

October 31, 2019
Bank of Japan

Assessment of the Momentum toward Achieving the Price Stability Target

-- Background Analysis* --

- (Analysis 1) Factors behind the Delay in the Timing of a Pick-Up in the Growth Pace of Overseas Economies
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* A series of background analyses was conducted in order to decide the "Assessment of the Momentum toward Achieving the Price Stability Target" at the Monetary Policy Meeting held on October 30 and 31, 2019. These analyses will be presented as Boxes in the full text of the Outlook Report to be released at 2:00 p.m. Japan Standard Time on November 1, 2019.

(Analysis 1) Factors behind the Delay in the Timing of a Pick-Up in the Growth Pace of Overseas Economies

The baseline scenario for overseas economies presented in the October 2019 Outlook Report is that the growth pace is likely to pick up after a period of continued slowdowns. However, it is expected that the timing of a pick-up will be delayed compared to that forecasted in the previous Outlook Report. The main factors behind this delay are (1) the impact of the intensified and prolonged U.S.-China trade friction and (2) the fact that it has been taking some time for the effects of China's fiscal policy to materialize.

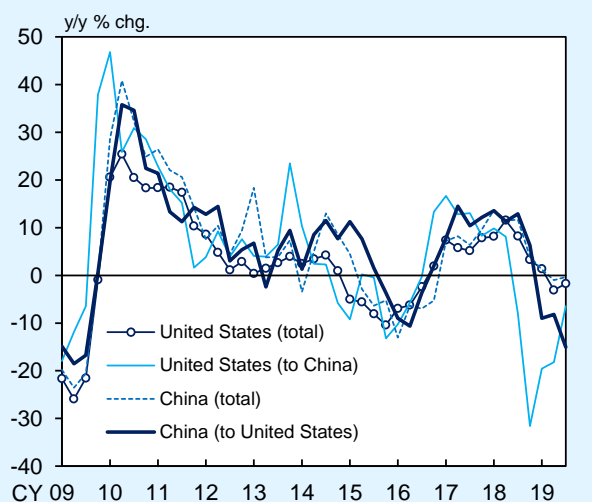
With regard to the U.S.-China trade friction, it seems to be intensifying and becoming prolonged as both countries have increased the size of additional tariffs incrementally (Chart B1-1). Under the circumstances, trade activities in the United States and China have been more or less flat, reflecting the decline in the trade volume between them (Chart B1-2). Amid heightening uncertainties such as over trade policy, manufacturers' sentiment has deteriorated and their fixed investment has been somewhat weak (Charts B1-3 and B1-4). This situation in the manufacturing sector caused by the U.S.-China trade friction was pointed out already as a global phenomenon in the previous Outlook Report. The intensified and prolonged U.S.-China trade friction is likely to exert downward pressure on the economy for longer than expected, thereby delaying the timing of a pick-up in overseas economies.

Chart B1-1: Average Tariffs of the United States and China



Source: Bown, Chad P. 2019. "US-China Trade War Tariffs: An Up-to-Date Chart." PIIE Chart, Peterson Institute for International Economics, October 11, 2019. <https://www.piie.com/research/piie-charts/us-china-trade-war-tariffs-date-chart>.

Chart B1-2: Nominal Exports of the United States and China



Sources: Haver, CEIC.
Note: U.S. dollar basis. Based on staff calculations. The figure for "United States (to China)" for 2019/Q3 is the July-August average.

Regarding China's fiscal policy, the authorities have conducted expansionary measures since the turn of the year with the aim of easing downward pressure on the economy stemming mainly from the U.S.-China trade friction. Such measures include those to reduce corporate burden, such as through tax cuts, and to expand infrastructure investment. The former measures are expected to encourage manufacturers' fixed investment. However, as seen in some weakness in business fixed investment, the effects of the measures have been limited thus far, mainly reflecting the heightening uncertainties mentioned earlier. With regard to the measures for infrastructure investment, local governments' land sales revenues -- which seem to have been allocated to capital for infrastructure investment projects -- have declined, reflecting the central government's stance of attaching importance on deleveraging and stability in real estate prices (Chart B1-5). The issuance of local government special bonds, which is also a means of funding infrastructure investment, has increased; however, this has not necessarily led to an acceleration in the growth rate of infrastructure investment because there are restrictions on the use of funds as capital for investment projects (Chart B1-6).

Thus, regarding the effects of China's expansionary fiscal policy, there has been some delay in their materialization. However, these are expected to materialize gradually. The central government has eased the restrictions on local government special bonds recently by, for example, partly allowing their use as capital. In addition, regarding monetary policy, measures to increase lending to manufacturing firms have been implemented in an incremental manner --

Chart B1-3: U.S. Manufacturing PMI and Investment

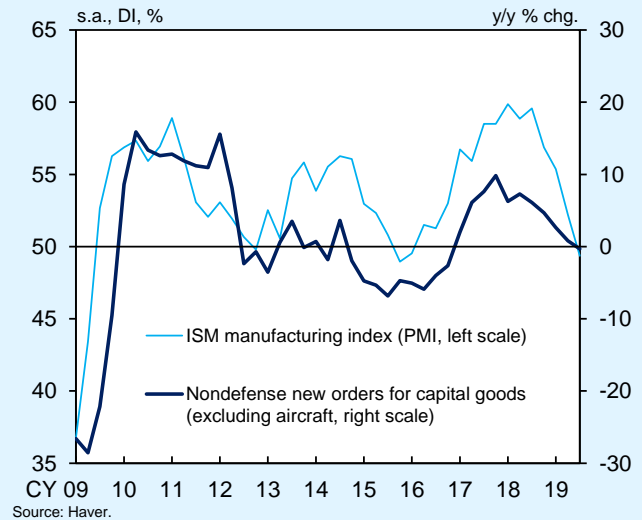


Chart B1-4: China's Manufacturing PMI and Investment

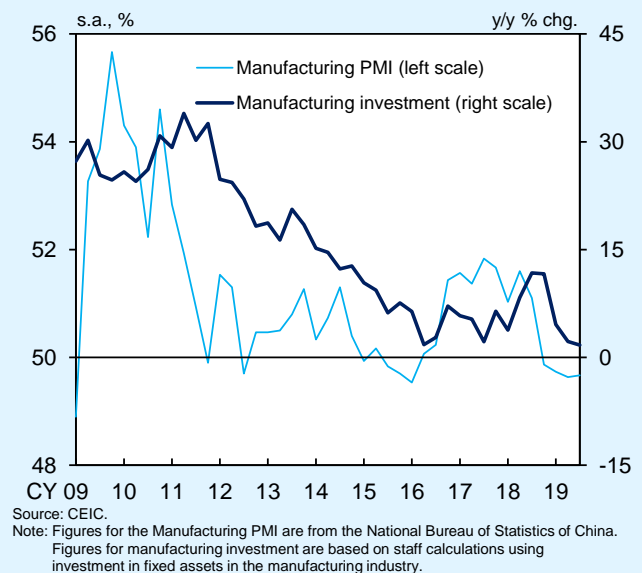
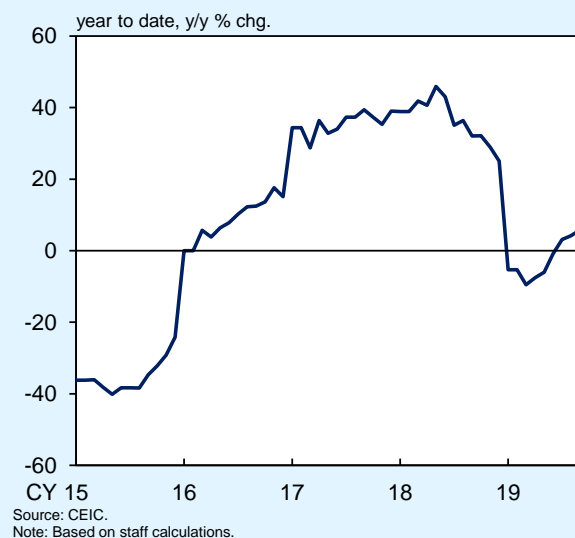


Chart B1-5: China's Land Sales Revenues

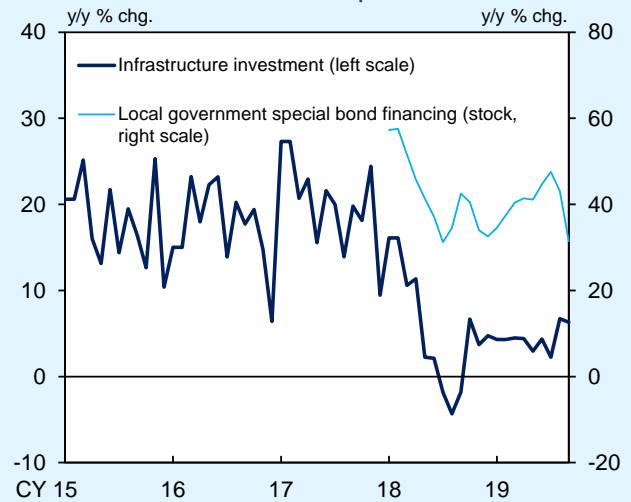


including a reduction in the reserve requirement ratio by the central bank and a revamp of the loan prime rate, which is a reference rate for banks when lending money -- while manufacturing firms have become cautious toward fixed investment, mainly against the background of heightening uncertainties.

