looking at developments by major region, the U.S. economy has been expanding and the European economy has continued to recover, although its growth pace has decelerated somewhat. The Chinese economy has continued to see stable growth on the whole. Other emerging economies and commodity-exporting economies have been recovering moderately on the whole, reflecting in particular an increase in exports and the effects of those economies' stimulus measures.¹⁷

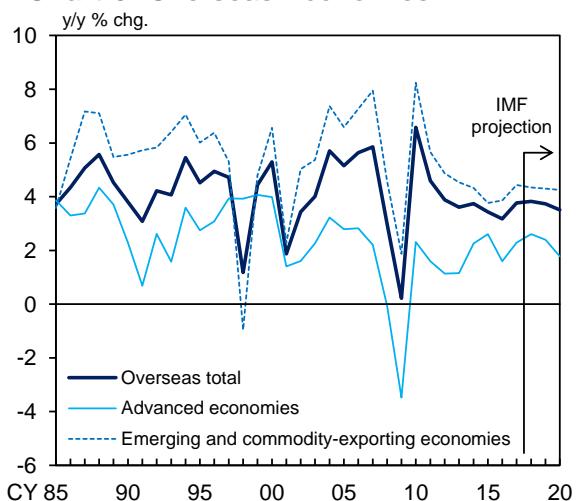
In terms of the outlook, overseas economies are expected to continue growing firmly as global

Chart 5: Public Investment



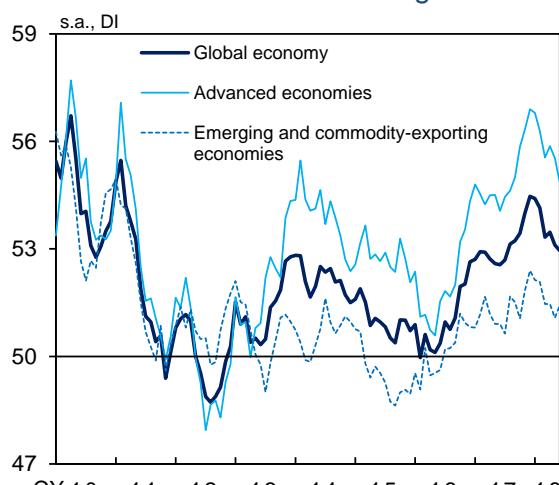
Sources: Cabinet Office; Ministry of Land, Infrastructure, Transport and Tourism.
Note: The figure for 2018/Q2 is the April-May average.

Chart 6: Overseas Economies



Sources: IMF; Ministry of Finance.
Note: Figures are the weighted averages of real GDP growth rates using countries' share in Japan's exports as weights. Annual GDP growth rates are from the "World Economic Outlook (WEO)" as of April 2018 and the "WEO update" as of July 2018. Advanced economies consist of the United States, the euro area, and the United Kingdom. Emerging and commodity-exporting economies consist of the rest of the world economy.

Chart 7: Global Manufacturing PMI

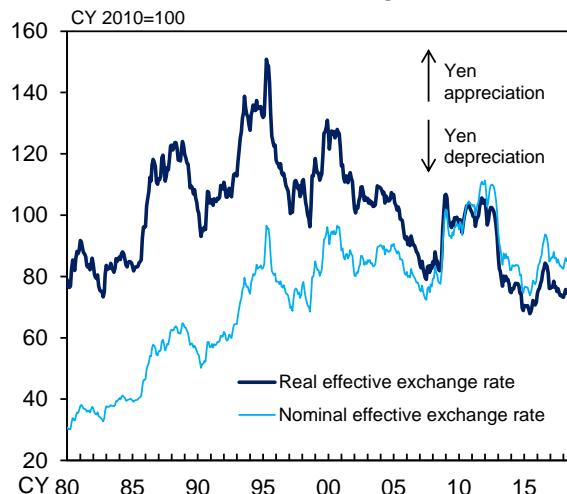


Sources: IHS Markit © and database right IHS Markit Ltd 2018. All rights reserved.).
Note: Figures for the global economy are the J.P. Morgan Global Manufacturing PMI.
Figures for advanced economies as well as emerging and commodity-exporting economies are calculated as the weighted averages of the Manufacturing PMI using GDP shares of world total GDP from the IMF as weights. Advanced economies consist of the United States, the euro area, the United Kingdom, and Japan. Emerging and commodity-exporting economies consist of 17 countries and regions, such as China, South Korea, Taiwan, Russia, and Brazil.

production and trade activity of the manufacturing sector are likely to be firm, and both the advanced and emerging economies are projected to grow in a well-balanced manner.

By major region, the U.S. economy is expected to keep expanding. The European economy is projected to continue recovering. The Chinese economy is likely to broadly follow a stable growth path as authorities conduct fiscal and monetary policy in a timely manner. Other emerging economies and commodity-exporting economies are likely to continue their moderate recovery on the whole.

Chart 8: Effective Exchange Rates



Sources: BIS; Bank of Japan.

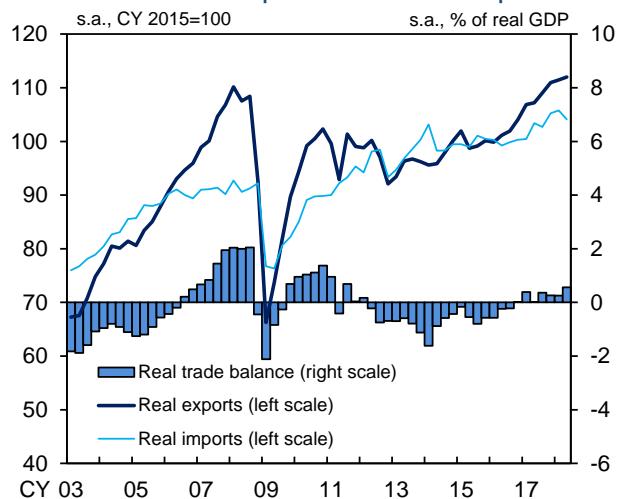
Notes: 1. Figures are based on the broad index of the "BIS Effective Exchange Rate." Those prior to 1994 are calculated using the narrow index.
2. Figures for July 2018 have been calculated using the daily nominal effective exchange rate (the Yen Index) compiled by the Bank of Japan.

Exports and Imports

Exports have been on an increasing trend on the back of the firm growth in overseas economies (Chart 9). By region, exports to advanced economies have continued on their increasing trend.¹⁸ Exports to emerging economies have been picking up broadly, led mainly by those of capital goods to Asia (Chart 10). By goods, IT-related exports have been on an uptrend as electronic parts for data centers and motor vehicles have continued to see firm demand, despite being affected by production adjustments for smartphones (Chart 11). Exports of a wide range of capital goods have been on an increasing trend. Automobile-related exports had continued to increase, due in part to the rising value-added of automobiles exported from Japan, but decreased slightly in the April-June quarter, mainly to the United States.

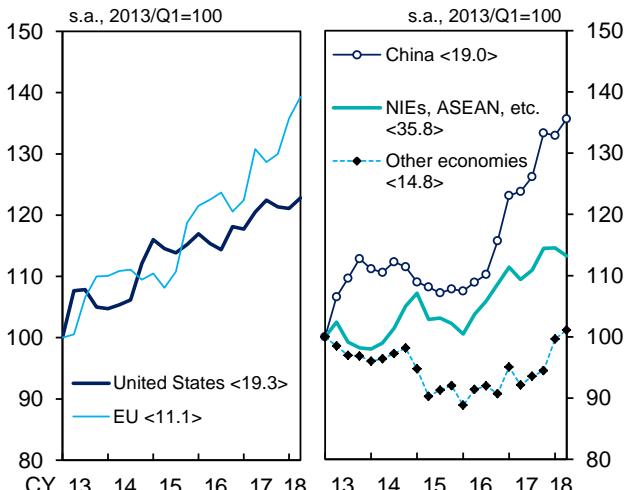
Exports will likely continue their increasing trend for the time being, as those of capital goods and IT-related goods -- in which Japan has a comparative advantage -- are likely to be firm with global production and trade activity of the manufacturing sector remaining at a favorable level. Thereafter, Japan's exports are expected to continue their moderate increasing trend as (1) the world trade volume is likely to continue its moderate increase with the growth in overseas economies and (2) Japan's share of exports is expected to follow a very moderate increasing trend, reflecting improvement in Japan's export

Chart 9: Real Exports and Real Imports



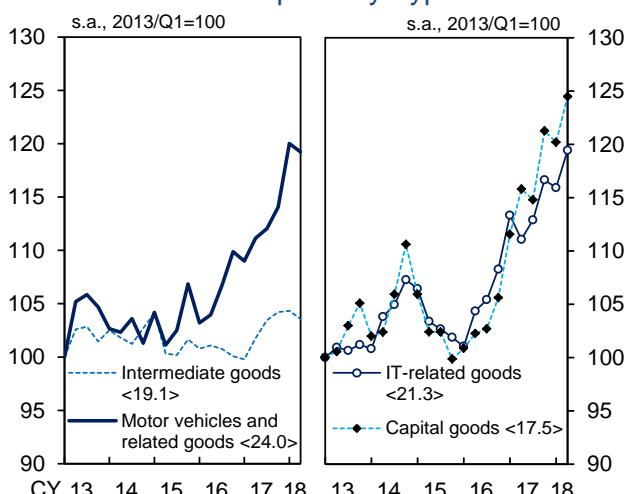
Sources: Bank of Japan; Ministry of Finance; Cabinet Office.
Note: Based on staff calculations.

Chart 10: Real Exports by Region



Sources: Bank of Japan; Ministry of Finance.
Note: Based on staff calculations. Figures in angular brackets show the share of each country or region in Japan's total exports in 2017.

Chart 11: Real Exports by Type of Goods



Sources: Bank of Japan; Ministry of Finance.
Note: Based on staff calculations. Figures in angular brackets show the share of each type of goods in Japan's total exports in 2017.

¹⁸ From March 23, 2018, the United States raised tariffs on imported steel and aluminum products from Japan, imposing an additional 25 percent and 10 percent, respectively. However, the effects of this have not been observed in real exports to date.

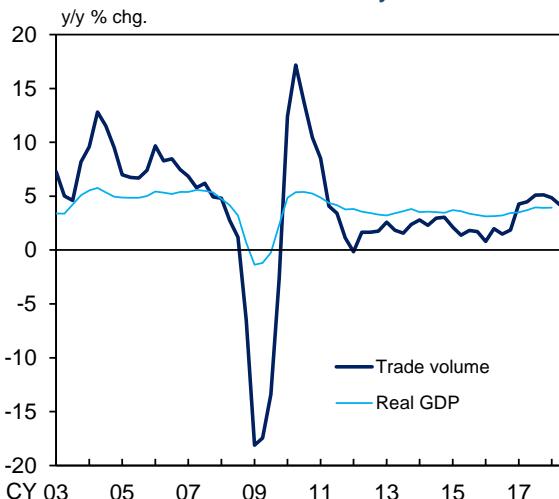
competitiveness (Charts 12 and 13).¹⁹

Looking at this in detail, the world trade volume has continued to show relatively high growth, mainly for Asia as well as the United States and Europe. Going forward, the pace of increase in the world trade volume is expected to be about the same as that in world economic growth, albeit with fluctuations -- that is, the world trade volume to GDP ratio is likely to be more or less unchanged -- as a global recovery in production and trade activity of the manufacturing sector is likely to continue.

Japan's share of exports in world trade has been on a rising trend, due in part to an increase in demand for capital goods and IT-related goods, in which Japan has a comparative advantage. It is expected to follow a very moderate rising trend, as an uptrend in exports of capital goods is likely to continue, supported by the recovery in demand for business fixed investment on a global basis.

Imports have been picking up (Chart 9). Going forward, they are expected to follow a moderate uptrend, reflecting an increase in domestic demand; however, the pace is projected to remain only moderate due to a downtrend in imports of raw materials, reflecting an improvement in energy efficiency.

Chart 12: World Trade Volume and Real GDP of the World Economy



Sources: CPB Netherlands Bureau for Economic Policy Analysis; IMF, etc.

Notes: 1. Figures for the trade volume are those for real imports.

The figure for 2018/Q2 is the April-May average.

2. Real GDP of the world economy is based on staff calculations using GDP shares of world total GDP from the IMF as weights.

Chart 13: Japan's Share of Exports in World Trade



Source: CPB Netherlands Bureau for Economic Policy Analysis.

Note: Japan's share of exports in world trade is obtained by dividing Japan's real exports by world real imports (2010 prices). The figure for 2018/Q2 is the April-May average.

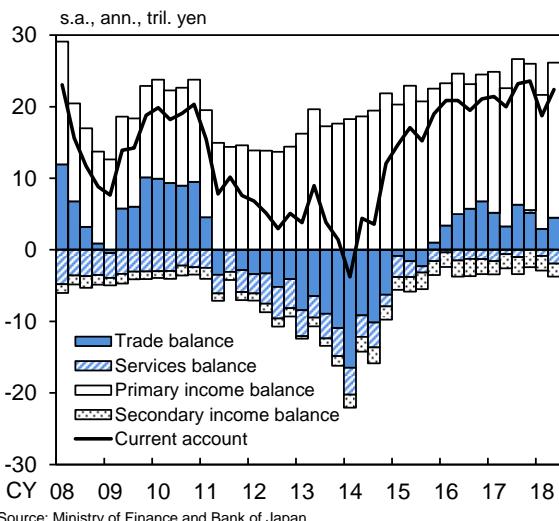
¹⁹ The world trade volume is calculated by adding up real imports in each country.

External Balance

The nominal current account surplus has been on an increasing trend, mainly backed by the primary income balance and the trade balance (Chart 14).

Going forward, the nominal current account surplus will likely increase moderately, mainly on the back of (1) an improving trend in the trade balance that reflects the aforementioned outlook for exports and imports, as well as (2) an improvement in the primary income balance brought about by the growth in overseas economies and (3) an increase in travel receipts underpinned by a rise in the number of inbound visitors.

Chart 14: Current Account



Source: Ministry of Finance and Bank of Japan.

Note: Figures for 2018/Q2 are April-May averages.

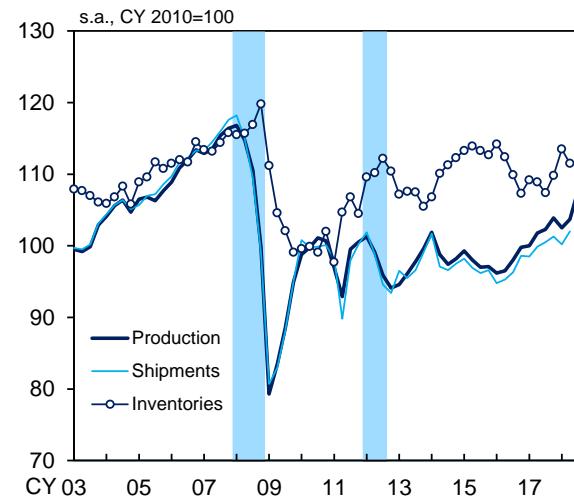
In terms of the saving-investment balance, the increase in the nominal current account surplus corresponds to that in excess saving as a whole. By sector, excess saving in the household sector is expected to be more or less flat on average; while it is projected to decline due to a rise in the propensity to consume, it is also likely to partly reflect the effects of the scheduled consumption tax hike in fiscal 2019. Excess saving in the corporate sector is likely to decrease very moderately, although remain at a high level, as an improvement in profits is expected to contribute to an increase in fixed investment with some time lag. Meanwhile, excess investment in the general government is projected to decrease, reflecting a dissipation of the stimulus effects resulting from the second supplementary budget for fiscal 2016 and the scheduled consumption tax hike.

Industrial Production

Industrial production has been on an increasing trend on the back of the increase in demand at home and abroad (Chart 15). Transport equipment production has continued on an increasing trend, albeit with fluctuations. The production of electronic parts and devices has remained on an increasing trend on the back of the continued robust demand for parts for data centers and on-board equipment for motor vehicles, although the pace of increase in parts for smartphones has been decelerating recently. The production of machinery (i.e., "general-purpose, production and business oriented machinery" in the *Indices of Industrial Production*) has been on a moderate increasing trend, mainly driven by industrial robots. The production of chemicals has been increasing on average, mainly led by cosmetics, albeit with large fluctuations. Meanwhile, with regard to the shipments-inventories balance, the year-on-year rate of change in shipments and that in inventories have been more or less the same (Chart 16).

Industrial production will likely continue to increase firmly for the time being on the back of the increase in demand at home and abroad. Thereafter, it is projected to continue on a moderate increasing trend with the growth in overseas economies.

Chart 15: Production, Shipments, and Inventories

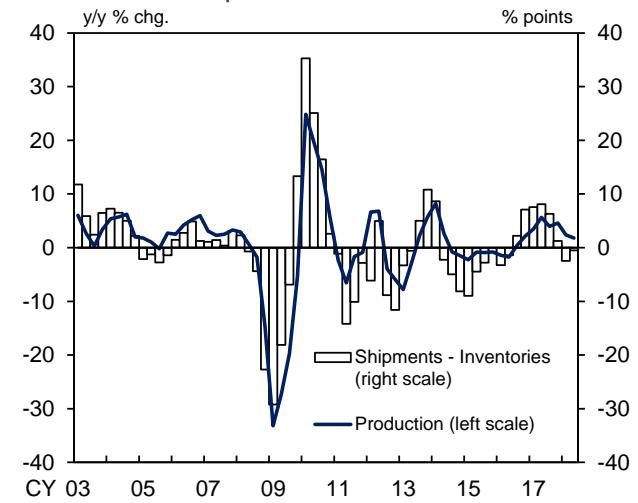


Source: Ministry of Economy, Trade and Industry (METI).

Notes: 1. Shaded areas indicate recession periods.

2. The production figure for 2018/Q3 is calculated based on METI projections for July and August 2018.

Chart 16: Shipments-Inventories Balance



Source: Ministry of Economy, Trade and Industry.

Corporate Profits

Corporate profits have maintained their improving trend. According to the *Financial Statements Statistics of Corporations by Industry, Quarterly*

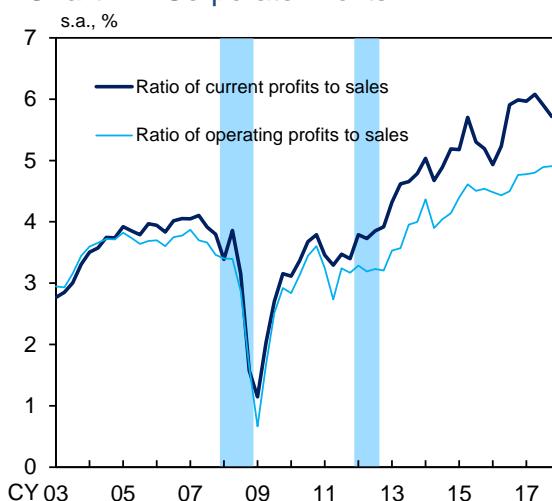
(FSSC), the ratio of current profits to sales for all industries and enterprises has been on an improving trend, supported by firm domestic demand and the growth in overseas economies (Chart 17). Under such circumstances, business sentiment also has maintained its improving trend (Chart 18). The diffusion index (DI) for business conditions for all industries and enterprises in the June 2018 *Tankan* (Short-Term Economic Survey of Enterprises in Japan) suggests that, although business conditions have deteriorated slightly for the first time in eight quarters, they have remained at a favorable level.

Corporate profits are projected to continue improving steadily, on the back of the increase in demand at home and abroad. Nevertheless, through fiscal 2020, the rate of increase in corporate profits is likely to decelerate as the allocation to households increases further, such as in the form of a rise in personnel expenses, with Japan's economy shifting toward a decelerating trend due in part to the effects of the scheduled consumption tax hike.

Business Fixed Investment

Business fixed investment has continued on an increasing trend with corporate profits and business sentiment maintaining their improving trend (Chart 19). The aggregate supply of capital goods and private construction completed (nonresidential) -- coincident indicators of machinery investment and construction investment, respectively -- have continued on an uptrend, with fluctuations smoothed out. According to the June *Tankan*, the rate of increase in business fixed investment plans for

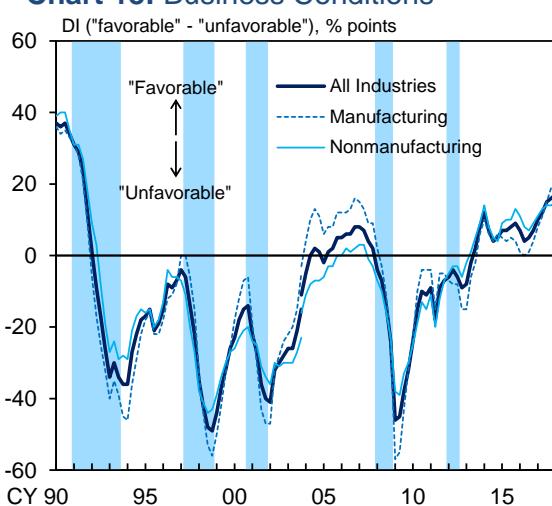
Chart 17: Corporate Profits



Source: Ministry of Finance.

Notes: 1. Based on the "Financial Statements Statistics of Corporations by Industry, Quarterly." Excluding "finance and insurance."
2. Shaded areas indicate recession periods.

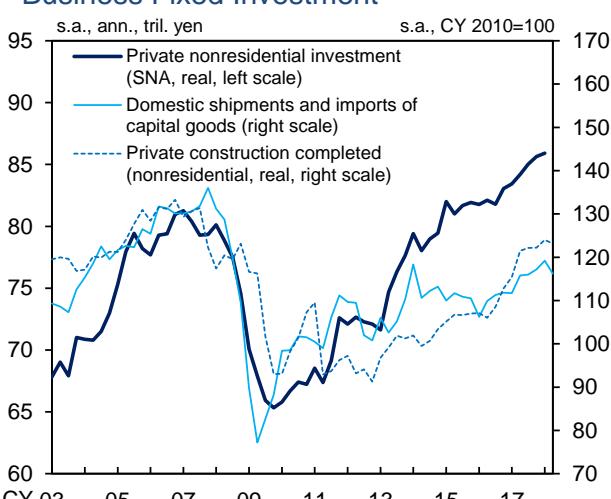
Chart 18: Business Conditions



Source: Bank of Japan.

Notes: 1. Based on the *Tankan*. There is a discontinuity in the data in December 2003 due to a change in the survey framework.
2. Shaded areas indicate recession periods.

Chart 19: Coincident Indicators of Business Fixed Investment



Sources: Cabinet Office; Ministry of Economy, Trade and Industry; Ministry of Land, Infrastructure, Transport and Tourism.

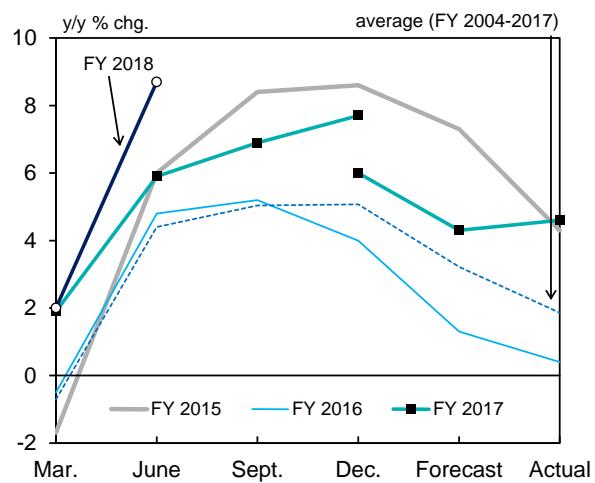
Notes: 1. Figures for 2018/Q2 are April-May averages.

2. Real private construction completed is based on staff calculations using price indices in the "Construction Cost Deflators."

fiscal 2018 has substantially exceeded the past average, mainly of large enterprises. For example, business investment (on the basis close to GDP definition; business investment -- including software as well as research and development investment, but excluding land purchasing expenses -- in all industries including the financial industry) for fiscal 2018 is expected to register an increase of 8.7 percent (Chart 20). Reflecting firms' positive fixed investment stance, machinery orders and construction starts (in terms of planned expenses for private and nonresidential construction), as leading indicators, have continued on an increasing trend, albeit with large fluctuations (Chart 21).

With regard to the outlook, business fixed investment is likely to continue increasing on the back of (1) an improvement in corporate profits, (2) extremely stimulative financial conditions, such as low interest rates and accommodative lending attitudes, (3) materialization of the effects of projects conducted under the Fiscal Investment and Loan Program as well as the effects of investment-enhancing tax incentives, and (4) moderate improvement in growth expectations. Specifically, an increase is likely to be seen in investment such as (1) that intended for domestic capacity expansion in line with the economic expansion, (2) that related to the Olympic Games and urban redevelopment projects, (3) that aiming at improving efficiency and saving labor in order to deal with labor shortage, and (4) in research and development for growth areas.

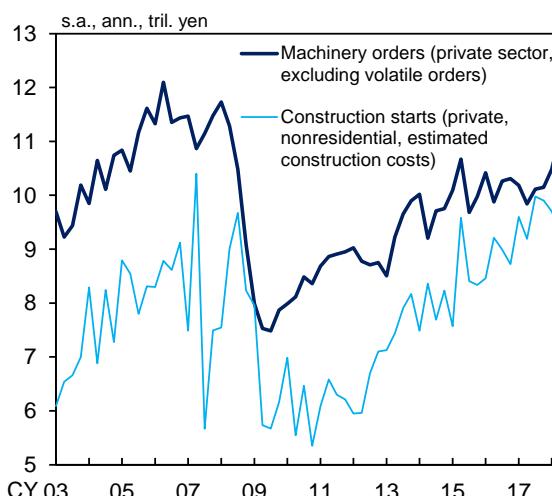
Chart 20: Developments in Business Fixed Investment Plans



Source: Bank of Japan.

Notes: 1. Based on the *Tankan*. All Industries including financial institutions.
2. Including software and R&D investment and excluding land purchasing expenses (R&D investment is not included until the December 2016 survey).
3. There is a discontinuity in the data in December 2017 due to a change in the survey sample.

Chart 21: Leading Indicators of Business Fixed Investment



Sources: Cabinet Office; Ministry of Land, Infrastructure, Transport and Tourism.
Notes: 1. Volatile orders: orders for ships and orders from electric power companies.
2. Figures for 2018/Q2 are April-May averages.

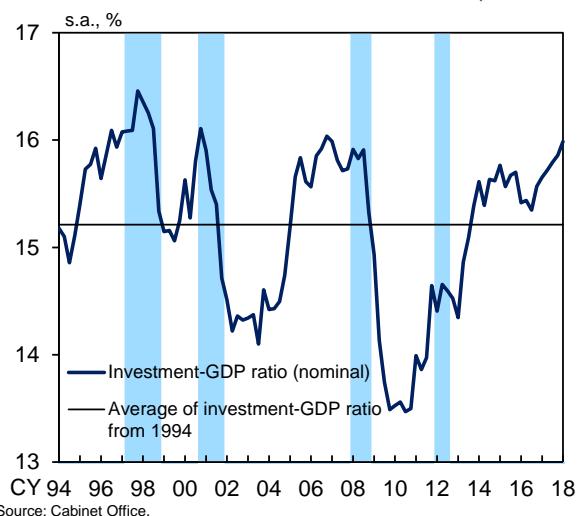
The nominal investment-GDP ratio is expected to continue rising further on the basis of the

aforementioned outlook for business fixed investment (Chart 22). The ratio has reached a level around the peaks observed in the investment cycles after the burst of the bubble. Taking this into account, the pace of increase in business fixed investment is likely to decelerate gradually through the end of the projection period, as pressure stemming from cyclical adjustments in capital stock heightens.

The Employment and Income Situation

Supply-demand conditions in the labor market have continued to tighten steadily and the rate of increase in employee income has accelerated recently. The year-on-year rate of change in the *Labour Force Survey*-based number of employees has been at around 2 percent (Chart 23). Against this backdrop, the active job openings-to-applicants ratio has been at a high level that exceeds the peak marked during the bubble period, and a perception of labor shortage suggested by the employment conditions DI in the June *Tankan* has heightened (Chart 3). The unemployment rate has been at around 2.5 percent recently. These indicators of supply-demand conditions in the labor market show that the degree of labor market tightness has been at around the level last seen in the first half of the 1990s or in the first half of the 1970s. Meanwhile, labor force participation rates -- especially those for women and seniors -- have remained on an uptrend after bottoming out around the end of 2012, and their pace of increase has accelerated recently (Chart 24). As Japan's economy is likely to continue on a growing trend at a pace above its potential, it is expected that the number of employees will keep increasing and that the supply-demand conditions

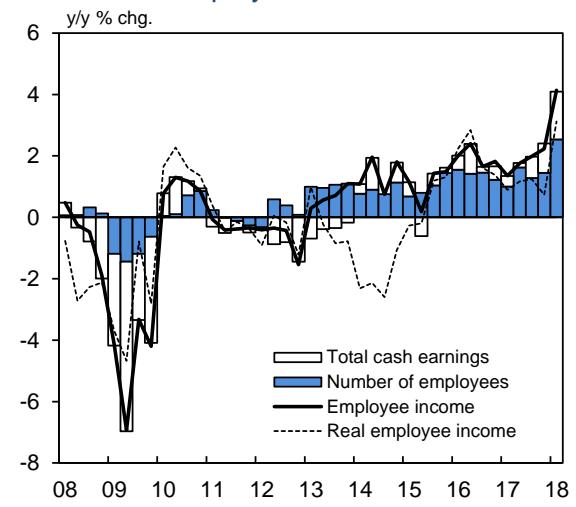
Chart 22: Investment-GDP Ratio (Nominal)



Source: Cabinet Office.

Note: Shaded areas indicate recession periods.

Chart 23: Employee Income



Sources: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications.

Notes: 1. Q1 = March-May, Q2 = June-August, Q3 = September-November, Q4 = December-February.

2. Employee income = total cash earnings ("Monthly Labour Survey") × number of employees ("Labour Force Survey")

3. Real employee income is based on staff calculations using the CPI (less imputed rent).

Chart 24: Labor Force Participation Rate



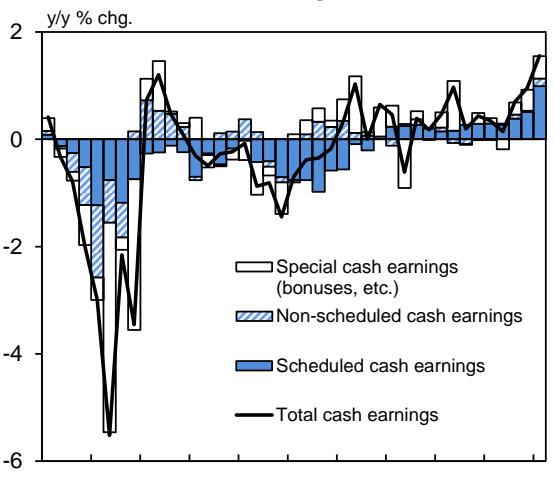
Source: Ministry of Internal Affairs and Communications.

in the labor market will continue to tighten steadily.

On the wage side, total cash earnings per employee have risen moderately, albeit with some fluctuations (Chart 25).²⁰ However, wage increases have remained relatively weak compared to the labor market tightening, partly due to the experience of protracted employment adjustments in the past and the high wage elasticity of labor supply in recent years, mainly among women and seniors.²¹

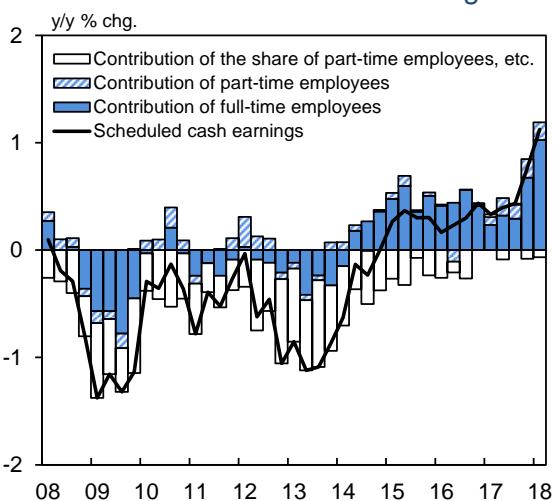
Looking at developments in nominal wages in detail, scheduled cash earnings as a whole have continued to increase moderately, due in part to dissipation of downward pressure stemming from an increase in the ratio of part-time employees amid a rise in wages of both full-time and part-time employees (Chart 26). While the year-on-year rate of increase in scheduled cash earnings of full-time employees has remained in the range of 0.5-1.0 percent, that in hourly scheduled cash earnings of part-time employees -- which are responsive to labor market conditions -- registered relatively high growth of around 2

Chart 25: Nominal Wages



Source: Ministry of Health, Labour and Welfare.
Note: Q1 = March-May, Q2 = June-August, Q3 = September-November,
Q4 = December-February.

Chart 26: Scheduled Cash Earnings



Source: Ministry of Health, Labour and Welfare.
Note: Q1 = March-May, Q2 = June-August, Q3 = September-November,
Q4 = December-February.

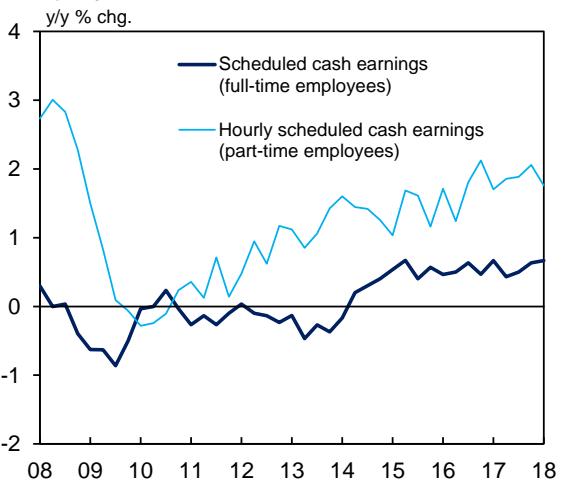
²⁰ In the *Monthly Labour Survey*, from the January 2018 final report, half of the samples for establishments with 30 or more employees were replaced, and the number of regular employees was retroactively revised reflecting data from the 2014 *Economic Census*. Thus, the weights of establishments with 5 to 29 employees and those with 30 or more employees, as well as the ratio of part-time employees, have been changed.