Moreover, overseas economies are likely to raise their growth rates and grow moderately on the whole, mainly on the back of (1) the materialization of effects of macroeconomic policies in economies other than China and (2) the progress in global adjustments in IT-related goods.

However, it is necessary to continue to carefully examine downside risks that the U.S.-China trade friction might intensify and become prolonged further, since they are expected to exert a larger impact than before on overseas economies including the United States and China.

Chart B1-6: China's Infrastructure Investment and Local Government Special Bonds



Source: CEIC.

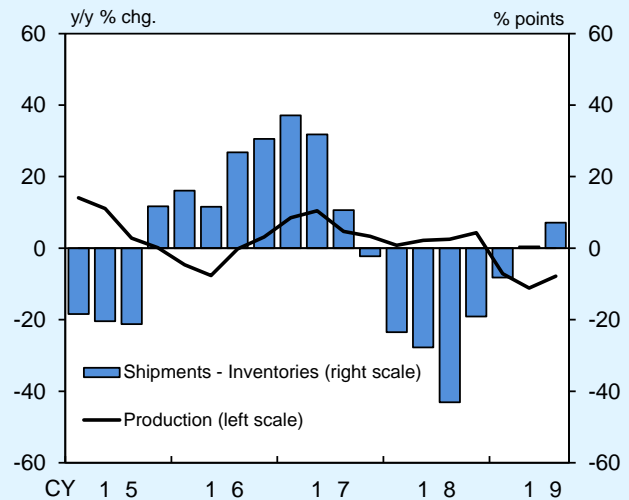
- Notes: 1. Figures for infrastructure investment are based on staff calculations using investment in fixed assets in the tertiary industry such as transportation and water conservancy.
 2. Figures for local government special bond financing are based on the "Aggregate Financing to the Real Economy." Data on the year-on-year rate of change in monthly local government special bond financing are available from January 2018 onward.

(Analysis 2) Developments in Exports by Goods

This analysis examines the current situation of and outlook for exports by goods; namely, (1) IT-related goods, (2) capital goods, and (3) automobile-related goods.

Japan's IT-related exports had continued on a downtrend since the second half of 2018 due to the deterioration in the global cycle for IT-related goods. However, they have increased, albeit slightly, since the April-June quarter of 2019. The global cycle for IT-related goods appears to be bottoming out recently, reflecting progress in inventory adjustments. Looking at the shipments-inventories balance of electronic parts and devices for Japan, the phase of inventory reductions has almost come to an end, and thus an increase in shipments can lead to a rise in production (Chart B2-1). Average patterns in the past show that the cycle for IT-related goods bottoms out and the adjustment phase comes to an end around 5-6 quarters after the peak.¹ Since the most recent peak in its cycle was around the April-June quarter of 2018, it seems consistent with past patterns that the cycle is currently bottoming out (Chart B2-2). As for the outlook, anecdotal evidence suggests that Japan's exports of IT-related goods, especially for smartphones and data centers, are expected to pick up through the year-end, as the cycle for IT-related goods is likely to gradually shift toward a rising phase. Since demand related to the introduction of 5G communication technology is expected to fully take hold after the turn of 2020, IT-related exports

Chart B2-1: Shipments-Inventories Balance of IT-Related Goods

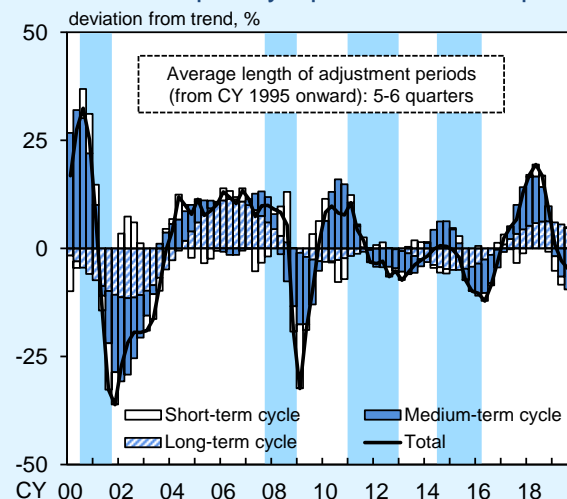


Source: Ministry of Economy, Trade and Industry.

Notes: 1. Figures are for electronic parts and devices.

2. The production figure and the shipments figure for 2019/Q3 are July-August averages. The inventories figure for 2019/Q3 is that for August.

Chart B2-2: Global Cycle for IT-Related Goods: Frequency Spectrum Decomposition



Notes: 1. The cycles are extracted by applying frequency spectrum decomposition to world semiconductor shipment data compiled by WSTS. Based on staff calculations.

2. The estimation period is 1995/Q1-2019/Q3. Figures for 2019/Q3 are July-August averages.

3. Shaded areas indicate adjustment periods in the global cycle for IT-related goods. Adjustment periods are defined as periods that (1) include a point where the total of cycles falls below zero and (2) start at the nearest peak point of the total preceding the zero point and end one quarter prior to the subsequent bottom point.

¹ For details, see Box 4 in the April 2019 Outlook Report.

are likely to return to a steady uptrend.

Next, capital goods exports have been relatively weak, amid signs of a further deceleration in business fixed investment in China and neighboring countries. The Global Economic Policy Uncertainty Index recently has risen substantially, mainly led by China, against the background of heightening uncertainties accompanying the intensified and prolonged U.S.-China trade friction (Chart B2-3). This increase in uncertainties has led to postponement of business fixed investment, especially by firms that incorporate Chinese firms into their supply chains, and thus seems to have brought about the recent slowdown in the world trade volume in capital goods. Regarding the outlook, capital goods exports will likely continue showing some weakness for the time being, given that the declining trend in machinery orders from overseas -- a leading indicator of Japan's capital goods exports -- has continued (Chart B2-4). From a somewhat longer-term perspective, it is expected that the trade volume in capital goods will gradually head to a recovery and Japan's capital goods exports also will return to a moderate increasing trend, as protectionist moves are likely to be prevented from being more intensified and global uncertainties are expected to follow a downtrend. However, downside risks to this outlook are large, depending on the outcome of U.S.-China trade negotiations.

Meanwhile, although Japan's automobile-related exports had continued to increase, mainly on the back of the rising value-added of automobiles and a high environmental performance, they have

Chart B2-3: Economic Policy Uncertainty Index

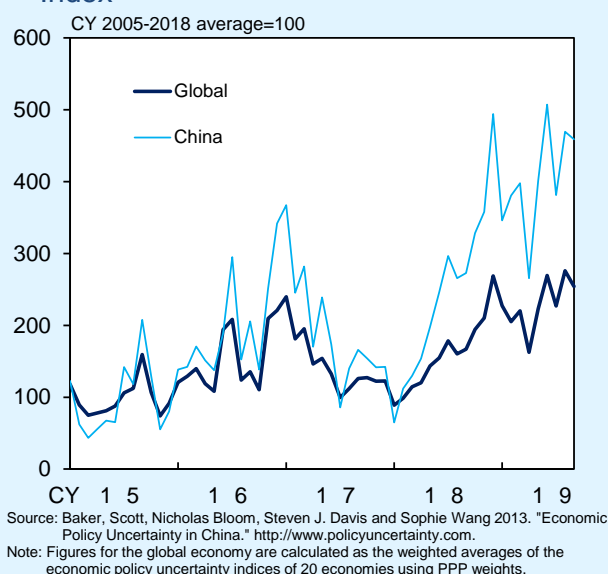
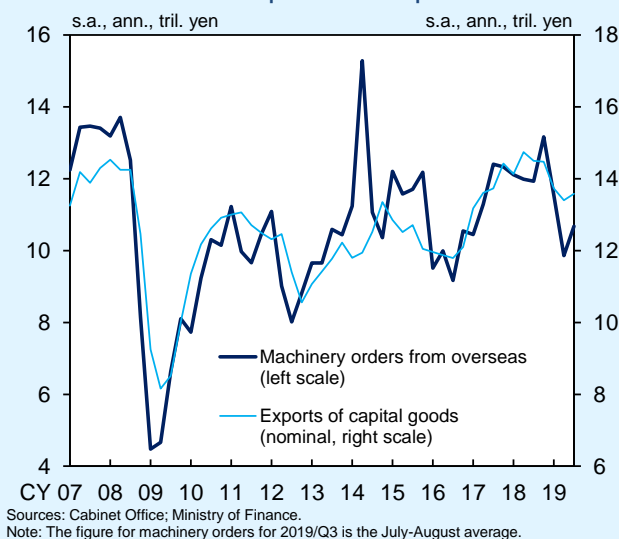
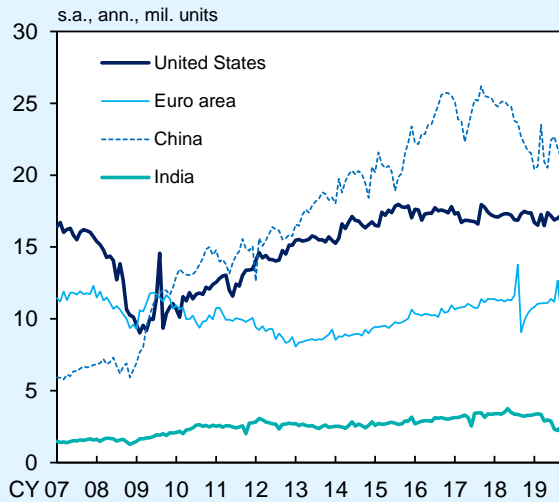