²¹ With regard to the relationship between an increase in the labor supply of women and seniors and wage developments, see Box 1.

percent on average (Chart 27).²² Meanwhile, the year-on-year rate of change in real wages per employee has been more or less flat, albeit with fluctuations resulting from changes in prices of fresh food and energy.

With regard to the outlook for wages, the pace of increase in scheduled cash earnings of full-time employees is expected to accelerate moderately as that in base pay accelerates with the inflation rate in the previous fiscal year rising and an improvement in labor productivity becoming more evident.²³ The rate of increase in hourly scheduled cash earnings of part-time employees is also likely to accelerate steadily in response to further tightening of labor market conditions and an increase in minimum wages. Under this situation, overall employees' hourly cash earnings are projected to increase moderately at almost the same pace as labor productivity growth in nominal terms, and their rate of increase is expected to accelerate in the second half of the

Chart 27: Wages of Full-Time and Part-Time Employees



Source: Ministry of Health, Labour and Welfare.

Notes: 1. Q1 = March-May, Q2 = June-August, Q3 = September-November, Q4 = December-February.

2. Figures from 2017/Q1 are based on existing respondents (continuing observation) following the sample revision of the "Monthly Labour Survey" in January 2018.

²² Figures for scheduled cash earnings are based on continuing observations in order to exclude the effects of the sample revision of the *Monthly Labour Survey*. It also should be noted that the quarterly figures are estimates by the Bank's staff. The year-on-year rates of change in scheduled cash earnings based on continuing observations are about 0.5 percentage point lower than the official figures on average. Calculations based on continuing observations indicate that the following developments are likely to be more moderate than implied by the official figures: the increase in employee income since the turn of 2018 (Chart 23); the rise in the labor share (Chart 28); and the decline in the propensity to consume (Chart 34).

²³ With regard to the base pay increase for fiscal 2018, the rate of increase in wages was 0.54 percent according to the final aggregate results compiled by the Japanese Trade Union Confederation (Rengo), which is higher than the actual rate for fiscal 2017 (0.48 percent), but it has not reached the rate for fiscal 2015 (0.69 percent).

projection period.²⁴

In light of the aforementioned employment and wage conditions, the rate of increase in employee income has been accelerating recently (Chart 23). Going forward, it is likely to increase steadily, and the pace is expected to be slightly above the nominal GDP growth rate in the second half of the projection period. The labor share is likely to rise moderately, after remaining more or less unchanged (Chart 28).

Chart 28: Labor Share



Source: Cabinet Office.

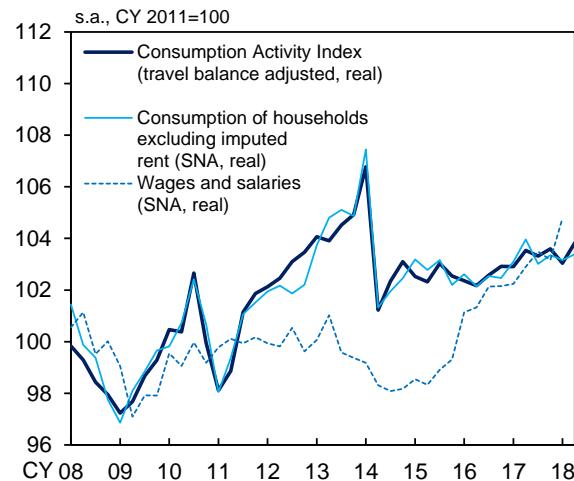
Notes: 1. Labor share = compensation of employees / nominal GDP × 100

2. Shaded areas indicate recession periods.

Household Spending

Private consumption has been increasing moderately, albeit with fluctuations, against the background of steady improvement in the employment and income situation. From the viewpoint of gauging consumption activity in a comprehensive manner, the Consumption Activity Index (CAI, travel balance adjusted) -- which is calculated by combining various sales and supply-side statistics -- has increased, albeit with fluctuations (Chart 29).²⁵ Looking at private consumption by type, durable goods have been on a moderate uptrend, albeit with fluctuations, mainly due to replacement demand for automobiles and household electrical appliances. Nondurable goods have been more or less flat. Meanwhile, services consumption has maintained its moderate increasing trend, reflecting a trend rise in communications charges as well as

Chart 29: Private Consumption



Sources: Bank of Japan; Cabinet Office, etc.

Notes: 1. The Consumption Activity Index is based on staff calculations (as of July 13). Figures for the Consumption Activity Index (travel balance adjusted) exclude inbound tourism consumption and include outbound tourism consumption.

The figure for 2018/Q2 is the April-May average.

2. The figure for consumption of households excluding imputed rent for 2018/Q2 is based on staff calculations using the "Synthetic Consumption Index (May)." 3. Figures for wages and salaries from 2017/Q2 are based on staff calculations using employee income (= total cash earnings × number of employees).

²⁴ The tax reform in fiscal 2018 incorporates the enhanced tax system for promoting income expansion in which a certain share of the wage increases will be deducted from the corporate tax for firms that meet certain conditions.

²⁵ Regarding the CAI, see the Bank's research paper "Revision of the Consumption Activity Index to Address the 2008 SNA and Improve Accuracy" published in April 2018.

medical, health care, and welfare fees.

According to various sales statistics, retail sales value in real terms has remained on an increasing trend when fluctuations are smoothed out (Chart 30). Sales at department stores have picked up, mainly reflecting a pick-up in sales to the wealthy brought about by a rise in stock prices and an increase in demand from foreign visitors to Japan. Sales at supermarkets have been on a moderate increasing trend, albeit with fluctuations mainly resulting from a rise in fresh food prices and weather conditions through early spring. Sales at convenience stores have continued on a rising trend.

As for durable goods, sales of automobiles have started to pick up amid favorable sales of small cars and mini vehicles (Chart 31). Sales of household electrical appliances have been on a moderate increasing trend due to resilient demand for white goods and replacement demand for such items as televisions.

With regard to services consumption, travel has continued to pick up; dining-out has been on an uptrend, led mainly by fast food (Chart 32).

Looking at confidence indicators related to private consumption, the Consumer Confidence Index has been more or less flat (Chart 33). The *Economy Watchers Survey* suggests that consumer confidence has been weakening somewhat, mainly reflecting a surge in fuel prices.

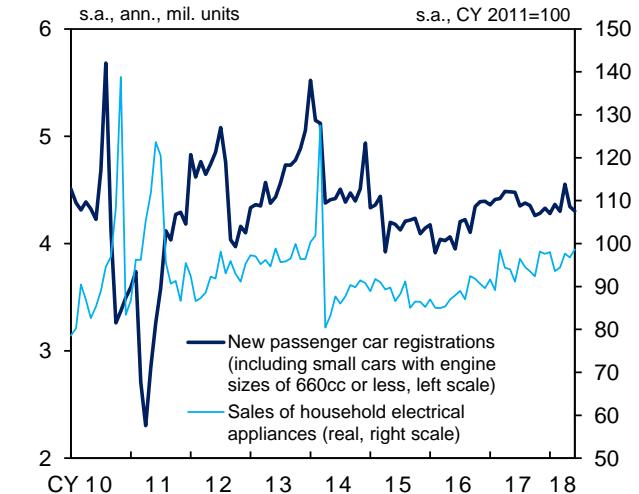
**Chart 30: Consumption Indicators
(Sales and Supply-side Statistics)**

	17/Q3	17/Q4	18/Q1	s.a., q/q % chg. 18/Q2
Consumption Activity Index				
Real, travel balance adjusted	-0.2	0.3	-0.5	0.8
Real	-0.1	0.4	-0.5	0.7
Sales at retail stores				
Nominal	0.1	1.3	-0.6	0.5
Real	0.0	0.3	-1.8	1.9
Sales at department stores				
	0.4	-0.2	-0.2	1.5
Sales at supermarkets				
	-0.1	0.1	0.0	-1.4
Sales at convenience stores				
	0.1	0.4	1.0	0.2

Sources: Bank of Japan; Ministry of Economy, Trade and Industry; Ministry of Internal Affairs and Communications.

Notes: 1. The Consumption Activity Index is based on staff calculations (as of July 13).
2. Real sales at retail stores are based on staff calculations using the CPI.
3. Figures for sales at department stores and sales at supermarkets are adjusted for the number of stores.
4. Figures for the Consumption Activity Index for 2018/Q2 are April-May averages.

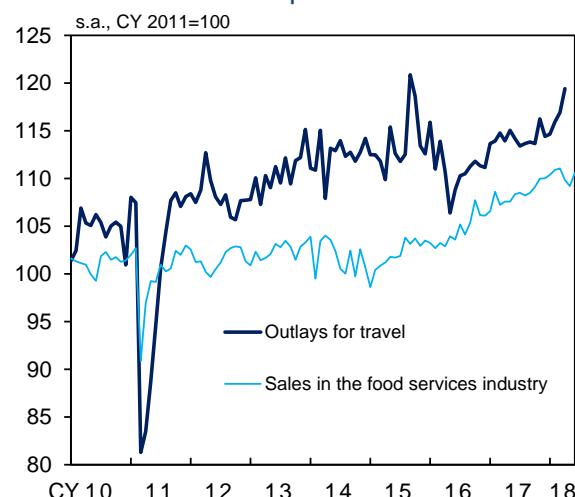
Chart 31: Consumption of Durable Goods



Sources: Japan Automobile Dealers Association; Japan Light Motor Vehicle and Motorcycle Association; Ministry of Economy, Trade and Industry; Ministry of Internal Affairs and Communications.

Note: Figures for real sales of household electrical appliances are based on staff calculations using the retail sales index of machinery and equipment in the "Current Survey of Commerce" and the price index of related items in the CPI.

Chart 32: Consumption of Services



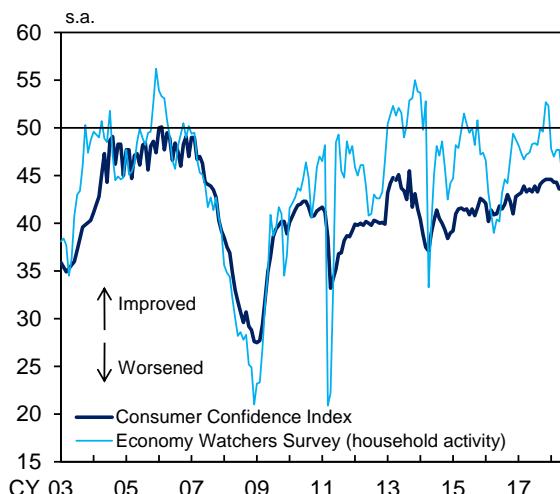
Sources: Japan Tourism Agency; Japan Foodservice Association, "Market Trend Survey of the Food Services Industry."

Note: Figures for the outlays for travel exclude those by foreign travelers.

In the outlook, private consumption is expected to follow a moderate increasing trend, supported by an increase in employee income and by the wealth effects stemming from the rise in stock prices, as well as replacement demand for durable goods, although it is likely to temporarily turn to a decline in the second half of the projection period due to the scheduled consumption tax hike. Meanwhile, the propensity to consume -- which had declined somewhat considerably after the consumption tax hike in 2014 -- is expected to pick up very moderately, mainly reflecting the wealth effects and replacement demand for durable goods, although it is likely to level off temporarily after the scheduled consumption tax hike in 2019 (Chart 34).

Housing investment has been more or less flat (Chart 35). As for the outlook, it is expected to remain more or less flat when fluctuations due to the scheduled consumption tax hike are smoothed out; an improvement in the employment and income situation and low housing loan rates are likely to underpin housing investment, but demand for housing for rent that was motivated by inheritance tax savings is projected to peak out.²⁶

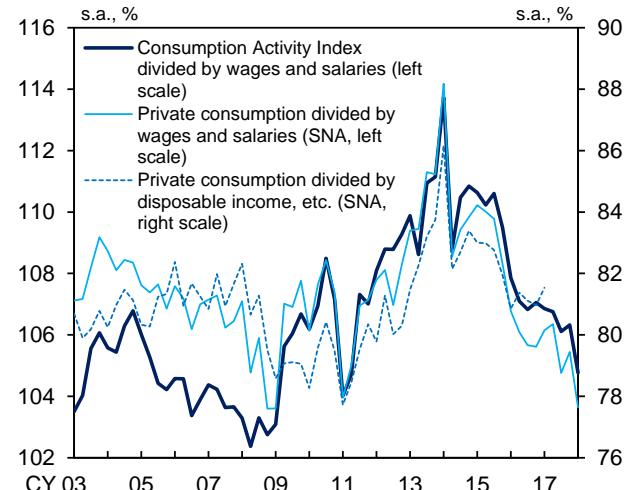
Chart 33: Confidence Indicators Related to Private Consumption



Source: Cabinet Office.

Note: Figures for the "Economy Watchers Survey" are those for the current economic conditions DI.

Chart 34: Average Propensity to Consume



Sources: Bank of Japan; Cabinet Office, etc.

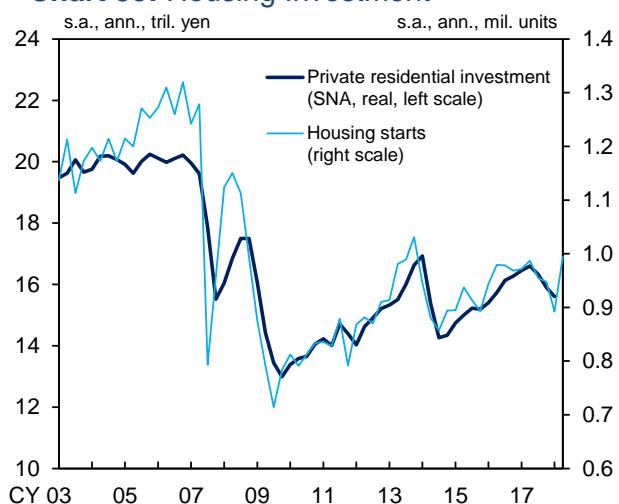
Notes: 1. The Consumption Activity Index is based on staff calculations.

2. Figures for wages and salaries from 2017/Q2 are based on staff calculations using employee income (= total cash earnings × number of employees).

3. Private consumption is consumption of households excluding imputed rent.

4. "Disposable income, etc." consists of disposable income and "adjustment for the change in pension entitlements."

Chart 35: Housing Investment



Sources: Cabinet Office; Ministry of Land, Infrastructure, Transport and Tourism.

Note: The figure for 2018/Q2 is the April-May average.

²⁶ According to the July 2018 *Regional Economic Report*, housing developers are starting to increase the number of construction starts of houses for sale and make active land purchases in anticipation of the front-loaded increase in demand prior to the scheduled consumption tax hike.

II. The Current Situation of Prices and Their Outlook

Developments in Prices

The rate of change in the producer price index (PPI, adjusted for the effects of seasonal changes in electricity rates) has been rising on a quarter-on-quarter basis, reflecting developments in international commodity prices and foreign exchange rates (Chart 36). The year-on-year rate of increase in the services producer price index (SPPI, excluding international transportation) has been at around 1 percent, with the increase in personnel expenses being passed on to prices of a wide range of items at the beginning of the fiscal year (Chart 36).²⁷

The year-on-year rate of change in the CPI (all items less fresh food and energy) has been in the range of 0.0-0.5 percent (Chart 38). It has continued to show relatively weak developments compared to the economic expansion and the labor market tightening. This is partly attributable to the decline in accommodation fees that tend to fluctuate significantly and the weakening of upward pressure of costs on prices stemming from the yen's appreciation through early spring (Chart 40).²⁸ In addition, the sluggishness in private consumption in the January-March quarter is likely to have contributed to such developments in the CPI recently. However, the developments in the CPI basically have continued to be affected by the fact that the mindset and behavior based on the assumption that wages and prices will not

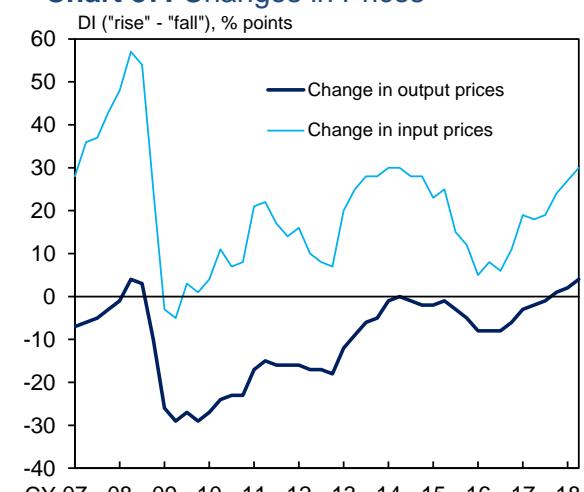
Chart 36: Inflation Indicators

	17/Q3	17/Q4	18/Q1	y/y % chg. 18/Q2
Consumer Price Index (CPI)				
Less fresh food	0.6	0.9	0.9	0.7
Less fresh food and energy	0.1	0.3	0.5	0.3
Producer Price Index (q/q % chg.)	0.2	1.1	0.6	0.7
Services Producer Price Index	0.6	0.7	0.6	1.1
GDP deflator	0.1	0.1	0.5	
Domestic demand deflator	0.5	0.6	0.9	

Sources: Ministry of Internal Affairs and Communications; Bank of Japan; Cabinet Office.

Notes: 1. Figures for the Producer Price Index are adjusted to exclude the hike in electric power charges during the summer season.
2. Figures for the Services Producer Price Index exclude international transportation.

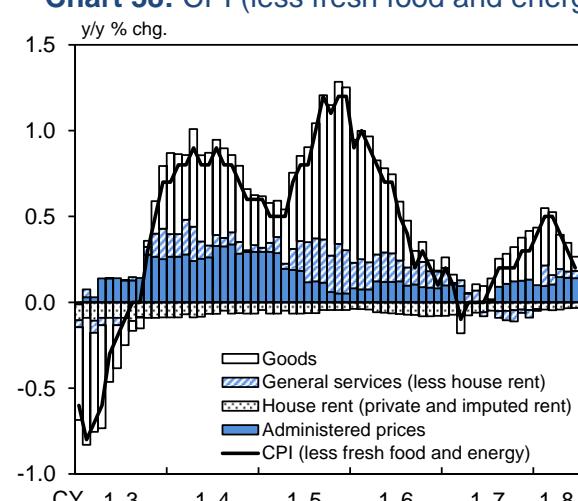
Chart 37: Changes in Prices



Source: Bank of Japan.

Note: Based on the *Tankan*. All enterprises.

Chart 38: CPI (less fresh food and energy)



Source: Ministry of Internal Affairs and Communications.

Notes: 1. Administered prices (less energy) consist of "public services" and "water charges."
2. The CPI figures are adjusted for changes in the consumption tax rate.

²⁷ Under these circumstances, the input prices DI and the output prices DI in the *Tankan* have been on a rising trend (Chart 37).

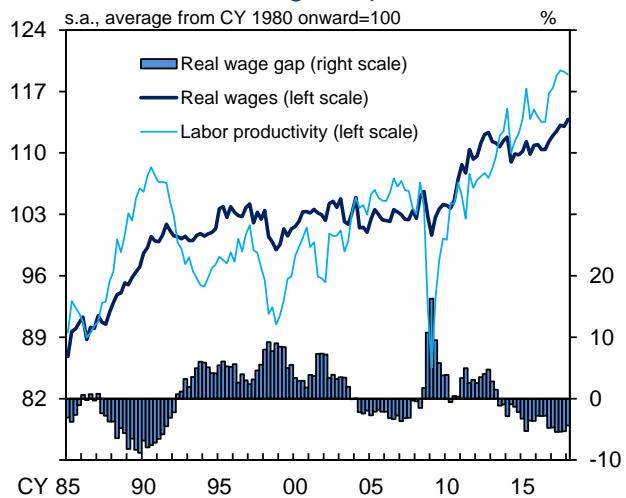
²⁸ For details of the cost-push indicator, see Box 3 in the October 2017 Outlook Report.

increase easily have been deeply entrenched among firms and households, due mainly to the experience of prolonged low growth and deflation.²⁹ Under these circumstances, firms' cautious wage- and price-setting stance as well as households' cautiousness toward price rises have not yet clearly changed. Firms have been making efforts to absorb a rise in labor costs by increasing labor-saving investment and streamlining their business process while limiting wage increases -- which correspond to labor shortage -- mainly to part-time employees.³⁰ As a result, the real wage gap, which is defined as the deviation of real wages from labor productivity, has remained at a low level, and this is contributing to pushing down prices (Chart 39).³¹

In addition, the sectoral shock of such factors as price declines at mainly supermarkets resulting from intensifying competition with other types of retail businesses as well as the continued dull responses of administered prices and housing rent have been constraining inflation.^{32,33}

The year-on-year rate of change in the CPI (all items less fresh food) is in the range of 0.5-1.0 percent, reflecting a rise in energy prices, while the rate of change in the CPI excluding fresh food and energy has been in the range of 0.0-0.5 percent (Chart 41).

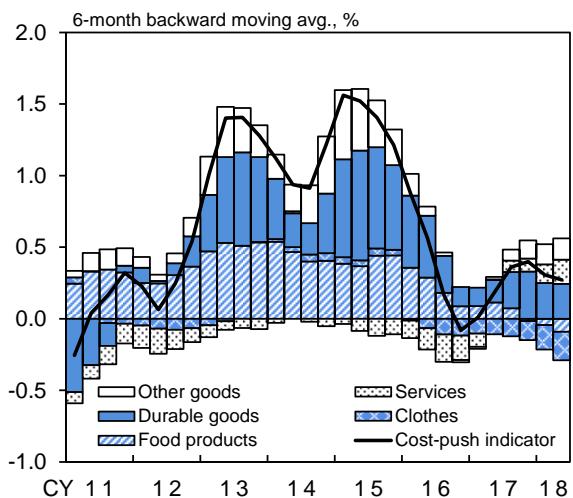
Chart 39: Real Wage Gap



Sources: Ministry of Finance; Cabinet Office.

Notes: 1. The real wage gap is defined as the deviation of real wages from labor productivity.
2. Real wages = personnel expenses / number of workers / GDP deflator
3. Labor productivity = (operating profits + personnel expenses + depreciation expenses) / number of workers / GDP deflator
4. Variables such as personnel expenses are based on the "Financial Statements Statistics of Corporations by Industry, Quarterly" and exclude "finance and insurance."

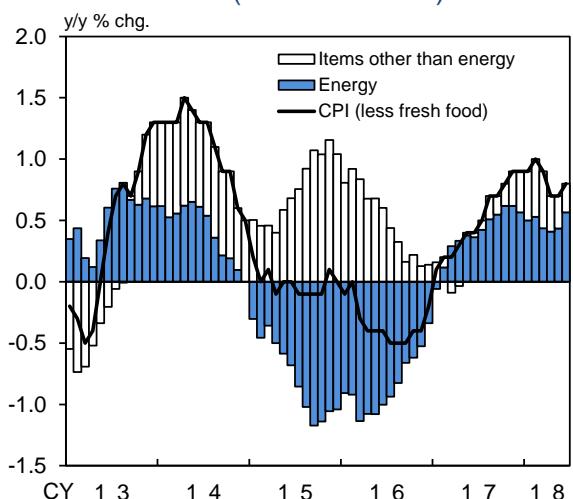
Chart 40: Cost-Push Indicator



Sources: Ministry of Internal Affairs and Communications, etc.

Notes: 1. The cost-push indicator is defined as the weighted average of the residuals obtained when regressing each CPI item on the corresponding cost indicator, such as the Producer Price Index. The weights are based on the CPI.
2. Figures for 2018/Q2 are April-May averages.

Chart 41: CPI (less fresh food)



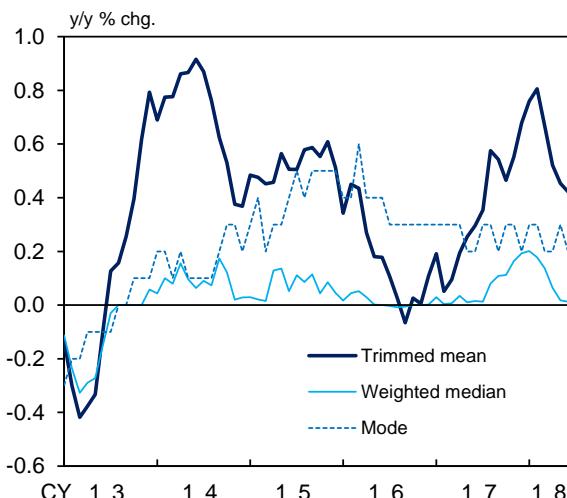
Source: Ministry of Internal Affairs and Communications.

Notes: 1. Energy consists of petroleum products, electricity, and gas, manufactured & piped.
2. The CPI figures are adjusted for changes in the consumption tax rate.

The recent developments in the indicators for capturing the underlying trend in the CPI are as follows (Chart 42). The rate of change in the trimmed mean has declined to around 0.5 percent recently.³⁴ The mode has been in the range of 0.0-0.5 percent of late, and the weighted median has declined to around 0 percent.³⁵ Looking at annual price changes across all items (less fresh food), the share of price-increasing items minus the share of price-decreasing items recently has been declining somewhat (Chart 43).

The year-on-year rate of change in the GDP deflator has been at around 0.5 percent on the whole, despite being negatively affected by the import deflator that reflects a pick-up in international commodity prices (Chart 36). The year-on-year rate of change in the domestic demand deflator has been at around 1 percent, mainly led by private consumption and business fixed investment.

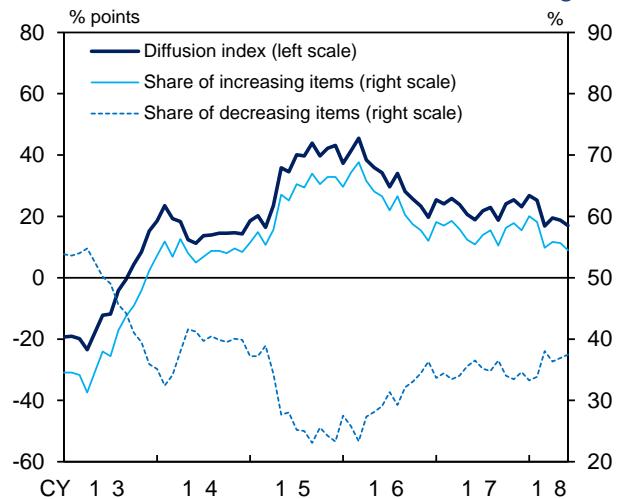
Chart 42: Various Measures of Core Inflation



Sources: Bank of Japan; Ministry of Internal Affairs and Communications.

Note: Based on staff calculations using the CPI (consumption tax adjusted).

Chart 43: Diffusion Index of Price Changes



Sources: Bank of Japan; Ministry of Internal Affairs and Communications.

Note: The diffusion index is defined as the share of increasing items minus the share of decreasing items. The share of increasing/decreasing items is the share of items in the CPI (less fresh food, consumption tax adjusted) whose price indices increased/decreased from a year earlier. Based on staff calculations.

³⁴ The effects of large relative price fluctuations are eliminated by simply excluding items that belong to a certain percentage of the upper and lower tails of the price fluctuation distribution (10 percent of each tail in this report). The rate of change in the trimmed mean has been relatively higher than that in the CPI (all items less fresh food and energy) recently, mainly because charges for mobile phone services, which had contributed to pushing down the CPI, were excluded when calculating the trimmed mean.

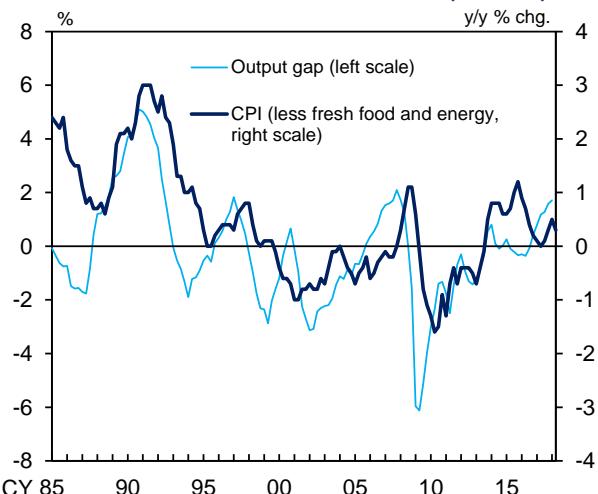
³⁵ The mode is the inflation rate with the highest density in the distribution. The weighted median is the weighted average of the inflation rates of the items at around the 50 percentile point of the distribution.

The Environment surrounding Prices

In the outlook for prices, the main factors that determine inflation rates are assessed as follows. First, the output gap has widened within positive territory; it was in the range of 1.5-2.0 percent in the January-March quarter of 2018, and as suggested by improvement in the *Tankan* factor utilization index and in various monthly indexes that indicate the utilization of labor, it likely will have continued on an expanding trend within positive territory in the April-June quarter (Charts 4 and 44).³⁶ With regard to the outlook, the output gap is projected to continue expanding moderately within positive territory in fiscal 2018, both on the capital and labor sides, reflecting the increase in demand at home and abroad. From fiscal 2019 onward, although such expansion is likely to pause, mainly due to the effects of the scheduled consumption tax hike, the output gap is expected to remain substantially positive.

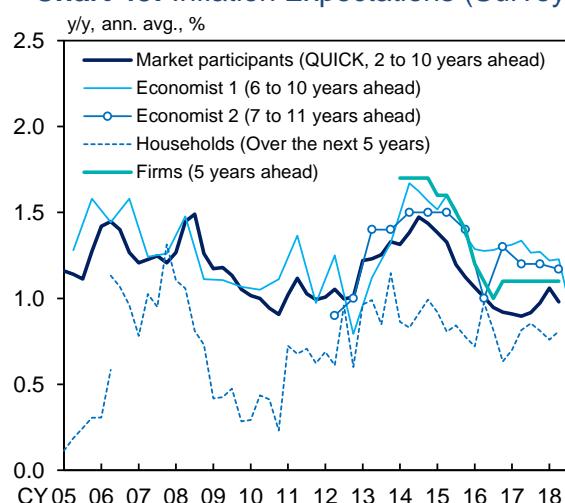
Second, medium- to long-term inflation expectations have been more or less unchanged recently (Charts 45 and 46). As for the outlook, such expectations are likely to follow an increasing trend and gradually converge to 2 percent on the back of the following: (1) in terms of the adaptive component, as further price rises come to be observed widely with the output gap remaining positive, inflation expectations are likely to increase through a rise in the observed inflation rate, and (2) in terms of the forward-looking component, the Bank will pursue monetary easing through its strong commitment

Chart 44: Inflation Rate and Output Gap



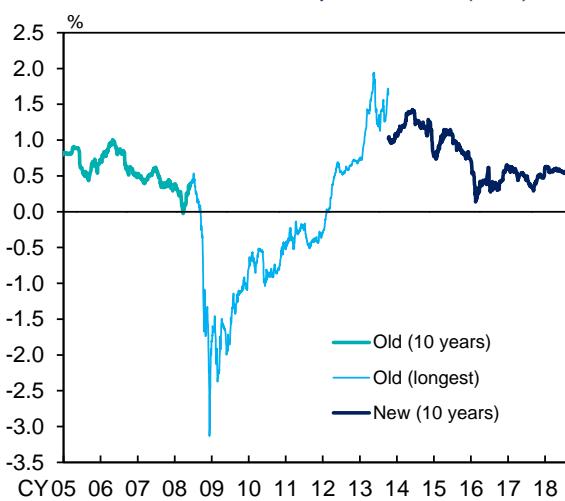
Sources: Ministry of Internal Affairs and Communications; Bank of Japan.
Notes: 1. The CPI figures are adjusted for changes in the consumption tax rate.
2. The output gap is based on staff estimations.

Chart 45: Inflation Expectations (Survey)



Sources: Bank of Japan; QUICK, "QUICK Monthly Market Survey (Bonds)"; JCIER, "ESP Forecast"; Consensus Economics Inc., "Consensus Forecasts."
Notes: 1. Figures for the economist 1 are from the "Consensus Forecasts." Figures for the economist 2 are from the "ESP Forecast."
2. Figures for households are from the "Opinion Survey on the General Public's Views and Behavior," estimated using the modified Carlson-Parkin method.
3. Figures for firms are "Outlook for General Prices (*Tankan*, all Industries and enterprises, average)."

Chart 46: Inflation Expectations (BEI)



Source: Bloomberg.
Note: BEI (break-even inflation) rates are yield spreads between fixed-rate coupon-bearing JGBs and inflation-indexed JGBs. Inflation-indexed JGBs issued since October 2013 are designated as "new," while the rest are designated as "old." Figures for "old (longest)" are calculated using yield data for issue No. 16 of inflation-indexed JGBs, which matured in June 2018.

³⁶ In the meantime, the DI in the *Tankan* for domestic supply and demand conditions for products and services for large manufacturing enterprises was at around the same high level as in the February 1991 survey.

to achieving the price stability target, which will be effective in pushing up inflation expectations toward 2 percent.

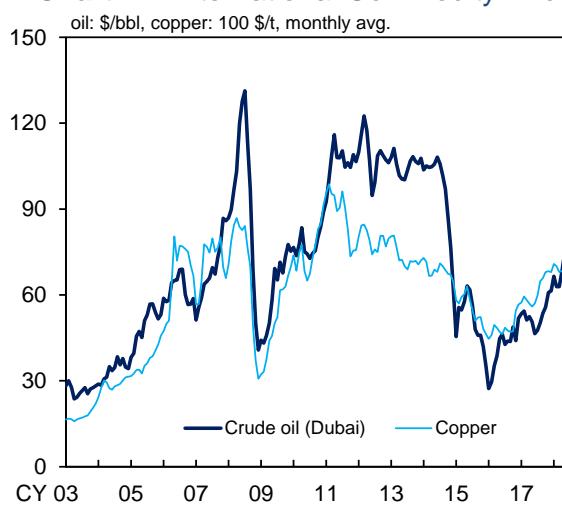
The third factor is developments in import prices (Chart 47). The recent rise in crude oil prices will push up energy prices for fiscal 2018, but this effect is likely to wane moderately.