Chart B2-4: Machinery Orders from Overseas and Exports of Capital Goods



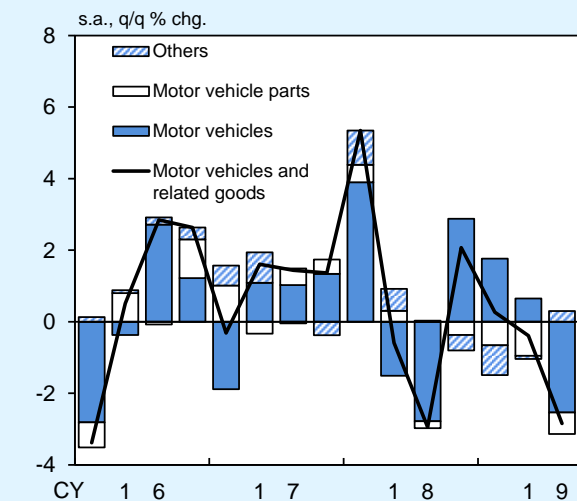
started to show some weakness recently, affected by the decline in global automobile sales. Global automobile sales, particularly in emerging economies, have been somewhat weak, mainly due to (1) weak corporate demand, (2) the tightening of financial conditions in some emerging economies, and (3) stricter environmental regulations (Chart B2-5). A breakdown of automobile-related exports shows that exports of motor vehicles to advanced economies, which so far had been firm, have shown increasing signs of peaking out, reflecting inventory adjustments by Japanese automakers in the United States; moreover, exports of motor vehicle parts have continued to decline since end-2018, mainly led by those to China, which has been affected by the economic slowdown and environmental regulations (Chart B2-6). As for the outlook, while Japan's automobile-related exports are likely to follow a declining trend for the time being, they are expected to gradually head to a recovery thereafter, as it is projected that corporate demand will pick up along with the global recovery in business fixed investment and progress gradually will be made in responding to environmental regulations.

Chart B2-5: Motor Vehicle Sales in Major Economies



Sources: BEA; ECB; CEIC.
 Note: Figures for the United States are based on motor vehicle sales excluding heavy trucks. Figures for the euro area are based on new passenger car registrations. Figures for China and India are based on passenger car sales.

Chart B2-6: Real Exports of Motor Vehicles and Related Goods



Sources: Bank of Japan; Ministry of Finance.

(Analysis 3) Export Conditions and Their Risk Assessment

The baseline scenario of the October 2019 Outlook Report is that the timing of a pick-up in the growth pace of overseas economies is likely to be delayed for longer than expected. Accordingly, the timing of Japan's exports moving out of the relatively weak phase and returning to an increasing trend also is expected to be delayed. However, further deterioration is likely to be avoided, with overseas economies continuing to grow moderately on the whole. This analysis quantitatively examines risks surrounding this outlook for exports.

Since the second half of 2018, the manufacturing sector's sentiment as well as its production and trade activity on a global basis have been somewhat weak, particularly in Asia, mainly against the background of the slowdown in business fixed investment in emerging economies such as China and the deterioration in the cycle for IT-related goods. In this situation, the level of the world trade volume generally has been flat, and its year-on-year rate of change has declined to around 0 percent recently (Chart B3-1). With regard to the outlook, the world trade volume is expected to remain weak for a while, but thereafter its pace of increase is likely to accelerate gradually and return to around the same level as that of world economic growth.

This outlook for the world trade volume is based on the assumption that further deceleration in overall overseas economies will be avoided as the deterioration in the manufacturing sector's

Chart B3-1: World Trade Volume and Manufacturing PMI



Sources: CPB Netherlands Bureau for Economic Policy Analysis; IHS Markit (© and database right IHS Markit Ltd 2019. All rights reserved.).
 Notes: 1. Figures for the trade volume are those for real imports. The figure for 2019/Q3 is the July-August average.
 2. Figures for the Global Manufacturing PMI are the "J.P. Morgan Global Manufacturing PMI."

sentiment as well as its production and trade activity will not have a large impact on the nonmanufacturing sector. On this point, the fact that accommodative financial conditions generally have been maintained on a global basis, including in emerging economies, can be considered as playing an important role in underpinning domestic demand in these economies and mitigating the negative impact of weak external demand.

On the other hand, as outlined in Analysis 1, the U.S.-China trade friction seems to be intensifying and becoming prolonged, and the materialization of the effects of fiscal policy in China has been delayed. Thus, for the time being, attention should be paid to the risk that exports will decline along with the further slowdown in overseas economies. Examining the degree of this risk by looking at SCOPE (Surveillance Indices for Critical Overseas Perils to Exports) -- an early warning indicator of Japan's exports -- the number of indicators signaling a deterioration in export conditions was 7 out of 18 in September, representing an increase to around 40 percent of all indicators (Charts B3-2 and B3-3).² Developments since the previous Outlook Report are as follows. The following 5 indicators already have signaled a deterioration: (1) the New Export Orders Index of the Global Manufacturing PMI, (2) the OECD business confidence index, (3) the WSTS world semiconductor shipments, (4) world vehicle sales, and (5) the New Export Orders Index of the Japan Manufacturing PMI. In addition to these indicators, mainly reflecting the effects of the intensified and prolonged U.S.-China trade

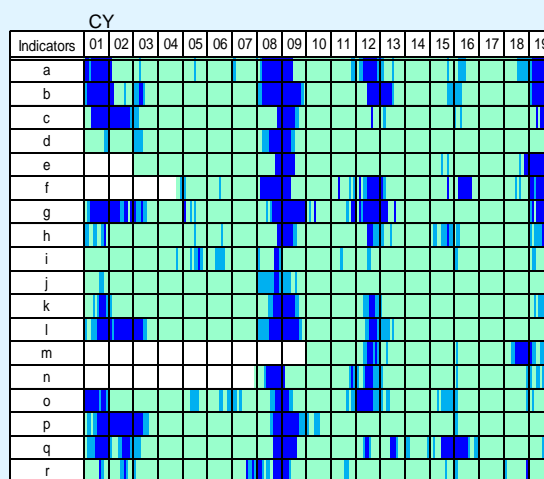
² For details of SCOPE, see Box 1 in the January 2019 Outlook Report.

Chart B3-2: Monitoring Indicators

Indicators		
World		
Corporate	a	Global Manufacturing PMI: New Export Orders Index
	b	OECD business confidence index
	c	WSTS world semiconductor shipments
Household	d	OECD consumer confidence index
	e	World vehicle sales
Japan		
Corporate	f	Japan Manufacturing PMI: New Export Orders Index
	g	Machinery orders from overseas: Electronic and communication equipment
U.S.		
Corporate	h	ISM Manufacturing Index: New Export Orders Index
	i	Philadelphia Fed Manufacturing Business Outlook Survey: Future shipments
Household	j	University of Michigan Surveys of Consumers: Current Economic Conditions
Euro Area		
Corporate	k	Business Climate Indicator: Industry, production expectations
	l	Business Climate Indicator: Services sector, demand expectations
Asia		
Corporate	m	Output of metal shaping machinery in China
	n	China Manufacturing PMI
Overall	o	Taiwan National Development Council's Monitoring Indicators: Total score
Financial Markets	p	MSCI World Index
	q	MSCI Emerging Markets Index
	r	VIX Index

Note: The Global Manufacturing PMI is the "J.P. Morgan Global Manufacturing PMI." The Japan Manufacturing PMI is the "Jibun Bank Japan Manufacturing PMI."