The Outlook for Prices

With regard to the outlook for prices, the year-on-year rate of increase in the CPI (all items less fresh food and energy) is likely to accelerate on the back of the following developments in the short run: (1) the rate of increase in prices of goods that are responsive to economic activity, including food products and goods related to daily necessities, is expected to accelerate gradually with a moderate increase in private consumption, and (2) moves to pass on the increase in personnel expenses to prices of general services, including dining-out and housework-related services, are likely to prevail, although the decline in housing rent is projected to continue exerting downward pressure on prices of general services. Thereafter, as firms' stance shifts toward further raising wages and prices and households' tolerance of price rises increases with the output gap remaining positive, inflation expectations are projected to rise gradually and the year-on-year rate of change in the CPI (all items less fresh food and energy) also is likely to increase gradually toward 2 percent.

The year-on-year rate of change in the CPI (all items less fresh food) is likely to increase

Chart 47: International Commodity Prices



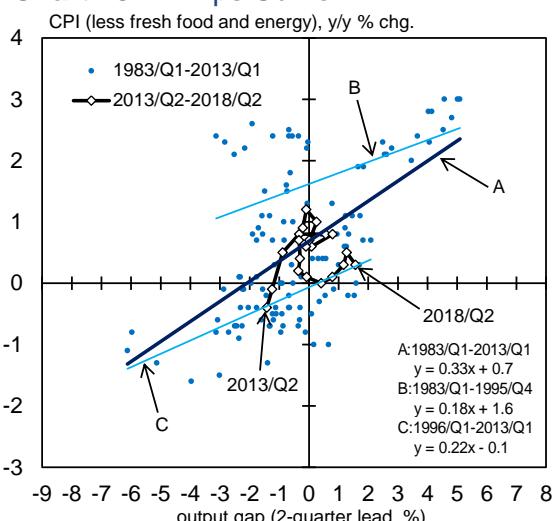
gradually toward 2 percent. This is because, although upward pressure of energy prices is likely to wane moderately, the CPI inflation excluding fresh food and energy is expected to accelerate.

Such projections are made based on the same underlying scenario as before that the inflation rate will rise along the Phillips curve with the improvement in the output gap and that the Phillips curve will gradually shift upward as inflation expectations rise through both the forward-looking and adaptive expectation formation mechanisms (Chart 48).³⁷

Comparing the current projections with the previous ones, the projected rates of increase in the CPI (all items less fresh food) are lower.

In the long run, real wages -- which are determined by the balance between prices and nominal wages -- will be consistent with labor productivity (Chart 39). Under the baseline scenario, the pace of increase in real wages is expected to accelerate gradually, catching up with the improvement in labor productivity. That is, with corporate profits at record high levels, the rate of increase in nominal wages is projected to outpace that in the CPI, reflecting tight labor market conditions. Such a rise in real wages is likely to push up consumption through an improvement in household income and increase households' tolerance of price rises, thereby contributing to a rise in the CPI.

Chart 48: Phillips Curve



Sources: Ministry of Internal Affairs and Communications; Bank of Japan.

Notes: 1. The CPI figures are adjusted for changes in the consumption tax rate.

2. The output gap is based on staff estimations.

³⁷ See Box 7 for the adaptive formation mechanism of inflation expectations.

III. Financial Developments in Japan

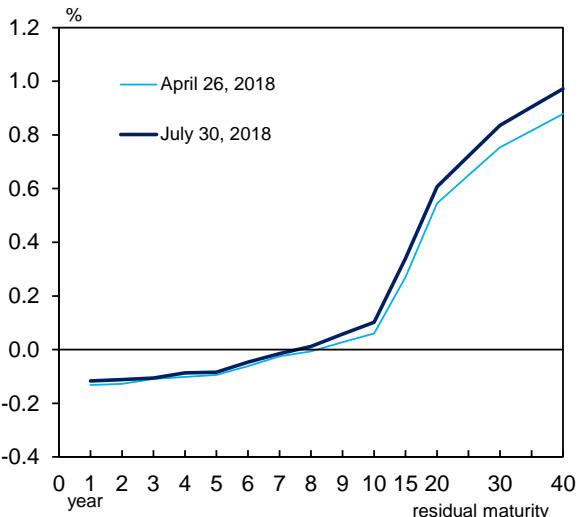
Financial Conditions

Financial conditions are highly accommodative.

Under "QQE with Yield Curve Control," the yield curve for Japanese government bonds (JGBs) has been in line with the current guideline for market operations, in which the short-term policy interest rate is set at minus 0.1 percent and the target level of 10-year JGB yields is around zero percent (Chart 49). That is, the yields for relatively short maturities have been stable in slightly negative territory; the 10-year JGB yields have generally been stable, at around 0 percent in positive territory. Meanwhile, the 20-year JGB yields also have generally been at around 0.5 percent. The transaction volume for JGBs has been on a decreasing trend recently, with the Bank pursuing powerful monetary easing.³⁸

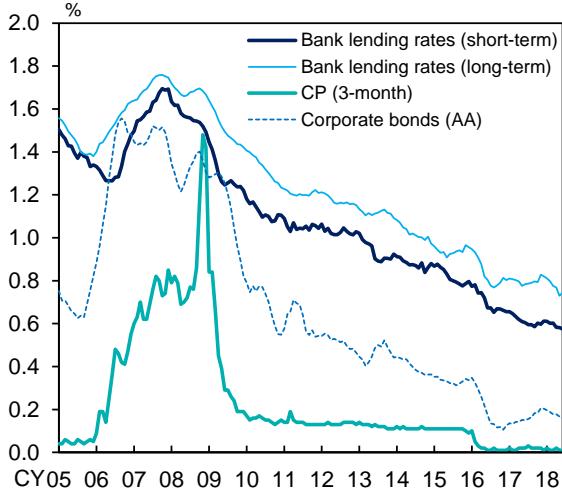
Firms' funding costs have been hovering at extremely low levels (Chart 50). Issuance rates for CP have remained at extremely low levels. Conditions for CP issuance have been favorable, as suggested by the DI in the *Tankan* having been at around the highest level since 2008, which is when it was introduced in the *Tankan*. Issuance rates for corporate bonds also have remained at extremely low levels. Meanwhile, lending rates (the average interest rates on new loans and discounts) have been at around historical low levels.

Chart 49: Yield Curves



Source: Bloomberg.

Chart 50: Bank Lending Rates and Issuance Yields for CP and Corporate Bonds



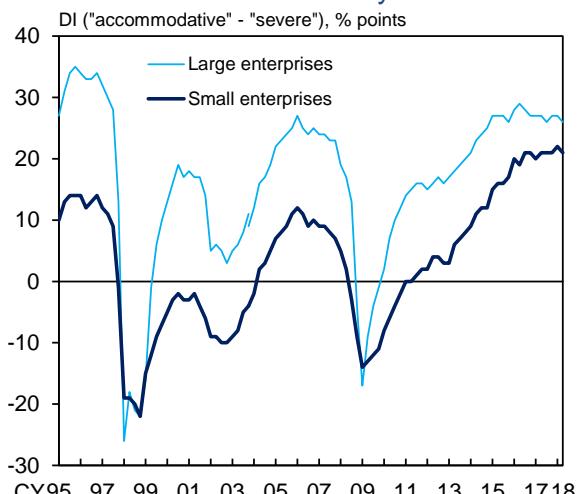
Sources: Bank of Japan; Japan Securities Depository Center; Capital Eye; I-N Information Systems; Bloomberg.

Notes: 1. Figures for issuance yields for CP up to September 2009 are the averages for CP (3-month, rated a-1 or higher). Those from October 2009 are the averages for CP (3-month, rated a-1).

2. Figures for issuance yields for corporate bonds are the averages for domestically issued bonds launched on a particular date. Bonds issued by banks and securities companies, etc., are excluded.

3. Figures for bank lending rates and issuance yields for corporate bonds show 6-month backward moving averages.

Chart 51: Lending Attitude of Financial Institutions as Perceived by Firms



Source: Bank of Japan.

Note: Based on the *Tankan*. All industries. There is a discontinuity in the data in December 2003 due to a change in the survey framework.

³⁸ With regard to liquidity in the JGB markets and the degree of bond market functioning from the market participants' viewpoints, see the Bank's releases *Liquidity Indicators in the JGB Markets* (June 2018) and *Bond Market Survey* (May 2018 survey).

With regard to the availability of funds for firms, the DI in the *Tankan* for financial institutions' lending attitudes as perceived by firms suggests that their lending attitudes have been highly accommodative; the DI for large firms has been at a high level of around the peak in the mid-2000s, and that for small firms has been at a high level last seen at the end of the 1980s (Chart 51). Firms' financial positions have been favorable, as suggested by the DIs for both large and small firms in the *Tankan* having been at high levels that are almost the same as those seen around 1990 (Chart 52).

Demand for funds such as for business fixed investment has been increasing, mainly for small and medium-sized firms. In these circumstances, the year-on-year rate of increase in the amount outstanding of bank lending has been at around 2 percent (Chart 53). That in the aggregate amount outstanding of CP and corporate bonds has been at a relatively high level.

The monetary base has been increasing at a year-on-year growth rate of around 7 percent, and its amount outstanding as of end-June was 503 trillion yen, of which the ratio to nominal GDP was 92 percent.³⁹ The year-on-year rate of change in the money stock (M2) has been in the range of 3.0-3.5 percent, as bank lending has increased (Chart 54).

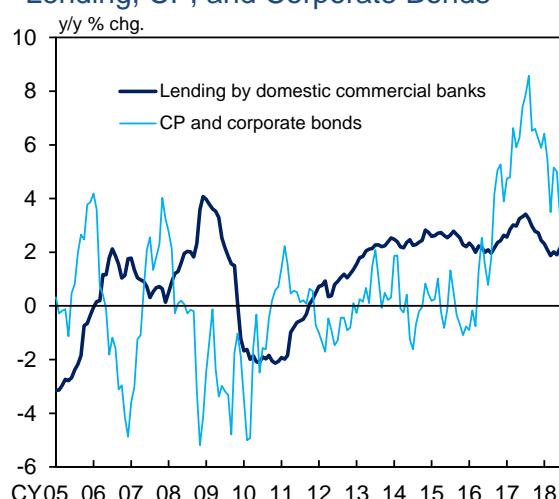
Chart 52: Financial Position



Source: Bank of Japan.

Note: Based on the *Tankan*. All industries. There is a discontinuity in the data in December 2003 due to a change in the survey framework.

Chart 53: Amount Outstanding of Bank Lending, CP, and Corporate Bonds



Sources: Bank of Japan; Japan Securities Depository Center;

Japan Securities Dealers Association; I-N Information Systems.

Note: Figures for lending by domestic commercial banks are monthly averages.

Figures for CP and corporate bonds are those at the end of period.

Chart 54: Money Stock



Source: Bank of Japan.

³⁹ It is assumed that the figure for nominal GDP is unchanged from the January-March quarter of 2018.

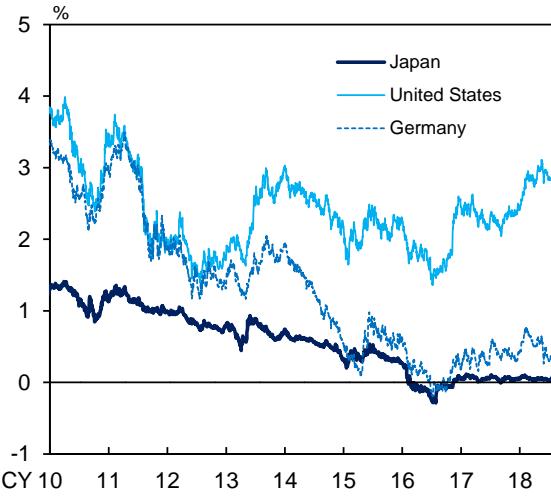
Developments in Financial Markets

With regard to developments in global financial markets, through end-May, long-term interest rates declined and stock prices in many countries fell, as investors' risk aversion heightened, mainly reflecting uncertainties over the U.S. trade policy and political developments in southern Europe. Thereafter, the markets temporarily regained calmness, partly backed by solid economic indicators in the United States, but have been somewhat unstable since mid-June, mainly in the stock market, as market participants factored in the spread of protectionist moves again.

Yields on 10-year government bonds in the United States through mid-May rose to the range of 3.1-3.2 percent -- a level last seen in 2011 -- partly due to a rise in inflation expectations that reflected an increase in crude oil prices. The yields declined somewhat thereafter, mainly reflecting uncertainties over the U.S. trade policy, but recently have recovered somewhat, partly backed by solid economic indicators (Chart 55). Yields on 10-year government bonds in Germany have been declining, albeit with fluctuations, mainly against the background of concerns regarding political developments in southern Europe and of relatively weak economic indicators in Europe.

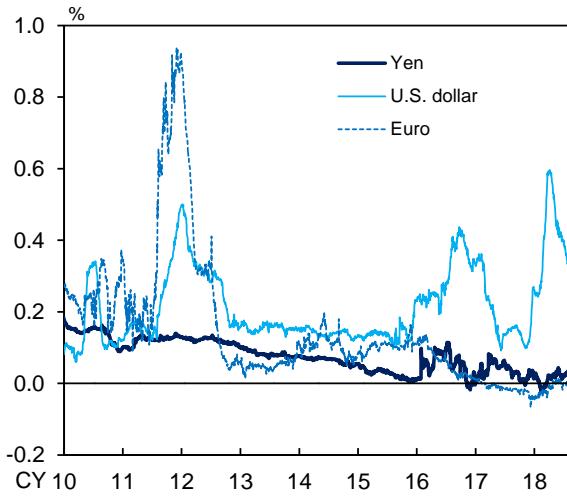
With regard to credit spreads on interbank transactions, the LIBOR-OIS spreads for major currencies show the following developments: those for the U.S. dollar have narrowed, mainly reflecting the halt to the increased issuance of U.S. Treasury bills; those for the euro and the yen have remained at low levels (Chart 56). Premiums

Chart 55: 10-Year Government Bond Yields in Selected Advanced Economies



Source: Bloomberg.

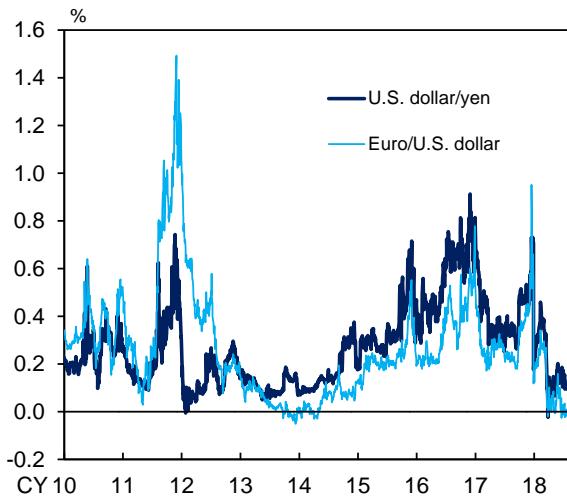
Chart 56: Credit Spreads for Term Instruments



Source: Bloomberg.

Note: The credit spreads for term instruments are LIBOR (3-month) minus yields on overnight index swaps (3-month).

Chart 57: Dollar Funding Premiums through Foreign Exchange Swaps



Source: Bloomberg.

Note: U.S. dollar funding rate from yen or euro minus 3-month dollar LIBOR.

for U.S. dollar funding through the dollar/yen foreign exchange swap market have been more or less flat (Chart 57).

Stock prices in the United States declined through end-May, due mainly to concerns regarding its trade policy, and then turned to an increase, partly backed by solid economic indicators. However, they have been somewhat unstable thereafter, falling temporarily as market participants factored in the spread of protectionist moves again. In this situation, U.S. stock prices more recently have risen somewhat, partly backed by solid economic indicators (Chart 58). Stock prices in Europe temporarily declined somewhat, mainly against the background of uncertainties over political developments in southern Europe and of relatively weak economic indicators in Europe, but have recovered recently. Japanese stock prices recently have been at around the same levels seen at end-April, despite fluctuations stemming from developments in U.S. stock prices.

In the Japan real estate investment trust (J-REIT) market, prices have risen in reflection of capital inflows from overseas (Chart 59).

In foreign exchange markets, the yen has generally been at around 110 yen against the U.S. dollar, although it temporarily depreciated somewhat due to a widening of the yield differential between Japan and the United States (Chart 60). The yen has appreciated against the euro, mainly against the background of relatively weak economic indicators in Europe.