Chart B3-3: SCOPE



Sources: Haver; Bloomberg; Cabinet Office; WSTS Inc.; Wards Intelligence; IHS Markit (© and database right IHS Markit Ltd 2019. All rights reserved.).
 Notes: 1. This chart visualizes the possibility of a significant decrease in real exports by depicting indicator values relative to their respective threshold values. Based on staff calculations.
 2. Shaded areas in the chart represent the following for an indicator relative to the threshold set for the indicator: (1) areas shaded in dark blue indicate that the indicator is above the threshold value; (2) areas in light blue indicate that the indicator lies between the threshold value and half of the threshold value; (3) areas in green indicate that the indicator lies below half of the threshold value; and (4) areas in white indicate that no data are available.

friction and the slowdown in the Chinese economy, the following also have been signaling a deterioration recently: (6) the New Export Orders Index of the ISM Manufacturing Index and (7) the output of metal shaping machinery in China. The number of indicators signaling a deterioration in export conditions remains small compared to the past four periods when exports decreased substantially -- that is, the phases in which real exports showed a decline of more than one standard deviation from their trend over a certain period at the time of (1) the Asian financial crisis, (2) the collapse of the dot-com bubble, (3) the global financial crisis, and (4) the European debt crisis (Chart B3-4). However, the number of indicators signaling a deterioration clearly has exceeded that during the period of the so-called China shock from the second half of 2015 through the first half of 2016, and downside risks to exports can be assessed as increasing.

In order to quantitatively assess these downside risks to exports, probability distributions of the rates of change in Japan's exports over the next three months (exports at risk) were estimated using quantile regression, within which the aforementioned share of SCOPE indicators emitting signals was an explanatory variable (Chart B3-5[1]). Statistically speaking, this means estimating conditional probability distributions of the rates of change in Japan's exports over the next three months given the share of SCOPE indicators emitting signals. Looking at the estimation results, the latest probability distribution suggests that risks are increasingly skewed to the downside compared with one year ago and at the time of the China shock, although the degree is not as severe as at the time of the

Chart B3-4: Share of Indicators Emitting Signals

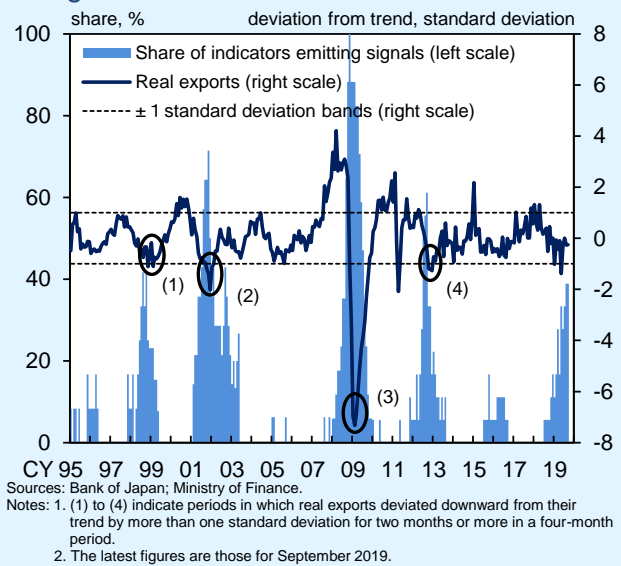


Chart B3-5: Exports at Risk

1. Estimation Model Specification

(Quantile regression)

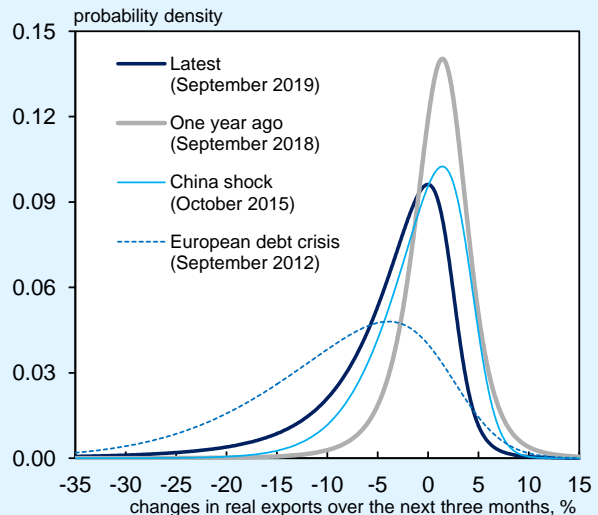
Dependent variable:

Rate of change in real exports over the next three months

Explanatory variables:

- (a) Share of indicators emitting signals for the reference month (this variable is set to 0 when the share is below the peak observed in the preceding six months)
- (b) Rate of change in real exports over the past three months
- (c) Constant

2. Estimation Results



Sources: Bank of Japan; Ministry of Finance.
Note: The probability density is obtained by fitting a skewed *t* distribution to values from the quantile regressions.

European debt crisis (Chart B3-5[2]).

Thus, downside risks to Japan's exports are increasing as the manufacturing sector's production and trade activity on a global basis has decelerated against the background of the intensified and prolonged U.S.-China trade friction and slowdowns in emerging and commodity-exporting economies such as China. Under these circumstances, attention should be paid to the possibility that the risk of a substantial decrease in exports would increase further if a tightening of financial conditions, such as a significant decline in stock prices and a rise in credit risk premiums, also were to occur, as seen in the past four periods when exports fell sharply.

**(Analysis 4) Steady Business Fixed Investment
despite the Slowdown in Overseas Economies (1):
Machinery and Software Investments as well as R&D Investment**

Although the slowdown in overseas economies has affected exports as well as manufacturers' sentiment and corporate profits, overall business fixed investment has maintained an uptrend. Analyses 4 and 5 examine business fixed investment by type with regard to the reasons why it has remained steady thus far despite the slowdown in overseas economies. This analysis starts by looking at machinery and software investments as well as research and development (R&D) investment.

Looking at machinery orders, a leading indicator of machinery investment, the manufacturing sector has continued to show some weakness recently (Chart B4-1). By industry, "general-purpose, production, and business-oriented machinery" has declined clearly, reflecting the weakness in capital goods exports (Chart B4-2). "Electrical machinery" has been at a low level from a somewhat longer-term perspective, although it has picked up to some extent recently. While "automobiles, parts, and accessories" had followed a moderate uptrend, it has been somewhat weak recently, mainly for "metal cutting machines." Machinery investment in the manufacturing sector will likely remain somewhat weak for a while, with the timing of a pick-up in the growth pace of overseas economies being delayed.

Chart B4-1: Machinery Orders

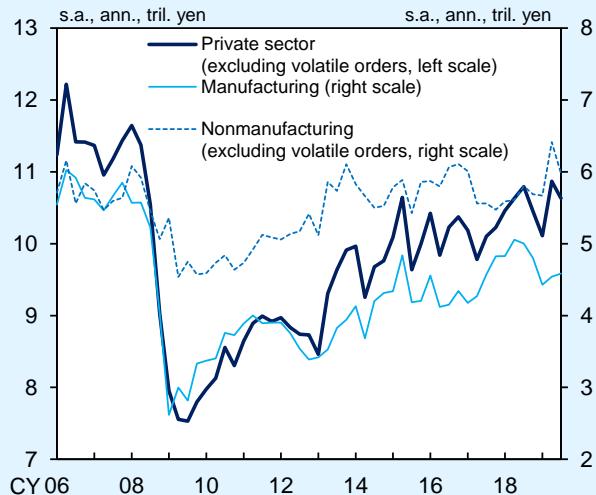
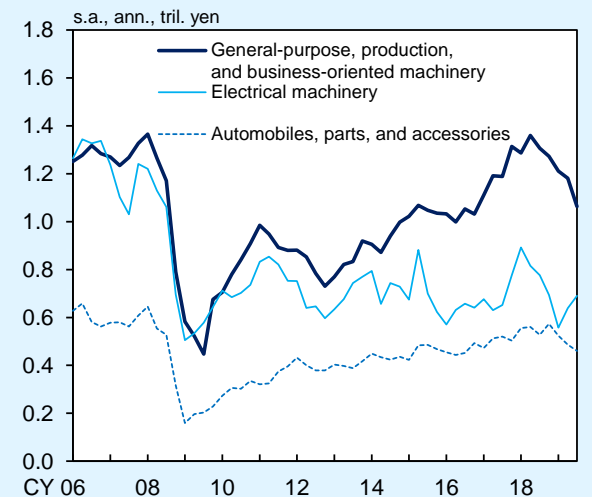


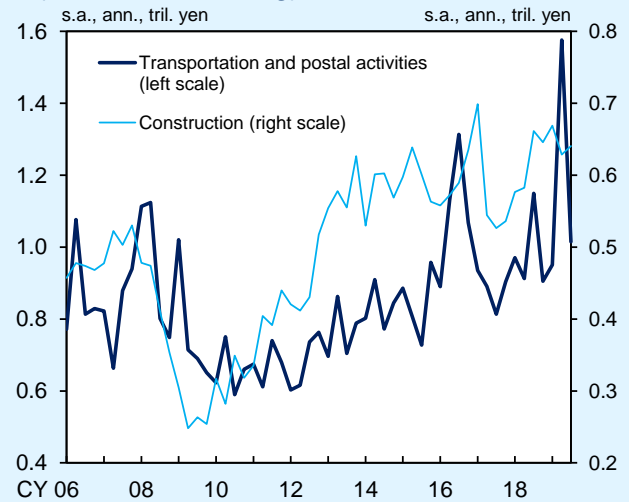
Chart B4-2: Machinery Orders (Manufacturing)



On the other hand, machinery orders by the nonmanufacturing sector have maintained their firmness, albeit with fluctuations. By industry, growth in "transportation and postal activities" and "construction" has accelerated recently -- mainly for "industrial machinery," including "conveying, elevating, materials handling machinery," and for "electronic and communication equipment" such as computers -- due to strong demand for improving efficiency and saving labor to address labor shortage (Chart B4-3). This strong demand also has led to an increase in software investment in the nonmanufacturing sector. Looking at the *Tankan*, software investment has seen a clear increase in recent years, mainly in industries such as "retailing," "accommodations, eating and drinking services," and "construction," which are labor-intensive and where labor shortage tends to constrain businesses (Chart B4-4). In fiscal 2019, software investment is expected to maintain its steady increase, due in part to the introduction of the multiple consumption tax rates associated with the tax hike and of cashless payments.

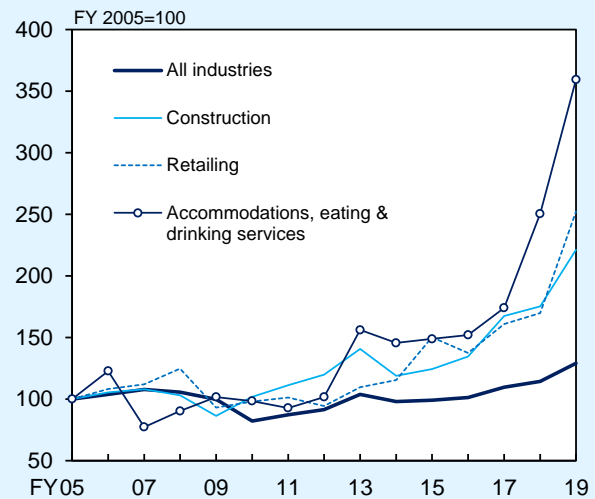
Meanwhile, the increasing trend in R&D investment for growth areas has continued (Chart B4-5). According to a survey by the Development Bank of Japan, R&D investment plans for fiscal 2019 by industry show that "transport equipment" -- which accounts for more than 40 percent of total R&D expenditure -- is expected to maintain its growth pace with the aim of developing advanced technologies for the future, such as assisted and automated driving as well as vehicle electrification, despite the decline in global automobile sales. "Chemicals," which accounts for the second largest share of R&D expenditure following "transport equipment," also is projected

Chart B4-3: Machinery Orders (Nonmanufacturing)



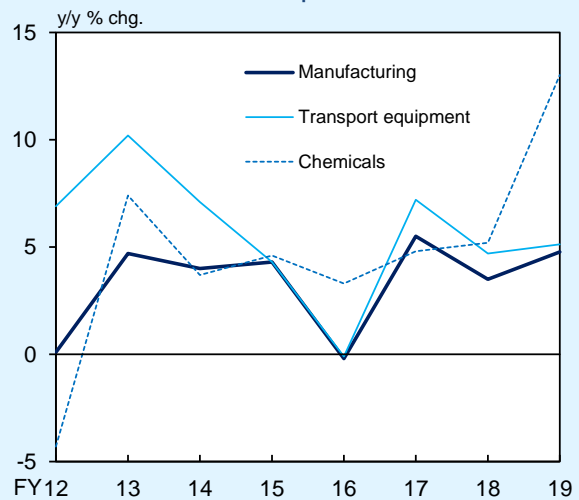
Source: Cabinet Office.
Notes: 1. Excluding orders for ships.
2. Figures for 2019/Q3 are July-August averages.

Chart B4-4: Software Investment (*Tankan*)



Source: Bank of Japan.
Note: Figures up through fiscal 2018 are actual results. Figures for fiscal 2019 are forecasts from the September 2019 survey.

Chart B4-5: R&D Expenditure



Source: Development Bank of Japan.
Note: Figures are of firms with capital of 1 billion yen or more on a consolidated basis. Figures for fiscal 2019 are based on staff calculations, in which figures for planned expenditure for fiscal 2019 are adjusted for average changes from planned to actual expenditure for fiscal 2012-2018.

to increase substantially, mainly for the development of new materials in the fields of automobiles and electronics as well as the product development related to pharmaceuticals and biotechnology.

The aforementioned machinery and software investments aimed at improving efficiency and saving labor in order to deal with labor shortage and R&D investment for growth areas are less susceptible to short-term economic developments such as fluctuations in overseas economies, and thus appear to underpin overall business fixed investment. From a somewhat longer-term perspective, these investments are expected to raise the potential growth rate through, for example, (1) an improvement in labor productivity due to a rise in capital intensity and (2) an increase in total factor productivity mainly brought about by developing new products.

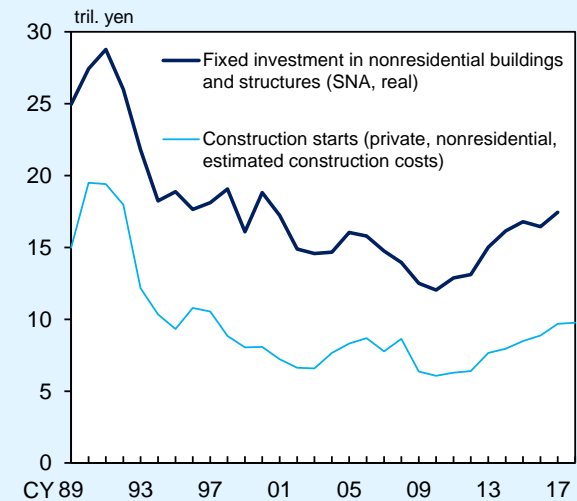
However, it is necessary to pay attention to the possibility that firms' investment stance will become cautious though a further deterioration in their sentiment and corporate profits if the slowdown in overseas economies is prolonged for a longer period or the growth rates of overseas economies decline further.

(Analysis 5) Steady Business Fixed Investment despite the Slowdown in Overseas Economies (2): Construction Investment

This analysis focuses on construction investment, which recently has continued to increase steadily.

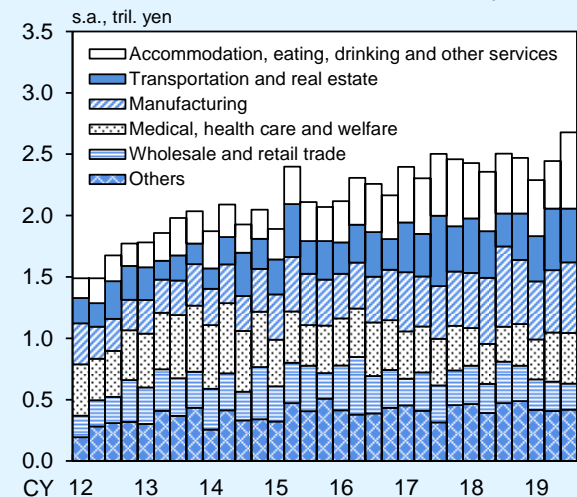
Looking at long-term developments in fixed investment in nonresidential buildings and structures, after the boom during the bubble period from the late 1980s to the early 1990s, such investment followed a prolonged downtrend until around the global financial crisis (Chart B5-1). Subsequently, after bottoming out in the early 2010s, it turned to a moderate uptrend, due in part to the aging of existing buildings and growing demand for earthquake-related rebuilding, and has maintained its pace of increase until recently. Construction starts (private, nonresidential, estimated construction costs) -- a leading indicator of construction investment -- have continued on an uptrend even after a peak-out of Olympic Games-related demand, which contributed to their increase until around 2018 (Chart B5-2). Under these circumstances, uncompleted construction of private nonresidential buildings, which corresponds to the remaining orders received by builders, has reached a record high level, due to an increase in orders and delays in construction work that reflect labor shortage and supply constraints (Chart B5-3). Furthermore, various anecdotal evidence suggests that there seem to be quite a few large-scale redevelopment projects mainly in the heart of Tokyo that are not included in the statistics on construction starts at present, although they are scheduled to enter the

Chart B5-1: Long-Term Time Series of Construction Investment



Sources: Cabinet Office; Ministry of Land, Infrastructure, Transport and Tourism.
Note: Fixed investment in nonresidential buildings and structures is investment in "other buildings and structures" by private nonfinancial corporations in the Cabinet Office's "Gross Fixed Capital Formation of Assets classified by Institutional Sectors and Economic Activities."