Chart 58: Selected Stock Prices

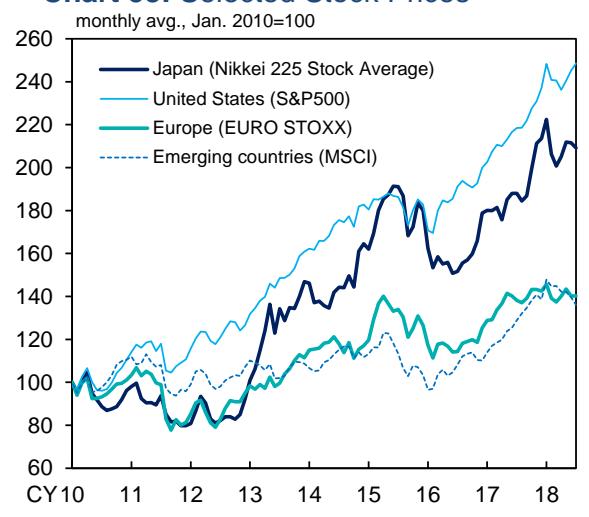


Chart 59: Selected REIT Indexes

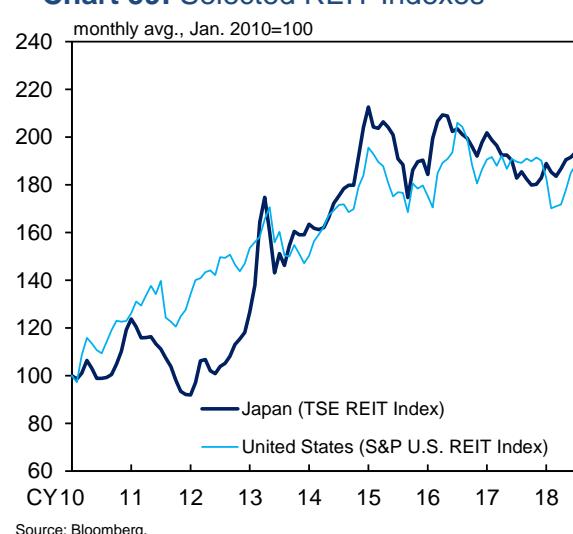
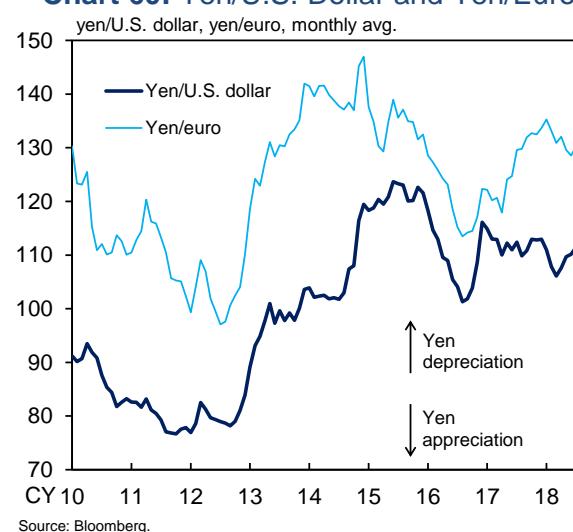


Chart 60: Yen/U.S. Dollar and Yen/Euro

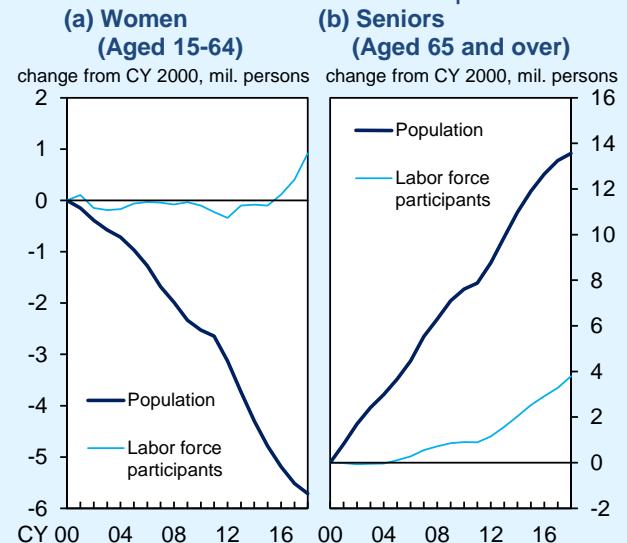


(Box 1) The Recent Increase in Labor Supply and Wage Developments

Relative to the heightening degree of serious labor shortage, nominal wages have been sluggish. Basically, the reason for this is that, under Japan's labor market structure, which is characterized by different wage-setting mechanisms for regular and non-regular employees, the increase in wages of regular employees has been remarkably sluggish.⁴⁰ Regular employees tend to place priority on the long-term stability of employment over wage increases, while firms are maintaining their cautious wage-setting stance in reflection of an insufficient rise in medium- to long-term growth expectations. As an additional factor, this box examines the effects of the labor supply of women and seniors.

With labor shortage intensifying recently, the pace of increase in the labor force participation rate, especially among women and seniors, is accelerating. A closer look shows that, even though the population of women (aged 15-64) is decreasing, the number of those in the labor force is increasing, partly due to government initiatives to improve the work environment for women (Chart B1-1[a]).⁴¹ In addition, while the number of

Chart B1-1: Labor Force Participants



Source: Ministry of Internal Affairs and Communications.

Note: Figures for 2018 are January-May averages on a seasonally adjusted basis.

Chart B1-2: Wage Elasticity of Labor Supply (Part-Time Employees)

Estimation Results

	Women aged 15-64	Men aged 15-64	Seniors aged 65 and over
Wage	0.40 *** <0.11>	0.27 *** <0.07>	0.56 *** <0.12>
Adj.R ²	0.96	0.94	0.97
Number of observations	6,580	6,580	1,316

Estimation period: CY 2004-2017.

The estimation is based on the prefecture-level panel data. The figures in brackets in the table are standard errors.

*** denotes statistical significance at the 1% level.

Sources: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications.

Notes: 1. The dependent variable is the log of the number of part-time employees.

2. "Wage" is the log of the hourly wage of part-time employees.

3. In the estimation, the CPI (all items less fresh food), the unemployment rate, the ratio of the population aged 65 and over (only the estimation for "Seniors"), and dummy variables (for the prefecture, the year, and, in the estimations for "Men" and "Women," individuals' age) are included as control variables.

⁴⁰ For features of Japan's labor market and the sluggishness in wages of regular employees due to those features, see Box 2 in the July 2017 Outlook Report.

⁴¹ For firms' efforts to promote the empowerment of women and seniors, see the annex paper to the *Regional Economic Report*, "Kaku chiiki ni okeru jyosei no katsuyaku suishin ni muketa kigyo to no torikumi" [Firms' initiatives toward promoting women's empowerment in each region] released in June 2017 (available only in Japanese). Meanwhile, for an analysis of the reasons, including government initiatives, for the increase in women in employment, especially since 2012, see "The Recent Increase in Dual-Income Households and Its Impact on Consumption Expenditure," Bank of Japan Review Series (2017-E-7).

seniors (aged 65 and over) has increased with the aging of the population, the number of those in the labor force has increased at a faster pace recently (Chart B1-1[b]).

Examining the wage elasticity of the labor supply of female and senior part-time workers (i.e., the rate of increase in labor supply when wages increase by 1 percent) shows that the wage elasticity of women (aged 15-64) and seniors (aged 65 and over), among whom labor force participation is substantial in recent years, is higher than that of men (aged 15-64) (Chart B1-2).⁴² In other words, among these groups, there will be greater labor supply for the same rate of increase in wages (Chart B1-3). As a result, as labor demand increases (represented by a shift of the labor demand curve to the right in the chart), women and seniors will supply more labor, which in turn suppresses wage increases. If the labor supply of women and seniors were not elastic, wage increases likely would have been larger.

In fact, in the prefecture-level data, there is a clear negative relationship between the proportion of female and senior workers in the population and total cash earnings (Charts B1-4 and B1-5). In order to quantitatively examine this relationship, the change in total cash earnings was regressed on changes such as in the ratio of employed

Chart B1-3: Wage Elasticity of Labor Supply

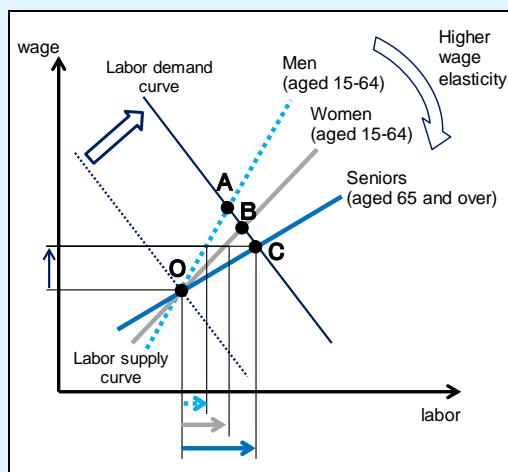
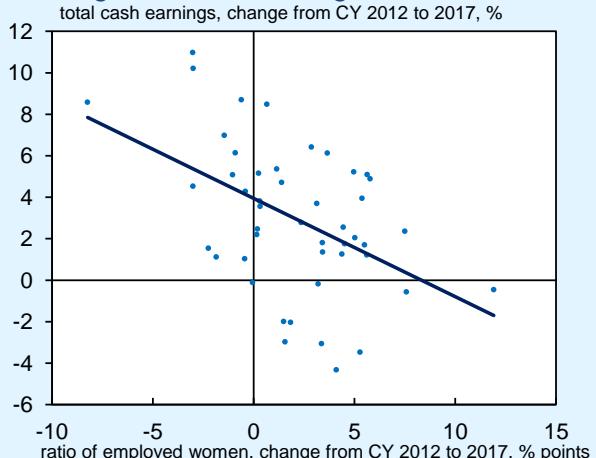


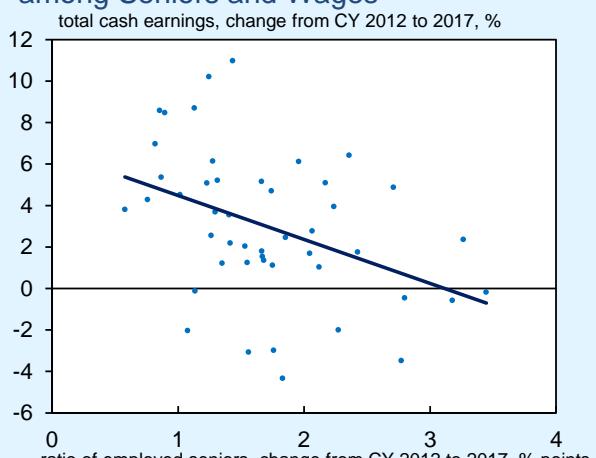
Chart B1-4: Labor Force Participation among Women and Wages



Sources: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications.
Notes: 1. Based on staff calculations for each prefecture.

2. The "ratio of employed women" is the share of employed persons among women aged 15-64.

Chart B1-5: Labor Force Participation among Seniors and Wages



Sources: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications.
Notes: 1. Based on staff calculations for each prefecture.

2. The "ratio of employed seniors" is the share of employed persons among seniors aged 65 and over.

⁴² Causality between wages and labor force participation runs in both directions. On the one hand, labor supply increases in response to a rise in wages; on the other hand, an increase in labor supply lowers wages by relieving the shortage of labor. While the regression analysis in this box attempts to control for such reverse causality by adding various variables, generally speaking, it is not easy to control for such reverse causality completely. For this reason, the estimation results should be interpreted with some latitude.

women and the ratio of employed seniors (Chart B1-6). The estimation results indicate that the increase in the ratio of employed women and of employed seniors pushes down the growth rate of total cash earnings in a statistically significant manner. The likely reason, as we have indicated, is the high wage elasticity of the labor supply of women and seniors.⁴³

Chart B1-6: Impact of Labor Force Participation on Wages Estimation Results

	Total cash earnings, y/y % chg.		
Unemployment rate, %	-0.76 *** <0.14>	-1.01 *** <0.14>	-0.79 *** <0.14>
CPI (less fresh food) y/y % chg.	0.49 *** <0.16>	0.60 *** <0.17>	0.49 *** <0.16>
Ratio of employed women y/y % points	-0.17 *** <0.06>		
Ratio of employed seniors y/y % points		-2.61 *** <0.39>	
Ratio of employed women and seniors y/y % points			-0.36 *** <0.11>
Adj. R ²	0.11	0.22	0.13
Number of observations	423	423	423

Estimation period: CY 2009-2017. Estimation method: Fixed effect model using the prefecture-level panel data. The figures in brackets in the table are standard errors. *** denotes statistical significance at the 1% level.

Sources: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications.

Note: The ratios of employed persons are the share of employed persons in the corresponding population.

⁴³ An additional reason is likely to be the composition effect: since the wage level of these groups is lower than that of men, an increase in the share of women and seniors in the labor force overall will push down the average wage.

(Box 2) Households' Tolerance of Price Rises

In order for inflation to rise moderately in a stable manner, it is essential to create an environment in which people accept price rises to some extent. When households' tolerance of price rises -- hereafter households' tolerance -- is low, a rise in inflation could make consumers' attitudes toward spending defensive, and as a result hinder the positive feedback between improvements in economic conditions and inflation.

On this point, we take "comments on the rise in prices" from the *Opinion Survey on the General Public's Views and Behavior* as a measure for households' tolerance. Chart B2-1 shows that, following the introduction of QQE in 2013, the level of households' tolerance shifted upward in a favorable direction compared to past levels. However, it has not maintained its high level in a stable manner so far, as it declined temporarily in the second half of 2014 to 2015 and more recently declined slightly once again in late 2017.

We investigate the background of these developments by working with individual respondents' data obtained in the above survey and decompose changes in households' tolerance into factors such as households' perceived inflation and its outlook, as well as views on employment, per household income (wages), economic conditions, and their outlook. The results are shown in Chart B2-1, which indicates that sharp rises in households' perceived inflation and its outlook put downward pressure on their tolerance. Conversely,

Chart B2-1: Households' Tolerance of Price Rises

1. Estimation Model Specification

(Ordered Probit Model)

Dependent variable:

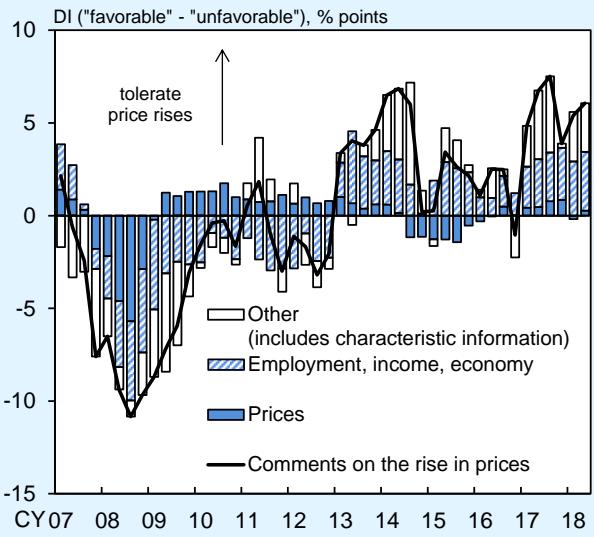
Opinion Survey on the General Public's Views and Behavior
"Comments on the rise in prices"

Explanatory variable:

- | | |
|---|--|
| (1) Perception of the present price levels | Prices |
| (2) Outlook for price levels one year from now | |
| (3) Outlook for price levels over the next five years | |
| (4) Employment and working conditions | Employ-
ment,
income,
economy |
| (5) Present income | |
| (6) Income one year from now | |
| (7) Present economic conditions | |
| (8) Economic conditions one year from now | |

Note: Gender, level of income, and age are also controlled for.

2. Estimation Results



Source: Bank of Japan.

Notes: 1. Comments on the rise in prices are chosen among three alternatives: "rather favorable," "difficult to say," and "rather unfavorable."

2. Estimation is done using effective samples in which all the relevant questions for the estimation were answered.

3. Figures show deviations from the displayed period average.

improvements in households' views on employment, wages, economic conditions, and their outlook drive households' tolerance in a favorable direction. Therefore, in order for households to be more tolerant of price rises, it is necessary to avoid sharp rises in inflation and promote improvements in the employment and income situation, such as wages, as well as growth expectations of the economy.

These tendencies also can be confirmed using the newly generated long historical data.⁴⁴ On inspection, the effects of inflation on households' tolerance seem to change during different phases. In this regard, we estimate a regime-switching model where households' tolerance shifts between an "easy to rise" regime and an "easy to decline" regime depending on the level of real wage growth, which is defined as the difference between wage growth and CPI inflation. The estimation results in Chart B2-2 show that when real wage growth is low, the probability of being in the easy to decline regime is high. In other words, when nominal wage growth is lower than CPI inflation, households tend to not accept price rises.

These findings suggest that households' tolerance depends not only on price developments, but largely on the perceived state of current employment and income situations, such as wages, as well as their outlook. Going

Chart B2-2: Households' Tolerance of Price Rises as well as Wages and Inflation

1. Estimation Model and Results

(Regime Switching Model)

$$\text{Comments on the rise in prices} = \text{constant} + \text{coefficient} \times \text{CPI inflation} \\ + \text{coefficient} \times \text{wage growth} \\ + \text{coefficient} \times \text{QOE dummy variable}$$

(a) Comments on the rise in prices are taken from the *Opinion Survey on the General Public's Views and Behavior* for 2004/Q4 onward. Periods prior to this are extrapolated using its relations with the overall livelihood DI series in the *Consumer Confidence Survey*, which shows a close resemblance (correlation between the two series is 0.76).

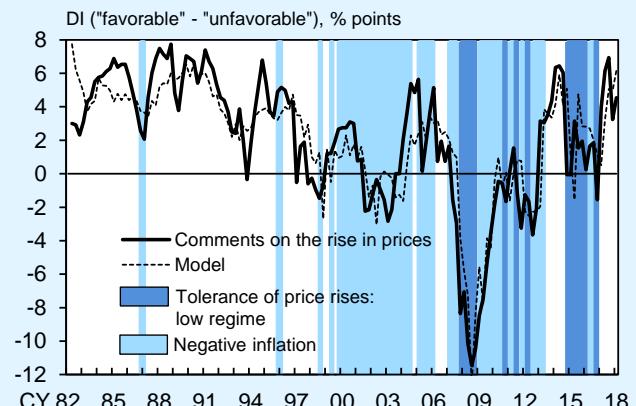
(b) Regimes switch between two states, according to the level of real wage growth.