Chart B5-2: Construction Starts by Industry



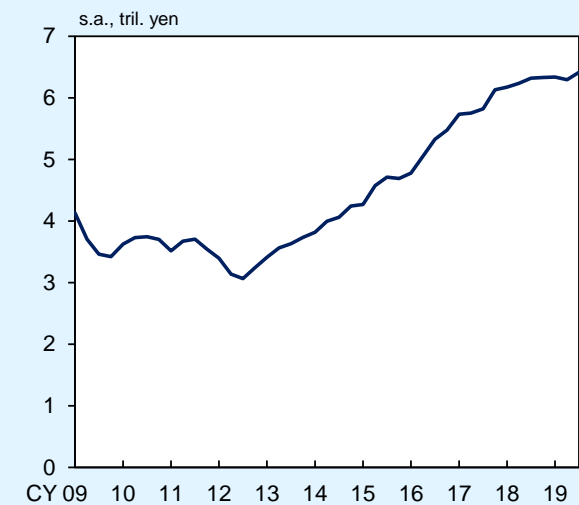
Source: Ministry of Land, Infrastructure, Transport and Tourism.
Notes: 1. Figures are estimated construction costs reported by private-sector builders.
2. "Others" consists of finance and insurance, information and communications, etc.
3. Figures for 2019/Q3 are July-August averages.

construction stage within the next one to two years. Given this, construction investment will likely maintain a moderate but sustained uptrend, as construction work makes slower progress than in the past due to labor shortage.

The steady growth in fixed investment in nonresidential buildings and structures in recent years is attributable to a combination of the following factors. (1) Demand for high-end offices in urban areas offering safety and disaster-mitigation features is increasing, as seen in office vacancy rates falling to around record low levels (Chart B5-4). (2) Demand for investment aimed at attracting foreign visitors is strengthening as inbound tourism demand is expected to increase steadily over the long run. Furthermore, (3) the cost of debt has declined, with highly accommodative financial conditions lasting for a long period (Chart B5-5).

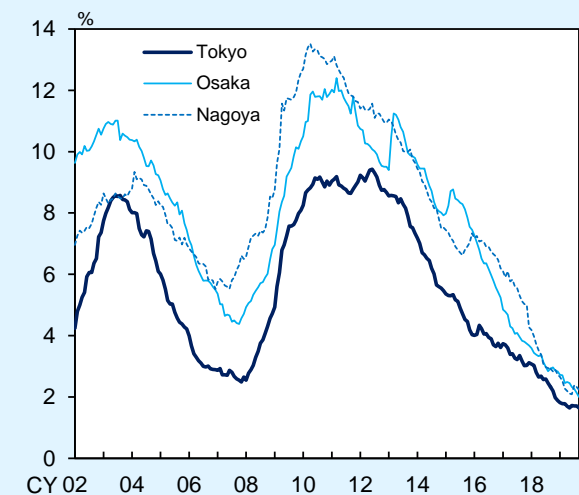
Developments in construction starts by industry are as follows (Chart B5-2). "Transportation and real estate" has been on an uptrend, led mainly by (1) the development of logistics facilities against the backdrop of the expansion of electronic commerce, (2) projects to boost the speed of railways and to expand and enhance airport facilities, and (3) urban development projects such as for international business bases and large-scale commercial complexes. Moreover, the pace of increase in "accommodation, eating, drinking, and other services" recently has accelerated, led by projects such as commercial facilities, theme parks, and hotels, with the aim of capturing steady inbound tourism demand. Meanwhile, "manufacturing" also has continued

Chart B5-3: Uncompleted Nonresidential Construction



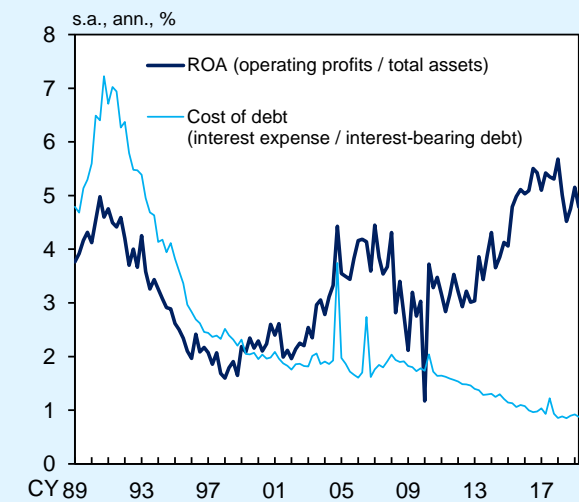
Source: Ministry of Land, Infrastructure, Transport and Tourism.
Notes: 1. Figures are based on construction costs reported by private-sector builders.
2. The figure for 2019/Q3 is the July-August average.

Chart B5-4: Office Vacancy Rates



Source: Miki Shoji Co., Ltd.

Chart B5-5: Funding Conditions for Real Estate and Construction Industries



Source: Ministry of Finance.
Notes: 1. Based on the "Financial Statements Statistics of Corporations by Industry, Quarterly." Figures are for large enterprises.
2. Interest-bearing debt = borrowings from financial institutions + borrowings from others + bonds

on a steady uptrend, supported by moves to shift production back to Japan that have been seen in part and by demand for new factories that are targeted at developing advanced technologies and making new high-value-added products.

This increase in construction investment is expected to offset the impact of the decline in manufacturers' machinery investment to some extent and underpin overall business fixed investment.

(Analysis 6) Developments in Household Spending prior to the Consumption Tax Hike

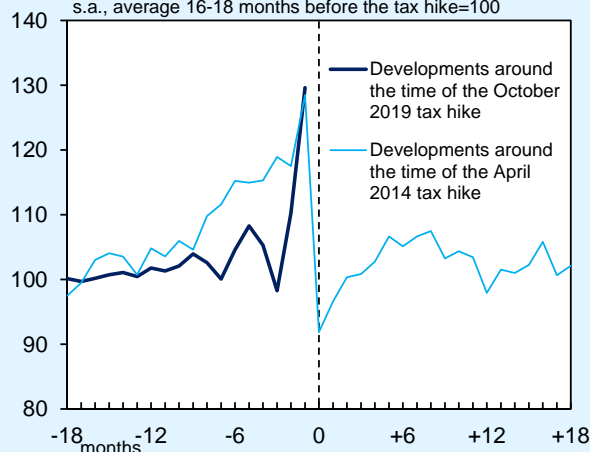
While Japan's economic growth rate is pushed up before a consumption tax hike through an increase in demand led mainly by household spending, it is then pushed down after the tax hike as a result of a reactionary decline to the increase in demand and of a decrease in households' real disposable income due to price rises. With regard to the effects of the tax hike conducted in October 2019, this analysis examines fluctuations in demand for (1) durable goods, (2) nondurable goods, and (3) housing starts observed prior to the tax hike by comparing them with those seen before the previous tax hike in April 2014.

Starting with developments in durable goods, the increase in demand was observed mainly in September, which was just before the tax hike, and taking account of developments during several months before September, the overall increase has been limited compared to that of the previous tax hike (Chart B6-1[1]). Taking a more detailed look, automobile sales have accelerated their growth pace recently, but the increase in demand this time was constrained compared to that of the previous tax hike (Chart B6-1[2]). This seems attributable mainly to the following: (1) policy responses, such as the abolishment of the automobile acquisition tax and the reduction in automobile tax, and (2) automakers' sales strategy to introduce new car models from October. With regard to sales of household electrical appliances, an increase in demand -- mainly for televisions and personal computers -- was observed in September, which was just before the tax hike. However, the degree of

Chart B6-1: Consumption Activity Index (CAI, Real)

1. Durable Goods (Automobiles + Household Electrical Appliances)

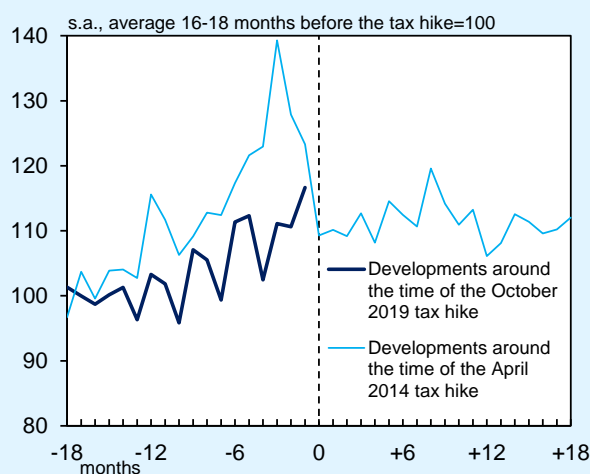
s.a., average 16-18 months before the tax hike=100



Sources: Bank of Japan, etc.