	Tolerance of price rises: high regime	Tolerance of price rises: low regime
constant	2.09 *** (0.30)	-1.47 *** (0.41)
CPI inflation (y/y % chg. >0)	0.04 (0.18)	-4.87 *** (0.74)
CPI inflation (y/y % chg. <0)		0.04 (0.43)
Wage growth (y/y % chg.)		0.92 *** (0.11)
QOE dummy (2013/Q2 onward =1)		2.43 *** (0.44)

Estimation period: 1982/Q2 to 2018/Q1. () indicates standard errors.

*** denotes statistical significance at the 1 percent level.

2. Estimation Results



Sources: Bank of Japan; Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications; Cabinet Office.

Notes: 1. Dark shaded areas indicate periods where the probability of the low tolerance regime exceeds 50 percent and the annual CPI inflation rate is positive. Light shaded areas indicate periods where the annual CPI inflation rate is negative. Comments on the rise in prices are normalized to be zero at the average from 2004/Q4.

2. Definition of wage growth is total cash earnings and that of CPI inflation is CPI all items (adjusted for changes in the consumption tax rate). Real wage growth is defined as the difference between wage growth and CPI inflation. We take the 8-quarter backward moving average of quarter-on-quarter real wage growth as a determinant of regime probabilities.

⁴⁴ The question "comments on the rise in prices" has been included in the *Opinion Survey on the General Public's Views and Behavior* since the June 2004 survey. In the above analysis, we extend this series by using its relation to the overall livelihood DI series in the *Consumer Confidence Survey* (Cabinet Office), which tends to show a close resemblance.

forward, as factors suppressing wage growth dissipate and the growth potential of the economy as a whole strengthens with labor market conditions continuing to tighten, households' tolerance of price rises is expected to gradually increase.

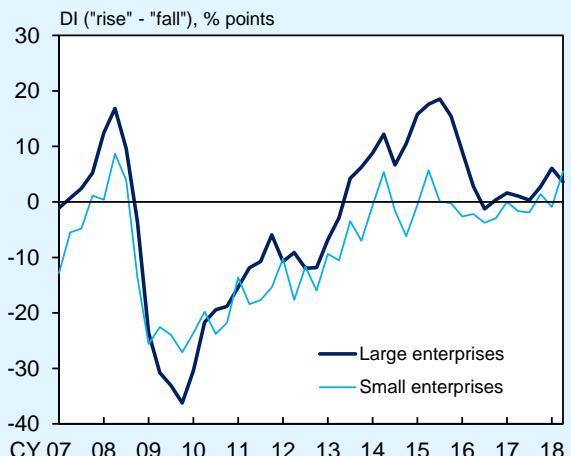
(Box 3) Firms' Cautious Price-Setting Stance

Even though input prices have been rising and labor costs have been increasing moderately but steadily, the rate of increase in the CPI has remained relatively moderate. This is likely because, in a situation where households' tolerance toward price rises has not been increasing easily (Box 2), firms are maintaining their cautious stance toward raising prices for fear of losing customers, mainly in sectors related to consumption.

In fact, the composite output prices DI consisting of "retailing," "services for individuals," and "accommodations, eating and drinking services," which are closely linked to household consumption, has been more or less flat over the past few years (Chart B3-1). Partly against this background, looking at a histogram depicting year-on-year rates of change in the prices of individual items making up the CPI shows that the mode continues to be at 0 percent (Chart B3-2). This differs from the United States and Germany, suggesting that the price-setting stance of Japanese firms remains cautious (Chart B3-3).

Why is firms' price-setting stance so cautious? Looking at the results of a survey of firms conducted in 2013, the reasons why firms do not pass on cost increases to sales prices include that they put priority on their long-term relationships with business partners and consumers, that competitors are not raising prices, and their fear that doing so would lead to a reduction in sales volume (Chart B3-4). Similar

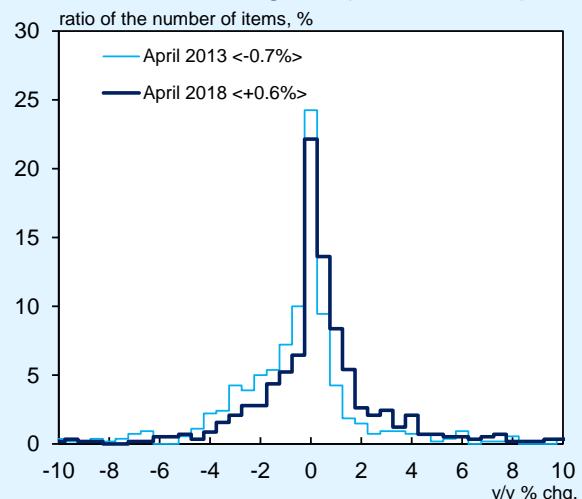
Chart B3-1: Output Prices in Consumption-Related Sectors



Source: Bank of Japan.

Note: Based on the *Tankan*. Calculated as the weighted average of the DI for changes in output prices in "retailing," "services for individuals," and "accommodations, eating & drinking services." The number of reporting enterprises is used as weights.

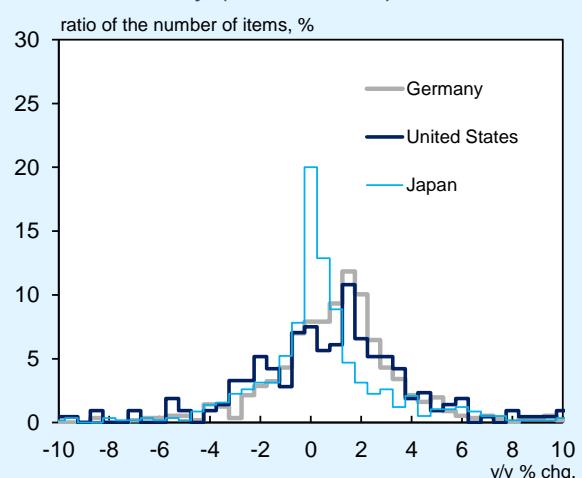
Chart B3-2: Histogram (CPI all items)



Source: Ministry of Internal Affairs and Communications.

Note: Figures in angular brackets show year-on-year rates of change in the CPI (all items).

Chart B3-3: Comparison of Japan, the U.S., and Germany (March 2018)



Sources: Ministry of Internal Affairs and Communications; BLS; Destatis.

views were voiced in interviews with firms recently conducted by the Bank's Head Office, branches, and local offices, indicating that many firms continue to be cautious about raising their prices (Chart B3-5).

However, amid this situation, firms' stance seems to be shifting gradually toward further raising prices. In fact, the aforementioned output prices DI has been rising recently (Chart B3-1). Moreover, compared to 2013, the histogram of the rate of change in the prices of individual items has shifted to the right (Chart B3-2). Interviews with firms also indicate that there are a number of cases where firms successfully raised prices (Chart B3-5).

Chart B3-4: Reasons for Not Passing On Cost Increases to Sales Prices



Source: Cabinet Office (2013), "Annual Report on the Japanese Economy and Public Finance 2013."

Note: Based on a survey of 3,030 listed and 2,970 non-listed firms conducted by the Cabinet Office (2013).

**Chart B3-5: Interview Responses by Firms
(The Bank's *Regional Economic Report*)**

- Since competitors have recently intensified their price-cutting strategies, we may also cut sales prices further in the future (a supermarket in Sendai).
- Since drugstores are expanding their lineup of food items, competition in the retail sector is intensifying. As a result, our sales are not good and it is difficult to raise sales prices (a supermarket in Nagoya).
- Consumers have a deep-rooted cost-saving mentality and we are losing customers to low-price retail businesses such as drugstores and online retailers (a supermarket in Kyoto).
- We are feeling the threat of other types of retail businesses that have intensified their price-cutting strategies at the expense of profits, and thus we have cut the sales prices of several hundred items, especially private-brand products (a supermarket in Hiroshima).
- With the number of dual-income households increasing, the demand for ready-made meals is growing as households need to save time on domestic chores. Against this background, we have raised our sales prices by about 10 percent and revised our selection of products, mainly of box meals and delicatessens. Our sales have remained good even after the price increases (a supermarket in Nagasaki).
- Given the rising cost of food ingredients such as beef and the increase in personnel expenses both for full-time and part-time workers, we have raised sales prices this year. Due to the firm demand for dining-out services, however, the number of customers has not changed very much, and our sales have increased (an eating/drinking establishment in Osaka).
- Since the occupancy rate of our hotel has remained high due to an increase in the number of foreign guests, we have gradually raised the rates we charge (a hotel in Okayama).

Source: Bank of Japan.

Notes: 1. Extracted from the July 2018 *Regional Economic Report*.

2. The parentheses show the industry of the interviewee and the Bank branch.

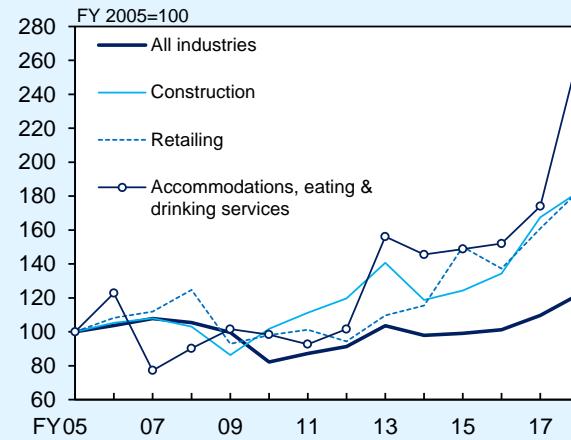
(Box 4) Recent Efforts by Firms to Raise Productivity

With labor shortages becoming more acute, labor-intensive sectors such as "retailing" and "accommodations, eating and drinking services" in particular face upward pressure on personnel expenses. Nevertheless, firms have maintained their cautious stance toward raising prices and increases in sales prices have been moderate (Box 3).

However, if firms simply do not raise prices, this will squeeze their profits and, in some cases, may lead them to make losses. Therefore, firms have been making efforts to absorb upward pressure of costs on prices by raising productivity through labor-saving and efficiency-improving investment, making use of the progress in digital technology in recent years and streamlining existing business processes.⁴⁵ In fact, in sectors such as "construction," "retailing," and "accommodations, eating and drinking services," where labor shortage is especially acute, software investment has increased greatly (Chart B4-1).

Why do firms prioritize raising productivity rather than prices? One reason is that the productivity of Japanese firms is relatively low and there is large room to raise productivity, mainly in the nonmanufacturing sector. In fact, Japan's labor

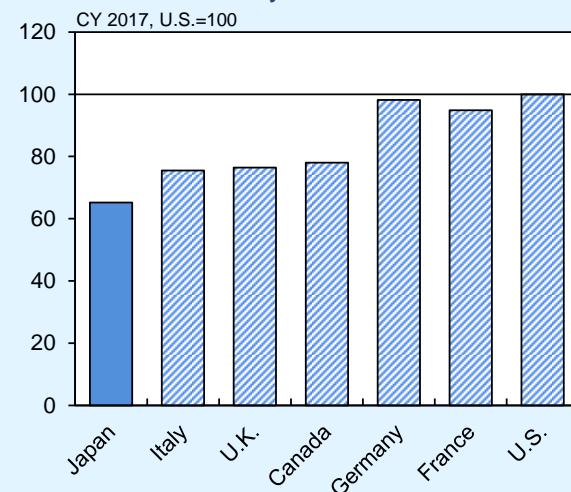
Chart B4-1: Software Investment (Tankan)



Source: Bank of Japan.

Note: Figures up through fiscal 2017 are actual results. Figures for fiscal 2018 are forecasts from the June 2018 survey.

Chart B4-2: International Comparison of Labor Productivity: Level



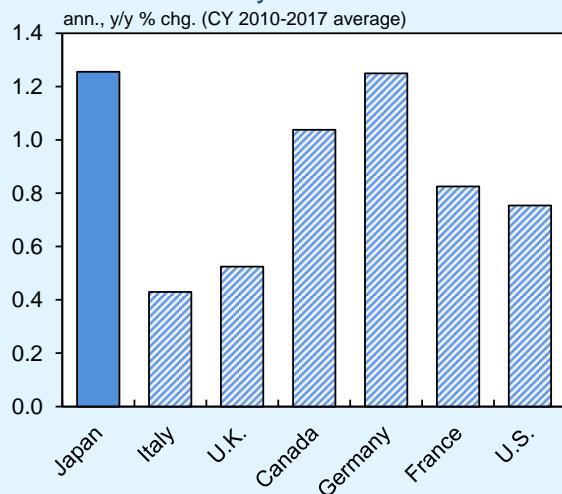
Source: Conference Board.

Note: Figures are real labor productivity per hour denominated by PPP exchange rates.

⁴⁵ Regarding the fact that firms are absorbing upward pressure on prices by raising labor productivity, see Box 3 in the July 2017 Outlook Report and the annex paper to the *Regional Economic Report*, "Hi seisōgyō o chūshin to shita rōdō seisanssei kōjyō ni muketa torikumi" [Efforts toward improving labor productivity in mainly the nonmanufacturing sector] released in December 2017 (available only in Japanese). Judging from the real wage gap, it appears that the situation described in these reports still exists.

productivity remains at only 60 to 70 percent of the U.S. level (Chart B4-2). Partly because firms accelerated their efforts to raise productivity in response to acute labor shortage -- in a situation where room for productivity improvements remained large -- productivity growth in Japan in the 2010s was the highest among the G7 economies (Chart B4-3).

Chart B4-3: International Comparison of Labor Productivity: Growth Rate



Source: Conference Board.

Note: Figures are growth rates of real labor productivity per hour.

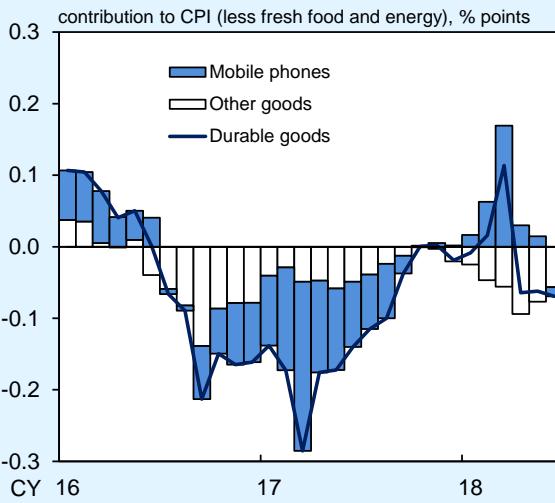
(Box 5) Intensifying Competition and Sectoral Shocks

In theory, the output gap and inflation expectations are two important factors that determine general price inflation. In practice, however, it is also affected by sectoral shocks. A typical example of a sectoral shock is the reduction in mobile phone-related prices due to the spread of MVNOs (Mobile Virtual Network Operators).⁴⁶ In addition, the price-cutting strategies of mainly supermarkets, which are facing competition with other types of retail businesses, also can be regarded as a sectoral shock.⁴⁷

Prices of and charges for mobile phones dropped substantially last year as competition among mobile phone carriers intensified, partly reflecting the spread of MVNOs. Although the year-on-year rate of change in mobile phone prices has returned to around 0 percent recently, mobile phone charges continue to push down prices (Charts B5-1 and B5-2).⁴⁸

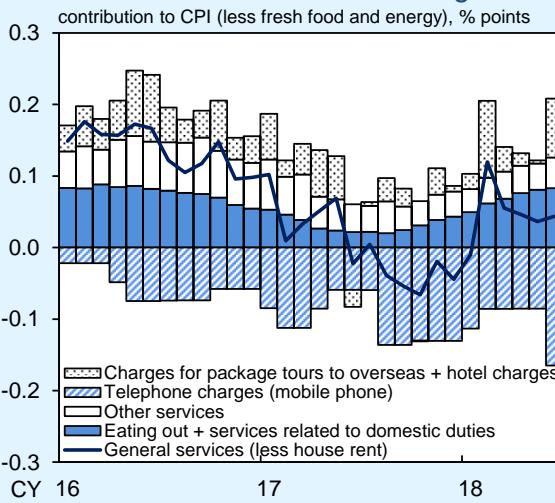
Looking at the Nikkei CPINow and the SRI-Hitotsubashi Unit Value Price Index, which are indexes aggregated mainly from supermarket

Chart B5-1: Mobile Phones



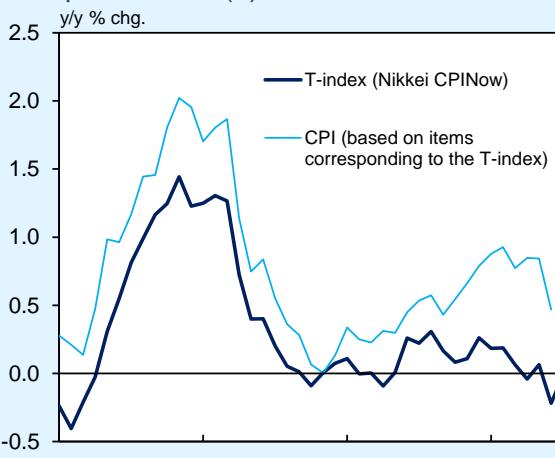
Source: Ministry of Internal Affairs and Communications.