Note: Month 0 is the month in which the consumption tax rate was raised -- namely, April 2014 or October 2019. Regarding developments around the time of the October 2019 tax hike, the latest figure is for September 2019. The CAI is based on staff calculations (as of October 30).

2. Automobiles



Sources: Bank of Japan, etc.

Note: Month 0 is the month in which the consumption tax rate was raised -- namely, April 2014 or October 2019. Regarding developments around the time of the October 2019 tax hike, the latest figure is for September 2019. The CAI is based on staff calculations (as of October 30).

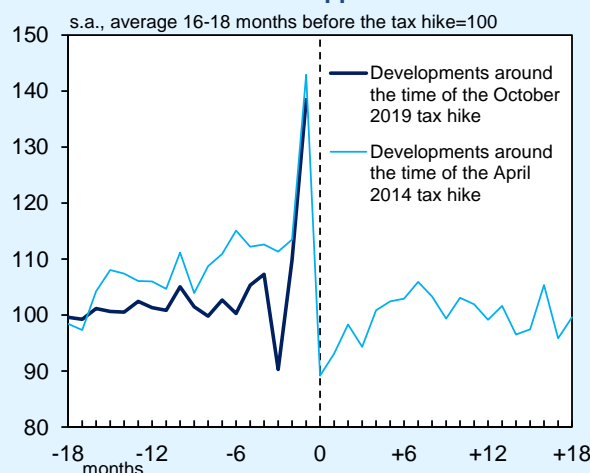
overall increase appears to have remained small compared to that of the previous tax hike, since sales of air conditioners fell in July due to irregular weather (Chart B6-1[3]).

With regard to nondurable goods, a significant increase in demand was observed, mainly in high-end products (cosmetics and luxury goods), goods related to daily necessities, and alcohol (Chart B6-1[4]). Monthly developments show that there was no remarkable increase in demand through August, but there seems to have been a significant increase in demand through end-September, which was just before the tax hike.

Next, looking at the number of housing starts, which is a leading indicator of housing investment, owned houses and detached houses built for sale increased through around June due to the effects of the increase in demand prior to the tax hike, but there already has been a reactionary decline to the increase in demand recently (Chart B6-2[2]).³ However, an increase in demand prior to the tax hike was not observed in the overall number because housing for rent, which saw a substantial increase prior to the previous tax hike, has continued on a declining trend this time, reflecting waning demand for tax saving and asset management as well as cautious lending attitudes of financial institutions compared to a while ago

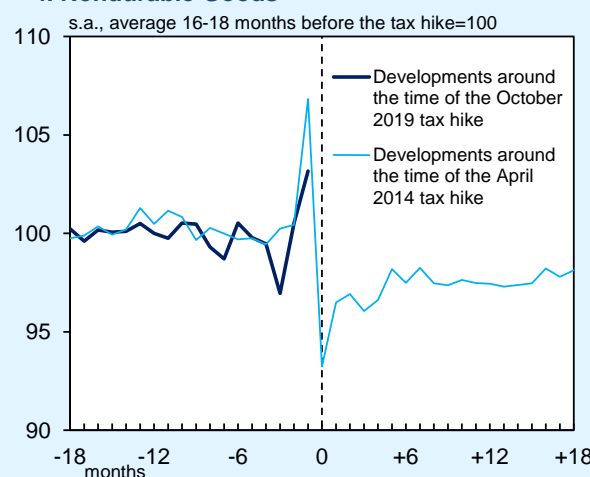
³ For housing, the old consumption tax rate of 8 percent was applied to contracts made before end-March 2019, even if the handover of the property is after the start of October. For this reason, regarding orders received by housing developers, there was a rush to make contracts through March, and a reactionary decline to the increase has been observed since April. Such developments in orders have been reflected in housing starts with some time lag.

3. Household Electrical Appliances



Sources: Bank of Japan, etc.
Note: Month 0 is the month in which the consumption tax rate was raised -- namely, April 2014 or October 2019. Regarding developments around the time of the October 2019 tax hike, the latest figure is for September 2019. The CAI is based on staff calculations (as of October 30).

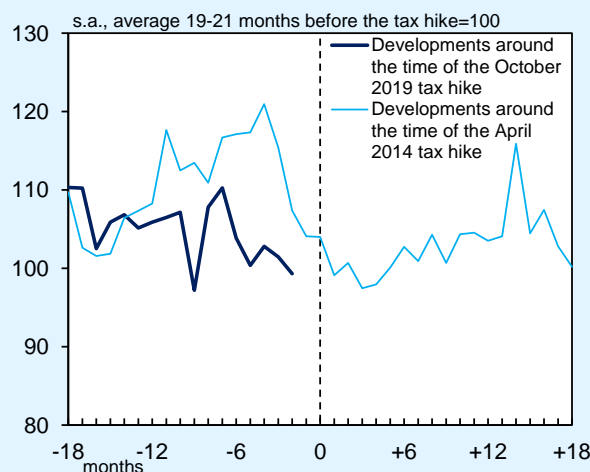
4. Nondurable Goods



Sources: Bank of Japan, etc.
Notes: 1. Month 0 is the month in which the consumption tax rate was raised -- namely, April 2014 or October 2019. Regarding developments around the time of the October 2019 tax hike, the latest figure is for September 2019. The CAI is based on staff calculations (as of October 30).
2. Nondurable goods include goods classified as "semi-durable goods" in the SNA.

Chart B6-2: Housing Starts

1. Overall



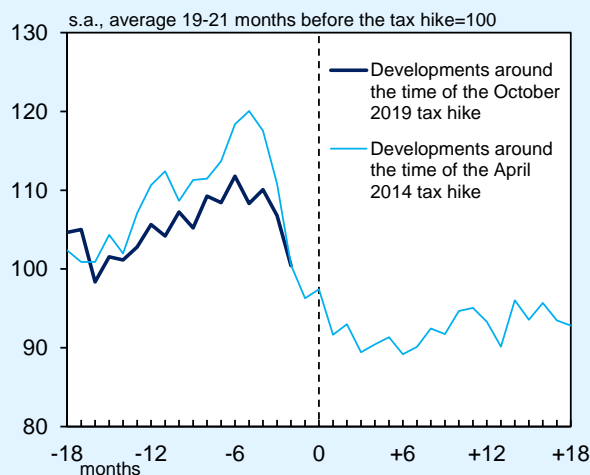
Source: Ministry of Land, Infrastructure, Transport and Tourism.
Note: Month 0 is the month in which the consumption tax rate was raised -- namely, April 2014 or October 2019. Regarding developments around the time of the October 2019 tax hike, the latest figure is for August 2019.

(Chart B6-2[1]).

With regard to the outlook, nondurable goods, which experienced an increase in demand prior to the tax hike to a substantial degree, are expected to see a relatively large decline in the short run. However, given that such goods have low durability, the declining phase will likely be temporary. In addition, taking into account that durable goods and housing, both of which have a long replacement cycle, have seen a small increase in demand prior to the tax hike, downward pressure stemming from a reactionary decline is expected to be limited compared with that of the previous tax hike.

However, regarding the expected decline in private consumption, it is difficult to distinguish in real time the effects of the reactionary decline to the increase in demand prior to the tax hike from those of a decrease in real income, and consumption developments are greatly affected by household sentiment at the time. Thus, uncertainties regarding the outlook for private consumption are significant, and it is necessary to continue to carefully examine developments, including anecdotal evidence.

2. Owned Houses + Detached Houses Built for Sale



Source: Ministry of Land, Infrastructure, Transport and Tourism.

Notes: 1. Month 0 is the month in which the consumption tax rate was raised -- namely, April 2014 or October 2019. Regarding developments around the time of the October 2019 tax hike, the latest figure is for August 2019.

2. Figures for detached houses built for sale are based on staff calculations.

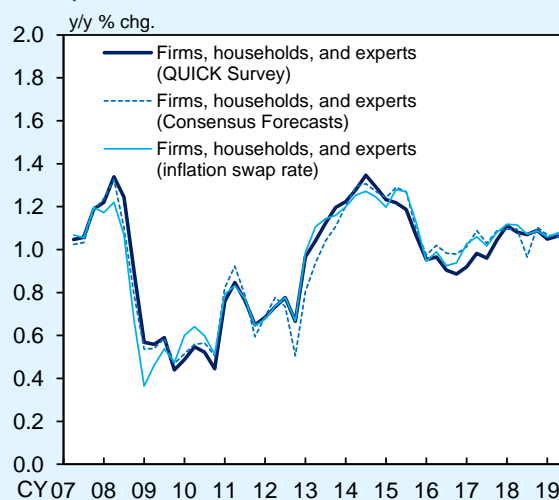
(Analysis 7) Developments in Inflation Expectations

One of the factors that determine general price developments is people's inflation expectations. This analysis examines (1) recent developments in indicators of inflation expectations and (2) households' perception of prices as well as firms' price-setting stance.

Inflation expectations can be gauged, first of all, by directly observing survey data -- that is, indicators based on the results of surveys of households, firms, and experts (such as economists and market participants) -- and market indicators. However, since these indicators have their own characteristics, they do not show exactly the same developments. They also show fluctuations due to noise. In fact, looking at recent developments, while some indicate relatively weak developments, others show an increase. By extracting and synthesizing the common factors from the survey data of households', firms', and experts' inflation expectations as well as market indicators through principal component analysis, it can be confirmed that such expectations had remained in a weakening phase since summer 2015 but picked up somewhat toward 2018 and subsequently have been more or less flat (Chart B7-1).⁴ In addition, inflation expectations also can be gauged based on various economic indicators by using economic models, and the estimates indicate similar results to principal component

⁴ For details of methods to extract and synthesize inflation expectations using principal component analysis, see "Developments in Inflation Expectations over the Three Years since the Introduction of Quantitative and Qualitative Monetary Easing (QQE)," *Bank of Japan Review Series*, no.16-E-13.

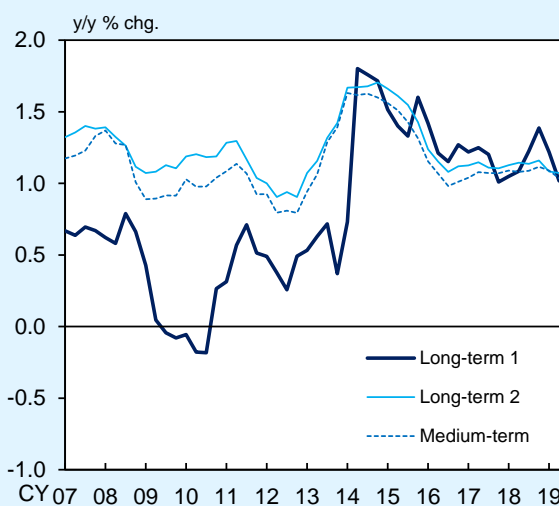
Chart B7-1: Synthesized Inflation Expectations Indicators



Sources: Bank of Japan; QUICK, "QUICK Monthly Market Survey (Bonds)"; Consensus Economics Inc., "Consensus Forecasts"; Bloomberg.

Notes: 1. Synthesized inflation expectations indicators are obtained by synthesizing the expectations of firms, households, and experts using principal component analysis.
2. Firms' inflation expectations are taken from the *Tankan* (using the output prices DI). Figures for households are taken from the "Opinion Survey" (using the average of inflation expectations over the next 5 years excluding responses of those expecting annual inflation of $\pm 5\%$ or more). For experts' inflation expectations, three different types of data are used: the "QUICK Survey" (average over the next 10 years), the "Consensus Forecasts" (average for 6-10 years ahead), and the inflation swap rate (5-year, 5-year forward).

Chart B7-2: Inflation Expectations Obtained through Estimations



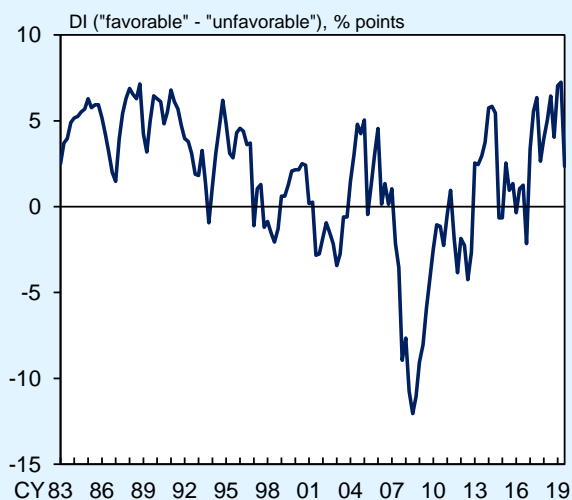
Sources: *Bank of Japan Working Paper Series*, No.18-E-8 and No.19-E-6; Bank of Japan; Cabinet Office; Ministry of Finance; Ministry of Internal Affairs and Communications; QUICK, "QUICK Monthly Market Survey (Bonds)," "QUICK *Tankan*"; JCER, "ESP Forecast"; Consensus Economics Inc., "Consensus Forecasts"; Wolters Kluwer, "Blue Chip Economic Indicators"; Bloomberg.

Note: For the estimation methods, see *Bank of Japan Working Paper Series*, No.18-E-8 for "Long-term 1." See *Bank of Japan Working Paper Series*, No.19-E-6 for "Long-term 2" and "Medium-term."

analysis; namely, that inflation expectations have been generally more or less flat (Chart B7-2).⁵

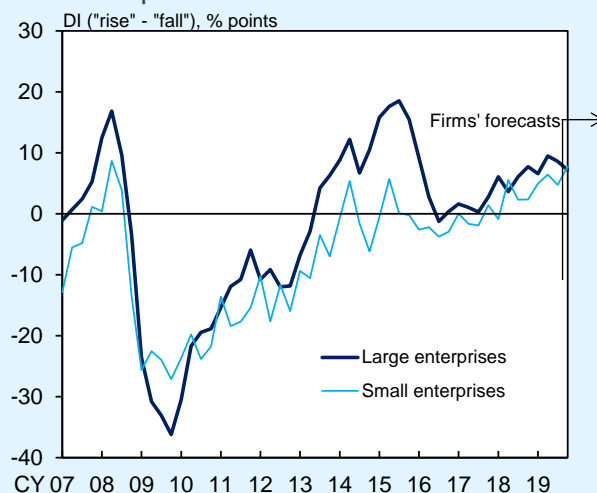
In addition to estimates using the aforementioned various indicators and economic models, it is important to monitor changes in households' perception of prices as well as firms' price-setting stance in order to grasp developments in people's inflation expectations. For example, "comments on the rise in prices" from the *Opinion Survey on the General Public's Views and Behavior* can be regarded as a measure for households' tolerance of price rises (Chart B7-3).⁶ Households' tolerance rose following the introduction of QQE in 2013 and declined temporarily thereafter. Since 2017, however, it has remained at a level that exceeds the average since the mid-2000s, albeit with fluctuations. In addition, when aggregating the output prices DI for "retailing," "services for individuals," and "accommodations, eating and drinking services" in the *Tankan* to look at the price-setting stance of firms that are closely related to household consumption, we see that it has continued on an improving trend within positive territory, albeit at a moderate pace (Chart B7-4). Thus, there are signs that households' tolerance of price rises will increase and firms' stance will shift toward further raising prices, although both have remained cautious. Regarding

Chart B7-3: Households' Tolerance of Price Rises



Sources: Bank of Japan; Cabinet Office.
 Notes: 1. Figures for 2004/Q4 onward are taken from the "Opinion Survey." Figures prior to 2004/Q4 are extrapolated backward using the overall livelihood DI in the "Consumer Confidence Survey."
 2. The average of figures for 2004/Q4 onward is normalized to zero.

Chart B7-4: 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.

⁵ The estimation methods for inflation expectations using economic models include (1) a method based on a model that incorporates learning -- in other words, the impact of people's short-term inflation forecast errors on long-term inflation expectations -- and (2) a method using a state-space model, based on theoretical relationships, for survey data and market indicators. For details, see "The Anchoring of Inflation Expectations in Japan: A Learning-Approach Perspective," *Bank of Japan Working Paper Series*, no.18-E-8; and "Inflation Expectations Curve in Japan," *Bank of Japan Working Paper Series*, no.19-E-6.

⁶ For details, see Box 2 in the July 2018 Outlook Report.

the outlook, it is expected that households' tolerance of price rises will increase steadily and firms' stance gradually will shift toward further raising prices as the employment and income situation is likely to continue improving with the economy maintaining an expanding trend and the output gap remaining positive.

However, there is a possibility that a rise in inflation expectations will be delayed through the adaptive formation mechanism if (1) it takes longer than projected for households' tolerance of price rises to increase and for firms' stance to shift toward further raising prices and (2) actual inflation consequently remains relatively sluggish. Due attention should be paid to this possibility because it could become greater if risks to economic activity materialize and thereby put downward pressure on the output gap in a situation where downside risks concerning overseas economies seem to be increasing.