Chart B5-2: Mobile Phone Charges



Source: Ministry of Internal Affairs and Communications.

Chart B5-3: Sales Price Changes in Supermarkets (1)



Source: NOWCAST, Inc.
Note: Figures are adjusted for changes in the consumption tax rate.

point-of-sales data, in order to examine developments in sales prices at supermarkets, the rates of increase have clearly slowed in the past year or so (Charts B5-3 and B5-4). Such relatively weak prices are likely due to the intensifying competition with online retailers and drugstores (Chart B5-5).⁴⁹

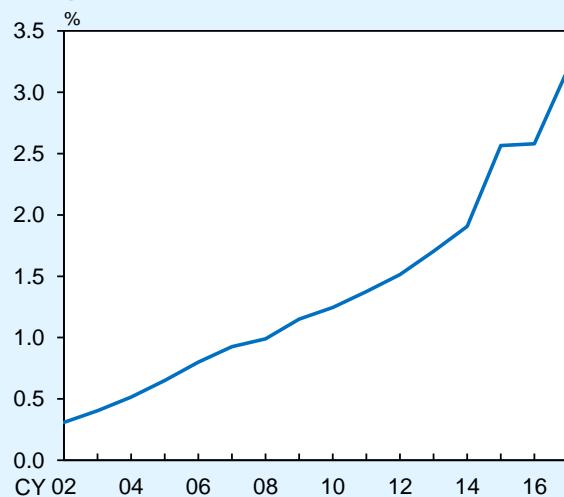
Chart B5-4: Sales Price Changes in Supermarkets (2)



Sources: Research Center for Economic and Social Risks, Hitotsubashi University; Ministry of Internal Affairs and Communications.

Note: Figures are adjusted for changes in the consumption tax rate.

Chart B5-5: Online-Shopping Ratio to Total Expenditure



Source: Ministry of Internal Affairs and Communications.

Note: Figures are calculated using the "total expenditure on goods and services ordered over the Internet" from the "Survey of Household Economy" and "consumption expenditures" from the "Family Income and Expenditure Survey."

⁴⁹ For details on how the rapid expansion of online shopping has exerted downward pressure on prices in Japan through competition with existing retailers such as supermarkets, see "The Effects of the Expansion of Online Shopping on Prices," Bank of Japan Review Series (2018-J-5) (available only in Japanese).

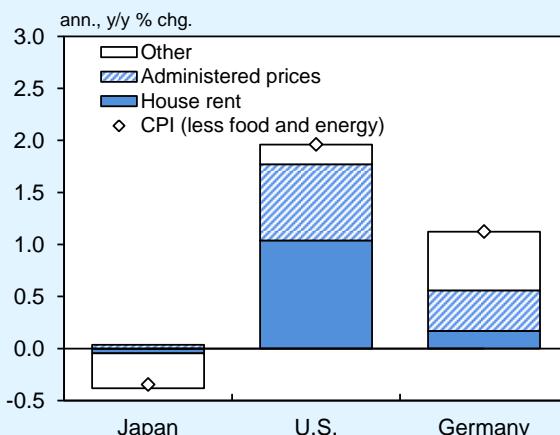
(Box 6) Developments in Administered Prices and Housing Rent

Comparing the year-on-year rates of change in the CPI excluding food and energy for fiscal 2017 in Japan, the United States, and Germany shows that a large contributing factor to the fact that Japan had the lowest inflation rate was the low rate of increase in administered prices and housing rent (Charts B6-2 and B6-3). The fact that the rates of increase in administered prices and housing rent in Japan are relatively low by international comparison also can be observed over the long term (Chart B6-1). Incidentally, when imputed rent is included, the total share of housing rent and administered prices accounts for almost 50 percent of the CPI excluding food and energy, and thus developments in these prices have a major impact on the CPI.

There are various specific factors underlying the low rates of increase in administered prices and housing rent. For instance, administered prices do not sufficiently reflect operating expenses and depreciation costs of equipment partly because government subsidies for supplementing revenues are provided to public enterprises.⁵⁰

Housing rent has been influenced by an increase in construction starts of housing for rent in recent years, partly due to tax saving. Rent figures of housing for rent are also applied to imputed rent of owned houses, of which supply has not necessarily increased in recent years. In addition, how the effects of deterioration of housing for rent

Chart B6-1: FY 2001-2016 Average <Contribution of Each Component>



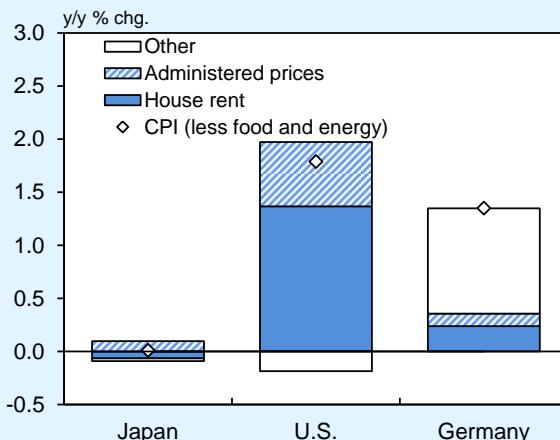
Sources: Ministry of Internal Affairs and Communications; Haver; Dexter, A., M. Levi, and B. Nault (2002), "Sticky Prices: The Impact of Regulation," Journal of Monetary Economics.

Notes: 1. Administered prices in the U.S. consist of items classified as "regulated" by Dexter et al. (2002).

2. Administered prices in Germany are those in the Harmonized Index of Consumer Prices (HICP).

3. Figures for Japan are adjusted for changes in the consumption tax rate.

Chart B6-2: FY 2017 <Contribution of Each Component>



Sources: Ministry of Internal Affairs and Communications; Haver; Dexter, A., M. Levi, and B. Nault (2002), "Sticky Prices: The Impact of Regulation," Journal of Monetary Economics.

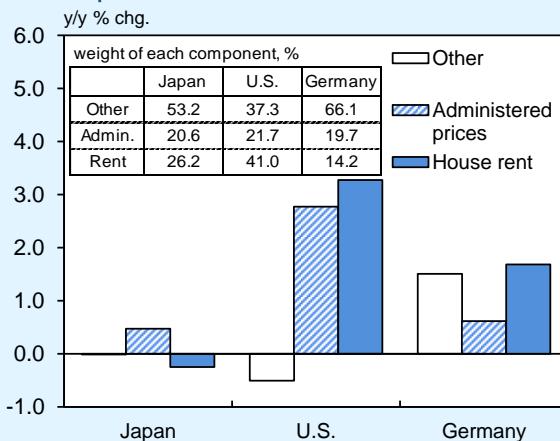
Note: The definitions of administered prices in the U.S. and Germany are the same as in Chart B6-1.

⁵⁰ Also see Box 4 in the July 2016 Outlook Report on various idiosyncratic factors behind the sluggish rise in administered prices and housing rent in Japan compared to in Europe and the United States.

due to aging should be reflected in the CPI has been pointed out as an issue.⁵¹

Another factor is that households are reluctant to accept rises in housing rent and administered prices given the low actual inflation rate and inflation expectations, since developments in general prices are often used for reference in negotiations to raise housing rent and in processes to set administered prices.⁵²

Chart B6-3: FY 2017 <% Chg. of Each Component>



Sources: Ministry of Internal Affairs and Communications; Haver; Dexter, A., M. Levi, and B. Nault (2002), "Sticky Prices: The Impact of Regulation," *Journal of Monetary Economics*.

Notes: 1. The definitions of administered prices in the U.S. and Germany are the same as in Chart B6-1.

2. The weight of each component is the share in the CPI (less food and energy).

⁵¹ The Ministry of Internal Affairs and Communications has been examining quality adjustments for housing rent in the CPI with the aim of releasing a reference index at the next rebasing of price indexes to the base year 2020. Based on the paper "Changes in Rent of Rented Housing over Time -- A Study on the Quality Adjustment for House Rent in the CPI" released by the Price Statistics Office in the Statistics Bureau of the Ministry of Internal Affairs and Communications in July 2018 (available only in Japanese), the deterioration of housing for rent due to aging pushed down the CPI (all items) by 0.1 to 0.2 percentage point per year on average from 2014 to 2017.

⁵² Box 3 in the October 2015 Outlook Report shows that, while housing rent and administered prices respond little to changes in the output gap, they are significantly influenced by past inflation rates.

(Box 7) The Mechanism of Adaptive Inflation Expectation Formation

Inflation expectations are formed through a combination of two components: a forward-looking component shaped by the price stability target set by the central bank, and a backward-looking, or adaptive, component reflecting the observed inflation rate. As shown in the Bank's Comprehensive Assessment in September 2016, the adaptive component plays a considerably larger role in Japan.

On this point, in order to gauge the quantitative impact of how the observed inflation rate affects inflation expectations in an adaptive manner, we estimate a vector auto-regression (VAR) model consisting of three variables: the observed inflation rate, short-term inflation expectations, and medium- to long-term inflation expectations. The estimation results are provided in Chart B7-1, where the response of short-term inflation expectations shows that the effects from the adaptive expectation formation process are maximized with a short time lag. Meanwhile, in terms of medium- to long-term inflation expectations, these effects are strengthened only after a considerable lag of about four to five quarters.

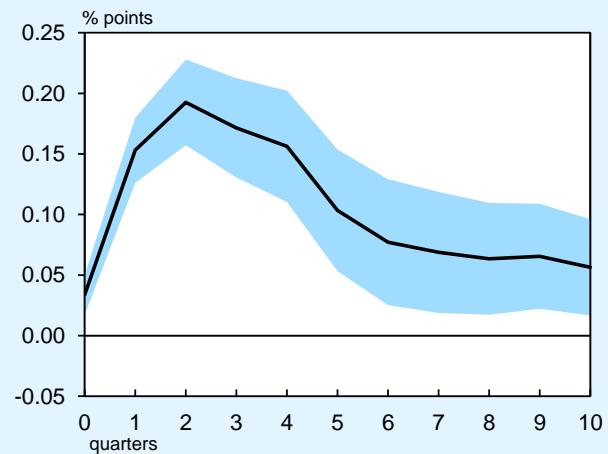
Note also that the estimated error bands of the impulse responses are rather wide, which indicates that the exact timing and quantitative impact of the adaptive expectation formation process are highly uncertain. This uncertainty goes in both directions, but when we consider the fact that the mindset and behavior based on the

Chart B7-1: Adaptive Inflation Expectation Formation

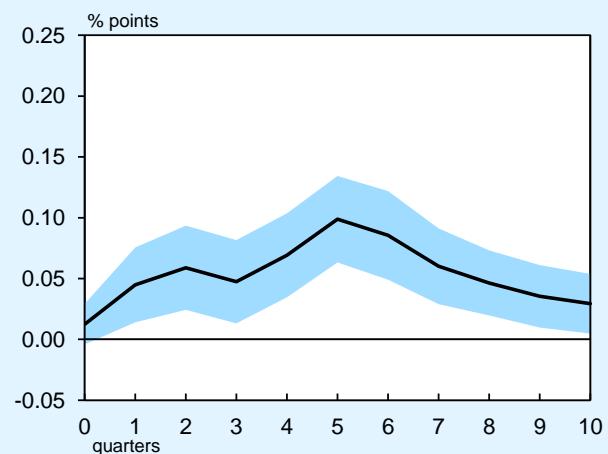
1. Model Specifications

Estimation Model: 3-variable VAR
(a) CPI all items less fresh food
(b) Short-term inflation expectations (1 year ahead)
(c) Medium- to long-term inflation expectations (6 to 10 years ahead)
Shocks are identified by Cholesky decomposition in the above order.
Lags: 5 quarters.
Estimation period: 1990/Q1-2018/Q2.

2. Response of Short-Term Inflation Expectations to a +1 Percentage Point (Annualized) Shock to Observed Inflation



3. Response of Medium- to Long-Term Inflation Expectations to a +1 Percentage Point (Annualized) Shock to Observed Inflation



Sources: Ministry of Internal Affairs and Communications; Consensus Economics Inc., "Consensus Forecasts."

Notes: 1. CPI is quarter-on-quarter changes of seasonally adjusted series and is adjusted for changes in the consumption tax rate.

2. Inflation expectations are from the "Consensus Forecasts."

3. Shaded areas indicate ± 1 standard error bands.

assumption that prices will not increase easily have been deeply entrenched in Japan, we need to pay more attention to the downside risk of rises in the observed inflation rate not leading to rises in inflation expectations.

We investigate this downside risk by estimating a regression model taking into account the possibility of medium- to long-term inflation expectations responding heterogeneously to positive or negative inflation. The model is estimated using data from 1998, which is the period when prices started to decline, and the results in Chart B7-2 indicate that the responses during this period to positive inflation are rather small compared to those to negative inflation.⁵³

Therefore, this suggests a tendency during this period as a whole of medium- to long-term inflation expectations being hesitant to rise with positive inflation and instead declining along with negative inflation.

However, when we recursively change the sample period and estimate the model (rolling regressions), some noticeable features arise. First, since the introduction of QQE in 2013, the response to positive inflation has risen gradually. Second, and more recently, the response to negative inflation is declining gradually (Chart B7-3). Therefore, during this past couple of years, as Japan's economy has no longer been in deflation, the aforementioned heterogeneity in the responses of medium- to long-term inflation expectations observed in deflationary periods is diminishing.

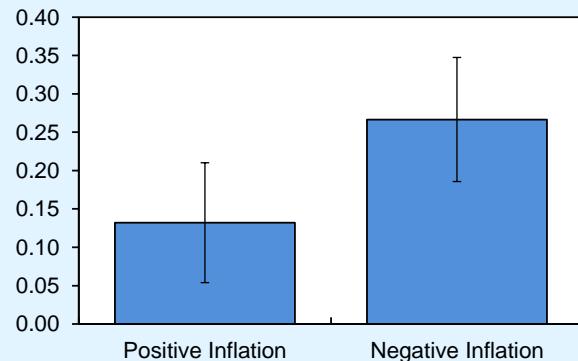
⁵³ Note that the difference between the coefficients on positive and negative inflation is not statistically significant.

Chart B7-2: Heterogeneity of Adaptive Expectation Formation

1. Estimation Model

$$\begin{aligned} \text{Medium- to Long-Term Inflation Expectations}_t \\ = \alpha + \beta_1 (\text{Observed Inflation Rate})_{t-1} \times D_{t-1, \text{positive CPI inflation}} \\ + \beta_2 (\text{Observed Inflation Rate})_{t-1} \times (1 - D_{t-1, \text{positive CPI inflation}}) \end{aligned}$$

2. Estimation Results (β)



Sources: Ministry of Internal Affairs and Communications; Consensus Economics Inc., "Consensus Forecasts."

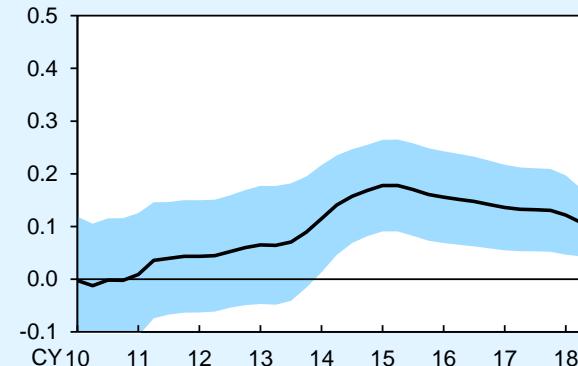
Notes: 1. Observed inflation rate is the year-on-year rate of change in the CPI less fresh food. Medium- to long-term inflation expectations are from the "Consensus Forecasts" (6 to 10 years ahead). The dummy variable for positive CPI inflation takes the value of 1 if the year-on-year rate of change in the CPI is positive and 0 otherwise.

2. Estimation period is 1998/Q1-2018/Q2.

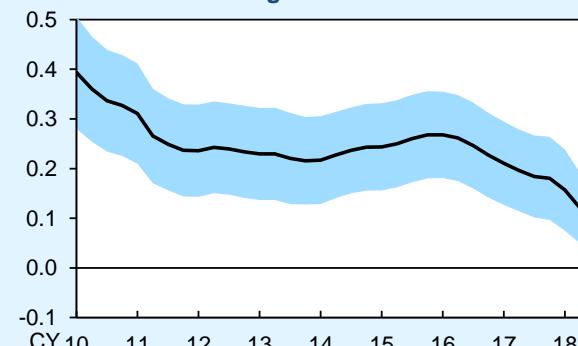
3. The bands indicate ± 1 standard errors of the estimated coefficients.

Chart B7-3: Changes to Coefficients on the Observed Inflation Rate

1. Coefficients on Positive CPI Inflation



2. Coefficients on Negative CPI Inflation



Sources: Ministry of Internal Affairs and Communications; Consensus Economics Inc., "Consensus Forecasts."

Notes: 1. Figures indicate the estimated coefficients from the 15-year rolling regression using samples from 1990/Q1 to 2018/Q2.

2. The estimated model is the same as in the previous chart.

3. Shaded areas indicate ± 1 standard error bands. The horizontal axis indicates end points of each estimation.

Considering the above observations, as further price rises come to be observed widely, this likely will lead to a gradual rise in medium- to long-term inflation expectations through the adaptive inflation expectation formation mechanism.

